

Annex D

***Stocktaking Report to Inform the Green State
Development Strategy – Prepared by the University
of Guyana, Faculty of Earth & Environmental
Sciences
October 2, 2018***

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ABBREVIATIONS AND ACRONYMS

AEDP	Agricultural Export Diversification Project
ARC	Agricultural Research Committee
BoG	Bank of Guyana
CARDI	Caribbean Agricultural Research and Development Institute
CARICOM	Caribbean Community
CBD	Caribbean Development Bank
CBET	Competency Based Education and Training
CCCCC	Caribbean Community Climate Change Centre
CCM	Country Coordinating Mechanism
CCS	Country Cooperation Strategy
CDC	Civil Defence Commission
CEO	Chief Education Officer
CFCF	CARICOM Multilateral Clearing Facility
CH&PA	Central Housing and Planning Authority
CHOG	Caribbean Heads of Government
COTED	Council for Trade and Economic Development
CPCE	Cyril Potter College of Education
CRSAP	Climate Resilience Strategy and Action Plan
CSBD	Centre for the Study of Biological Diversity
CSEC	Caribbean Secondary Education Certificate
DCEO	Deputy Chief Education Officer
EEZ	Exclusive Economic Zone
EGs	Expert Groups
ESD	Education for Sustainable Development
FEES	Faculty of Earth and Environmental Sciences
FRMD	Forest Resources Management Division
GAVI	Global Alliance for Vaccines and Immunization

GDP	Gross Domestic Product
GFC	Guyana Forestry Commission
GGMC	Guyana Geology and Mines Commission
GITEP	Guyana Improving Teacher Education Project
GIZ	German Agency for International Cooperation
GLDA	Guyana Livestock Development Authority
GMC	Guyana Marketing Corporation
GoG	Government of Guyana
GRDB	Guyana Rice Development Board
GRPA	Guyana Rice Producers Association
GSDS	Guyana Strategy Development Strategy
GSDSF	Green State Development Strategy Framework
Guysuco	Guyana Sugar Corporation
HDI	Human Development Index
HECI	Hinterland Electrification Company Incorporated
HFLD	High Forest Cover Low Deforestation Rate
IAST	Institute for Applied Science and Technology
ICT	Information and Communication Technology
IDB	Inter-American Development Bank
IICA	Inter-American Institute for Cooperation on Agriculture
IMCI	Integrated Management of Childhood Illnesses
IPM	Integrated Pest Management
ISBE	Inquiry Based Science Education
ISNAR	Netherlands-based International Service for National Agricultural Research
JCCCP	Japan Caribbean Climate Change Partnership
JICA	Japan International Cooperation Agency
LCDS	Low Carbon Development Strategy
MDGS	Millennium Development Goals
MERD	Monitoring, Evaluating, Reporting and Development
MIS	Management Information System

MISU	Management Information System Unit
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOLGRD	Ministry of Local Government and Regional Development
NAREI	National Agricultural Research and Extension Institute (NARI)
NCDs	Non-Communicable Diseases
NCERD	National Centre for Education Resource Development
NCS	National Competitiveness Strategy
NDIA	National Drainage and Irrigation Authority
NDS	National Development Strategy
NICIL	National Industrial and Commercial Investments
NPLs	Non-Performing Loans
NVQ	National Vocational Qualification
OLADE	Latin American Energy Organisation
PLAR	Prior Learning Assessment and Recognition
PMTCT	Prevention of Mother-to-Child Transmission
PPC	Public Procurement Commission
PPE	Personal Protective Equipment
PRSP	Poverty Reduction Strategy Paper
PS	Permanent Secretary
PTCCB	Pesticides and Toxic Chemicals Control Board
RDC	Regional Democratic Council
RDCs	Regional Democratic Councils
RHA	Regional Health Authority
SCCP	Secondary Competency Certificate Programme
SDG	Sustainable Development Goal
SIDS	Small Island Developing State
SIE-LAC	Energy Information System for Latin America and the Caribbean
SSFA	Small-Scale Funding Agreement
TERI	The Energy and Resources Institute

TVET	Technical and Vocational Education and Training
UAEP	Unserved Areas Electrification Programme
UG	University of Guyana
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Education, Science and Culture Organization
UNFAO	United Nations Food and Agricultural Organization
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
VAT	Value-Added Tax
WHO-PAHO	World Health Organization- Pan-American Health Organization
WRI	World Resources Institute

1. BACKGROUND AND METHODOLOGY

1.1 Setting the Context

There is now global recognition of the urgent need for nations to embrace ‘green growth’ to ensure that economic improvement does not jeopardize the environment, and in particular worsen poverty by increased environmental degradation, which in turn, disproportionately affects the poor and more vulnerable in society. According to the World Economic Forum (2015), *development experts, policy makers and institutions such as the World Bank have learned a major lesson: If we want to succeed in ending poverty, growth needs to be inclusive and sustainable*¹.

The UN Environment has been the principal advocate of a ‘green inclusive society’ that is defined as one that enhances human well-being and builds social equity, while reducing environmental risks and scarcities². The general notion is that an inclusive green economy is an alternative to the current dominant economic model, which worsens inequalities, emboldens waste, causes resource scarcities, and generates widespread threats to the environment and human health.³

The Government of Guyana (GoG) has made an unequivocal commitment to a green growth trajectory. His Excellency, President David Granger, as demonstrated by the launch of the Framework of the Guyana Green State Development Strategy (GSDS) and Financing Mechanisms (2017)⁴ over fourteen months ago. The Executive Summary of this document indicates that:

*The Green State Development Strategy will guide Guyana's economic and socio-cultural development over the next 15 years. It will lay His Excellency President David A. Granger and the new coalition Government's principle foundations for inclusive green economic and social growth, provide a roadmap for achieving sustainable development goals and related targets, and outline a long-term vision for a prosperous and equitable future. The objective of the strategy is to reorient and diversify Guyana's economy, reducing reliance on traditional sectors and opening up new sustainable income and investment opportunities in higher value adding and higher growth sectors*⁵.

In light of the afore-mentioned propositions, the University of Guyana (UG) has signed a Small-Scale Funding Agreement (SSFA) for a multi-disciplinary team of academics scholars, to undertake a stocktaking exercise (also referred to as a situation analysis), to support the development of the various GSDS chapters, facilitate mapping of strategies and initiatives, synthesise strategic areas and the

¹ <https://www.weforum.org/agenda/2015/07/why-green-development-is-so-important/>

² <https://www.unenvironment.org/explore-topics/green-economy/why-does-green-economy-matter/what-inclusive-green-economy>

³ *Ibid.*

⁴ This national document has been prepared by the Ministry of the Presidency with the technical and financial support of UN Environment, in close coordination with the UN Country Team, and based on an initial national stakeholder consultation.

⁵ https://motp.gov.gy/images/policies/framework_for_guyana_green_state_development_strategy_final_04_04_17.pdf

development of the GSDS implementation roadmap. Importantly, the analysis will provide the current planning context, situation and environment in Guyana.

It is noteworthy that the GSDS aims to facilitate coherent integration of green economy principles, into relevant new and existing policies, programmes and activities, in particular national development planning processes and strategies, within all relevant sectors identified in the GSDS Framework document.

More specifically, it aims to provide an indicative strategic action plan to address gaps in institutional arrangements, data and information capacities, and other relevant cross-cutting issues across the seven thematic areas of the GSDS. These are: (i) green and inclusive structural transformation, (ii) sustainable management natural resources, (iii) energy- transition towards renewable energy, (iv) resilient infrastructure and spatial development, (v) human development and well-being, (vi) governance and institutional pillars) and (vii) international cooperation, trade and investment.

The findings and discussions will support the various GSDS report chapters including as input reference in various stages of GSDS elaboration, particularly in the mapping of strategies and initiatives (Step 3); synthesizing strategic areas based on GSDS principles (Step 4); and in developing an implementation roadmap (Step 5). The Report also aims to validate and/or reinforce results of deep-dive exercises (i.e. Green Economy Policy Modeling, Green Industry Assessment, Green Jobs Assessment).

Further, this stocktaking report sets out the current baseline assessment made by UN Environment and the investment priorities of the Government. It will specifically provide background information on priority sectors, as identified in the GSDS Framework document and highlights key development constraints, and validates the implementation of government plans and strategies (existing, proposed or approved), past support and experience from development and donor partners over a 20-year period⁶.

1.2 Methodological Approach

A mixed methods approach was adopted for the Stocktaking exercise, with a view to maximizing the efficiency of the data collection process, given that each method has its strengths and limitations. To this end, the methodology includes a combination of desk review, consultations with the GSDS seven Expert Groups (EGs) and the Advisory Committee, focus Group meetings with the private sector, bilateral conversations with other stakeholders, followed by a validation/culminating workshop to the GSDS EGs and Advisory Committee). Below are some specific details:

1.2.1 Desk Review

A series of desk reviews of available and accessible documents was conducted during the period February to June 2018. Consideration has been given to documents that promote green economy transformation and new growth engines and contributed significantly to an enabling framework for the successful implementation of the GSDS (for example, as national policies, strategies, interventions,

⁶SSFA document.

action plans, measures/ initiatives included in the list of references in each of the major Sections of this Report). In each case, the UG-Team examined the content, status of approval, implementation progress, gaps and constraints. All documents consulted are cited in the bibliography.

The UG-Team used a checklist of issues to address those specific questions developed by the UN Environment Team, in response to the former's request for specificity with regard to the Stocktaking Report'. Thus, issues covered include: past and current key institutions and institutional arrangements; established available data systems and information; current policy monitoring and evaluation framework; financial and budgetary structure; capacity within present institutional arrangements; data systems and information; barriers and risks to undertaking and mainstreaming strategies under present institutional arrangements and financial conditions; and strengths, weakness, opportunities and risks of sector institutions, in the context of their meaningful participation and contribution to a SWOT analysis. It is noteworthy that the GSDS Framework was used as the principal point of reference to ensure relevance of issues.

1.2.2 Focus Group Discussions

Three Focus Group discussions were conducted with the Bartica Chamber of Commerce, the Georgetown Chamber of Commerce, and the Linden Chamber of Commerce, respectively, during the period June 5 -7, 2018. The UG-Team underscored the point that the private sector has a critical role to play in a country's Green State Development trajectory, once the incentives are in place to maximize their contribution. Moreover, according to the Organisation for Economic Cooperation and Development (OECD) (n.d), consulting and collaborating with the private sector in developing low carbon and climate resilient strategies, based on sustainable development principles, can help increase their feasibility, as well as proposed market friendly policies, among other things.

Overall Objective: To facilitate a dialogue on the role of the private sector in Guyana's pursuit of a Green State Development trajectory.

Outcomes: The specific outcomes of this participatory method of data collection were identified as follows:

- Details on actions currently undertaken that will support the GSDS.
- Details on gaps, i.e. additional actions that can be undertaken in respect of the role envisaged for the private sector as a key stakeholder in the implementation of the GSDS.
- Perceptions of which policies have worked in the past that enabled more sustainable business or competitiveness (for example, did the National Development Strategy or the Low Carbon Development Strategy support businesses? Why? How? Why not?).
- Opportunities (increase sustainability, lower production cost, promote greater efficiencies etc.) to be created by the GSDS to replicate and/or scale up current activities that support the GSDS. Focus will be given to specific themes: energy, transport, infrastructure, agriculture, etc.
- Specific details on the current enabling environment (policy, incentives, etc.) and any additional interventions considered critical to the full involvement and support of the private sector. What will be your FIVE 'things' that need to be changed/transformed to improve the enabling environment?

The UN GSDS Coordination Office provided feedback on the outcomes, and this allowed for timely addition to the initial ideas.

Figure 1.1 Participants in session at Bartica, Region 7



Figure 1.2: Participants in session in Georgetown, Region 4



Figure 1.3: Participants in session in Linden, Region 10

1.2.3 Face to Face Interviews

The UG-Team also included ‘face to face’ in-depth interviews with selected stakeholders who directly or indirectly develop and implement policies at the sectoral level. Team members were therefore required to develop a list of those officials, and formulate key questions that were used as an Interview Plan⁷. **Appendix 1** provides a collated list of those stakeholders.

1.2.4 Expert Groups and Advisory Committee Meetings

The UG Team also participated (to the extent possible) in a number of EGs and Advisory Committee meetings in order to ensure that, where necessary and practicable, the stocktaking report reflects the concerns, interests and recommendations of stakeholders.

1.2.5 Training

Six members of the UG Team benefited from the training workshop on ‘*Theory of Change*’ that was held May 22-24, 2018 in Georgetown, Guyana. Members were assigned to the different Working Groups during the workshop and were able to contribute meaningfully to discussions on definition of problem, underlying causes, effects, solutions etc. General comments were also made. Moreover, the Team Leader, Dr. Paulette Bynoe, also delivered a short presentation on the Concept the following week to ensure that all members understood its application to their individual assignment. Additionally, the UG Team has access to the Dropbox that contains all reports and documents related to the GSDS.

1.2.6 Outline of Report

Section 1 provides a background on Guyana, including descriptions of its physical, biological and socio-economic profiles, geology/geomorphology, soil types, hydrology, climate and vulnerabilities.

Section 2 outlines macroeconomic trends for Guyana, including economic growth, inflation, unemployment, government debt, private sector credit, exchange rate, balance of payment, and inequality, along with a macroeconomic outlook. The section also presents highlights of previous national development strategies.

Section 3 presents the existing framework for Policy development, regulatory management, and institution building. This section provides assessments of national strategies, implementation, and results for the economic and social sectors (Agriculture, Extractive, Energy, Education, Health, and Housing, Water and Sanitation).

⁷This was provided in the Inception Report.

Section 4 presents cross-sectoral infrastructure development for the GSDS that represent strategic areas for investment. The section provides projections for land tenure, transport infrastructure, and ICT and services.

Section 5 provides a description of infrastructure needs and potential sources of finance for the GSDS. The section identifies financing gaps and capacity, skills and training needs, provides an insight into private sector operations and development, and examines measures to attract private sector investments.

2. A GLIMPSE OF GUYANA

2.1 A Brief Introduction

2.1.1 Physical Profile

The Co-operative Republic of Guyana, a low lying state with an area of 215,000 km² (*land*: 196,850 sq. km *water*: 18,120 sq. km), is located between 1^o and 9^o north latitude and 57^o and 61^o degrees west longitude, and lies along the northeastern coast of South America bounded to the southeast by Suriname, south and southwest; Brazil, northwest; Venezuela and north; the Atlantic Ocean (see Figure 2.1). The Coastline stretches from Playa in the west to the Corentyne River in the East (Daniel, 2001).

Figure 2.1 Location of Guyana within South America

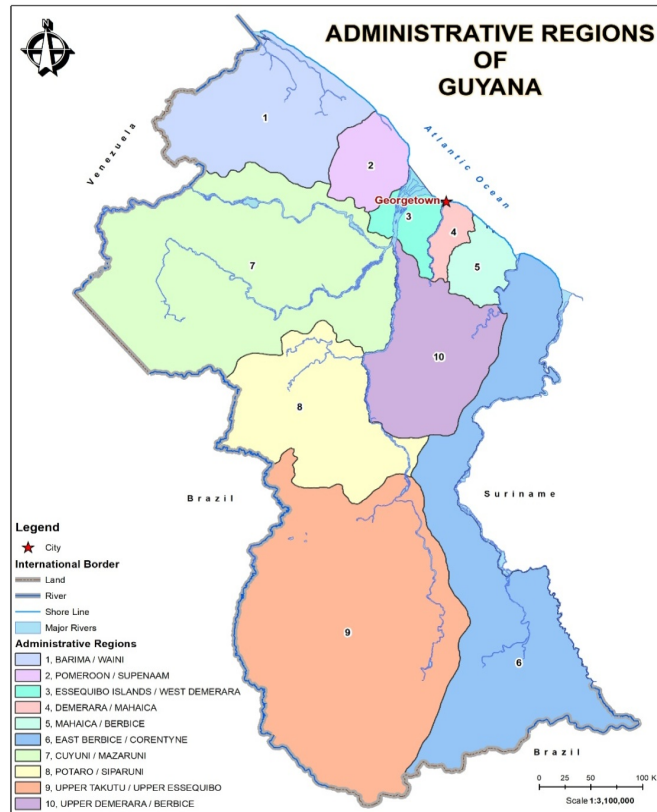


Source: Environmental Protection Agency, 2008

Guyana has ten administrative regions (See Figure 2.2) in the country that are located in two *meso regions*: Coastland and Hinterland regions. The **Coastal plain**, which includes the capital city, represents

the smallest physical geographic area of Guyana, while the **Hinterland region** comprises more than two-thirds of the land area.

Figure 2.2: Administrative Regions of Guyana



Source: CH&PA

2.1.2 Biological Profile

Unarguably, one of Guyana’s most valued natural assets is its rainforests, which cover approximately 85% of the country, contain over 5GtCO₂ in above ground biomass, and are estimated to cover an area of approximately **18.5 million hectares** (The Reference Level for Guyana’s REDD+ Program, 2014). Guyana has a historically low deforestation rate of approximately 0.1% to 0.3% per annum, and as such, is classified as a High Forest Cover Low Deforestation Rate (HFLD) country (NORAD, 2011).

Guyana’s Forest is generally classified into six (6) types excluding the Savannah Grasslands, as follows: Tropical Rainforest, Montane Forest, Swamp & Marsh Forest, Dry Evergreen Forest, Seasonal Forest, and Mangrove Forest. Approximately 12% of the natural vegetation areas is designated as Protected Areas, inclusive of Iwokrama Rainforest and areas allocated to Conservation International and Kaieteur National Park (Agard, Bynoe, & de Souza, 2011).

Guyana’s floral diversity is estimated to include over 8,000 species (inclusive of Ferns, Mosses etc.) with approximately 6,500 of those species identified, and 50% endemic. There are approximately 1,815 known species of fishes, amphibians, birds, reptiles and mammals. Fishes are very diverse, with 352 species of freshwater bony fishes and 501 species of marine fishes (EPA Guyana, 2010; CBD, 2018).

2.1.3 Socio-Economic Profile

According to the latest census (Bureau of Statistics Guyana, June 2014), the population of Guyana in 2012 was 747,884 inhabitants, slightly smaller than the 2002 population (751,223 people). The largest age group falls between ages 15 and 19. Children aged 0 to 15 represent around 36% of the country's population.

In Guyana, approximately 90% of the population resides on the 459 km coastal strip that is approximately 1.5m below the mean high tide level of the Atlantic Ocean. This densely populated area has the highest agricultural, infrastructural and communicated network development. Sea level is expected to rise 40 cm for Guyana by the end of the 21st century (CRSAP, 2014), and repeatedly experiences flooding from the Atlantic Ocean during the rainy seasons. The remaining 10% of the population inhabits the hinterland that is relatively inaccessible, but provides the natural resources for most mining, logging and subsistence agricultural activities.

Guyana remains traditionally an agricultural and resource-based economy in terms of its production base with increasing prospects in future expected oil production and an expanding service sector. Guyana relies heavily on production and trade of cash crops, fish, sugar cane, rice, and extractive industries such as logging, bauxite, gold, diamond etc.

Moreover, Guyana is considered a medium human development country. In UNDP's Human Development Report of 2014 (UNDP, 2014), the country's value for HDI was 0.638, ranking Guyana in position 121 among 187 countries. Despite the fact that the latest value shows an improvement of 0.87% when compared to the value in 2000, the country has been stagnated in the same ranking position since 2008. Further, the 2016 State of the Environment Report notes that the proportion of people living in extreme poverty in Guyana fell from 28.7 per cent to 18.6 per cent between 1993 and 2006, and that during the same period, the percentage of people living in moderate poverty fell from 43.2% to 36.1%. Further, poverty in the rural interior is significantly higher than in the rest of the country. While the incidence of poverty has declined since 1999, it remains particularly marked among Amerindian and rural interior populations, children and young people below 25 years old (National Health Strategy for Guyana 2013-2020, 2013).

2.1.4 Geology/Geomorphology

The landscape of Guyana is influenced by a variety of rock types, varying from crystalline basement complex rocks formed during the Precambrian era to recent sediment formation, with the basement complex rock forming part of the Guiana Shield (Daniel, 2001). Geologically, Guyana is part of the Guiana Shield, which spans across the countries of Guyana, French Guiana, Suriname, and sections of Venezuela and Brazil.

Guyana is richly endowed with mineral resources wherein most of the country's mineral wealth lies in the forest zone. Geologically, in addition to the mineral wealth, Guyana in recent years has discovered large petroleum deposits within the seabed of our ocean waters. This has opened up new expanding opportunities in the extractive and productive industries.

The country has four (4) geomorphological regions according to (Daniel, 2001), which are closely related to the geological divisions of Guyana. The geomorphological regions are the Coastal Plain underlain by the corentyne Group of rocks, the Sandy Rolling Land underlain by the Berbice Formation/White Sand

Formation, the Pakaraima Mountain Region underlain by sandstones and shale from the Roriama formation, and the Pre-Cambrian Lowlands, which is mostly under tropical forest.

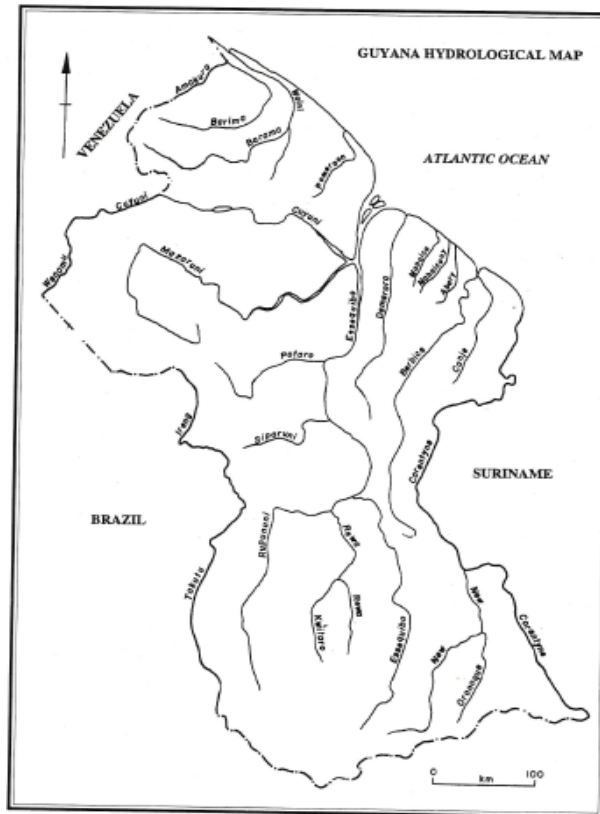
2.1.5 Soils

Soil types found in Guyana are generally classified as follows: the Coastal area consists of Clay, Sandy and Alluvial soils, while well drained soil consist of Regosols soils (aka White Sand). According to Daniel (2001), other soils found in Guyana are groundwater Laterite soils, Peat soils (poorly drained areas), Lithosols soil (mountain region), and Latosols (reddish brown), which occur in most parts.

2.1.6 Hydrology

In local Amerindian dialect, the word Guiana means “land of many waters”, with the rivers of Guyana generally flowing in a northerly direction towards the Atlantic Ocean (Daniel, 2001). This is clearly depicted by the Hydrological features in Figure 2.3. The Essequibo, Demerara, Berbice, and Corentyne Rivers form the country’s largest rivers.

Figure 2.3: Guyana Hydrological Map



Source: (Daniel, 2001)

2.1.7 Climate

Guyana enjoys a Tropical Humid Climate, characterised by consistently high rainfall, humidity and temperatures. The rainfall pattern in Guyana is influenced by the movement of the Inter-Tropical Convergence Zone (ITCZ). Tropical heat and humidity are influenced by northeasterly winds from the Atlantic Ocean. Notably, Guyana’s climate is also influenced by the effects of the El-Niño (higher temperatures) and La Niña (higher precipitation) phenomena.

According to Ministry of the Presidency (2015), temperatures in Guyana vary geographically with high altitude regions experiencing cooler temperatures than the coastal, lowland and savannah zones. Mean air temperatures in the upland regions and the interior (west) side of the country are between 20°C to 23°C. Mean air temperatures across the rest of the country are from 25°C to 27.5°C, reaching as high as 31°C, due to the stabilizing effect of the sea and the north-easterly trade winds.

Precipitation patterns are generally associated with two distinct wet seasons (April to July) and (November to January) and two dry seasons. On the contrary, Guyana's savannah experiences one wet season and a longer dry season.

2.1.8 Vulnerabilities

Due to its coastal vulnerability, among other factors, Guyana is also considered a Small Island Developing State (SIDS). As in the case of other SIDS, Guyana also faces special disadvantages associated with small size, insularity, remoteness and susceptibility to natural disasters. These factors render the economies of these states highly vulnerable to forces outside their control – a condition that sometimes threatens their economic viability (Smirnov, 2014).

Guyana is highly vulnerable to climate change and rising sea levels, and a number of threats can potentially result. Particularly at risk are the disruption to Guyana's ecosystem, destruction of infrastructure and human settlement, land degradation, erosion and flooding. Nevertheless, despite these possible threats on the state of Guyana's environment, they can be averted, prevented or reduced through pro-active measures. Such measures take into consideration policy development frameworks (e.g. Green State Development Strategy), technological advancement (e.g. green technologies), implementation (e.g. disaster risk management) and monitoring.

2.2 Key Development Trends and Issues

This section reviews the macroeconomic assessment of Guyana, including economic growth, inflation, unemployment, government debt, exchange rate, balance of payment, and inequality, along with a macroeconomic projection for the country. The section concludes with highlights of previous national development strategies.

2.2.1 Macroeconomic Assessment and Outlook (Summary)

The macroeconomic assessment was completed using eight (8) macroeconomic metrics: (i) economic growth, (ii) inflation, (iii) unemployment, (iv) government debt, (v) private sector credit (vi) stable exchange rate, (vii) balance of payment and (viii) inequality. It concludes with a macroeconomic outlook for Guyana.

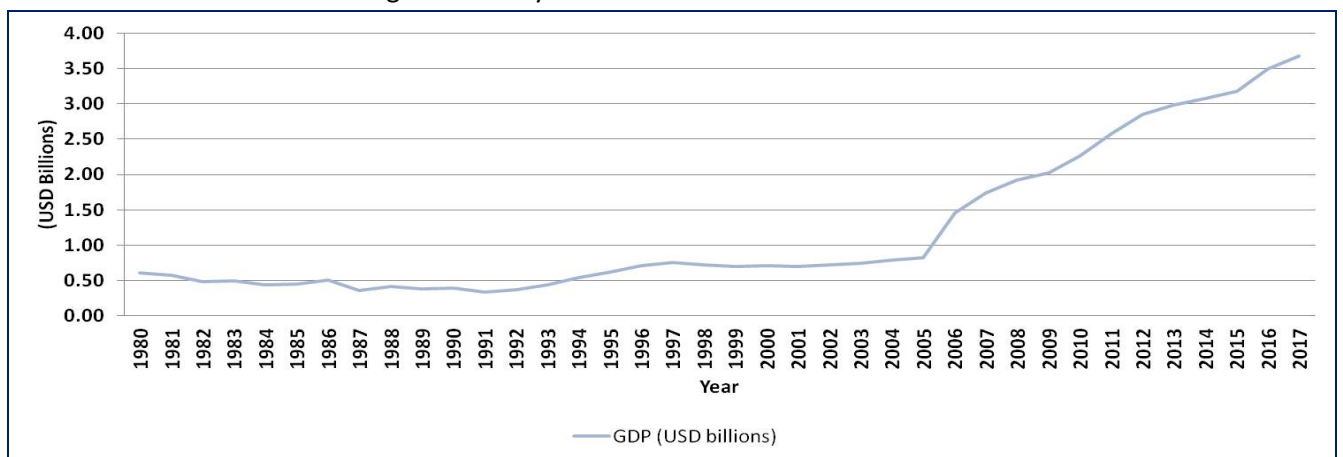
Economic Growth

The economy grew at an average 3% annually between 2015 and 2017, largely driven by growth in sugar and construction industries and recovery in gold exports (IMF 2018). Since 2002, GDP has grown steadily, with a recorded GDP of approximately USD 3.68 billion in 2017 (Figure 2.4), with a per capita

GDP of USD 3,871.39. The 2018 forecast places GDP at USD 3.75 billion with a per capita GDP of USD 3,920 (Trading Economics, 2018). Guyana relies on a narrow production base, primarily agriculture (sugar and rice) and extractive industries (such as logging, gold, and bauxite mining), which are the main foreign exchange earners. In terms of the sector contribution to real GDP, agriculture contributed 16.6% in 2017, followed by mining at 13.7% for the same period. Manufacturing stood at 6.6%. However, expanding activities in the services sector, including increased wholesale and retail trade, transportation and storage, public administration, information and communication, education, health and social services, real estate activities and other services, accounted for 53.6 % of real GDP at the end of 2017 (Bank of Guyana, 2018).

In 2017, weaker than anticipated performances in the mining, quarrying, and construction sectors, as well as sugar and livestock, led to an adjusted growth of 2.1 %, lower than the projected growth of 2.9 % from the National Budget Speech 2018. In 2018, growth is projected at 3.4%, driven by continued strength in the construction and rice sectors, and a recovery in gold mining (International Monetary Fund, 2018).

Figure 2.4: Guyana’s GDP from 1980 to 2017



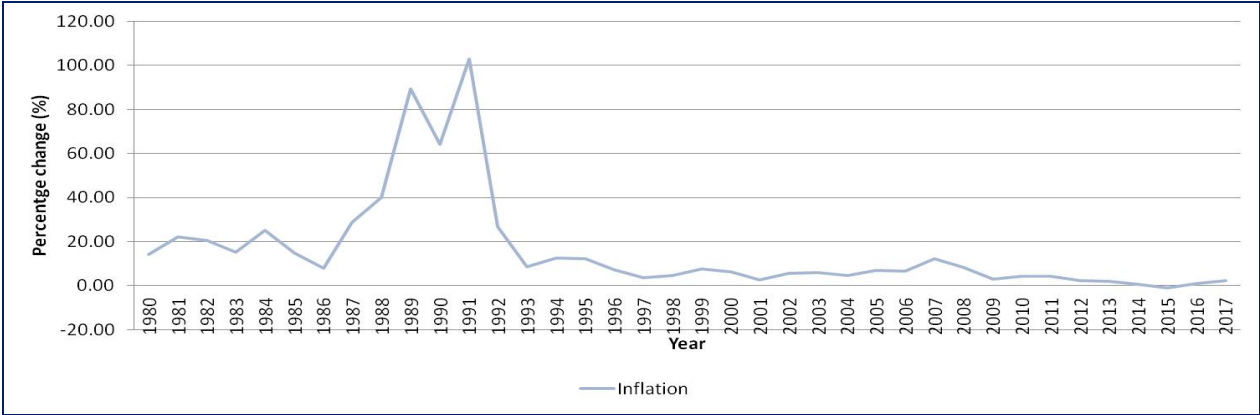
Source data: World Bank (2018a)

Inflation Rate

During the mid-1980s to early 1990s, Guyana’s economy declined, recording its highest inflation rate of 103.1% in 1991. This jump in inflation rate resulted from a collapse of the oil market in 1983. As a result, there was a devaluation of the local currency and an increase in public expenditure. However, there was little success with the devaluation of the currency because of a fixed exchange rate system. In 1991, the Government of Guyana adopted a floating exchange rate that resulted in a continuous stabilized inflation rate, as shown in Figure 2.3. In 1995, the inflation index was at 12.2%, but slowed to less than 8% over the following 11 years, until 2007 when it increased to 12.2%. Inflation has remained subdued post 2012; and continued to remain low at 2.1% in 2017. Reflecting low inflationary expectations, interest rates also declined throughout the remainder of 2017 (Bank of Guyana, 2018). From an

investment standpoint, this could lead to a likely shift in the demand for government bonds, relative to other assets.

Figure 2.5: Guyana’s inflation rate from 1980 to 2017

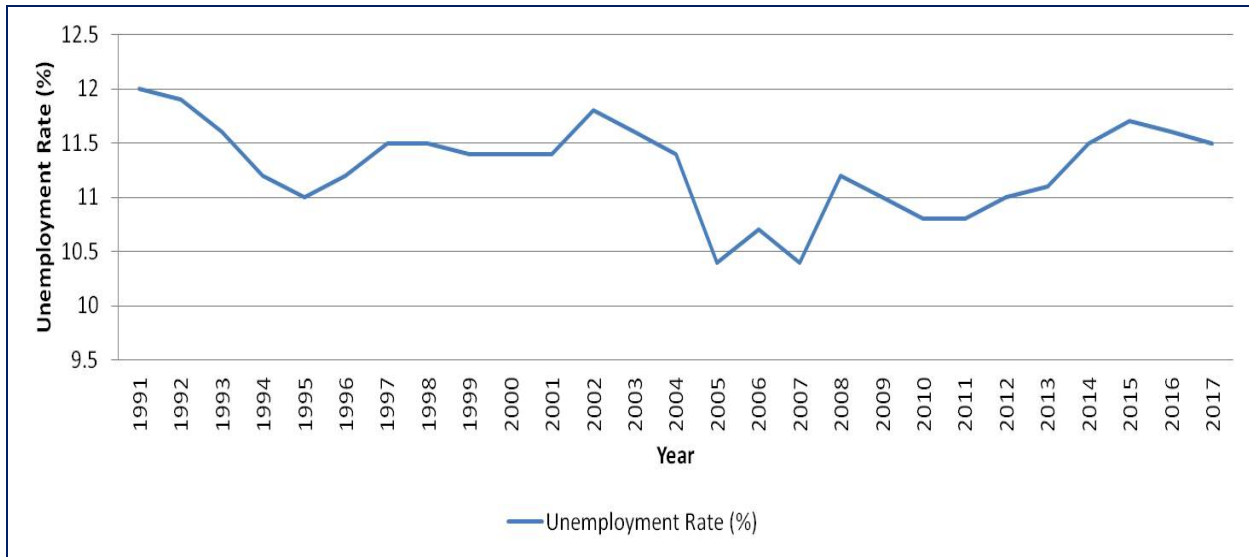


Source data: Knoema World Data Atlas (2018)

Unemployment Rate

The achievement of Sustainable Development Goal (SDG) 8 - Promotion of inclusive and sustainable economic growth, employment and decent work for all - must be realised by 2030 (United Nations, 2018). Guyana’s average unemployment rate during the period 1991 to 2017 was 11.28% (percentage of total labour force available for and seeking employment) with a minimum of 10.4 % in 2005 and a maximum of 12 % in 1991, as shown in Figure 2.6. There was a sustained rate of over 10% unemployment in Guyana from 1991 to 2017.

Figure 2.6: Guyana’s unemployment rate from 1991 to 2017

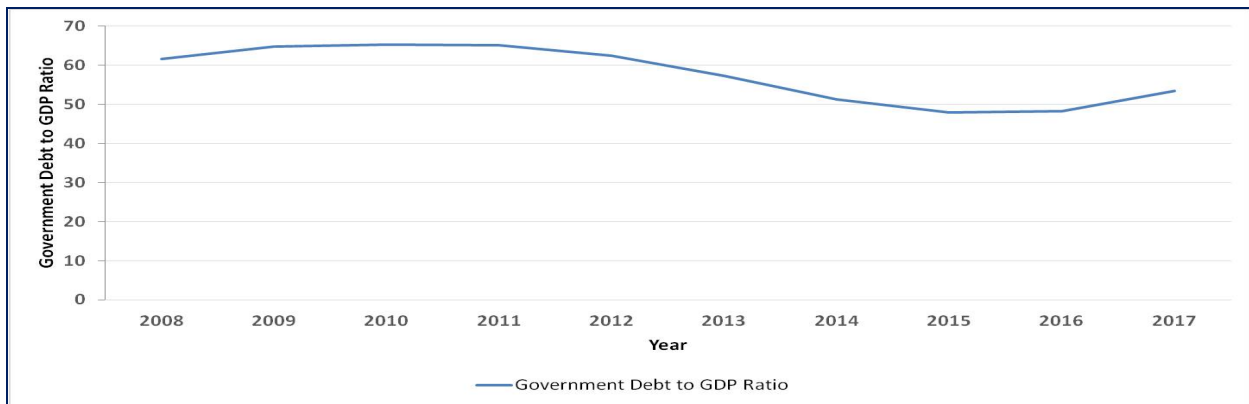


Source data: World Bank (2018d)

Government Borrowing

Guyana has had a long history of external debt, which diverts government spending from the local economy, to service the debt. However, debt sustainability suggests that Guyana’s external debt remains sustainable (Ministry of Finance, 2016). Public debt to GDP ratio averaged 58% from 2008 to 2017 with a low of 48% in 2015 and a high of 65.3 in 2010, as shown in Figure 2.7 (Bank of Guyana, 2018).

Figure 2.7: Guyana’s debt to GDP ratio 2008 to 2017



Source: Bank of Guyana Statistical Bulletin (2018).

Government of Guyana has used several strategies to reduce foreign debt, including servicing the debt, seeking highly concessional terms on loans, broadening the tax base and improving attempts to collect tax revenues. The introduction of value-added tax (VAT) and other fiscal policies has led to increased revenue collection. Guyana’s macroeconomic performance also improved through debt relief

agreements under the Heavily Indebted Poor Countries Initiative (HIPC) and related Multilateral Debt Relief Initiative (MDRI) (World Bank Group, 2018b). In 2017, total debt relief was USD \$76.7 million (USD \$50.8 under HIPC and USD \$25.9% under MDRI) (Bank of Guyana, 2018).

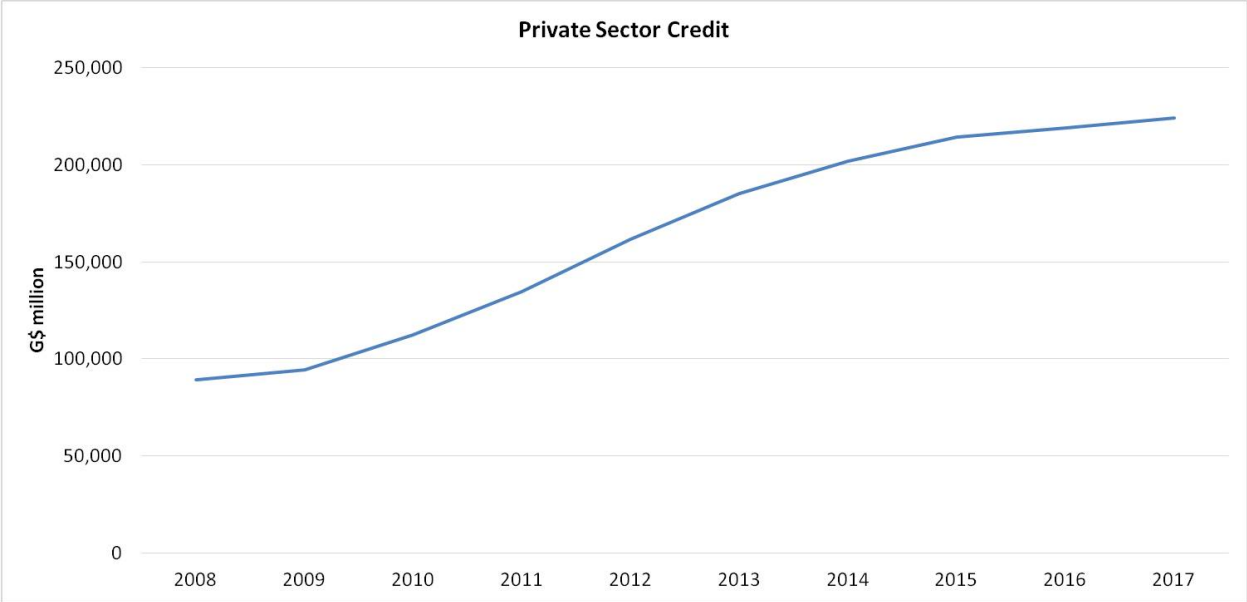
However, Guyana saw a reduction in concessional financing after being classified an upper middle-income country by the World Bank. The country sought alternative sources of financing from EXIM Bank of China, EXIM Bank of India, the Mexican Agency for International Cooperation and Development, and the Islamic Development Bank. Debt relief was negotiated with Russia, Bulgaria and the CARICOM Multilateral Clearing Facility (CMCF) (Ministry of Finance, 2016).

Overall, by mid-2017, financing improved because of central government surplus. Capital revenue increased from grant flows, project grants and non-project grants and current account revenues increased from taxes and other non-tax revenues such as rents and royalties, while capital expenditure was a result of capital projects in construction, power generation, and current expenditure, related to subsidies and contributions to local and international organizations. However, domestic and external debt increased because of increase in debentures, disbursements from bilateral and multilateral lending agencies and principal and interest repayment to these agencies such as China EximBank, Inter-American Development Bank, and the International Development Association (Bank of Guyana (2017b)).

Private Sector Credit

Private sector credit steadily grew during 2008 to 2017 at an annual average of 11%. There were notable increases during 2010 to 2013. Despite a decrease during 2008 to 2010, the level of non-performing loans deteriorated during the period 2011 to 2016 as shown in Figure 2.8. There was also a slight reduction in non-performing loans in 2017. The services sector accounted for the largest share of non-performing loans, averaging 33% over the 10 years. In addition, the households and manufacturing accounted for 30% and 24% of non-performing loans respectively. Non-performing loans for the agriculture sector experienced a steady rise from 2012, reflecting the movement in global community prices of sugar and rice.

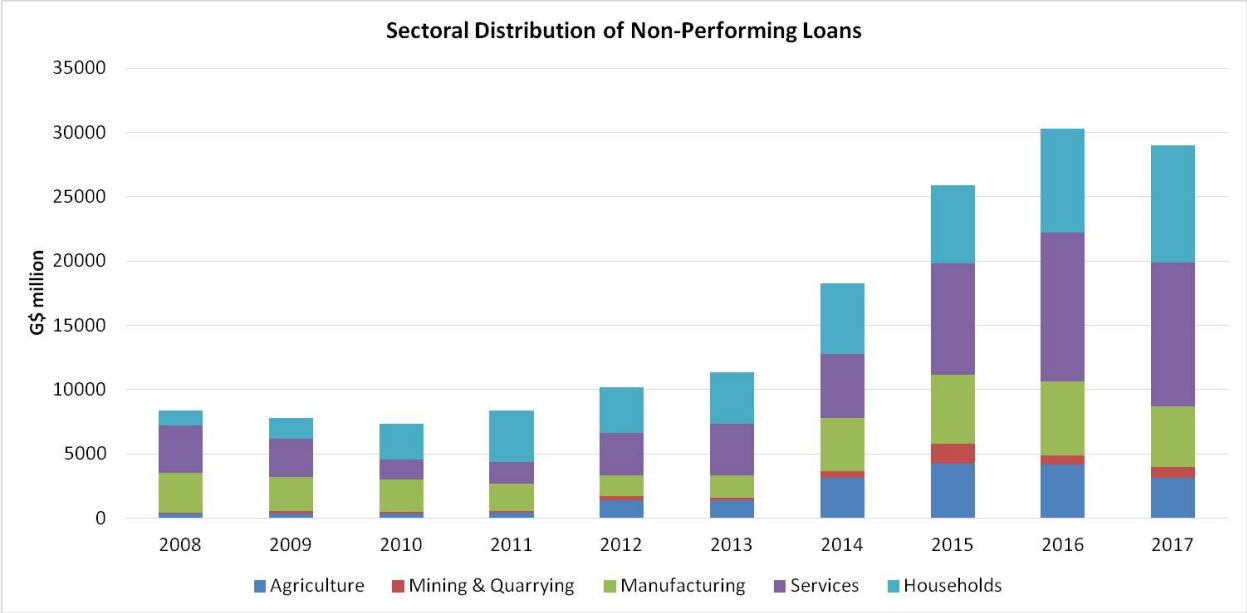
Figure 2.8: Guyana's Private Sector Credit 2008 to 2017



Source data: Bank of Guyana Annual Reports, 2008-2017

However, non-performing loans (NPLs) remain high at 12.2% of total loans at end-2017, down from 12.9% at end-2016 (IMF 2018). The high NPLs are attributed to underperforming sectors, slow execution of fiscal projects, and dampened consumer and private sector confidence in doing business in Guyana (Bank of Guyana, 2018). Figure 2.9 shows the distribution of non-performing loans by sector. In 2017, non-performing loans to the households sector increased by 128 percent from 2016. There were decreases in NPLs in the business enterprise sector by 10.6 percent attributed to decreases in the agriculture, manufacturing and services sub-sectors of 25.2 percent, 19.5 percent and 3.6 percent respectively. The sub-sectors with the highest concentration of non-performing loans were (i) construction and engineering accounting for 65.5 percent of manufacturing sector; (ii) distribution (wholesale and retail trade) accounting for 48.9 percent of services sector; and (iii) sugar cane accounting for 46.3 percent of agriculture sector. The housing (including purchase of land and real estate) sub-sector accounted for 61.9 percent of NPLs in the households sector (Bank of Guyana, 2018).

Figure 2.9: Sectoral Distribution of Non-performing loans 2008 to 2017



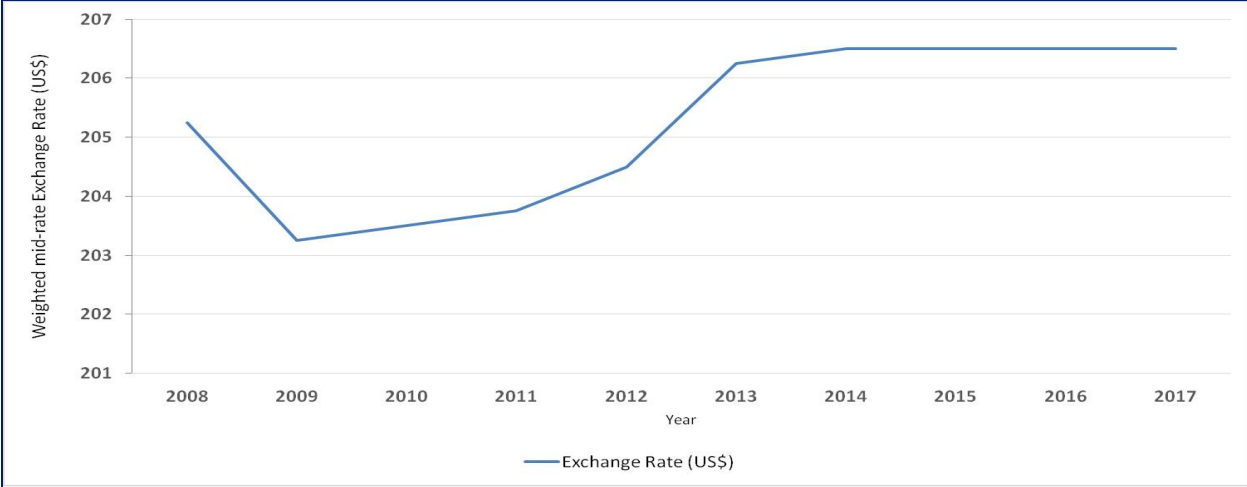
Source data: Bank of Guyana Annual Reports, 2008-2017

Stable Exchange Rate

The average of the Guyana dollar weighted mid-rate exchange rate has remained relatively stable between \$203 to less than \$207 from 2008 to 2017 as shown in Figure 2.10. The average of the Guyana dollar weighted mid-rate remained stable at G\$206.50 in 2017 (Bank of Guyana, 2018).

Guyana’s foreign exchange market reflected uncertainty and a steady depreciation from 2015 to first quarter 2017. This led to distortions in trade, investments and balance of payments as well as disturbances in domestic economic activity. The Central Bank intervened by limiting the bid-ask spread that local banks could charge and stopped buying some regional currencies (International Monetary Fund, 2017).

Figure 2.10: Guyana’s weighted mid-rate exchange rate 2008 to 2017 (US\$)

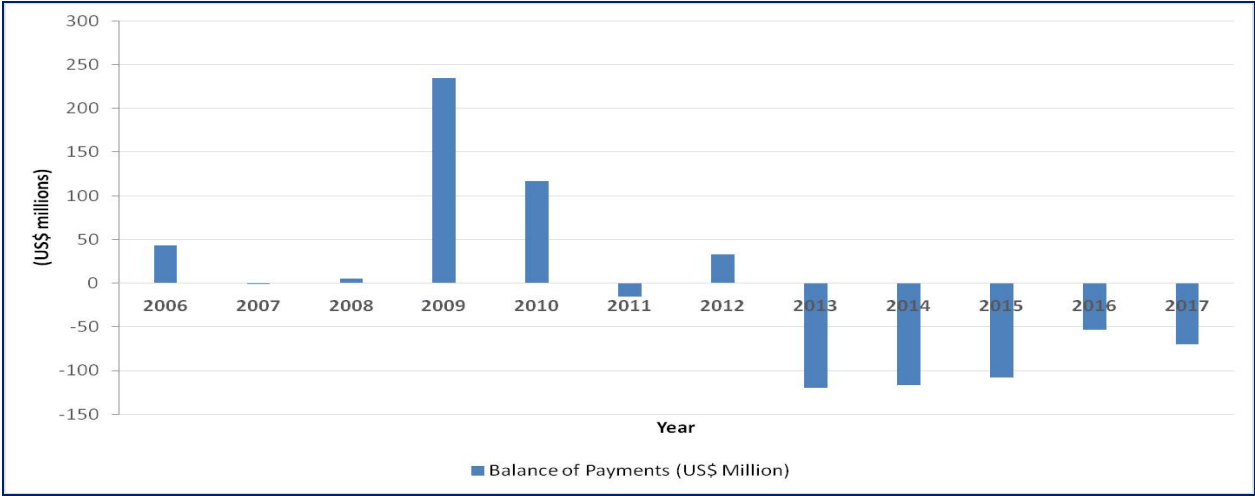


Source data: Bank of Guyana Statistical Bulletin (2017b)

Balance of Payments

During the period 2006 to 2017, Guyana experienced both deficits and surplus with the highest surplus being US\$234.5 million in 2009 and the highest deficit of US\$119.5 million in 2013 as shown in Figure 2.11. Guyana has experienced a trend of having surpluses followed by deficits. This trend changed, as there was a recorded deficit within the period 2013 to 2017 attributed to increased imports and decreased exports during the period.

Figure 2.11: Guyana’s Balance of Payments 2005 to 2017



Source data: Bank of Guyana Annual Report (2017)

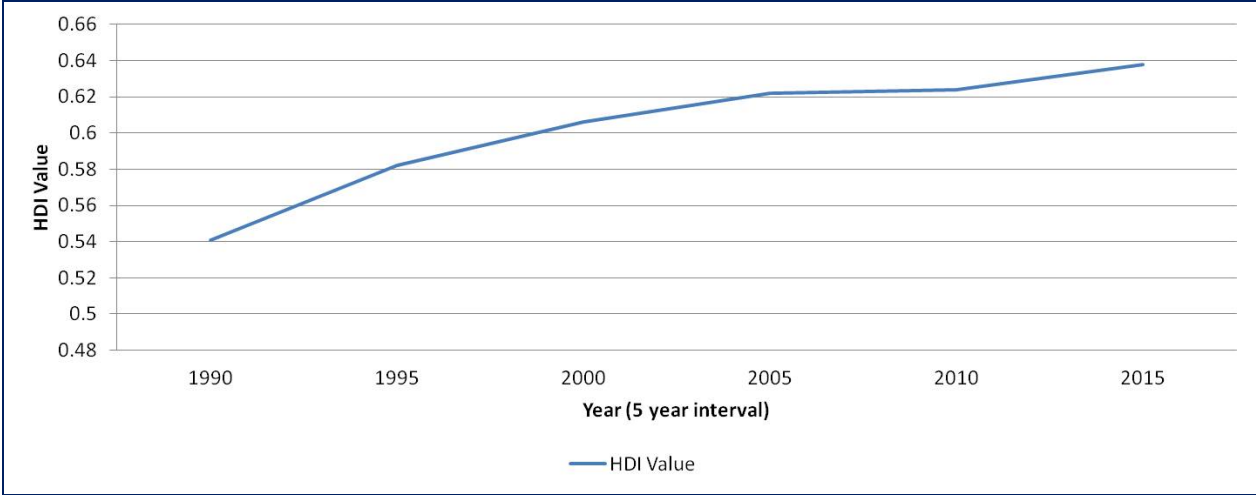
The overall balance of payments recorded a deficit of USD 69.5 million in 2017, compared to USD 53.3 million in 2016. The overall balance of payments has improved during 2015-2017 with a 25% reduction during this period. The current account recorded a deficit of 6.7% of GDP from a 0.4 % surplus in 2016. That deficit was largely financed by FDI inflows, particularly in the oil and gas sector, and higher disbursements to the public sector. The 2017 balance of payments deficit was financed by exceptional financing of USD 1.9 million in debt relief and USD 55.6 million on debt forgiveness, along with a drawdown of USD 12.1 million in net foreign assets of the Bank of Guyana (Ministry of Finance, 2017; Ministry of Finance, 2018a).

The balance of payments deficit is expected to be USD 79.7 million in 2018, an increase of 15% from 2017. This increase is driven by an expansion of the current account deficit to US\$292.6 million, from US\$235 million in 2017, due to a widening of the merchandise trade deficit. Imports are projected to increase at a higher rate than exports, with growth in each projected to be 5.7 % and 0.8 %, respectively (Ministry of Finance, 2017). Further, capital expenditure will increase as the sugar sector is restructured and other infrastructure-related investments are made, but the deficit is projected to decline as more FDI inflows in oil and gas sector and donor-supported investments are made. However, capital expenditure to unproductive and inefficient public enterprises is not efficient and dampens effective economic growth. Government of Guyana proposes to set up a Sovereign Wealth Fund. However, appropriate mechanisms should be developed to manage the fund, including policies governing deposits, withdrawals, governance and transparency.

Inequality

Guyana’s HDI value from 1990 to 2015 shows an increasing trend over the years above 0.5, shown in Figure 2.12. Guyana is currently in the medium human development category as it progresses in three basic dimensions of human development: a long and healthy life, access to knowledge, and a decent standard of living (UNDP, 2016).

Figure 2.12: Guyana’s HDI trends based on consistent time series data 1990 to 2015



Source data: UNDP Human Development Index Report (2016)

According to the 2011 Poverty Reduction Strategy Paper, 36.1% of the population in the country was living in poverty, including 18.6% that were living in extreme poverty. The Indigenous peoples continued to exhibit the highest poverty level in Guyana (UNICEF, 2017).

The monetary poverty rates in 2006 for Regions 1, 7, 8 and 9 (regions with the highest proportion of Indigenous populations) are two to three times higher than the national average. The poverty rates for those regions in 2006 were 80%, 61%, 94% and 74%, respectively. Secondly, in the rural hinterlands where most of the Indigenous population lives, poverty rate in 2006 was 74% and extreme poverty was 54%, in comparison to urban coastal where the rates were 19% and 7%, respectively. The 2014 Multiple Indicator Cluster Survey (MICS) supported this observation and indicated that 62% of the people living in the hinterlands of the country could be categorised as poor (living in the bottom 20 percent) (UNICEF, 2017).

However, it should be noted that other factors, such as the subsistence lifestyle and access to natural capital, are not considered in these conclusions and some Indigenous people do not perceive themselves as being poor. Nevertheless, they are also less likely to access social services and are impacted by the effects of environmental degradation and climate change on their health and well-being (UNICEF, 2017).

Macroeconomic Outlook

Guyana's near term outlook is favorable; GDP is expected to grow by 3.5 % average 2017 to 2019, driven by increases in the production of rice and manufactured goods, construction activities and other services (World Bank Group, 2018c; Bank of Guyana, 2017b). However, moderate to high inflation can affect economic performance and distort investments and consumption decisions, especially among low-income earners.

Exports are projected to rise in 2018, as both production and commodity prices are expected to rise, with gold receipts projected to continue to strengthen. Gold, timber and other exports, which account for nearly 78 % of all exports, will record an increase in export earnings. Growth in merchandise imports is forecasted at 5.7 % driven primarily by non-petroleum imports. The capital account surplus will increase marginally to US\$212.9 million, on account of higher net inflows to the private sector in the form of foreign direct investment which will be further driven by expansion of activities in the petroleum industry (Ministry of Finance, 2017).

Gross reserves of the Bank of Guyana stood at 3.2 months of import cover in 2017, and it is anticipated to remain around that level in 2018-2019. Foreign direct investment inflows reached USD 212.2 million in 2017, which resulted in a surplus in the capital account of USD 228 million, compared to the deficit of USD 13.2 million in 2016. Projected foreign direct investment, particularly in the oil and gas sector, is expected to drive the USD 145.2 million increase in private sector medium and long-term capital (Ministry of Finance, 2017; Ministry of Finance, 2018a).

Net domestic credit of the banking system increased by 9.9 % in 2017 compared to 2016. This growth was due to increases in credit to both public and private sectors. Credit to all the sectors increased with the exception of the manufacturing, construction and engineering and the other category of the private sector. Commercial banks remained well capitalised through the end of 2017, with the liquid assets of commercial banks amounting to GYD 111.9 billion (Ministry of Finance, 2017; Ministry of Finance, 2018a).

Although declining from 70.3 % in 2012, private consumption as a percentage of Gross Domestic Expenditure accounted for more than half (56.8 %) in 2017. On the other hand, public consumption as a percentage of Gross Domestic Expenditure increased from 10.3 % in 2012 to 16.7 % in 2017 (Ministry of Finance, 2017).

Central Government expenditure is expected to increase by 6 % to GYD 256.8 billion, compared to GYD 242.3 billion in 2017. Recurrent expenditure is anticipated to grow to GYD 197.1 billion in the coming year, an increase of 7.1 %. This will be driven by an 8.6 % increase in personal emoluments, to GYD 59 billion; a 6.5 % increase in transfer payments, to GYD 76.7 billion; and an 8.3 % increase in interest payments, to GYD 8.7 billion. Capital expenditures are budgeted to rise by 2.7 %, to GYD 59.7 billion (Ministry of Finance, 2017).

For 2018, total revenue is budgeted at GYD 201.9 billion, compared to in 2017. This is mainly driven by a projected rise in tax revenue by 7.3 %. Non-tax revenue is expected to decline by 13.1 % to GYD 20.5 billion, as a result of a decline in transfers from statutory bodies by GYD 3.8 billion (Ministry of Finance, 2017).

Overall, fiscal deficit of GYD 49.6 billion compared with GYD 39.4 billion in 2016 and budgeted amount of GYD 54.9 billion. The central government deficit was 4.5 % of GDP, lower than the budgeted 5.6 %. This was largely supported by higher revenue arising from improvements in tax administration. In 2018, the deficit is projected to widen to 5.4 % of GDP due to the cost of restructuring the sugar industry, including severance payments to displaced workers, as well as an increase in infrastructure related capital expenditure (Ministry of Finance, 2017).

The total stock of public debt is projected to increase marginally, from USD 1.60 billion, in 2016, to USD 1.66 billion in 2017. This corresponds to a further declining total public debt-to-GDP ratio of 45.2% in 2017, relative to 45.7%, at the end of 2016 (Ministry of Finance, 2017).

Unpredictable oil market prices, commodity prices, climate change, and financial stability require the economy to be more resilient and diversified to withstand external shocks (Ministry of Finance, 2017). However, macroeconomic stability is constrained by lack of economic diversification, which leaves key sectors vulnerable to external shocks such as the Guyana Sugar Corporation. In 2018, the government will aim to strengthen analytical capabilities to determine the macroeconomic effects of various policies and interventions to better guide development of the Green State Development Strategy (GSDS).

The IMF highlighted that short-term financing needs should be carefully managed and supported the Government's prudence towards private external borrowing. Additionally, recommendations were made to settle government balances at the Bank of Guyana, rely to the extent possible on Development Banks, including non-concessional financing, and to follow-up on their plans to develop the domestic bond market (Ministry of Finance, 2018).

The IMF also recommended moderating spending increases and the consideration of an expenditure review, which could provide opportunities for safety net reform and more effective action on inclusive growth. In addition, reforms to modernize revenue administration and strengthen public financial management capacity ahead of oil production remain critical near-term priorities (Ministry of Finance, 2018).

The Public Investment Management Assessment (PIMA), which was completed in 2017, serves as the backbone for systemic reforms to the way Government undertakes capital investments. Having successfully developed a draft PIMA Action Plan that seeks to address the areas of deficiency within the Public Sector Investment Programme (PSIP), preliminary work on overhauling public investment management has begun. For Budget 2019, the Government has instituted a pre-appraisal mechanism for proposed new investments to be screened for vital markers such as readiness, strategic alignment, articulation of intended outcomes and impacts and adequate justifications. This is to ensure investments are well thought-out to reduce implementation delays and maximize value for money and social outcomes (Ministry of Finance, 2018).

Capital projects are usually delayed, over budgeted, or of sub-standard quality. Procurement is another area being addressed through strengthening of the procurement legislation and training on procurement planning and spend analysis. Government will be setting up an e-Procurement platform

where all contractors will be registered, a register of procurement evaluators will be established and past performance will be considered before debarment. Additionally, to improve operations, Government is looking to review the Chart of Accounts, implement the Treasury Single Account and adopt International Public Sector Accounting Standards (Ministry of Finance, 2018).

More planning should be made to fiscal incentives, which are planned but not necessarily realized due to lengthy and/or bureaucratic process involved in implementation by the Guyana Revenue Authority. It is imperative that government not only plan fiscal initiatives but to have an implementation plan ready to roll out. Nevertheless, the government continues to look at its fiscal incentives aimed at achieving the Green State agenda. The Government, through public financing, has implemented a Renewable Energy and Energy Efficiency Programme for Public Buildings. Government buildings, including ministries, schools, and health centres, are being outfitted with solar photovoltaic panels, to reduce Government's dependence on the national grid. To date 70 buildings have been equipped with such panels, resulting in a 1.86 gigawatt of power savings. In 2018, another 74 buildings will be retrofitted. For the energy efficiency programme, 10,427 LED lamps and 3,766 motion-sensors have been installed in 46 buildings. In 2018, an additional 10,610 lamps and 1,486 motion sensors will be installed. In addition, the construction of Guyana's first ever solar farm in Mabaruma, Region 1 is expected to become operational in 2018.

In 2018, real GDP growth is projected at 3.8%, with non-sugar growth rate anticipated to be 4.6%. Growth is expected across all sectors, with the exception of sugar (Ministry of Finance, 2017). Building on the performance in 2017, the rice industry is expected to expand to 617,353 tonnes, an increase of 2.5%. The other crops subsector is anticipated to grow by 2.3%, as diversification efforts continue and productivity gains are made. The forestry subsector is expected to grow by 8 % to 320,760 cubic metres, as the reallocation of concessions continue, new concessionaires establish operations, and stimulus measures are put in place in 2018. The livestock and fishing subsectors are projected to grow by 2% and 2.3%, respectively, driven by consumer demand (Ministry of Finance, 2017).

On the other hand, sugar production is expected to contract by 24% to 115,447 tonnes. Overall, the agriculture, fishing, and forestry sector is anticipated to contract in 2018 by 0.7%, largely due to the challenges facing the sugar industry (Ministry of Finance, 2017).

The mining and quarrying sector is projected to rebound in 2018, expanding by 5%. This growth will be driven by the bauxite, gold, and quarrying industries. The bauxite industry is projected to produce 1,897,205 tonnes, resulting in an increase of 23.3%. Gold declaration is budgeted at 736,000 ounces, an improvement of 3.3%, because of favourable prices, as well as measures by regulatory bodies to improve recovery rates and ensure compliance. Other mining is anticipated to grow by 3.8%, premised on increased activity in the construction sector (Ministry of Finance, 2017).

In addition, there is no anticipated change in the overall growth of the manufacturing sector. Although rice and other manufacturing is projected to expand in 2018 by 2.5% and 2.4% respectively, the decline of the sugar industry will curtail growth within the sector (Ministry of Finance, 2017).

Moreover, growth in the construction sector is targeted at 15%, contingent on an improved implementation rate of the Public Sector Investment Programme (PSIP) and expansion in the housing sector. Additionally, the services sector is projected to grow by 3%. All categories of services are expected to rise, with significant growth of the transportation and storage, information and communication, and education subsectors (Ministry of Finance, 2017).

According to the International Monetary Fund (2018), oil production in 2020 will bring higher fiscal revenue, improved balance of payment, decrease public debt, value added production and export diversification, decrease energy costs through accessing natural gas for cleaner and more affordable energy, and support other activities. However, there is risk that this could lead to real exchange rate appreciation, eroding competitiveness in some sectors. Therefore, regulatory and administrative measures should aim to reduce the relatively high costs of doing business in Guyana. The IMF also highlighted the economics and social disparities between coast and hinterland and highlighted the need for training of displaced workers in the sugar sector as well as short-term economic and social costs as a counter to the restructuring.

Government of Guyana has begun to address some of the issues using a carrot and stick approach. A draft local content policy ('stick'), seeks to ensure the education, inclusion, and advancement of as many Guyanese as possible in the value chain of the oil and gas industry. Local content is "the sum of inputs of local goods and services including employment across the oil and gas value chain" (Ministry of Natural Resources, 2018), with considerable focus being placed on capacity development, local content and value added in order to maximize benefits and retain value from Guyana's petroleum resources. In addition, there was a signing bonus, royalty, rental fees, training funding and funds allocated to social and environmental programmes. However, this is balanced by investment incentives ('carrot') including no tax, value-added tax, excise tax, and any other duties, taxes, levies or imposts. These investment incentives and performance requirements are imposed on investors to encourage and ensure local content.

2.2.2 Highlights of Previous National Development Strategy

Several development strategies were formulated for Guyana including the National Development Strategy (NDS); the Poverty Reduction Strategy Paper (PRSP); the National Competitiveness Strategy (NCS); and the Low Carbon Development Strategy (LCDS). The Green State Development Strategy (GSDS) will be a national development plan with a long-term mission to guide Guyana's economic, social and economic development (Ministry of the Presidency, 2017). It will require policies, institutional arrangements and programmes to be implemented as Guyana moves towards sustainable development.

The National Development Strategy, 2000, was a multi-sectoral strategy designed with the objectives of attaining high rates of economic growth, poverty eradication, and economic diversification, achieving geographical unity, and attaining an equitable geographical distribution of economic activity. The strategy still has relevance once updated. It covers four broad areas of policy: macroeconomic policy, the social sectors, the productive sectors and the infrastructure sectors. Macroeconomic policy include monetary policy, the external sector, fiscal policy, public sector reform, debt management, and banking policy. The social sectors have policies for poverty alleviation, health, education, the environment, the role of women in development, the role of Amerindians, housing and urban development, and the strengthening of regional and local government. The productive sectors include extensive treatments of: rice development, other agricultural products, the institutional framework for agriculture, agricultural land policy, forest management, fisheries policy, mining policy, the sugar industry, the manufacturing sector, labour and employment policy, the policy framework for the private sector, and tourism policies.

The infrastructure sectors examine at length issues and policies in transport development, the energy sector, and water management and flood control (Government of Guyana, 2000).

The Poverty Reduction Strategy Paper, 2002, was a strategy that centred on sustained economic expansion, access to social services and strengthening, and where necessary, expansion of social safety nets. The PRSP was linked to the NDS in the areas of economic policy, good governance, infrastructure development and improvement in social services with the objective of reducing poverty. It outlined the requirements for economic and social progress – actions taken to reduce poverty. The strategy underscores the need to improve the economic and regulatory environment, to create economic opportunities, particularly for the poor, and to generate sustained growth; good governance and participatory democracy at the community level; and the construction and/or rehabilitation of complementing infrastructure to sustain growth, while the fourth is improving the delivery and quality of social services (Government of Guyana, 2002).

The PRSP was directly linked to the NDS in the areas of economic policy, good governance, infrastructure development and improvement in social services with the objective of reducing poverty. However, the NDS has limitations that are addressed in the PRSP. The NDS does not contain an implementation plan, costing, financing requirements and sources of financing. The PRSP served as a medium term strategy to address problems of poverty reduction with the NDS serving as a reference document for future poverty reduction strategies and was expected to be revised every three years. Consequently, the PRSP was revised in 2005 and 2011 for the 2006-2011 and 2011-2015 timeframes respectively.

To support the development of the private sector as the engine of growth and improve the country's competitiveness within a globalized economy, the National Competitiveness Strategy was drafted in 2006. This strategy articulated the respective responsibilities of, and partnership between, the Government and Private Sector necessary for enhancing national competitiveness and greater economic growth. It prioritized the modernization of four traditional sectors: sugar, rice, forestry, and mining. It also identified five additional sectors with the greatest opportunities for new growth and diversification: non-traditional agriculture, aquaculture, manufacturing, business process outsourcing/information technology, and tourism (Government of Guyana, 2006). Several legislation were enacted including the Small Business Act to facilitate the establishment of a small business council, a small business bureau and a small business development fund and the Investment Act to stimulate the socio-economic development of Guyana and to attract and facilitate investment.

In 2009, the Low Carbon Development Strategy (LCDS) was launched where Guyana committed to protecting its standing forest in exchange for compensation for the climate services that the forests provide to the world which would be invested to foster low carbon led growth. The strategy aims to mainstream sustainable development initiatives, including efforts to address climate change, reduce climate related risk and implement measures to adapt to climate change. A critical component of the implementation of the LCDS is the REDD+ mechanism and the Guyana-Norway Partnership. Based on performance, Guyana received payment for forest climate services. These were to be invested in seven priority areas: (i) Government equity in the Amaila Falls Hydro Electricity Company; (ii) accelerating Amerindian land titling, demarcation and extension processes; (iii) Amerindian Development Fund; (iv)

expansion of fibre optic digital infrastructure; (v) micro-finance for Small and Medium Enterprises and Vulnerable Groups' Low Carbon Development; (vi) initial work to establish an International Centre for Biodiversity Research and Low Carbon Development, coupled with enhancement of the national school curriculum; (vii) work on Monitoring, Reporting and Verification Systems (MRVS) and other support for the LCDS (Government of Guyana, 2010).

Putting the Development strategies into practice required administrative changes to policies and programmes; modification in the legislative framework; and making investments to support the new policies including infrastructure and capacity building programmes. The NDS provided general ideas of the way forward but did not contain an action plan for implementation, costing, financial requirements and sources of financing. To achieve the objectives of these strategies, financing mechanisms were identified and more specifically financing was identified in PRSP and in the case of LCDS financing from Norway. Further, the PRSP provided a strategy for poverty reduction, set priorities and developed an action plan for implementation.

Other issues which affected the NDS, NCS, PRSP and LCDS included a difficult external environment, such as price fluctuation of oil on the world market, challenging sociopolitical conditions, weak monitoring and evaluation of the strategies, changing weather patterns (El Nino and La Nina) causing prolonged drought or flooding, crime, and declined business confidence. These are factors, while difficult to measure or predict, have to be considered in planning the GSDS.

The Green State Developing Strategy (GSDS) Framework Document (2017) articulates Guyana's long-term development agenda towards a green economy that ensures the sustainable management of natural resources, human development and well-being, and economic growth balanced with preservation of the country's environmental treasures for future generations. The GSDS builds on the previous development strategies and will entail a restructuring of the economy to take advantage of leapfrogging opportunities for sustainable development.

To ensure the success of the GSDS, it is important to establish an implementation plan for the GSDS with a comprehensive institutional framework, accurate cost estimates and sustainable financing structure and sources of financing to ensure the successful completion of the strategy. Additionally, periodic review with consistent monitoring, verification and reporting for progress reports will contribute to updating the sector specific policies and strategic plan based on progress made.

A long-term strategic budget has to be drafted along with the GSDS to ensure that there is long-term planning for investments on infrastructure and human resource capacity building, skills and training. Financing is proposed to come from Public Private Partnerships and Oil Revenues. The government has to ensure the development of policies including macroeconomic policy, competition policy, taxation policy, and trade policy; sector policies specific to education and training, business development services, finance, investment promotion (including FDI), infrastructure, export promotion, intellectual property, health, housing, water, forestry, mining and energy into the GSDS. These policies should encourage value added whilst creating an enabling business environment.

3. POLICY DEVELOPMENT, REGULATORY MANAGEMENT, AND INSTITUTION BUILDING

3.1 Government National Strategy, Implementation, and Results: Current Status

3.1.1 Agriculture Sector Assessment (Summary)

Sector Profile

Agriculture remains at the very heart of Guyana’s people-centered developmental agenda. In a country, and in a world, where the pursuit of equity for citizens remains a major challenge and a fundamental development goal, where food security has been identified as a way to end poverty and hunger by 2025, the Ministry of Agriculture (2013) has committed to robustly promote a knowledge based, multifunctional transformative agricultural sector.

In its entirety, the agricultural sector, in recent years, has seen a steady decline in contribution to the national GDP; it was 22.4% in 2007, and by 2017 (the sector) contributed 16.5% to the economy (see Table 3.1 below). The reasons for this are quite diverse and are discussed in detail throughout the sector review, with declining major industries, loss of certain export markets and a bid to diversify the sector by government with the support of donor and development partners.

Table 3.1: Agriculture Percentage Contribution to GDP

(Source: Guyana Agriculture Statistics Yearbook (Ministry of Agriculture, 2017))

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture , Fishing and Forestry Contribution to Total GDP	22.4	21.4	20.9	20.5	20.0	19.8	19.2	19.6	19.4	16.8	16.5
Sub-sector contribution to Agriculture GDP											
Sugar	24.9	21.8	22.2	20.5	21.4	19.0	15.9	17.5	18.2	16.2	14.9
Rice	10.5	11.9	12.8	12.6	13.6	13.8	17.1	19.2	20.4	17.7	19.1
Other Crops	21.5	23.4	23.4	23.4	24.1	24.5	24.9	24.8	24.7	28.3	28.9
Livestock	11.5	12.9	13.1	12.8	13.2	14.6	14.9	14.5	15.0	15.8	15.8
Fishing	15.3	15.5	13.7	14.5	13.4	14.9	13.6	9.4	9.0	11.8	11.8
Forestry	16.4	14.6	14.8	16.1	14.2	13.1	13.5	14.6	12.7	10.3	9.4

The sector also historically provided employment for approximately thirty-three percent (33%) of the population; this number is expected to decline for 2018 with the closing of a number of sugar estates. Although, there are a number of large private and public sector farming enterprises, agriculture is predominantly undertaken by small farmers, farming less than 5 hectares of land and so can be very vulnerable to changes in climate, environmental conditions and export markets. In addition, agriculture is very important to the way of life of Indigenous People of Guyana, many of whom do subsistence

farming while few may engage in agriculture production and processing as a means of livelihood. Climate change and unpredictable weather patterns such as prolonged drought and floods can adversely affect the indigenous population. Notably, the Women Agro-Processors Development Network, founded in 2011, under the guidance of the Inter-American Institute for Cooperation on Agriculture (IICA), provides one such avenue for women from indigenous and rural communities to be involved in value-added agriculture production, where products such as cassava bread, wine and peanut butter are produced for local re-sale and even export.

The country benefits from almost forty percent (40%) returns on export investments attributed to the sector (IDB, 2017). Approximately eleven percent (11%) of Guyana's budget is usually allocated for agriculture. Bank of Guyana (BoG) reported in its 2016 annual report that the agriculture sector's contribution to Guyana's GDP fell to 19.4 percent compared with 22.8 percent at end-2015 (Bank of Guyana, 2017a). In the 2017 Half Year Report, BoG reported contractions in the outputs of sugar, forestry and livestock; while there were increased performances in the output of rice, fishing and other crops, which led to an overall increase in the sector's contribution to GDP of 6.4 percent, compared with a 10.0 percent increase for the same period last year (Bank of Guyana, 2017b).

Specifically, with regard to the fisheries sector, the increasing trends observed in 2017 above, is a continuation of similar trends, whereby in 2016, "we reaped the benefits by recording an 11% growth. Increase in aquaculture will have to remain a necessity as a substitute for seafood as it has long been realized that the marine resources are being challenged" (Year-in-Review Press Conference, Hon. Noel Holder, Minister of Agriculture Thursday December 29, 2016). Further, the National Development Strategy, while somewhat out of date, remains the main guiding document for Government policy in Guyana. This document identifies the depletion of important fish stocks as threat to growth.

Increasing demand and attractive margins for fresh-water fish made this investment particularly attractive to Guyana. While aquaculture requires significant start-up costs (approximately US\$15,000 per hectare), the industry would allow Guyana to tap into large and growing markets in fresh fish, frozen and processed product. However, the strategy also acknowledged that Guyana would have to work to provide incentives to attract large-scale investors as it recognised Guyana's production costs were likely to be above those of Asian producers for frozen fish and shrimp. As such, there was more detailed planning especially as it relates to aquaculture and small scale fisheries, which has begun to bear fruit with over 20 new aquaculture farms coming on stream (Year-in-Review Press Conference, Hon. Noel Holder, Minister of Agriculture Thursday December 29, 2016).

Historically, growth has been driven primarily through the production of traditional commodities such as rice and sugar, which accounted for over 70% of the total value of the country's agricultural production. However, the sugar industry has been experiencing declining yields and sugar recoveries over the last few years resulting in declining profitability and liquidity; also significantly influenced by decline in world market price of sugar and the expiry of the European Union Sugar Quotas in 2017 (Guyana Sugar Corporation, Strategic Plan 2013-2017). Sugar production, as a result, continues to decline with the recent closing of operations at a number of plantations.

Other non-traditional important crops including coconuts, green beans, tropical fruits, and plantains, and the main livestock products including poultry meat, beef, milk, and eggs are beginning to show significant growth potential (IDB, 2017). There is growing interest for Guyana's non-traditional crops overseas: export volumes of non-traditional crops have increased through the agriculture export diversification initiatives such as Agricultural Export Diversification Programme (AEDP). This programme was designed to promote certain crops for both the local market and to target the export market,

particularly the CARICOM market. This approach is articulated and supported in the priorities of the National Agriculture Strategy and is directly in line with the GSDS, realising that value addition, which involves turning agricultural produce into other commodities, semi processed and/or processed products for market has the potential for small-scale farmers to capture a larger share of the food cash. In addition, since post-harvest losses are very significant and since many crops, particularly fruits are seasonal, agro-processing and value-added mechanisms can prevent post-harvest losses and ensure year-round supply of products. Seasonal over production of many agricultural produce, accompanied by heavy post-harvest losses of the perishable foods calls for an adequate, efficient and sustainable agro processing, value addition chain system.

In 2017, New GMC reported a 25% increase in export of non-traditional agriculture products, valued at GY\$3.6 billion when compared to 2016, which saw the export of 10,121 metric tonnes of these non-traditional products, valued at GY\$2 billion or US\$ 10 million (New GMC, 2016). Some of the commodities that are high demand and may have led to the increase include coconuts, wiriwiri pepper, pumpkins, eddoes, watermelons, mangoes, pineapples, limes, and ginger. However, export of coconut and coconut products also contributed significantly to export increase with a 29% increase in 2017 from 2016. This can also be compared to 10,832 metric tonnes valued at GY\$1 Billion which were exported in 2012, highlighting the fact that more value-added products, which fetch a higher price, are being exported.

The main institutions that deliver agricultural services are the Ministry of Agriculture (crop and livestock extension and health services, planning, statistics, crop reporting, lands, fisheries, hydraulics), the New Guyana Marketing Corporation (GMC) and the Guyana School of Agriculture (GSA), the Faculty of Agriculture of UG (UG/FA). Others include the National Agricultural Research and Extension Institute (NAREI), the Caribbean Agricultural Research and Development Institute (CARDI), the Inter-American Institute for Cooperation on Agriculture (IICA) and the Food and Agriculture Organisation (FAO). The Institute for Applied Science and Technology (IAST) also does work related to agriculture, particularly in relation to processing and mechanisation. In addition, the sector benefits from international donor funding through agencies such as the Inter-American Development Bank (IDB), International Fund for Agricultural Development (IFAD), the World Bank, and the Caribbean Development Bank (CDB)(IDB, 2017).

The agricultural industry in Guyana has been characterized by the operation of five principal sub-sectors; namely rice, sugar, fruits and vegetables, livestock and fisheries. However, in recent years, the Government of Guyana has placed more emphasis on diversification of the sector. Support from development partners for research, development and investment in diversification and building climate resilience has commenced and this is expected to significantly boost the efforts of the Government to achieve sector diversification.

Work is being done on increasing production and improving quality of traditional crops, including vegetables, tubers, fruits etc. Cassava, plantain/bananas and sweet potato have also been identified as priority crops for expansion and improvement. The coconut industry has been re-engineered with a new orientation for value-added products through the development of a roadmap for development of the coconut industry (NAREI, 2017). To some extent, the successes of this is already happening, as GMC reports an increase of 29% in exported coconut products in 2017 from 2016. Some of this work in re-vamping the coconut industry is supported by a regional CARDI project. Through its Strategic Research and Development Strategy, NAREI is also working with farmers to introduce new crops on a commercial

scale in Guyana. These would include;- carrots, spices, garlic, potato, corn, soya, quinoa (NAREI, 2013). Mega-Farms by local, regional and international investors in Rupununi, Intermediate Savannahs and Canje Basin with rubber plants, palm oil, quinoa, corn, soya are also pushing the agriculture diversification efforts.

Policy, Action Plans and Legal Framework

(i) Vision for Agriculture 2020: A National Strategy for Agriculture in Guyana 2013-2020

Guyana's main agricultural policy document is "Vision for Agriculture 2020: A National Strategy for Agriculture in Guyana 2013 – 2020". It outlines a roadmap to ensure that Guyana achieves its ambitions as a food and nutrition secure nation and as a major contributor to Food and Nutrition Security within CARICOM (Government of Guyana, 2016).

Compared to earlier agriculture strategies, which primarily focused on specific sets of commodities, Vision for Agriculture 2020 takes a more holistic approach and seeks to promote both food and non-food (such as biofuels) agricultural development. To this end, it sets out five core focus areas, the so-called F-5:

1. Food Security – consolidating the end of hunger in Guyana, ensuring everyone has enough food in every community.
2. Fibre and nutritious food accessible by citizens – nutrition security for all.
3. Fuel production – helping to develop alternative fuel sources, reducing dependency on fossil fuel and creating a bio-energy industry in Guyana.
4. Fashion and health Products – An agro-process industry which creates a new industry in Guyana.
5. Furniture and crafts – an industry which we expect to grow in importance in Guyana.

The strategy also sets out the main goals that Guyana has set for its food and agricultural sector. These goals include:

- Reducing imports of foods such as corn, soya, and potatoes.
- Increasing exports of rice and sugar, as both bulk and value-added commodities.
- Increasing exports of non-traditional crop products.
- Meeting local demand for milk and dairy products with local production.
- Reaching export level production for meats.
- Increasing agro-processing for the local and export markets.
- Achieving an annual agricultural GDP growth rate higher than 5 %.

The strategy aims to achieve these goals through a comprehensive roadmap of actions to be taken in 25 priority areas. Progress is measured through a large set of indicators defined in the strategy.

(ii) Disaster Risk Management Plan for the Agriculture Sector 2014-2018

This plan was created under the mandate of the Civil Defence Commission (CDC), by the Ministry of Agriculture (MOA) with support from the Food and Agriculture Organization of the United Nations (FAO). It is also congruent with the regional model of CDM adopted by CARICOM member states and the HFA. It is structured around four Result Areas as outlined below:

1. Strengthening institutional and technical capacities within the agriculture sector;
2. Risk identification, information system and early warning;
3. Building resilience for sustainable livelihoods in the agriculture sector; and
4. Preparedness, response and rehabilitation.

The main objectives of the plan involve strengthening the capacity of the sector to mitigate the potential impacts of disaster. Additionally, it seeks the improvement of disaster risk management decision-making at different levels, inclusive of the local, regional and national levels. Its final objective is to ensure that there is integrated financial resource mobilisation which has a sustainable mechanism, allowing for activities relating to disaster risk management within the sector to be carried out (Government of Guyana, 2013).

The strategic objectives will be achieved through the pursuit of seven interrelated, mutually supportive outcomes, viz:

1. Institutional mechanism that fosters optimal coordination and implementation of DRM programmes within the agriculture sector are developed and promoted.
2. Innovative and culturally appropriate risk transfer instruments are designed and adopted to improve the recovery potential of farmers and fisher-people, with an emphasis on the most vulnerable.
3. Risks are systematically assessed and institutional capacities for hazard monitoring and dissemination of early warning information that stimulates proactive mitigation, preparedness and response among all end users, especially at the community level, are improved.
4. Disaster risk reduction and climate change adaptation policies and programmes designed to strengthen resilience to significant hazards particularly among vulnerable groups are improved.
5. Education, training and public awareness are promoted as tools to advance a culture of prevention and safety.
6. Resources for disaster preparedness and response at all levels, especially in high risk communities/regions, are properly planned and coordinated.
7. Disaster risk reduction and CCA principles and best practices are systematically incorporated into the design and implementation of recovery and rehabilitation policies and programmes in affected communities.

One of the expected outputs of the plan is the implementation of strategies within the framework of the Drainage and Irrigation Act, 2004, which deal with climate change adaptation. Proposed strategies for building climate change resilient and disaster risk reduction include the development of an Early Warning System as it relates to changing weather, in addition to a National Drought Management Plan for Guyana, and a flood early warning system and preparedness plan which would be achieved through the training of personnel (engineers and technicians) at key institutions such as the National Drainage and Irrigation Authority (NDIA) and Hydrometeorological Office. Drought monitoring bulletins and farmer's monthly weather bulletins have emerged intermittently.

Transfer of technology necessary for climate smart agriculture, especially as it relates to cash crop farmers, is also a main strategy, in addition to the establishment of codes and standards, which would aid in building climate resilience. Development of drought and flood tolerant crops, such as rice, sugar and livestock that are capable of surviving drought conditions, is identified as a necessary action. Research into climate change impacts on the fisheries sector is a component of the plan. Some of the

other activities identified in the plan, which deal with climate change and the sector, fall under enhancement of coastal infrastructure to prevent flooding, inculcation of Disaster Risk Management and Climate Change Adaptation into the tertiary curriculum.

Legal Framework

A number of laws serve to govern the agriculture sector, some of which predate independence: the Guyana Rice Producers Association Act of 1946, the Sugar Industry Special Funds Act of 1947 and the Fisheries Act 1957, highlighting the importance of the established agriculture industries in Guyana (i.e., rice and sugar). Other legal framework relevant to the sector is captured in Table 3.2 below.

Table 3.2: Legal framework for Agriculture Sector in Guyana

Title	Year	Description
Guyana Rice Producers Association Act	1946	Outlines the functions and rights of the GRPA, which includes the protection, promotion and advancement of interests of rice producers generally.
Sugar Industry Special Funds Act	1947	Establishes a price stabilization fund, a rehabilitation fund and a labor welfare fund for the sugar sub-sector.
Fisheries Act	1957	Regulates fishing in the waters of Guyana
The MMA/ADA Act No. 77 of 1977	1977	Established the MMA/ADA under the MOA to handle the construction and maintenance of all drainage and irrigation works for agricultural development in Region No. 5, Mahaica/Berbice
National Agricultural Research Institute Act No. 19 of 1984	1984	Established the NARI to advise on and develop agriculture in Guyana through research and technology transfer to agricultural producers
Rice Development Board Act (Ch 72:01) No. 15 of 1994	1994	Regulates the manufacture and marketing of rice through the establishment of the Guyana Rice Development Board.
Rice Factories Act	1997	Defines the rules for rice milling and payments to farmers.
Pesticides and Toxic Chemicals Control Board Act of 2002	2002	Established the PTCCB for the management of pesticides and toxic chemicals in Guyana
Fisheries Act	2002	Provides for the promotion, management, and development of fisheries in Guyana.
The Drainage and Irrigation Act No. 10 of 2004	2004	Established the National Drainage and Irrigation Authority (NDIA) to deal with all public matters pertaining to management, improvement, extension and provision of drainage, irrigation and flood control infrastructure and services in declared areas of the country.
Guyana Livestock Development Authority Act	2010	Establishes the Guyana Livestock Development Authority and mandates it to address animal health, production and trade

		matters
National Agricultural Research & Extension Institute Act No 31 of 2010	2010	Created the National Agricultural Research & Extension Institute (NAREI), which succeeds the NARI Act of 1984 by including extension services into the scope of the institution.
Seeds Act	2011	Regulates the production, sale import and export of seeds

While agriculture is a historically important sector for Guyana and has some of the oldest legislation still relevant today, it also suffers from some of this outdated legislation. One such example is the Fisheries Act. The Fisheries Act was revised in 2002 but the legislation has proven insufficient in light of new requirements for exportation to the US market of certain species of fish. Some of the old legislation such as the GRPA Act and the MMA/ADA act are very much relevant today but a review of this legislation may prove to be beneficial in improving some of the institutional efficiencies in the sector and may lead to greater opportunities for expanded markets.

Past and Current Policies related to the Agriculture Sector

National Development Strategy (Guyana) (1997 draft)

The overall objectives of this National Development Strategy were as follows:

- To attain the highest rates of economic growth that are possible;
- To eliminate poverty in Guyana;
- To achieve geographical unity;
- To attain an equitable geographical distribution of economic activity; and
- To diversify the economy.

Agriculture

It was envisioned under this strategy that the agricultural sector, at the end of the first decade of the 21st century, would also have been much expanded and diversified. In addition to crops, such as rice and sugar, which have been traditionally produced, greater attention and emphasis would have been placed in the first ten years of the new century to the cultivation of crops such as oil palm, coconuts, green vegetables, ground provisions, fruits and flowers. Although a significant amount of these products would be utilised locally, the greater proportion would be destined for the tourist havens of the Caribbean, and the niche markets of North America and Europe.

The National Agriculture Strategy 2013-2020 roadmap outlined as one of the priorities, the identification of land available for agriculture purposes for distribution, with the process of determining the suitability of new land for agriculture purposes being based primarily on the soils' physical and chemical properties followed by complimentary mapping, which is a fundamentally sound approach to Agricultural zoning.

This expansion and diversification of the agricultural sector would, as in the manufacturing sector, have been greatly assisted by the tax incentives provided by the government; by the market intelligence made available to producers by the central authorities; and by the expansion of the information

technology base in the country. Additionally, help provided by the government, which in some cases, involved the actual marketing of the products and the research and extension services of the National Agricultural Research Institute also aided expansion and diversification.

Issues and Constraints

Soils in the Intermediate Savannas are generally sandy and fragile. They are expected, therefore, to be nutrient-poor as a result of leaching. The pursuit of agriculture in these areas will therefore have to take into account two major constraints: the possible alteration of the physical structure of the soil as a result of tilling, thus rendering it more susceptible to erosion; and possible limitations on the use of fertilisers because of leaching, thus inflating costs and promoting the contamination of streams and groundwater from run-off and leachates. It should be noted, however, that intensive land-utilisation surveys and detailed soil analyses have already been conducted in the Savannas. These have indicated that there are many areas in which the soils are either brown sands or brown loamy sands that are capable of producing certain types of crops, e.g. pineapples, peanuts and various types of tree crops. In addition, the area is eminently suitable for many kinds of agroforestry.

Finances

It was decided that the sources that are normally tapped by the Government of Guyana for financing developmental activities will be utilised for the implementation of this National Development Strategy. These were, of course, the government's own revenues; the resources of the Bretton Woods institutions, the Inter-American Development Bank, and the Caribbean Development Bank; the resources of the United Nations system, for both financial and technical assistance; the aid agencies of a range of bi-lateral donor countries; and the local and foreign private sector. It should be stressed that the greatest reliance was placed on private sector investment to develop the massive infrastructural programme which had been prescribed in this National Development Strategy. To this end, a radical departure from the normal approaches to infrastructural development was contemplated. The government focused more on facilitating rather than financing the construction of infrastructure in Guyana. The approach which was intended to be followed, and on which it was focused, was known as the Build, Operate, Transfer (BOT) system, or as Build, Own, Operate, Transfer (BOOT), or Build, Own, Operate (BOO).

Low Carbon Development Strategy (LCDS)

The LCDS (mentioned earlier in this document) aimed to achieve two goals:

- transform Guyana's economy to deliver greater economic and social development for the people of Guyana by following a low carbon development path; and
- provide a model for the world of how climate change can be addressed through low carbon development in developing countries, if the international community takes the necessary collective actions, especially relating to REDD+.

It identified the eight priorities that were the initial focus of LCDS implementation in 2010 and 2011, gave an outline of the priorities for the period 2012-2015, and set the framework for further consultation and strategy development on Guyana's long-term low carbon development.

Building on the priority diversification opportunities outlined in the National Competitiveness Strategy, Guyana had identified six priority low-carbon economic sectors including fruits and vegetables and aquaculture. This is similar to one of the sub-themes identified in the GSDS under Theme 1: "Green and

Inclusive Structural Transformation: Diversifying the Economic Base, Accessing New Markets and Creating Decent Jobs for All”, which among other things, also identifies lower-value agriculture, sustainable fisheries, aquaculture and fish processing as core focus areas under the “Green, Inclusive, High Value-adding Industrial Development” sub-theme. The GSDS approach is also more comprehensive in correcting deficiencies with regard to aspects of regulatory framework, compliance and sustainability certification.

Under the fruits and vegetables theme, the strategy sought to make Guyana a competitive global producer of tropical fruits and vegetables as an assessment of the market proved an enabling environment existed for Guyana to capture a large share of CARICOM’s fruit and vegetable import market. To capture this opportunity, Guyana needed to attract several large-scale commercial agriculture operators to help it overcome logistical and quality control issues such as lack of processing facilities, limited ability to comply with sanitary/phytosanitary standards, and weak links to key import markets. It was clear that Guyana needed to provide significant financing incentives, offer substantial land area to attract leading operators, and improve its investment support to new investors (LCDS, 2009). In the area of aquaculture, the strategy envisioned Guyana having an opportunity to provide fresh and frozen fish to its Caribbean neighbours and other importing nations.

The Jagdeo Initiative

The Jagdeo Initiative was a strategy devised to remove constraints to the development of agriculture in the Caribbean. These constraints and interventions (**outlined in Table 3.3**) were identified between 2004 and January 2005 through national and regional consultations held by IICA. The strategy built on past regional efforts to develop a Common Agricultural Policy and identifies ten key binding constraints faced by the sector (Table 3.3).

In June 2007, Caribbean Heads of Government met at a special meeting of donors and, among other actions, it was decided that the Jagdeo Initiative would be implemented over the next 18 months.

Table 3.3: Constraints and Interventions Identified under the Jagdeo Initiative

Constraints	Necessary Interventions
1. Limited financing and inadequate new investments	Establishment of a Regional Agricultural Modernisation Fund
2. Outdated and inefficient agriculture, health and food safety systems	Establishment of a Caribbean Agricultural Health and Food Safety Agency (CAHSFA)
3. Inadequate research and development	Definition and implementation of a regional R&D policy and Action Plan
4. Fragmented and unorganized private sector	Strengthening of private sector organisations and collaboration
5. Inefficient land and water distribution and management systems	Establishment of a system of incentives for improved land and water use
6. Deficient and uncoordinated risk management measures including praedial larceny	Development of integrated regional risk mitigation (natural disasters) and relief (including agricultural insurance)
7. Inadequate transportation system particularly for perishables	Determination of freight needs, upgrading of ports and consolidation of services
8. Weak and non-integrated information and intelligence systems	Integration and modernisation of industry and national information systems and services

9. Weak marketing systems, linkages and participation in growth markets	Strengthening of joint marketing opportunities and facilitation of access to EXIM-type financing
10. Lack of skilled human resources	Upgrading and integration of curriculum and training at all levels

Source: Private Sector Commission (2007)

National Competitiveness Strategy (2006)

The National Competitiveness Strategy (NCS), published in 2006, sought to be a long term economic plan for Guyana and converted large segments of the National Development Strategy into an action plan. The NCS was supported by both the government and donor-funded programmes, including a US\$26.65 million loan from the IDB. The strategy aimed at achieving a balanced role between government and the private sector in diversifying the Guyana economy and making the traditional sectors more competitive. It identified key development areas in non-traditional agricultural products and agro-processing, fisheries, manufacturing, tourism and ICT. Through the Agricultural Diversification Programme, support would have been given to initial export supply chain in fruits, vegetables and beef.

Out of the strategy, a National Competitiveness Strategy Unit was formed to ensure implementation of the strategy. The unit made some progress in macro-economic, trade and small business policies, trade transactions, certification and standards, consumer protection, access to finance, human resources, infrastructure and sector development, some of which would have contributed to the intended targets of agricultural diversification.

Institutions

Existing/Past institutional structure and inter-sectoral coordination mechanism

The Ministry of Agriculture remains at the centre of the institutional arrangement of the agriculture sector. Its mission statement is 'to ensure the formulation and implementation of policies and programmes which facilitate the development of agriculture (including fisheries) in Guyana, thereby contributing to the enhancement of rural life, the sustainable improvement of incomes of producers and other participants in the agricultural production and marketing chain; and the maintenance of a sound physical and institutional environment for present and future productive activities' (Government of Guyana, 1996).

As the primary governmental and general support institution, the Ministry of Agriculture is expected to:

- provide overall policy direction for the sector;
- ensure, on one hand, the coordination of functions between a large number of public sector institutions involved in agriculture and on the other hand, between those institutions and the private sector;
- monitor developments in the sector, provide current information and develop long-term plans;
- manage the project cycle and negotiate external financing for agricultural projects;
- collect and process data, carry out analysis, and disseminate relevant information; and
- respond to emergencies in the sector in areas such as a sudden crop or livestock loss as a result of pests and disease or weather.

The Ministry operates through four key budgetary programme areas:

1. **Ministry administration**, which manages and coordinates the human, financial, physical, and material resources necessary for the implementation and administration of the Ministry's programs and operations.
2. **Crops and livestock support services**, being the largest department, is responsible for promoting and supporting agricultural development by providing technical and regulatory services to the sector.
3. **Fisheries**, which manages, regulates and promotes the use of fishery resources.
4. **Hydrometeorological services**, which provide meteorological, hydrological and oceanographic services.

The promotion of these programmes is undertaken by an established Communication Unit, which is also responsible for the communication of other releases pertaining to the prescribed direction of the Ministry (see organisational chart below).

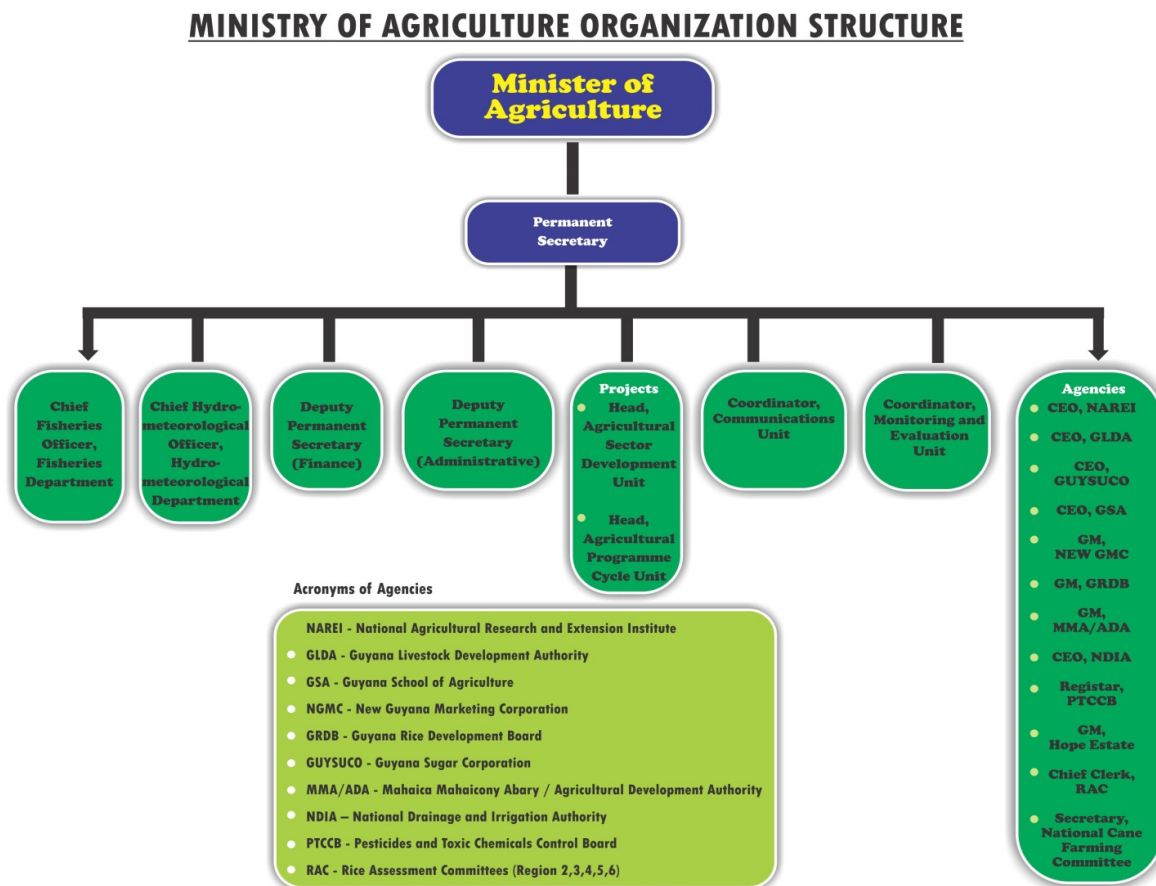


Figure 3.1 Structure of the Ministry of Agriculture

The Minister is the Head of the Ministry and is assisted directly by the Permanent Secretary, who is the Financial and Administrative Officer (budget holder) within the Ministry. The Permanent Secretary is assisted by two Deputy Permanent Secretaries (Finance and Administration). All semi-autonomous

agencies are run by boards of executives, except Fisheries and Hydro-Meteorology, which are departmental units of the Ministry. The Minister is responsible for recommending members for the respective boards and these recommendations are then given approval by Cabinet. The board is responsible for the formulation of policies for the smooth functioning of the relevant agencies.

Fisheries Department (GSDS Expert Group 1, 2018)

The fishing sector in Guyana forms an important sub-sector within the agriculture sector. While fish and fish products serve as a source of protein for the nation, it is also a source of livelihood for many fishermen and their families. The fisheries sector contributed 1.9% to the country's Gross Domestic Product in 2016.

The Ministry of Agriculture, through its Fisheries Department, is the sole agency responsible for the management of the fisheries resources. This involves the integrated process on information gathering, analysis, planning and consultation, decision-making, allocation of resources and formulation and implementation, with enforcement as necessary, of regulation or rules which govern fisheries activities in order to ensure continued productivity of the resource and the accomplishment of all fisheries objectives. The Fisheries Department is therefore mandated "to manage, regulate and promote the sustainable development of the nation's fishery resources for the benefit of the participants in the sector and the national economy".

The Fisheries sector is made up of three primary components:

- Marine Fishery
- Aquaculture
- Inland Fishery

Its primary green Initiatives are:

1. Marine Stewardship Council Certification for Seabob (Shrimp) Fishery
2. Aquaponics
3. Stock Assessment of Commercial Species
4. Effects of the Sargassum Seaweed on fishing operations

Guyana has the ideal conditions for a dynamic seafood and fisheries industry. These include a 459 km Atlantic coastal zone and an extensive network of rivers. The U.S. is the primary market for most seafood exports. In 2004, however, Guyana was certified to export seafood to the lucrative EU market, creating a range of new market opportunities. While the seafood industry primarily consists of marine species caught in Guyana's exclusive economic zone (EEZ), aquaculture has recently attracted significant investment growth.

Guyana enjoys vast fishery resources in the Atlantic Ocean, both in its coastal areas and its EEZ, about 138,240 square kilometers— the equivalent to 64% of the country's landmass. This area contains highly productive marine fisheries that include prawns (*Penaeuslaticulcatus*), shrimp (*Penaeuslitopenaeusschmitti*), seabob shrimp and a variety of commercial finfish. Although some segments of the marine sector (e.g. prawns, shrimp and seabob shrimp) are relatively consolidated and face uncertain sustainability (in terms of volume of catch), a number of lucrative opportunities exist, particularly in terms of adding value to existing resources.

While Guyana's marine resources have been an important component of its economy for some time, commercial aquaculture, especially in regard to tilapia and shrimp farming, is an emerging industry receiving the attention of both the Government and private investors. Profitable opportunities exist for investments in modern processing machines and product development that meet the ongoing global demand for processed fish products.

The Fisheries Department has initiatives in the following areas:

- Marine Stewardship Council Certification for the Seabob (shrimp) Fishery.
- Implementation of the Port State Measures.
- Reducing economic cost to the fishery
- Aquaponics
- Wastewater Management

Much of the other technical work in support of the agricultural sector is carried out by different agencies, for which the Ministry of Agriculture has reporting obligations to Parliament (see Figure 3.1 above). The agencies have their own budget and are semi-autonomously managed by Chief Executive Officers (CEOs). The following list of agencies which are analysed over the next sections provide some of the much needed support for farmers and agriculture development in Guyana:

1. GRDB - Guyana Rice Development Board;
2. GuySuCo - Guyana Sugar Corporation;
3. GLDA - Guyana Livestock Development Authority;
4. MMA/ADA –MahaicaMahaiconyAbari/Agricultural Development Authority;
5. NDIA - National Drainage and Irrigation Authority;
6. NAREI - National Agricultural Research and Extension Institute;
7. GSA - Guyana School of Agriculture;
8. GMC - New Guyana Marketing Corporation;and
9. PTTCB - Pesticides and Toxic Chemicals Control Board.

Guyana Rice Development Board (GRDB)

The key rice sector support institution is the Guyana Rice Development Board (GRDB), a government agency that reports to the Ministry of Agriculture but is run semi-autonomously by a Board of Directors; which comprises members of the Guyana Rice Producers Association (GRPA), Guyana Rice Exporters and Millers Association (GREMA), consumers, and others. The GRDB was established by Act Number 15 of 1994, and its mandate is to enhance the industry's development in terms of research, technology transfer, marketing, and product quality control, including the grading and certification of rice and paddy and issues rice milling and export licenses.

The GRDB is funded through a direct tax on rice sales for both export and the domestic market. The fee amounts to US\$8 per ton of rice and US\$4 per ton of paddy. All activities and services of the GRDB are funded from the levy. Beyond research, these also include extension services and farmer field schools. Inspection services, fumigation on ships, and the administrative handling of exports are also provided.

The GRDB's Burma Rice Research Station continues to release Guyana's own high-yield, disease-resistant, and salt-tolerant varieties. GRDB also provides extension services to farmers on seed rates and treatment, fertilizer management, weed management, water management, and pest and disease

management, including integrated pest management (IPM) practices. In addition, GRDB has recently established a department to pursue value added options for Guyana's rice.

The rice industry in Guyana is comprised of private farmers, millers and input suppliers. Approximately 85,000 hectares are cultivated by 7,500 farmers in two crops per year. In 2017, exportation of paddy, rice and its by-products earned US\$198,857,844, representing an increase of 11% when compared to the same period of 2016. Exportation increased due to increased demands for Guyana's rice on the international market, as 2017 saw rice shipments to two new markets: Cuba and Mexico (GRDB, 2018).

Guyana Sugar Company (GuySuCo)

The Guyana Sugar Corporation came into being as a State-owned entity in 1976 when it was nationalized after the estates were in foreign ownership for centuries. The main business of GuySuCo currently, is the cultivation of sugar cane and the production of sugar. After nationalization, the sugar industry continued to play a pivotal role in the overall economy of Guyana. Besides being the largest employer, after Government, it was a main generator of foreign earnings and touched the lives of the people of Guyana in many ways.

However, in the past decade or so, there has been a downward trend. As a consequence, the state-owned sugar corporation which has a monopoly on sugar processing and export in Guyana is currently undergoing a process of down-sizing. This has shifted ownership from eight (8) grinding estates to three (3), which is mainly due to declining production and the removal of the preferential arrangement with the European Union.

A Sugar Task Force was established subsequent to the Government of Guyana's State Paper on the Future of the Sugar Industry presented to the National Assembly by the Minister of Agriculture in May, 2017. The State Paper stated Government's intention to privatise one Estate: Skeldon, and diversify two Estates, Rose Hall and East Demerara, mandating that GuySuCo's production of cane sugar at these three Estates cease from 2017 year-end. This cessation of cane sugar production at these three locations follows the closure of sugar production at Wales estate from 2016 year-end. The State Paper indicated, however, that GuySuCo's remaining three Estates (Albion/Port Mourant; Blairmont; Uitvlugt) would continue the production of cane sugar (Sugar Task Force, 2017).

At the end of June 2017, BoG reported the sugar output as 49,606 tonnes, 12.4 percent lower than the corresponding period in the previous year and represented 30.6 percent of the revised 162,000 tonnes targeted for 2017. This outcome was thought to be due to inadequate supply of quality canes, industrial unrest and operational deficiencies (Bank of Guyana, 2017b).

Guyana Livestock Development Authority (GLDA)

The Guyana Livestock Development Authority (GLDA) was established in 2006 by Act No. 10 of 2004. Its mandate is to "promote greater efficiency in the livestock product industry and to provide enhanced services in livestock husbandry, livestock health and research so as to make provision for effective administration and regulation of trade, commerce and export of livestock or livestock products and for matters related and incidental." It delivers public services related to animal production, animal health, animal genetics, marketing, training and extension services as well as regulatory services.

Several programmes are implemented under GLDA's mandate. One involves protecting the gains of animal production and genetics through the provision of timely veterinary interventions and minimizing the threat of disease from internal and external sources. Veterinary drugs and the importation of animals are also regulated under this programme.

Another programme involves infusing local animal stock with new genetics to enable our farmers to benefit from higher productivity. Techniques of artificial insemination and embryo transfer form part of their regular strategies. Superior genetics is supported by another programme designed to catapult farmers into higher levels of animal husbandry through better nutrition, housing and access to authentic and validated information.

The Hinterland Development Black Giant Poultry Programme also commenced in February 2017 which introduced the Black Giant poultry to several hinterland communities and schools in Regions One, Seven, Eight, and Nine. The objective of the initiative is to assist with making the hinterland regions less reliant on the Coast for their food supplies, more specifically by targeting the hinterland residential schools.

Mahaica/Mahaicony/Abary- Agricultural Development Authority (MMA/ADA)

The MMA/ADA was established in 1978 by Act No. 77 of 1977 as a semi-autonomous agency under the Ministry of Agriculture, governed by a Board of Directors. This institution handles the construction and maintenance of all drainage and irrigation works for agricultural development in Region No. 5, Mahaica/Berbice. The agency is also responsible for the allocation of state lands between the Berbice and Mahaica River. Its mission statement is "To promote, facilitate and enhance sustainable agricultural development in the Region through the efficient management of the land resource". The MMA/ADA also provides water control for the coastal lands up to a distance of some 30 miles inland, by impounding the flood waters in surface reservoirs (conservancies) located in the upper reaches of the rivers, and through the construction of appropriate civil engineering infrastructure, provide drainage and irrigation services to the areas nearer the coast.

Overall, the MMA/ADA supports nearly half of the national rice production, about 30-35% of all livestock (most cattle) production and 10-15% of national sugar production. It currently receives in excess of \$200 million annually from the government to fund its recurrent expenses such as wages and salaries and utility costs. However, collection from farmers in the region fund other projects, repairs and cleaning done by the MMA.

National Drainage and Irrigation Authority (NDIA)

The National Drainage and Irrigation Authority (NDIA) deals with all public matters pertaining to management, improvement, extension and provision of drainage, irrigation and flood control infrastructure and services in declared areas of the country.

Established in 2006 by an Act of Parliament, No. 10 of 2004, the Drainage and Irrigation Act, the Authority has developed an institutional structure in terms of water resources management strategy and water use planning for the primary purpose of locating, evaluating, conserving and distributing water resources of the country for agricultural purposes. In meeting its mandate, the NDIA has focused on improving and upgrading drainage and irrigation services country-wide, thereby enhancing the

competitiveness of the various sectors and improving productivity. Through the work of the NDIA, agricultural land is better protected against adverse weather related events.

Over the years, the NDIA has been building its capacity, resulting in a significant number of pieces of equipment being acquired, inclusive of mobile and fixed pumps, long reach and amphibic excavators, bulldozers and other machinery. The NDIA has adopted a policy of constructing and rehabilitating sluices that are found to be functional through suitable foreshore conditions along the coast and riverine areas, aimed at upgrading and expanding the drainage system. These works allow for expanded acreage of agricultural activities and to better cope with extreme rainfall events associated with climate change. The NDIA's implementation of an aggressive plan for upgrading and rehabilitation of drainage and irrigation infrastructure to ensure optimum capacity has continued. Rehabilitation of drainage structures have been undertaken in Regions 2 to 10. The NDIA, through its Community Drainage and Irrigation Project (CDIP) has also been supporting vulnerable residential areas along the coast by clearing critical drains and canals.

About 900 miles of canals and drains are cleared by CDIP workers monthly. In addition, over the last five years, over 900 miles of drains and canals were maintained yearly in Regions 2, 3, 4, 5, 6 and 10 by the NDIA. With the rapid unstructured increase in areas brought into farming consideration must be placed to improvement and management of both declared and undeclared D&I areas. In many areas, there is also no physical separation of the drainage system of residential and farming areas in which the NDIA has now inadvertently been given the responsibility. In 2018, the NDIA will continue to be guided by its 5-year strategy to realize the vision of "Creating an Enabling and Sustainable D&I System that Instills Confidence in New and Existing Farmers by Increasing Guyana's Resilience to Floods and Droughts." Considering significant capital resources are being expended to reduce the flood risk to existing cultivation areas, GY\$140 million will be spent to continue the development of the Intermediate Savannahs. In 2017, 17km of roadway was cleared of encumbering vegetation and, in 2018, GY\$40 million will be spent on constructing sections of the Ebini Road. Maintenance of the existing system is equally as important as the development of new lands and GY\$400 million will be spent on maintaining over 984 miles of drainage and irrigation channels in Water User Association areas and other undeclared D&I areas (NDIA, 2018).

National Agricultural Research and Extension Institute (NAREI)

The National Agricultural Research Institute (NARI) was established by an Act of Parliament (Act No. 19) in 1984 as a result of a study conducted by the Netherlands-based International Service for National Agricultural Research (ISNAR) in 1982 for the Government of Guyana to identify alternatives for the management of agricultural research in Guyana.

As a result, NARI took over the physical assets and staff of the then Department of Research of the Ministry of Agriculture. The functions of NARI were to:

- a) advise on, and develop, appropriate systems to promote balanced, diversified and sustained agricultural development and optimise agricultural production through adaptive and investigative research; and

- b) facilitate the use of improved production technology by agricultural producers, and establish adequate feedback systems for them in order to achieve and maintain national self-sufficiency and export capacities in food and fibre.

Apart from the establishment of the Institute, the NARI of Guyana Act 1984, also established an Agricultural Research Committee (ARC). The ARC was mandated to advise the Minister of Agriculture on matters of policy relating to agricultural research and ensure that the activities of NARI are consistent with policy and objective of national development relating to agriculture. While this committee no longer exists today, a replacement committee in the form of the National Agriculture Research Oversight Committee exists at the Ministry of Agriculture with similar responsibilities.

Some of the more significant outputs from NARI were the development of higher yielding rice varieties, pest control for a number of different crops. However, there was dissatisfaction with the relevance of some of the research output to farmers. As a result, the Guyana Rice Development Board (GRDB) was given the responsibility for both rice research and extension subsequent to its formation in 1994.

In 2010, the scope of NARI's work morphed to include extension services by Act No 31 of 2010, thereby creating the National Agricultural Research & Extension Institute (NAREI) (Government of Guyana, 2010). It is now responsible for spearheading agricultural research and extension activities for productivity enhancement and diversification of the non- traditional crops sector (fruits and vegetables), bio fuel development as well as for plant quarantine services. NAREI's vision is "to ensure food security, prosperity and livelihoods of all, using technological innovations in agriculture."

The Institute is currently engaged in adaptive research that focuses on improving crop production/ productivity for enhanced food security and rural development. Emphasis is placed on crop diversification from high volume - low income to low volume - high income crops such as spices and other cash crops, new vegetables (cauliflower, broccoli, red cabbage and sweet pepper), integrated pest management approach to managing biotic stresses, procurement and evaluation of exotic germplasm (black eye, corn and soybean) of field crops, bio fuel crops, coconut and cassava revitalisation, and technology dissemination through the extension services. The promotion of Climate Smart Agricultural Practices, inclusive of protected agricultural systems for year round vegetable production, hydroponics and drip irrigation, is also given prominence.

NAREI's Strategic Plan (2013-2020) envisions the Institute as being the major facilitator for a prosperous, food secure and environmentally sustainable Guyana. This will be achieved through enhancing agricultural productivity and quality of produce through generation and dissemination of newer and efficient technologies and services reduced import of agricultural produce and products, reduced malnutrition and environmental degradation, and enhanced exports, taking into consideration the changing global and business environments. Emphasis is also placed on Hinterland Agriculture Development, a major focus of the Ministry of Agriculture, with other priorities such as, Enhancing Agricultural Diversification, Promoting Greener Agricultural Practices, Farming System & Technologies, Agro-Energy, Mangrove Management/Restoration and developing a Roadmap for the Coconut Industry.

Guyana School of Agriculture

Guyana School of Agriculture (GSA) was established in the year 1963 and became a state corporation in 1964 offering the Diploma in Agriculture and the Certificate in Agriculture Programmes, and graduated the first batch of 15 students in 1966.

The objectives of the school are outlined as follows:-

- (i) To offer theoretical and practical training in Agriculture; and
- (ii) To develop, manage and operate farms and undertakings of an agricultural nature, i.e. to operate commercial farms and undertakings in accordance with good farming practice.

Evolving from these objectives was the following Mission Statement: “To promote and support agricultural development through education and training of young men and women interested in an agricultural career.”

Today it also offers a Diploma and Certificate in Agriculture, a Diploma in Animal Health & Veterinary Public Health, a Certificate in Forestry, a Certificate in Fisheries Studies, and a Certificate in Agro Processing across two campuses: Essequibo and Mon Repos.

Annex 2 provides details of the number of GSA graduates from 2012 to 2016. Notably, the number of graduates has increased 41% over these years, with just a slight increase in the percentage of females graduating (32% in 2012 to 38% in 2016). The certificate in agro-processing was introduced in 2014 and has seen a steady increase in the number of graduates, indicating there is a shift of agriculture in Guyana to more value-added production. Promotion of this particular programme through government scholarships, especially to students from non-urban areas could prove to aid the Green State Agenda under thematic areas number 1, 2 and 7 in the GSDS Framework document.

New Guyana Marketing Corporation (New GMC)

Guyana Marketing Corporation (GMC) is a government corporation established under section 46 of the Public Corporations Act, Cap 19:05 of the Laws of Guyana. Its mission statement is to “Coordinate and facilitate the development and marketing of quality agricultural produce and product”.

It provides marketing services to stakeholders in the non-traditional agricultural sector, such as fresh fruits, vegetables and processed products. It operates export packaging facilities, trucking services, market information on wholesale and retail prices and facilitating logistical arrangements for exports.

In 2001, to further enhance its services to farmers and exporters, the corporation established the Central Packaging Facility – Sophia to prepare produce for export. In 2008, the Parika Agro-Packaging Facility was established for the same purpose.

Pesticides and Toxic Chemicals Control Board (PTCCB)

The Pesticides and Toxic Chemicals Control Board (PTCCB) was established by the Pesticides and Toxic Chemicals Control Board Act of 2002, for the management of pesticides and toxic chemicals in Guyana. The Board is tasked with responsibility for licensing, registration, training, inspection and enforcement and executes these activities with the aim of ensuring sound chemicals management in Guyana; reduce human health and environmental risk, and food safety in agriculture production.

All chemicals used in Guyana must be registered by the Board, ensuring that all pesticides used in agriculture production are of minimum risk to human health and the environment. This also plays an important role in the international trade of agricultural produce from Guyana ensuring that produce are safe for consumption. The PTCCB has a well-equipped laboratory, which plays a vital role in food safety, carrying out formulated pesticides analyses and residual analyses.

The PTCCB is active in the training of farmers, extension agents, vendors, students, pest control operators and Customs and Trade Administration Officers throughout Guyana. In so doing, focus is centred on pesticide related topics with relevance to agricultural practices. The PTCCB also raises public awareness through the development and distribution of training manuals and the publication of a quarterly newsletter. Further, the Board participates frequently at national exhibitions and television programmes featuring agriculture issues, in addition to hosting website with a comprehensive range of topics pertinent to its mandate.

Institutional and Capacity Development (Knowledge, Training/Skills, and Innovation/R&D)

The agricultural sector in Guyana has over the years benefited from a number of programmes in agriculture diversification, building climate resilience, food security, and disaster risk management, through regional and international donor agencies and development partners such the Food and Agriculture Organisation of the United Nations (FAO), Inter-American Institute for Cooperation on Agriculture (IICA), the Inter-American Development Bank (IDB) and other regional and country partners. These initiatives inevitably lead to institutional and capacity development in key institutions across the agricultural sector. A number of these initiatives are highlighted in **Annex 3**.

The current FAO Country Programming Framework for Guyana, for example, will see some focus on Food and Nutrition Security, including improved technical and institutional capacities in sustainable agriculture and the development of a Food and Nutrition Security Institute at the University of Guyana. IICA's 'Competitiveness and Sustainability of Agricultural Chains for Food Security' project will also support this capacity development in the sector. IDB's Agriculture Export Diversification project, which ran from 2008-2014, would have also seen strengthening of NAREI, specifically.

There is still much work to be done to build institutional development and foster capacity in the agriculture sector. Specifically, focus should be placed on providing technical capacity development to meet various international quality standards, as this can significantly affect exports. In 2018, exports of fish and coconut water have been rejected for quality assurance issues by the US and Trinidad, respectively.

Guyana should be able to capitalize on its great endowment of land and marine resources to foster its economic development sustainably through agriculture, by being able to meet these regional and international standards. Therefore the GSDS, through the GSDS Framework, will provide for this through its focus on value-added production, diversification, sustain fisheries and agriculture (thematic areas one and two), and through the strategic development of capacity to adhere to regional and international standards for the purpose of export (thematic area seven).

Operations

Existing financial/budgetary structure and allocations

As Table 3.4 indicates, the total budget of the Ministry of Agriculture increased significantly from 2010 to 2014, from GYD 3.25 billion in 2010 to GYD 15.46 billion in 2014, in a period of low inflation. In 2010, this was 2.2% of the total government budget, while by 2014, expenditures had grown to 7.2% of the

government's total budget. For 2015, the Ministry's budget amounts to GYD 20.89 billion, or 10.8% of the government's total budget, there has since been a decline to the current 2018 period.

The institution's capital expenditure includes budget allocations to both the Ministry's semi-autonomous agencies and to national and/or donor-funded agricultural development projects (IDB, 2017). All bodies under the Ministry are financially maintained primarily through government subvention.

Table 3.4: Government of Guyana Allocation for Agriculture Sector, 2014–18

	2014–2018 (Budget)									
	2014		2015		2016		2017		2018 (Budget)	
	Million US\$	As % of total budget	Million US\$	As % of total budget	Million US\$	As % of total budget	Million US\$	As % of total budget	Million US\$	As % of total budget
Agriculture sector total	75	7.3	100	10.7	92.2	8.6	88.3	7.3	81.8	6.3
Capital	22.6	9.1	19.3	13	12.7	5.6	17.9	6.5	22.3	7.7
Current	52.4	6.7	80.7	10.3	79.5	9.4	70.4	7.5	59.5	5.9

Monitoring and Evaluation Mechanisms

The Ministry of Agriculture operates within a sub-sectoral framework, that is, each sub-sector is governed by a semi-autonomous agency and has responsibilities for that respective sub-sectors, (with the exception of Guysuco which is a semi-autonomous state owned entity) rice (GRDB), sugar (GuySuCo), non-traditional crops (NAREI), livestock (GLDA), drainage and irrigation (NDIA, MMA), marketing (GMC), education (GSA), and pesticides and chemicals (PTCCB). Each agency has their own planning and legislative framework with a CEO and Board of Directors. In addition, Fisheries and Hydro-meteorological Departments are sub-programmes under the Ministry of Agriculture.

The monitoring, evaluation and strengthening of statistics are responsibilities of the individual agencies, whose interests are vested in achieving its mandates. The M&E Unit performs a coordinating role and works with all the agencies, through their M&E officers, to strengthen statistics, monitoring, evaluation, and reporting on achievements of results so that the ministry's overall performance can be enhanced.

With the establishment of the M&E Unit (in 2014), the expectation was that there will be effective coordination between and among the agencies; there will be the strengthening of the statistics base (data collection, verification, analysis and storage, dissemination and reporting); and, more timely and

accurate information for evidence-based decision making. However, each agency is at a different level of achievement and efforts must be made to scale this up to achieve the mandate of the unit.

In order to achieve the mandate of the M&E unit, the following actions must be taken:

- i. Ensuring all agencies and departments are staffed with committed/ dedicated M&E personnel.
- ii. Capacity building must be carried out to ensure that personnel possess the required skills and knowledge to maintain a functioning M&E system.
- iii. For the improvement of the M&E system within the sector, data systems and complementary infrastructure will be required.

Existing Data Systems and Analyses

The M&E unit also maintains the flow of data from the agencies and departments to key stakeholders. Quarterly datasets are collected and analysed for production, exports, and price. The Unit also prepares an Agriculture Statistical Yearbook on a yearly basis, which has data on production, international trade (exports and imports), commodity prices, weather, and other key statistics, including education and licenses, phytosanitary certificates and pest control operators' data. This type of output from the M&E unit is useful in monitoring some of the tangible outputs from the agriculture sector.

Statistical Unit Fisheries

This unit collects and analyses data and conducts surveys to provide scientific and social-economic information for policy determination, planning and resource management. The key responsibilities include: Market Survey Activity, Management of Data Entry and Storage, Production and Management of Individual Export Licences forms (Ministry of Agriculture).

Marketing Information Centre - New Guyana Marketing Corporation:

- Provides market and marketing information on market opportunities Locally, Regionally and Internationally;
- Provides a match-making service linking buyers and sellers;
- Advises on the availability of produce, freight and other marketing matters;
- Provides a one-stop desk for export documentation of non-traditional agricultural produce
- Conducts market studies for local and overseas markets;
- Participates in trade fairs, and expositions to promote Guyana's fresh fruits and vegetables, and agro-processed products;
- Assists exporters with registering with the US Food and Drugs Administration (FDA) Bio-terrorism Legislation;
- Conducts training for farmers, exporters & other stakeholders;
- Monitors daily wholesale and retail prices from local markets;
- Conducts analyses of data on prices, export volumes, etc.

(Source: Ministry of Agriculture.gov.gy)

Donor/Development Partners Support (since 2010)

The agricultural sector in Guyana has over the years benefited from a number of programmes in agriculture diversification, building climate resilience, food security, disaster risk management, through regional and international donor agencies and development partners such the Food and Agriculture Organisation of the United Nations (FAO), Inter-American Institute for Cooperation on Agriculture (IICA), the Inter-American Development Bank (IDB) and other regional and country partners. As a sector, agriculture receives some of the most support from international donor agencies, as agriculture has always been a priority area for the Government of Guyana and will be reflected in the GSDS as the GSDS Framework outlines various areas of agriculture advancement as a key focus under several of the central themes of the GSDS. This support comes in the form of grants, loans and technical assistance in capacity development and resource acquisition. **Annex 4** provides a detailed account of major agriculture donor/development programmes for the past eight years.

Problems/Challenges

- Apart from rice and sugar, the commercial non-traditional agriculture sector is in its infancy and opportunities for taking advantage of economies of scale are limited.
- Low Yields: our weakness lies in having more or less stagnant yields (apart from rice) compared to other countries (GSDS Thematic Group 1 draft report)
- Low value addition and Food processing: Food processing and value addition are still emerging sectors in Guyana. It has the capability to generate employment (especially in rural communities) but, unfortunately, technology and facilities (e.g. dry tomato project of Paramakatoi) are now reaching these communities. (GSDS Thematic Group 1 draft report)
- Prohibitively high energy cost has a negative effect on agriculture operations throughout the entire production value chain.
- Post Harvest losses: On farm (cost of harvesting greater than cost of produce), farm to market (cost of packaging greater than cost of produce), and market (rejection by consumer) wastage of agricultural produce is a reflection of low processing levels in Guyana. (GSDS Thematic Group 1 draft report)
- Lack of specific agriculture regulations (environment regulations, practices, control of residues and waste, control of diseases introduction) for both local and export purposes.
- Public-Private Sector Partnerships are in need of strengthening.
- Lack of access to finances
- Limited farm to market access and means of transport for export.
- No access to modern technology: The presence of agricultural extension in all regions of Guyana has initiated the vehicle whereby technology can reach farming communities. However, individualism of farmers (as opposed to organized clusters), reliance on traditional farming

implements (as opposed to mechanization), village marketing of produce (as opposed to linkages with external markets or industry), are approaches that needs to be nurture (GSDS Thematic Group 1 draft report).

Issues

Identifying Gaps and Entry Points/Opportunities and Associated Risks & Barriers

The situation regarding land tenure and administration is a frequently cited issue in stakeholder consultations. As well as the inordinate length of time it takes to obtain a lease for land, there is the issue of abandoned or unused land. As the Region 6 East Berbice Corentyne Land Use Plan noted, there is almost as much unused land as cultivated land and the issue of unused land when there is land pressure is a major constraint to agricultural intensification on the coastal plain. This issue was also noted during the private sector consultations held in Linden by the UG team for this situation analysis. Residents are willing to expand into agriculture activities; however, land tenure is an issue, which then leads to fiscal barriers for potential farmers. Land use planning by region, along with de-centralisation of land administration would benefit the agriculture sector in helping to alleviate the land tenure issue.

The wetland method of rice cultivation has resulted in tonnes of soil and its nutrients being lost annually. This, coupled with saltwater intrusion and the inherent acid nature of Guyana's soils, poses threats of land degradation to coastal agriculture. As Guyana's agriculture transition inland to higher elevations, the threat of water and wind erosion becomes a greater factor in our agriculture as land quality continues to diminish (GSDS Expert Group 1, 2018).

Lack of youth's interest in agriculture: There is anecdotal evidence that the average age of farmers has increased over time. This apparent trend continues, even though intake and outputs from agricultural institution (GSA and Faculty of Agriculture at UG) remain high. It may be unwise to say that youths are not interested in agriculture when agricultural environment is not obviously economically rewarding (GSDS Expert Group 1, 2018).

Other identified risks for the agriculture sector include:

- Short, medium and long term threat of flooding and drought, due to climate variability and change, salt water intrusion and disease outbreak. Flooding may also be caused by overtopping and old deteriorating drainage infrastructure.
- Loss of prime agricultural lands. A number of agricultural producing areas have over time been converted to other land uses (especially housing);
- Strong market competition from other exporting countries for non-traditional commodities;
- Land Degradation;
- Production or yield risk – weather related, sometimes excessive rainfall leading to floods and flooding of production areas; or insufficient rainfall, leading to drought;
- Price or market risk – prices for inputs & output sometimes changes after production has started;

- Inadequate agricultural policies, laws, regulations, strategic plans(GSDS Expert Group 1, 2018);
- Weak governance at semi-autonomous agricultural agencies(GSDS Expert Group 1, 2018); and
- Weak and fluctuating state investments in Agriculture(GSDS Expert Group 1, 2018).

Lessons Learned and Recommendations

Credit: Availability of adequate credit is vital for every sector and agriculture is not an exception. In Guyana, no bank is responsible for the smooth flow of credit to the agricultural sector.

Insurance: Insurance is a prime necessity to mitigate uncertainty that persists in agriculture. In Guyana, agriculture is still affected by such factors, which are beyond control of human being. So, there is a great need for agricultural insurance in Guyana. Keeping this in mind, Government of Guyana is urged to coordinate a General Insurance Scheme with the main objective to protect the farmers against losses suffered by them due to crop failure on account of natural calamities. Insurance in agriculture is absent and should be given priority in view of the realities of climate change.

Some options needed for consideration for farming communities are:

1. Seasonal rainfall insurance based on aggregate precipitation in rainy season in agricultural areas. There will be need to establish weather benchmarks, and correlated compensation based on weather deviation and commodity damage.
 - a. Sowing failure insurance based on precipitation in rainy season. There will be need to establish and or strengthen facilities for pretesting of seed quality and germination.
 - b. Rainfall distribution insurance with the weight assigned to different periods of the year. Compensation will be based on reliable weather forecasts of hydromet, crop water requirements, and deviation from seasonal rainfall patterns.
2. Economic policies must seek to address stability of prices for raw materials which are known to fluctuate.
3. There is no short term solution to socio-cultural changes, however, interventions could be sought for socio-economic contributions to suicide in the agricultural sector.
4. Emphasise climate smart infrastructure for people, animals and crops in vulnerable communities.
5. Institutions for Farm Machinery Manufacture (a new GNEC), Farm Machinery use Training for extension technicians (similar to that provided by Macorp at Providence, EBD) and Field Machinery Testing for farmers (as provided by PROPEL).
6. An Agro Industrial Arm of the extension department that extends the functions initiated by ASDU (putting machinery into communities and paying community members for works executed). This arm should among other things be tasked with distribution of agricultural machines, distribution of agri-inputs, promotion and execution of agro based industries and providing technical services and guidance to the farmers and entrepreneurs.
7. There are an ever increasing number of women participating in farming especially in rural communities. Thus, household food security (and child food security) is strongly linked to women's access to income-generating technologies. Enhancing the participation of users, especially poor rural women in the process of technology development is vital to achieving an

impact that benefits poor people. Having women's participation in the early stages of technology design will ensure that new technologies can be adopted rapidly.

Agriculture and Trade

Although Guyana's traditional sugar and rice industries continue to play an important role in Guyana's economy, agricultural diversification has been a major pillar in the Ministry of Agriculture's strategy to broaden the productive base, as more non-traditional commodities are being harvested and exported every year. However, immense opportunities are still unexplored. Enhanced competitiveness through lowering costs of production and re-engineering the supply chain for fast-time-to-market, is one pillar being pursued in the National Agriculture Strategy in Guyana, 2013-2020. For instance, while Guyana is self-sufficient in some livestock products, primarily meat, there is minimal export of livestock products. In fact, reaching export level production for meats, is a goal under the National Strategy for Agriculture 2013-2020. However, the lack of proper refrigerated facilities at our two international airports in Guyana, Cheddi Jagan International Airport and Eugene F. Correia International Airport is, however, a great barrier to realizing viable exports of livestock products, for example. Under the suggested GSDS Investment Infrastructure needs (Table 5.1), development of such an air cargo storage space would lead to the expansion of some of this untapped potential for export in the meat products and in fresh fruits and vegetables.

As regulation of the agriculture trade has increased globally, there are needs for improvements in food safety, agriculture health standards and competitiveness of the produce and products for exports in Guyana. Like many other developing countries, Guyana is attempting to build effective food safety and agricultural health management systems in the face of multiple deficiencies and limited resources. This is in fact reflected in the GSDS Framework, under thematic area number seven: 'International Cooperation, Trade and Investment', which specifically speaks to strengthening Guyana's capacity to adhere to regional and international environmental, health and safety standards, including, sanitary and phytosanitary measures. This would include 'technical assistance to producers to meet relevant standards (which would increase competitiveness and access to international markets) as well as the development and/or improvement of sustainable goods and services'. Foreign product standards and local resource management practices can have significant and damaging impacts on trade flows such as the United States Department of Agriculture's ban on imports of *Siluriformes* fish and fish products (catfish species) from Guyana. Guyana was unable to comply with several U.S. conditions mainly due to quality assurance factors such as inspection procedures and outdated regulations, including those governing fisheries products.

Guyana needs to attract several large-scale commercial agriculture operators to help it overcome logistical and quality control issues such as lack of processing facilities, limited ability to comply with sanitary/phytosanitary standards, and weak links to key import markets. It is clear that Guyana needs to provide significant financing incentives, offer substantial land area to attract leading operators, and improve its investment support to new investors in order to develop the non-traditional agriculture sector. While, this is happening to some extent in the coconut industry in Guyana, there is much potential in other industries in Guyana, including meat, dairy, poultry and other non-traditional vegetables and fruits.

Utilisation of novel technologies and renewable energy is scarce in the agriculture sector, especially in the small-scale farming and cash crops. This has resulted in stagnated yields and outdated practices.

While NAREI is conducting research on utilizing various biotechnology tools to help increase yield and regeneration efficiency, support would be needed for an education and awareness campaign to help transfer this type of technology to the small-scale farmers.

Renewable energy is only utilized to a very small extent in agriculture in Guyana. Solar driers are utilized, for example at the Tumeric Factory in Hosororo and at NAREI, while only one rice miller on the Essequibo Coast has commissioned a biogas plant. NAREI has reported that Guyana can produce an average of 185,696.44 megawatts of energy if all rice wastes are efficiently converted into energy. While the use of rice husk can provide energy to cater for some of the milling energy demands, millers are unable to fund the initially high investment and there would also be need for trained personnel to deal with the new technology. The Office of Climate Change has proposed a project for Resilient Environmental Agriculture Transformation through climate friendly technologies and management; funding for which is currently being pursued.

Guyana extends a number of tax concessions to the agricultural sector. Under the VAT Act, zero-rates apply to various food items, including baby formula, flour, milk and milk powder, fresh fruits and vegetables, sugar, eggs, and chicken. In addition, various agricultural inputs are also zero-rated. These include fertilizer, pesticides, fungicide, herbicide and weedicide, seeds, machinery, and equipment. In addition, prepared animal feeds, hatching eggs, and veterinary medication also fall within this Group.

The following sections review the current situation regarding agricultural imports, exports and any specific commodity measures being utilized to facilitate trade.

Import

Taxation of imports is key for Guyana's overall government revenue generation. Various import taxes are collected on imports. These include value-added tax (VAT), excise tax, environmental tax and stamp duties. In total, the tax revenue on imports generated 40% of all tax revenue collected in Guyana in 2017 and is projected to be 41% for 2018 (Ministry of Finance, 2018). The Bureau of Statistics reported all milks and cream as being the top food commodity imported from 2014-2016 while cheese, flour, peas and beans and other prepared food products round out the top ten commodities (Ministry of Agriculture, 2017).

VAT is applied equally to domestically produced goods and services and imports, at a general rate of 14%, down from 16% prior to February 2017. For certain products, domestic production is VAT exempted while imports are not. This applies, among other products, to fresh, chilled, or frozen pork; beef, shrimp, fish, salted fish, peanuts and cashew nuts. The excise tax is applied to alcoholic beverages, tobacco products, petroleum products, and motor vehicles. The tax rates vary from 3% (on gas oil) to 100% (on tobacco products). Stamp duty is GY\$ 1 per GY\$ 1,000 of declared import (c.i.f.) value. Guyana employs a system of automatic and non-automatic licensing of imports for selected Groups of agricultural products. Where this applies, importers must obtain the license from the relevant government institution, such as the Ministry of Agriculture or the Guyana Livestock Development Authority (GLDA). However, Investment Development Agreements (IDAs) allow for substantial waiver in duty and VAT on imported items for the rice and fisheries industries.

Export

Approximately 27% of total exports were agriculture exports in 2017. Rice exports amounted to US\$201M (14% of total exports), sugar accounted for US\$48.5M (3.3%), shrimp and fish amounted to US\$99.7M (6.9%), and other crops (fruits and vegetables) accounted for US\$8.7M (0.6% of total exports)(Bank of Guyana, 2018). With the exception of sugar, which saw a 33.9% decrease, all other commodities were increases from 2016. Rice had a higher export volume in 2017 than 2016 but also benefited from higher average export prices as new markets such as Mexico were obtained in 2017.

In 2012, duties on exports to the EU and to the Dominican Republic were eliminated due to implementation of the EU-CARICOM Economic Partnership Agreement. An export duty of GY\$1.00/tonne is applied to raw cane sugar. For molasses, the export duty amounts to GY\$1.00/100 litres. All other agricultural products and by-products are exempted from duty.

Under the Customs Act, the following exemptions of duties are applied in support of the agricultural sector: Waivers of duty on a wide range of machinery and equipment for land preparation and cultivation, including agricultural hand tools and spare parts for agricultural machines; exemption of duty for vehicles for use on the farm or to transport agricultural products; duty waivers on a wide range of agro-processing equipment; and duty-free importation of fertilizer and agro-chemicals, such as insecticides and herbicides.

Commodity-specific measures

The coconut industry has received much focus from 2016, where a coconut roadmap was formalised to catapult the commodity in Guyana and regionally. The International Trade Centre (ITC) implemented a partnership with CARDI in EU funded projects looking at the Coconut Sector/Industry within the Caribbean Region, with special focus on Guyana, Jamaica and the Dominican Republic. In fact, coconut and coconut products account for the largest portion of non-traditional exports, with an export value of US\$ 3.7 million in 2016. This increased by 29% in 2017, with the development of large-scale operations in Pomeroon and on the Essequibo Coast, highlighting the ongoing success of the roadmap. NAREI supports the work of CARDI and ITC through provision of training and support for the management of the red palm mite; with demo farms established at Clonbrook, Hague, Wakenaam and Pomeroon.

The Government of Guyana considers milk an important commodity and a product with significant potential for diversification within the sector. The government has also repeatedly expressed interest in investing in a milk processing plant to increase milk production and promote domestic processing of dairy products, as milk and dairy products are the leading imported food commodity. However, the sector is currently very informally structured and require much effort to ensure health standards are complied with and to generally develop the industry.

The agriculture diversification strategy of the Government of Guyana also includes focus crops such as cassava, peanuts, and horticultural crops. NAREI, in fact, has been promoting new farming system technologies for cassava and plantain. Mechanized cassava cultivation and utilization of biotechnological tools such as macro-propagation for plantains, micro-propagation for cassava and pineapples were pursued in 2016, with varying successes (NAREI, 2017).

The fishing industries benefits zero rating on importation of equipment and spares to be used in the production of exempt goods in the fishing industry, which goods will be subsequently exported by a

person who exports at least 50% (fifty percent) of all its products. The rice industry also benefits from items that are VAT exempt including paddy, fertilisers, ploughs, import of raw materials and packaging materials among others.

Overall, the Government of Guyana employs a variety of policy instruments in support of trade in the agricultural sector. These measures include trade policies and fiscal measures, as well as public investment in infrastructure, research, extension services and marketing. These policies result in a framework that generates overall positive transfers to the agricultural sector and increases farmers' gross receipts. Most of the support comes in the form of Market Price Support. Though producers are supported overall, the agricultural sector in Guyana remains sharply divided between the traditional and non-traditional sub-sectors. Overall, the poultry sector received the highest price support due to a high import tariff that protects domestic farmers, while the sugar sub-sector was the major recipient of budget transfers to individual commodities, which is unsustainable.

3.1.2 Extractive Sector Assessment (Summary)

Baseline Assessment of policies and key institutions at national, local and sector levels

The extractive sector in the Cooperative Republic of Guyana (Guyana) is concerned with the extraction of Guyana's natural resources. The extractive sector is comprised of the forestry, mining, flora, fauna, water, and the burgeoning oil and gas sectors. The extractive sector assessment is linked to Thematic Area 2 of the Green State Development Strategy Framework (GSDSF), and more specifically, the Sustainable Management of Natural Resources and Expansion of Environmental Services (GSDSF, 2017, p.14). The national context is framed within a combination of national and international targets. The general policy guidance for the extractive sector is provided by the Ministry of Natural Resources. There are several laws that govern the activities in each specific area of the sector. Notably, the Constitution of the Cooperative Republic of Guyana ("Constitution") provides an overall framework and basis in which the extractive sector can be framed, particularly from an environmental perspective. **Article 149J(2)(c)** of the Constitution specifically permits the State, in protecting the environment for the benefit of present and future generations, to use reasonable legislative and other measures designed to secure sustainable development and use of natural resources while promoting justifiable economic and social development. **Article 149J(2)(c)** of the Constitution enables several measures to be taken with respect to the extractive sector with a strong legal mandate.

There is an absence of a general policy framework for natural resources management in Guyana. Policies have been developed with respect to specific natural resources, more particularly forestry. From a policy perspective, there is institutional collaboration and coordination between the Ministry of the Presidency and the Ministry of Natural Resources. It has been acknowledged that there is a need:

"To develop and implement policies related to natural resources and the environment and promote and support the expansion and diversification of the economy through effective management, regulation, coordination and oversight of key entities in the sector" (Ministry of Finance, 2017a, p. 32)

Policy development is a specific programme of the Ministry of Natural Resources. This is made clear by Policy Programme: 261 - Policy Development and Administration, with the objective being:

“To develop, implement and oversee policies related to natural resources, to coordinate the programmes, plans and activities of implementing agencies under the purview of the Ministry of Natural Resources and to support the advancement of the green economy” (Ministry of Finance, 2017a, p. 135).

Strategies and Plans

Over time, Guyana has developed several strategies and plans to address the management of the extractive sector. The approach of Guyana in many sectors has been to develop strategies and action plans, as opposed to policies. With the GSDSF having been published in 2017, strategies developed prior to the GSDSF should be reviewed in light of the intended framework of the GSDSF to permit alignment with the GSDSF.

Forestry: Laws

Various statutes that regulate relevant institutions, on the subject matter (forests) and certain related activities, establish the legal framework, which regulates the forestry sector in Guyana. The relevant laws are the **Guyana Forestry Commission Act No.20 of 2007 (Guyana Forestry Commission Act)**, the **Forests Act No. 6 of 2009 (Forests Act)**, and the **Forest Regulations**.

There are several provisions in the **Forests Act** that support the initiatives contemplated by the GSDSF. These provisions include a comprehensive definition of forests, the recognition of the importance of forest conservation, as well as sustainable forest management. It is noted that sustainable forest management is included as a strategic area for achieving the protection, restoration and sustainable use of terrestrial ecosystems (GSDSF, 2017, p.16 and p.18).

The **Forest Regulations** were first developed under the repealed **Forests Act Cap. 67:01**. The Forest Regulations cover several important forest-related activities. Revisions to the **Forests Regulation** were published in 2018 with the objective of providing a revised and updated scheme of regulations to govern forest related activities. The Forest Regulations 2018 intend to introduce a harmonised system of exploratory and use permits together with concession and community agreements governing all forest related activities.

The functions of the Guyana Forestry Commission, as articulated in the **Guyana Forestry Commission Act**, support the initiatives contained in the GSDSF. The relevant functions include the development and carrying out of forest policy as well as the preparation of plans, codes of practice, and guidelines for the conservation and management of forests.

The present laws repealed several previous laws. In addition to addressing the fragmentation amongst previous laws in the forestry sector, the present laws provide a harmonised framework through which all activities in the forestry value chain can be addressed in updated legislation. Furthermore, the present laws provided the opportunity to include considerations regarding biological diversity and environmental impacts in the management of the forestry sector. The repealed laws are:

- The Guyana Forestry Commission Act, 1979;
- The Balata Act (Cap. 69:07);

- The Forests Act (Cap. 67:01);
- The Forest (Miscellaneous Provisions) Act 1982 (No.4 of 1982);
- The Forests (Exploratory Permits) (Amendment) Act 1997 (No. 15 of 1997);
- The Guyana Timber Export Board Act (Cap. 67:03);
- The Guyana Timber Export Board (Amendment) Act 1973 (No. 26 of 1973);
- The Guyana Timber Export Board (Transfer of Functions) Act 1981 (No. 14 of 1981); and
- The Timber Marketing Act 1973 (Cap. 67:04).

Forestry: Policy

Policy in the forestry sector is presently guided by the **Revised National Forestry Policy 2018**. The **Revised National Forestry Policy 2018** has been designed to be consistent with the GSDSF (Guyana Forestry Commission, 2018c, p.6). The GSDSF is further seen as providing the overarching policy under which the revised forest policy would be implemented (Guyana Forestry Commission, 2018c, pp.8-9). Guyana's National Forest Policy is intended to cover a ten year period from 2018 to 2028, and will be reviewed in 2023 (Guyana Forestry Commission, 2018c, p.7). The previous national forest policy has been developed in 2011, however significant changes had occurred to the sector:

“The 2011 revision of the National Forest Policy Statement (NFPS) and the NFP came in response to the Cooperative Republic of Guyana’s (CRG) promulgation of its Low Carbon Development Strategy (LCDS) which established that Guyana would maintain its forest cover in order to offer climate services to the global community”(Guyana Forestry Commission, 2018c, p.8).

Forestry: Strategies and Plans

Guyana's **National Forest Plan 2018** (Guyana Forestry Commission, 2018b) is intended to take cognisance of the GSDSF. This is evidenced by a commitment on the part of the GFC to make necessary adjustments in both the content and the mechanisms for institutional coordination to support both the GSDSF, and the Guyana National Forest Plan (Guyana Forestry Commission, 2018c, p.6).The National Forest Plan, prepared in 2018, contains several elements which support the core areas of the GSDSF (Guyana Forestry Commission, 2018a).

The **National Forest Plan 2018** supports the goals of the national forest policy with “27 strategies, which are then operationalized by 70 activities” Guyana Forestry Commission, 2018b, p.5). The **National Forest Plan 2018** identifies a specific goal or forest extraction, within which is the objective of reduced deforestation and forest degradation from both logging and mining operations. The GSDSF identifies the prevalence of deforestation as an important area to be addressed in the roll out of the GSDSF. The core intended strategic area of sustainable forest management identified by the GSDSF (GSDSF, 2017, p.16) aligns with the specific objective of the **National Forest Plan 2018** related to Conserving, Protecting and Sustaining the Forest (Guyana Forestry Commission, 2018c, pp.8-10).

Mining: Laws

The institution responsible for governing the mining of natural resources in Guyana is the Guyana Geology and Mines Commission (GGMC). The GGMC was created by the **Guyana Geology Mines and Commission Act Cap 66:02**, which was enacted in 1979. Other relevant laws include the **Mining Act, Cap. 65:01**, and the **Mining Regulations**. There have not been many amendments to the **Mining Act** since its enactment in 1989. The **Mining Regulations**, on the other hand, have been reviewed and

revised from time to time. One such review was conducted in 2005, which resulted in the passage of the **Mining (Amendment) Regulations 2005**. The **Mining (Amendment) Regulations 2005** introduced elements of environmental management into mining operations and it has the potential to provide a basis for the inclusion, in mining operations, of additional environmental considerations prompted by the GSDSF.

In its bid to support planned initiatives under the GSDSF, the GGMC may also utilise relevant Codes of Practice. Codes of Practice were introduced into the legal framework regulating the mining sector in Guyana through the **Mining (Amendment) Regulations 2005**. It is also worth noting that the sale and marketing of gold in Guyana is managed by the Guyana Gold Board, which was created by the **Guyana Gold Board Act Cap.66:01**.

The limitation apparent in the legislative framework is that many of the laws are outdated and have not been amended to address activities and developments in the sector which would have taken place since initial enactment of the respective Act. The revision of the framework informed by policy development will be a welcomed initiative. As noted:

“Mr. Speaker, there is a need for a clear legislative regime that enables improved governance and the development of a sustainable extractor sector. In 2016, the Ministry of Natural Resources tasked its regulatory agencies with identifying their strategic priorities, legislative gaps in their existing Act and Regulations, and more recently, a review of the Fees and Fines that are stipulated by their legislation. Following the reviews conducted, it was deemed that the Acts and Regulations were out-dated and many loop-holes were identified and as such, there was a need for the revision of the legislative framework that governs the extractive sector”.(Trotman, 2017, p.5).

In the specific context of the GSDSF it will be important to:

“assess and make recommendations on the following: • Adequacy of current mining and sand extraction-related licensing and reclamation and rehabilitation regulation, including the degree of social and ethical inclusion • The extent and key locations of non-compliance with regulation (GSDSF, 2017, p.12).

Mining: Policy

Presently there is no mining policy, as observed by (Pasha, Wenner and Clarke, 2017, p.29) “While the legal and regulatory framework is robust, the absence of a clearly defined policy for the industry is a major shortcoming”. The absence of a mining policy has been identified by several stakeholders as a contributing factor to several of the challenges faced in the mechanisms of the mining sector in Guyana. The challenges include resource allocation; operational differences among large-scale, medium-scale and small-scale miners; conflicting land use; occupational health and safety in mining; addressing adverse environmental impacts of mining; and what has been described as the pervasive perception of corruption in the mining sector (Bulkan and Palmer, 2016).

There is, however, work being undertaken to develop such a policy. Such works are driven by a need to develop a robust mining policy (Ministry of Natural Resources, 2016). Government’s appreciating the importance of the GSDSF is likely to ensure that the policy contains components that align with the GSDSF.

Strategies and Plans

There are no comprehensive strategies and plans for the mining sector. There are initiatives being developed to address specific issues particularly the use of mercury in mining in recognition of the sectoral implications contained in the GSDSF.

Oil and Gas: Laws

There are no modern laws governing the Oil and Gas sector in Guyana. It is important to consider from the outset, that as with other natural resources in Guyana, rights in petroleum resources are vested in the State. Additionally, the right to exploration and exploitation of the resources are vested in the State. These legal realities are the product of the **Petroleum (Production) Act Cap. 65:05**. Given the rapid development that Guyana's oil and gas sector is currently undergoing, there are plans to update the legal framework regarding this sector. There are likely to be revisions to both the **Petroleum (Exploration and Production) Act 65:04**, and the **Petroleum (Exploration and Production) Regulations**. The sale and storage of petroleum are regulated by the provisions of the **Petroleum Act Cap. 92:01**. The specific proposed amendments have not yet been publicised, however revisions and amendments are expected to balance oil and gas utilisation with considerations contained in the GSDSF. This is particularly so with respect to initiatives linked to the establishment of a Sovereign Wealth Fund. It is observed that on the 8th of August 2018 the Honourable Minister laid in Parliament a **Green Paper on Managing Future Petroleum Revenues and Establishment of a Fiscal Rule and a Sovereign Wealth Fund** which includes a legislative component on the passage of a National Resource Fund Act (Ministry of Finance, 2018, p.20)

The disadvantage of an outdated legal framework is that existing sector participants may take advantage of the perceived loopholes in the sector to obtain favourable concessionary agreements.

Oil and Gas: Policy

There is presently a **Draft Local Content Policy**, the full policy title being the **Draft Policy Framework for Capacity Development, Local Content and Value Addition for the Petroleum Sector in Guyana** (Ministry of Natural Resources, 2017a). Additionally, there is an identified need for the implementation of an Oil and Gas (Upstream) Policy (Ministry of Finance, 2017b, p. 80). It is noted that the available version of the **Draft Local Content Policy** does not mention the GSDSF. The only mention of the concept of green is the notion of a "green brand" (Ministry of Natural Resources, 2017a, p.7). There should be some synergies or linkages established between the Draft Local Content Policy and the GSDSF. The Second draft of the Local Content Policy which was made available in May, 2018 (Ministry of Natural Resources, 2108) has not addressed the GSDSF related deficiencies of the first Draft of the Local Content Policy. As demonstrated with the **Green Paper on Managing Future Petroleum Revenues and Establishment of a Fiscal Rule and a Sovereign Wealth Fund** a petroleum related initiative can incorporate elements of the GSDSF.

Oil and Gas: Strategies and Plans

There are no articulated strategies and plans for the oil and gas sector. From a budgetary perspective, petroleum management is identified as Programme 264. The sector objective is stated to be:

"To promote and support the exploration and production of oil and gas resources by regulating, managing and monitoring the industry to ensure that the resources are

developed in an environmentally responsible manner to attain maximum profits to benefit all Guyanese” (Ministry of Finance, 2017(1), p. 136)

It is noted that directly related to the GSDSF is the intention to use elements of the revenues derived from petroleum as a catalyst to realise elements of the GSDSF. The **Green Paper on Managing Future Petroleum Revenues and Establishment of a Fiscal Rule and a Sovereign Wealth Fund** is directly linked to the Green State Development Strategy, with:

“Petroleum revenues as well as excess revenues from mining and forestry will be deposited into the NRF – a US dollar bank account held by the Bank of Guyana – from which withdrawals will be made, based on a fiscal rule. The withdrawals from the NRF will be deposited into the Consolidated Fund to form part of the financing streams for the annual budget, along with loans and tax and non-tax revenues. Government will then determine its development priorities, based on the costed GSDS, and the available income envelope which, from 2020, will consist of petroleum revenues, loans, grants, tax and non-tax revenues. Priority will be placed on catalytic investments to transform communities, regions and the country as a whole, within the context of the measurable targets, identified within the GSDS” (Ministry of Finance, 2018, pp.20 and 21)

Water: Laws

Internal water resources in Guyana are administered and governed through a combination of laws. These laws include: the **Creeks Act, Cap 50:04**, the **Drainage and Irrigation Act, Cap. 64:04**, the **East Bank Demerara Water Conservancy Act, Cap 55:03**, and the **Water and Sewerage Act, Cap 30:01 (Water and Sewerage Act)**. The critical law relating to water in the context of the GSDSF is the **Water and Sewerage Act**. This Act enables and supports the functioning of the Guyana Water Inc., which is the primary institution with responsibility for the management of water resources on a national scale. The **Water and Sewerage Act** has facilitated the development of several current plans and strategies which are being adopted in the water resource sector in Guyana. Several provisions of the **Water and Sewerage Act** provide the legal basis for actions to be taken to achieve the goals and targets of fresh water management. It is important to appreciate that fresh water management is an important strategic area of the GSDSF (GSDSF, 2017, pp.18-19).

Water: Policy

There is need for the implementation of a comprehensive water resource management policy in Guyana. As noted by (Browne, 2016, p.11):

“One of the key factors which contributed to inadequate water resources management are absence of enacted water resources policy, insufficient legislative and legal framework, inefficient institutional framework, weak financing mechanisms, and inadequate professional and technical capacity to undertake role and duties of the sector/institutions.”

In light of this observation, part of the solution to the absence of a comprehensive national policy is the development, maintenance, and modification, where necessary, of an integrated national water resource management policy, a point argued by Baptiste (2017).

Water: Strategies and Plans

The Guyana Water Inc. (“the GWI”) has produced a **Water and Sanitation Sector Strategic Plan 2017 – 2021** (Guyana Water Inc., 2017). The GWI’s previous **Strategic Business Plan** spanned the period 2012 to 2016 (Guyana Water Inc., 2017, p.6). **The Water and Sanitation Sector Strategic Plan 2017 – 2021** specifically supports elements of the GSDSF, particularly through “the establishment of municipal wastewater treatment especially in the new towns, in keeping with the country’s green initiative” (Guyana Water Inc.,2017, p.28).

Permitting

Laws

Activities related to natural resources, in addition to being governed by sector specific laws, are further governed in some instances by laws that seek to manage the impact of the natural resources activities on the environment. For the purpose of this undertaking, these laws are described as ‘permitting laws.’ The primary statute is the **Environmental Protection Act, Cap. 20:05 (Environmental Protection Act)**. The wide purposes for which the **Environmental Protection Act** was enacted, as well as the comprehensive definitions of the environment and natural resources contained in the **Environmental Protection Act**, provide the framework for several environment-based initiatives which the GSDSF seeks to implement, prior to the enactment of the **Environmental Protection Act** in 1996, issues regarding the environment were not dealt with on a holistic basis. The **Environmental Protection Act** augmented the prior existing legal framework. With respect to civil liability, torts including trespass, negligence, public nuisance, private nuisance, and the Rule in Rylands v. Fletcher, traditionally provided some form of relief for specific environmental damage.

The existing legal framework ensures that many of the primary extractive activities in the extractive sectors cannot be undertaken without permission of the Environmental Protection Agency (EPA). This environmental oversight is an important feature of Guyana’s sustainable development trajectory. It is noted that permission is required for extraction and conversion of mineral resources, as well as the harvesting and utilisation of forest resources. Like other agencies and commissions, the EPA has identified several elements of the **Environmental Protection Act** that support the components of the GSDSF. This practical approach to the existing legislative framework will facilitate easier advancement of the implementation of the GSDSF. The use of the existing legal framework to implement GSDSF targets is a commendable strategy, particularly because the process of legislative amendment or enactment of new legislation can be protracted. Moreover, the Guyana Lands and Surveys Commission (GLSC) has highlighted existing legislative alignments with the GSDSF (Guyana Lands and Surveys Commission, 2018). A similar process of alignment has been conducted by the Guyana Wildlife Conservation and Management Commission (Guyana Wildlife Conservation and Management Commission, 2018, p.5).

The key threat posed by an outdated legal framework is that certain aspects would derive primarily from the actions of opportunistic market entrants, who are aware of the weaknesses in the framework and seek to secure rights that are difficult to change, as there are improvements in the legal framework. The lessons of states have demonstrated that as legal awareness in a state grows, new entrants face a more robust regime of laws that govern compliance.

In recognition of the importance of the need for a framework that managed the use of Guyana’s flora and fauna beyond the activities associated with international trade, a **Wildlife Conservation and Management Act** was enacted by the Guyana Parliament in 2016, and made operational in 2017. Apart from establishing and prescribing functions for a Wildlife Conservation and Management Commission, the Wildlife Conservation and Management Act has made provision for the conservation, management and sustainable use of all of Guyana’s flora and fauna.

Policy

Guyana lacks a general environmental policy. Importantly, there are policies for certain environmental sub-areas. An example is the **National Policy on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation**(CBD, 2007). The **National Policy on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation** is administered by the Environmental Protection Agency. The **National Policy on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation** provides the framework that governs access to biological diversity, genetic resources, and traditional knowledge in Guyana. In this regard, the policy, together with provisions of the **Amerindian Act, Cap. 29:01**, can be collectively utilised to support traditional knowledge, local practices, and innovation, which are all articulated in the GSDSF (GSDSF, 2017, p.19).

Strategies and Plans

There are plans regarding specific environment-related subject matters, with a particular emphasis on biological diversity. There have been several iterations of the **National Biodiversity Strategy and Action Plan**. The current version is the **National Biodiversity Strategy and Plan 3**, which spans the period 2012 to 2020 (CBD, 2012). There were earlier plans and strategies developed for the period 1999 to 2004 and the period 2007 to 2011. There are parts of the **National Biodiversity Strategy and Plan 3** that can be linked to the GSDSF.

The **National Biodiversity Strategy and Plan 3** identifies 9 strategic objectives (CBD, 2012, p.44). The GSDSF is grounded on the sustainable use of biological diversity as *“The sustainable use and preservation of marine and coastal ecosystems and their biological diversity is an important component of the Green State Development Strategy”* (GSDSF, 2017, p.19). The sustainable use of biological diversity is lined to both Strategic Objective 1 and Strategic Objective 2 of the **National Biodiversity Strategy and Plan 3** which specifically relate to:

“Improve the status of biodiversity by conserving ecosystems, species and genetic diversity and by restoring biodiversity and ecosystem services in degraded areas and Promote conservation, sustainable use and value of biodiversity into key productive sectors used for growth, expansion and diversification of the economy.” (CBD, 2012, p.44).

Institutions

Existing/Past institutional structure and inter-sectoral coordination mechanism

In the past, overall policy and institutional management in Guyana fell solely under the Ministry of Natural Resources and the Environment. It was recognised that this could possibly create conflict, so in 2016, a strategic policy decision was taken to separate the institutional responsibilities between the Ministry of Natural Resources and the Ministry of the Presidency. The Ministry of the Presidency would be responsible for the environment. The separation was meant to result in a streamlining of the policy direction, among the extractive sector and the environment.

The institutional participation in the various thematic areas of the GSDSF process has bridged significant informational gaps that may have existed between the institutions and the GSDSF. The constant and active institutional participation in the various thematic group has allowed not only the GSDSF to be institutionally supported, but has also permitted the relevant thematic areas of the GSDSF to be

included in the emerging institutional plans. An example can be gleaned from the case of the GGMC, which is integrating components of the GSDSF into its budget and plans for 2019.

The institutions are classified as semi-autonomous agencies, and include the GFC in the case of forestry, the GGMC, the Guyana Gold Board in the case of mining, and the EPA, whose responsibility spans all extractive sectors. Presently, the EPA falls under the Ministry of the Presidency. The GFC, the GGMC and the Guyana Gold Board, also fall under the Ministry of Natural Resources. Previously, sector institutions fell under the purview of the previous Ministry of Natural Resources and the Environment.

The GoG has created a Department of the Environment whose mandate is *“developing a master plan to achieve the objectives of the green agenda”* (Parliament, 2016, p.76). In this regard, it is observed that the objective of Programme: 262 regarding Natural Resource Management is:

“To promote and support the expansion and diversification of the economy by facilitating responsible exploration and development of Guyana’s natural resources through effective management, regulation and oversight by the regulatory agencies” (Ministry of Finance, 2017a, p. 135).

The Department of the Environment is a critical institutional stakeholder in the development and implementation of the GSDSF. This is due to the emphasis of the GSDSF on environmental considerations, the institutions included under the umbrella of the Department of the Environment, as well as the articulated role of the Department of the Environment. It was observed in the GSDSF that:

“However, achieving a green economy will require coordinated policies, institutional arrangements, and programmes to manage the environment and economy as a whole. This has commenced with the establishment of the Department of Environment, separating protection of Guyana’s national patrimony from extraction, and strengthening institutions.” (GSDSF, 2017, p.3).

Furthermore, regarding Department of Environment it is noted in the GSDSD that:

“The Office of the Presidency, and in particular the Department of Environment, has been charged with the responsibility for the GSDS and therefore is a major driver for its preparation.” (GSDSF, 2017, p.55).

The sector institutions are all governed by a Board of Directors. The operational structure includes an office with overall responsibility for the work of the institution. There is an Executive Officer, who is described as a Commissioner, Executive Director or a Managing Director. The work of the institutions is further divided into divisions, programmes or departments. Among institutions the GWI has the greater number of Divisions. Common divisions across institutions include finance, human resources and administration. There are further divisions established to deal with the technical management of the institutional resource. In the case of the GFC this is seen with the Forest Resource Management Division. It is further useful to note the importance placed on the management of information through either a Management information system division or a division focused on information and communication technology.

The physical distribution of resources in Guyana necessitates the need for institutional collaborative mechanisms. The GGMC and the GFC administer leases for resources on and under the land, for mining

and forestry, respectively. Each of these agencies may issue permissions for different purposes over the same land space (GLSC, 2013, p.84).

The GSDSF will require an assessment of:

“The adequacy of institutional, infrastructure and personnel (technical and managerial) capacity to enforce the existing land reclamation and rehabilitation regulatory frameworks in the required geographies” (GSDSF, 2017, p.12)

Forestry

The Guyana Forestry Commission

The **National Forest Plan 2018** identifies an institutional challenge in the context of forestry, which can be extended to all institutions involved in the extractive sector in Guyana. It has been highlighted that:

“the needed stakeholder coordination mechanisms or the legislative reforms needed to improve the functioning of state agencies and institutions, such mechanisms and reforms are vital for the efficient and effective implementation of this Plan” (Guyana Forestry Commission, 2018c, p.4)

Ministerial Direction for the GFC is provided by the Ministry of Natural Resources. The GFC is governed by a Board of Directors appointed by the President. Some of the key departments in GFC are as follows (Guyana Forestry Commission, 2017a):

- The Commissioner of Forests:
- Internal Audit;
- The Finance Division;
- Management Information Systems;
- The Planning & Development Division;
- The Forest Monitoring Division;
- The Forest Resource Management Division;
- Human Resources & Administration;
- Herbarium; and
- Library.

Mining

The policy guidance for the GGMC is provided by the Ministry of Natural Resources. The GGMC is managed by a Board of Directors. There are several divisions of the GGMC, including the office of the Commissioner. The Divisions of the GGMC include (Guyana Geology and Mines Commission, 2018b):

- Geological Services;
- Mines;
- Environment;
- Petroleum;
- Land Management;

- Administration Division;
- Finance Division; and
- Library.

The institutional management of the GGMC will be significantly enhanced by the planned implementation of the ISO 9001:2008 standard to its business processes (Guyana Geology and Mines Commission, 2018a).

Oil and Gas

At the time of writing, Ministerial responsibility was vested in the Ministry of Natural Resources. There is a Petroleum Division of the GGMC, which presently addresses technical sector-related issues. There are plans to establish an autonomous Petroleum Commission, provision for which is made in a draft **Petroleum Commission Bill 2017** (Ministry of Natural Resources, 2017b).

It has been observed that, plans have been announced to establish a Department of Energy, which will assume responsibility for the oil and gas sector (Department of Public Information, 2018). The creation of a Department of Energy will remove the policy responsibility for oil and gas from the Ministry of Natural Resources, and place it in the purview of the Ministry of the Presidency.

Water

The GWI is governed by a Board of Directors. There is also a Managing Director. The GWI organisational chart includes (Guyana Water Inc., 2017 p. 5):

- Internal Audit;
- Corporate Services and Administration;
- Project Implementation & Partnership Building;
- Operations;
- Human Resources;
- Strategic Planning;
- Evaluation and Monitoring;
- Commercial and Customer Relations;
- Information Communications Technology;
- Finance; and
- Planning & Design.

Permitting

The EPA is now guided by the Ministry of the Presidency through the Department of the Environment. The EPA has been restructured to support the development of Guyana into a Green State. In a recent news report, “Minister [Joseph] Harmon noted that the EPA is, therefore, an important entity, not only in safeguarding the nation’s resources, but it is imperative to the success of Guyana’s progression towards becoming a ‘green state’” (Kaieteur News, 2017). The EPA is governed by a Board of Directors. The Divisional structure of the EPA is presently under review.

The mission of the EPA (Environmental Protection Agency, 2018) is to:

“protect and manage our natural environment by:

- *coordinating programmes to conserve and sustainably use of natural resources;*
- *assessing the impact of development activities on the environment;*
- *integrating appropriate environmental provisions into development planning; and*
- *promoting public participation in environmental decision-making.”*

The EPA has indicated that it has commenced restructuring undertakings, which includes a shift from a divisional structure to a structure that addresses programmatic areas. The institutional structure of the EPA will continue a process of evolution and development during the process of implementation of the GSDSF. GSDSF initiatives have already been incorporated into several areas of work of the EPA.

Institutional and Capacity Development (knowledge, training/skills, and Innovation/R&D)

Institutional and capacity developments are supported by both internal initiatives as well as external projects. The approach to capacity building further demonstrates the sharing of institutional capacities. Examples of these are seen with the approach of the GFC to Monitoring and Verification as well as through the Forest Carbon Partnership Project (Guyana Forestry Commission, 2017b). Institutional and Capacity Development are specific objective of National Forest Policy (Guyana Forestry Commission, 2018s, p.27).

Operations

iv. Existing financial/budgetary structure and allocations

Budgetary allocations are firstly linked to the budgetary estimates for the responsible ministry. There is, then, an allocation for the specific agency involved. The importance of the extractive sector is supported by the overall increased budgetary allocations. For the Ministry of Natural Resources, there are, firstly, estimates identified in the areas of Policy Development and Administration (Ministry of Finance, 2017b, pp. 76-77), with a reduction to \$597,410,000 for 2018 from a revised estimate for 2017 of \$624,913,000. In the area of Natural Resource Management there is a notable increase planned for the year 2018. For 2018 the budgetary allocation has been estimated at \$334,394,000 as opposed to \$17,606,000, which represented the revised Figure for 2017 (Ministry of Finance, 2017b, p. 79).

Forestry

The GFC is considered under Natural Resources Management Agency 26, Programme 262. The details of revenue and expenditure for the GFC are identified in the budgetary estimates (Ministry of Finance, 2017a,p. 661). There are no subsidies provided to the GFC from the Central Government. There is significant revenue generated from operations, with fees and fines accounting for the largest proportion of the revenue. In 2018 the estimated revenue for the GFC is \$1,426,000,000. This value represents an increase from the 2017 Figure of \$1,302,406,000. It can be deduced that the GFC, has and plans to continue to increase its monitoring, compliance and enforcement activities. The largest aspects of the recurring expenditure for the GFC are employment costs, and wages and salaries. There was a marked increase between 2016 and 2017 in particular.

Mining

The budgetary allocations for the GGMC are considered under Natural Resources Management Agency 26 Programme 262 (Ministry of Finance, 2017a, p. 662). The revenue from operations of the GGMC is in

large part made up of revenue from rents and royalties. For 2018 the estimated revenue is stated as \$9,179,917,000. This value constitutes an increase from the 2017 Figure of \$6,425,852,000, and the 2016 Figure of \$6,897,364,000. The recurrent expenditure of the GGMC is in large part made up of expenditure on materials, equipment and supplies. It is further observed that the GGMC has made several transfers to Central Government. In 2018 the estimated transfer is stated as \$5,500,000,000. This is a reduction from the 2017 Figure of \$9,000,000,000. The revenue and expenditure for the Guyana Gold Board is also stated in the budget (Ministry of Finance, 2017a, p. 663).

Oil and Gas

It is noted that with the advent of the current developments in the oil and gas sector, there has been a trend toward increased budgetary allocations to the Ministry of Natural Resources (Ministry of Finance, 2017b,p. 80 and p.81). The total estimated expenditure for 2018 has been identified as \$178,226,000. This value represents an increase on the 2017 revised estimate of \$116,471,000. It is noted that a significant component of the increased expenditure is employment costs, which increased from the 2017 revised estimate of \$4,128,000 to an estimate of \$22,376,000 for 2018.

Permitting

The EPA is provided financing from the Ministry of the Presidency. Under the Ministry of the Presidency the estimate for the EPA in 2018 is \$511,452,000 representing a decrease from the revised estimate for 2017 of \$560,602,000. It is noted that the main part of the revenue of the EPA is intended to be from subsidies from central government, estimated in 2018 to approximately \$449,452,000. The 2018 Figure is increased from the 2017-revised estimate of \$297,800,000 (Ministry of Finance, 2017a, p. 638). It is observed that while listed under the Ministry of Natural Resources there are no estimates for either 2017 or 2018 for the EPA. This confirms the functional as well as the operational separation of the EPA from the Ministry of Natural Resources, further supporting the independence of the regulatory function of the EPA.

Monitoring and Evaluation Mechanisms

The present activities in the areas of monitoring for both the GGMC and the GFC relate to the technical monitoring of the activities within the sector. For the GFC, the Forest Monitoring Division conducts the monitoring, and is responsible for “enforcing Forest Laws and Regulations, licensing forestry operations, monitoring and controlling of forestry operations with regards to annual allowable cuts, social and environmental impacts, approving forest produce for export, and collecting revenue (Guyana Forestry Commission, 2016, p.12).

With regards to the GGMC, the monitoring is conducted by the Mines Division (The Guyana Geology and Mines Commission, 2015, p.16). The monitoring activities of the Mines Division relates to compliance and evaluation monitoring particularly with respect to compliance with the provisions of the Mining Act, Mining Regulations and Codes of Practice. The Mines Division of the GGMC “is responsible for regulating, monitoring and recording of all mining and quarrying activities of Small, Medium and Large-Scale operations.” (The Guyana Geology and Mines Commission, 2015, p.16). The Mines Division further administers the GGMC licensing system and seeks to facilitate the implementation of internationally acceptable mining standards, practices and culture. The personnel of the GGMC in the discharge of its monitoring function provide technical assistance to stakeholders.

In the context water resources, there are significant initiatives needed to improve the present approach to monitoring and evaluation point noted by (Browne, 2016, pp.11-12).

Existing Data Systems and Analyses

Each sector institution utilises various approaches to the acquisition, storage and analysis of data. It is appreciated that the use of data is becoming increasingly important in the support of evidence-based decision making. There is however a need for synergies among institutions regarding the type of information gathered, the format of the information and interoperability of the information. The role of the National Data Management Authority will be important in establishing a robust data system among sector institutions.

For the GFC the Forest Resources Management Division (FRMD) is responsible for data collection on National Forest resources. The GFC further utilises a Management Information system, which “assures improved data communication between both internal and external stakeholders; and maintains reliability, security and availability of information that is accessed throughout GFC (Guyana Forestry Commission, 2017a, p.12). The external stakeholders with whom the GFC collaborates includes the GGMC.

The Geological Services Division of the GGMC is responsible for aspects of information and data management. There have been several projects that have supported the development of data and information sharing between the GFC and the GGMC. The activities include the process of Monitoring and Verification as well as REDD+ activities. The establishment of data systems has further been a priority at the ministerial policy level, as seen with the establishment of a Geospatial Information Management Unit within the then Department of Natural Resources and the Environment (Department of Natural Resources and the Environment, 2016).

Issues

Identifying Gaps and Entry points/Opportunities and associated Risks & Barriers

The work of the GSDSF thematic group has identified several strengths, weaknesses, opportunities and threats for various sectors including the extractive sector. Through work of the thematic group several risks and barriers for sector participation have been identified. The approach of the thematic group would have built on input from sector institutions. For the extractive sector, the analysis separated the oil and gas sector from other components of the extractive sector (GSDSF Thematic Group #1, 2018).

Gaps and Entry Points/Opportunities

For the extractive sector, excluding oil and gas, several factors have been identified as opportunities (GSDSF Thematic Group #1, 2018, pp.8-9). The factors identified provide the basis for a deeper examination of extractive sector opportunities. Opportunities that continue to be pursued include the reduction or elimination of the use of mercury in mining, and the adoption of better technology and improved environmental practices. There are further potential opportunities for the use of non-traditional minerals in various up-stream sectors.

For the Oil and Gas sector the opportunities (GSDSF Thematic Group #1, 2018, pp.10-11) include:

- *Use of the oil wealth can revive failing sectors such as the sugar industry*
- *Reduce country's international debt*
- *Improve manufacturing sector to allow for increased exports*

- *Improved infrastructure*
- *Innovation and modernization*
- *New Markets for not just oil products but for suppliers of food and other products that are required on local and international operations*

A gap analysis (GSDSF Thematic Group #1, 2018, pp.12-13) for the sector indicates that gaps exist which can be addressed through the adoption of hydropower and other forms of renewable energy to support sector related activities. Increased foreign investment is seen as a further opportunity to bridge financing and investment constraints, which may exist in a national context.

Risks and Barriers

Safety has emerged as a risk associated with the extractive industry in Guyana. Several accidents that resulted in death have highlighted the importance of safety. Financial risks are also associated with the price of minerals on external markets. In the past the fluctuating price of gold has served as both a barrier to entry into the sector, as well as a risk associated with participation in the sector. With high international gold prices, there has been an increase in sector entry and investment. When prices are reduced, there is a high loss of investment in the sector.

An additional risk which has emerged within the extractive sector linked particularly to foreign investors, is that associated with international developments and/or home country developments. The risk associated with external developments was recently demonstrated when the United States of America announced sanctions on Rusal, which impacted not only the operations of the company in Guyana, but also those of other companies within the supply chain. The supply chain partner affected in this instance is Oldendorff Carriers, who because of the sanctions against Rusal ceased its operations in Guyana (Guyana Times, 2018).

Entry barriers also exist that have been created by the remote location of the resources.

In the mining sector there are various levels of entry. Foreigners are not permitted to acquire medium-scale and small-scale properties without partnership or collaboration with a Guyanese right holder. Financial barriers for entry should be considered, particularly having regard to the level of financial investments required for entry into the extractive sector.

State of technology is both a risk as well as a barrier to the development of the extractive sector. There are various approaches to the technology utilised in the mining sector (Pasha, Wenner and Clarke, 2017).

With sector participants being traditionally risk averse, there tends to be a barrier to the adoption of innovation in the sector (Deloitte, 2018, p.10). Additionally, it has been appropriately observed that "miners need to understand how digital technologies, including autonomous vehicles, drones, 3D printing, wearable technologies, and Internet of Things (IoT) sensors to capture data in real time, may influence the way they do business" (Calam, 2018).

There are several environmental risks associated with the extractive sector. The level of the risk may extend to cause a barrier to participation in the sector. As has been noted, "In Guyana, mining causes a range of environmental damage apart from deforestation. These include mercury pollution, river siltation and diversions, and disfigurement of the land" (Lowe, 2014).

Lessons Learned and Recommendations

Policy, Action Plans and Legal Framework

Policy

Observation: Save for the forestry sector, there is an absence of policy in the extractive sector.

Lessons learned

i. Policy Development

Sector specific policies should be developed. The policies should where possible achieve overall sector balance, and where possible integrate appropriate elements of the GSDSF. Appreciating that the GSDSF is but one factor influencing the director of the specific sector, the GSDSF should not form the anchor of the sector specific policy but should be a useful guide.

ii. Policy time period

The policy period should be for the medium terms as opposed to the short term. As with forestry, a time period of ten years may be appropriate.

iii. Policy before the law

Policies should be developed prior to the amendment and enactment of new laws. The traditional approach is that the content of the policy guides the purpose and objective of the law.

The Legal Framework

Observations:

The legal framework in many instances is dated.

Absence of awareness of compliance and enforcement of existing laws.

Lessons learned

i. Statutory Interpretation

A generous as opposed to literal interpretation of existing laws may support addressing sector related issues. A literal interpretation of legislation may provide a limited perspective on the scope, purpose and objectives of the specific law to be interpreted.

ii. Subsidiary Legislation

Where existing enabling legislation provides a broad statutory framework, subsidiary legislation such as regulations can be utilised to achieve desired outcomes. The process of developing and implementing subsidiary legislation is not as lengthy as that of amending or enacting a new law.

iii. Legislative review, amendment and new enactments

There is a need to review the existing legal framework.

Legislative reviews should not only take into consideration sector specific concerns but should incorporate national development priorities, such as the GSDSF.

iv. Compliance and Enforcement

Compliance and enforcement frameworks should be updated and, in some instances, formalised through regulations.

Sectoral compliance initiative should be supported, for example the work of the wardens of the Ministry of Natural Resources, Forest Officers and Mines Officers.

Additional resources should be allocated to compliance and enforcement mechanisms.

Institutional structure and inter-sectoral coordination mechanism

Observations:

There are individual institutional strengthening initiatives.

There is a need for strengthened institutional coordination mechanisms.

Lesson learned

There is a progressive streamlining of the policy direction within the extractive industry sector, particularly between the Ministry of the Presidency and the Ministry of Natural Resources. Institutional collaboration and coordination mechanisms should be explored and strengthened.

Existing financial/budgetary structure and allocations

Caution should be exercised in depending on intended reviews from future activities, particularly those that are linked to future petroleum revenues.

3.1.3 Energy Sector Assessment (Summary)

i. Sector Profile

Access to modern energy, especially in developing countries, is an important factor for achieving key aspects of the sustainable development goals and particularly in this context, sustainable development goal 7: ensuring access to affordable, reliable, sustainable and modern energy for all. While approximately 82% of the country's population is connected to the national grid, the Framework of the Guyana Green State Development Strategy and Financing Mechanisms notes that about 12% of the population has little access to affordable and reliable energy services (GoG, 2018). Increasing per capita electricity consumption has a 90% correlation with increasing per capita GDP. By relieving the burden of gathering traditional fuels (fuel wood, dung, agricultural residue) and allowing poor citizens to dedicate the time savings to income-generating opportunities and by facilitating the shift to mechanized agriculture and small commercial enterprises, modern energy sources allow the most vulnerable citizens to better provide for their households. An increase in per capita electricity consumption correlates strongly with a decrease in the percent of the population with incomes of less than \$2 per day (83.0%) and less than \$1 per day (86.6%). As Guyana pursues its development as a Green State, one of its major targets must be the access, security and cost of energy, especially, electrical energy to aid its development into a modern society with acceptable living conditions for all its citizens; thus, the shift from the country's historical dependence on imported petroleum-based fuels to renewable energy is imperative. Therefore, not surprisingly, the third theme for the Green State Development Strategy is

“transition towards renewable energy and greater energy independence” and this should be done through four core strategic areas:

- achieving a transition to an optimal mix of renewable and clean energy in the energy sector, with immediate focus on the national grid⁸;
- achieving affordable, reliable and clean energy services for all;
- ensuring security and quality of energy for business growth; and
- increasing energy efficiency.

ii. Legal Framework for Energy Sector

The energy sector in Guyana is subject to a number of pieces of legislation – these are identified in the **Annex 5**. The principal legislation is the Guyana Energy Agency Act of 1997. This Act established the Guyana Energy Agency as a body corporate and expresses its function. Key among the functions are to advise and make recommendations regarding the efficient use of energy resources, to develop and implement a national energy policy, and secure the efficient use of energy. Therefore, this Act and specifically the functions of the Agency support the Green State Development Strategy Framework and are aligned to strategic areas identified in the Framework for modernising the energy sector and increasing the energy mix with clean and renewable resources. This Act was amended in 2004, 2005 and 2011 “to foster harmonization, increased monitoring, better regulation and greater enforcement in the energy sector” (Guyana Energy Agency, 2016b, p. 10).

The Energy Sector (Harmonisation of Laws) Act 2002 then brought the hydroelectricity under the purview of the Guyana Energy Act 1997 and, as a consequence, the Guyana Energy Agency is now also responsible for developments in hydroelectricity.

The Electricity Sector Reform Act 1999 governs the Guyana’s electricity sector and it provides “for the regular, efficient, coordinated and economic supply of electricity.” It licences suppliers of electricity, fixes rates, established the Guyana Power and Light Incorporated and governs rural electrification. The Public Utilities Commission Act 2016 established the Public Utilities Commission which is responsible for a range of public services such as electricity, telecommunications, water supply, transportation. With regards to the electricity sector, the Public Utilities Commission gives effect to the Electricity Sector Reform Act. For instance, the Electricity Sector Reform Act 1999 provides for rates to be charged by a public supplier of electricity to be in accordance with the rates fixed by the Public Utilities Commission. As a consequence, these two Acts are essential to achieving the initiatives of the Green State Development Framework regarding achieving a transition to renewable energy in the power sector and achieving affordable, reliable and clean energy service for all, as well as ensuring security and quality of energy for business growth.

iii. Past and Current Policies, Action Plans related energy sector

1994 Energy Policy of Guyana and Draft National Energy Policy of Guyana – Report 2 – Green Paper

⁸ In light of the desk review completed, the interviews and the Consultancy Team’s experience, the adjustment provided by the Expert Group #3 to the first strategic area has been accepted and recommended.

The *Energy Policy of Guyana* was drafted in 1994 with the core goal being the replacement of imported petroleum, as far as possible, by indigenous renewable sources of energy. This was more than two decades ago. In fact, with the assumptions made at that time, based on available information, it was projected that by the year 2004, Guyana would have experienced a reduction in consumption of petroleum products of the order of 2 % as compared with 1992. It was envisaged that increased and more efficient utilisation of domestic energy resources, primarily hydro-energy and bagasse for electricity generation and thus less dependence on petroleum products for electricity generation, would have made the largest contribution in this regard (The National Energy Policy Committee, 1994).

It was almost two decades after that the Government of Guyana commenced a review and update of Guyana's National Energy Policy. The draft National Energy Policy of Guyana, which was completed in December 2016 as a Green Paper, is to be used for the deliberation by Parliament and other stakeholders. (Guyana Energy Agency, 2017).

The proposed Policy, which updates the *Energy Policy of Guyana* that was developed in 1994, takes into consideration issues such as climate change and environmental sustainability, the recent cost reductions in renewable energy technologies, and the maturity of energy efficiency technology and techniques, together with national, regional and international commitments made by the Government of Guyana. The overall objectives of the proposed National Energy Policy for Guyana are to:

- position the energy sector as an engine of national economic growth using a green development strategy that contributes to the achievement of the Development Goals;
- minimise the foreign exchange cost of energy to the national economy;
- increase the efficiency of energy use per unit of Gross Domestic Product (GDP);
- diversify away from imported fossil fuels in the national economy with the deployment of indigenous renewable energy resources;
- enhance environmental sustainability by minimizing the local and global negative environmental impact of the energy sector;
- attain universal access and equitable geographical distribution of green energy services at the least cost to consumers;
- establish a regional export trade of green energy services and commodities; and
- develop the oil and gas sector for export (Clarke, 2016).

The proposed Policy identifies specific energy policy objectives that target energy demand and end use in six (6) main economic sub-sectors of the country, namely: residential; agriculture, transport, mining, industry and commerce, and tourism. Furthermore, taking into account the Government's goal to transition Guyana towards 100 % renewable energy penetration in the electric sector by the year 2025, specific policies are identified in the document for electricity, sources of energy and the development of oil and gas. In the final section of the document, a proposed strategy for implementing this National Energy Policy has been suggested (Clarke, 2016). This Policy therefore supports the initiatives identified in the Green State Development Strategy Framework document for the energy sector.

National Development Strategy: 2001-2010

Following the drafting of the *Energy Policy of Guyana* in 1994, the second draft *National Development Strategy: 2001-2010 (first version in 1997)* was crafted with an overall goal of ‘people-centred development’ or “the progressive realisation of the abilities and talents of each individual for his/her own satisfaction and enhancement of the good of the community and the nation” (“Introduction”, 2001, para. 5). The document established priorities for Guyana's economic and social development policies for the decade 2001 to 2010. In order to achieve the overall objective, the following national objectives were identified: rapid growth of incomes of the population in general; poverty alleviation/reduction; satisfaction of basic social and economic needs; and sustainment of a democratic and fully participatory society (“National Objectives”, 2001, para. 6).

Importantly, the authors of the *National Development Strategy: 2001-2010* acknowledged that the electricity sector has a strategic role in the development of the economy and that a reliable system of electricity generation and transmission is essential. As a consequence, the following objectives regarding the energy sector were included for Guyana to achieve its development potential: improving the quantity and quality of electricity supply; reducing the dependency on imported petroleum products, where feasible; providing increased utilisation of new and renewable domestic energy resources; ensuring that energy is used in an environmentally sound and sustainable manner; and encouraging, through public awareness programmes, energy conservation practices (“The Energy Sector”, 1996). These are the same objectives that current policies and strategies have cited.

Hinterland Electrification Strategy

Guyana, as part of its socio-economic development and poverty alleviation objective, embarked on a programme to extend electricity to unserved areas where extension of existing distribution networks was deemed economically feasible. The Government implemented the Unserved Areas Electrification Programme (UAEP) between 2004 and 2010, with loan assistance from the Inter-American Development Bank (IDB). UAEP initially entailed the electrification of unserved areas along the coast where Guyana’s population is concentrated, but was expanded at a later stage to the hinterland areas through the *Hinterland Electrification Strategy* (Government of Guyana, 2007). The Project Implementation Unit (PIU) at the Office of the Prime Minister was responsible for the execution of all the demonstration and improvement projects, and the evaluation of the impact and success of these projects following implementation. The PEU implemented several demonstration electricity projects in hinterland communities to test their viability for possible replication in other communities.

Guyana Power Sector Policy and Implementation Strategy

The *Guyana Power Sector Policy and Implementation Strategy* of 2010 was developed primarily for the power sector to ensure its viability. The Strategy recognised the need for reliable power and the use of renewable sources of energy, and increasing access of electricity to households throughout Guyana. The document identified policy objectives and an implementation strategy (Klass, 2010).

Key among its objectives are: supply of reliable power at the lowest possible sustainable costs with adequate energy security; utilisation of available local cleaner energy resources for the generation of electricity; developing efficient and environmentally sustainable energy production and consumption patterns; and increased access of electricity to households over the entire Guyana (Klass, 2010).

Low Carbon Development Strategy

One of the more signature steps to address climate change in Guyana is the development and implementation of the country’s LCDS (mentioned earlier in this document). Of significance was the

promotion of the 165MW hydro-electricity facility at Amaila Falls and the improvement in the fibre optic infrastructure to facilitate the development of low carbon business activities.

Guyana Energy Agency Draft Strategy Plan

The Guyana Energy Agency designed a Draft Strategy Plan to direct the activities of the Agency for the five-year period 2016-2020 “to ensure that stable, reliable and affordable energy is provided to all persons in Guyana within an economically, environmentally and socially sustainable framework” (Guyana Energy Agency, 2016b, p. 37). This document contains the following: a review of the policy, legislative, institutional and organisational frameworks; a review and analysis of the performance of the Agency; and strategic objectives and actions for the new and renewable energy sources, including energy conservation and efficiency, public education campaigns, licensing, fuel marking programme. Finally, the document concludes with a budget and key strategic actions. **Annex 6** shows the strategic objectives and actions for the renewable energy sources hydropower, solar, wind, and bioenergy.

Given the fact that Guyana still has a significant dependence on imported fossil fuels, and there is the need to address the efficiency and sustainability of energy supply and demand, together with the need to address climate change issues and the recent discovery of offshore petroleum reserves in 2014, a number of the objectives and actions have been repeated in a number of documents developed since the 1994 National Energy Policy. While there has been progress, a number of challenges prevented the achievement of the objectives, and therefore these must be targeted by the Guyana Green State Development Strategy. Among the constraints were/are:

- Lack of harmonization of Energy sector;
- Lack of coherent energy plans;
- Lack of adaptation of modern energy technology;
- Inefficient fiscal incentives in the effort to promote business development;
- Lack of specific skills for implementation of energy projects;
- Inadequate financing by Government for renewable energy and energy efficiency projects; and
- High interest rates from banks to finance green projects.

Draft Climate Resilience Strategy and Action Plan

Considering the ongoing impacts of climate change and future projections, Guyana has taken pro-active steps and has developed a *Draft Climate Resilience Strategy and Action Plan* (CRSAP) (CRSAP, 2016). This document provides a comprehensive and overarching framework for adapting and building resilience to climate change impacts. The CRSAP builds on the work that has been in Guyana over the years and identifies key climate risks and priority resilience building actions across fifteen (15) key sectors. The energy sector was one of those sectors. Two serious risks were identified for the energy sector, namely: increase in number of extreme 'hot days' causes transmission and distribution losses due to hotter temperatures with the consequence that effective demand increases and energy security reduces; and increase in extreme rainfall events causes flooding with the consequence that critical energy infrastructure is threatened. Eleven (11) climate resilience actions were identified to address the risks (Table 3.5). A number of these actions – those bolded - are identified in other past and current policies and strategies and or recommended by stakeholders. Of importance is that the document is still in the draft phase and is being used to develop a National Adaptation Plan for Guyana under the Japan-Caribbean Climate Change Partnership (J-CCCP).

Table 3.5: Climate resilience actions proposed in Guyana

Actions
Undertake analysis of and collect data on past climate impacts on energy sector (operational, performance, maintenance, financial impacts)
Conduct research to understand climate change risks to existing energy infrastructure and future renewable energy infrastructure, particularly hydropower and the potential impact of drought
Conduct research on feasibility of new energy sources, such as wind, solar, biomass (bagasse) and hydropower, as well as electricity generation methods, for example generation from waste
Awareness raising programme across ministries on the impacts of climate change on energy systems and how to manage these impacts
Encourage training of new professionals in energy research and development; facilitate technical education that focuses on alternative technologies
Review the Environmental Protection Agency (EPA) to bring it in-line with new policies and strengthen its enforcement capability
Update national energy policy, strategy and regulatory framework to integrate climate resilience, minimising energy use, increasing efficiency and enabling renewable energy development. This may also include an incentive scheme
Energy demand reduction programmes, such as replacing electric light bulbs with compact fluorescent light bulbs
Source financing to undertake vulnerability and risk assessments as well as feasibility studies
Review and revise (if necessary) tax incentives to promote energy efficiency and renewable energy
Assess climate finance options for energy sustainability through United Nations Framework Convention on Climate Change mechanisms

Source: Climate Resilience Action Plan (2016)

In Guyana’s approach to addressing climate change, and particularly climate change mitigation, there is the opportunity to focus on the energy sector since Guyana’s emissions of carbon dioxide originate primarily from the energy sector, mainly energy generation and transportation.

Institutions

Existing/Past institutional structure and inter-sectoral coordination mechanism

In the context of the energy sector of Guyana, there are the following main institutions: the Ministry of Public Infrastructure, the Guyana Energy Agency, the Public Utility Commission, the Guyana and Power Light Incorporated, and the Hinterland Electrification Corporation Incorporated.

i. Ministry of Public Infrastructure

The Ministry of Public Infrastructure is the principal policy-making institution for energy and electricity after 2015. The Minister is also responsible for granting licences to the public utilities and independent power producers and approval of development and expansion plans and of operating standards and performance targets for Guyana Power & Light Incorporated, the principal supplier of electricity. The following Departments are under the direction of the Minister of Public Infrastructure: Guyana Energy Authority, Guyana Power and Light Incorporated, and the Hinterland Electrification Company Incorporated.

ii. Guyana Energy Agency

The Guyana Energy Agency is a body corporate that was established in 1997 by the Guyana Energy Agency Act 1997 and its mandate is dedicated to the policy development and advancement of renewable and alternative sources of energy (K. Mattai, personal communications, June 18, 2018). The core functions of the Agency are to: (i) advise and make recommendations to the Ministry regarding the efficient management of energy resources; (ii) upon the request of the Minister, develop a national energy policy and secure its implementation, directly or through other persons; (iii) secure more efficient utilisation of energy resources; (iv) monitor the performance of the energy sector in Guyana; and (v) disseminate information relating to energy management. Furthermore, the Agency has regulatory powers regarding petroleum and petroleum products as well as several advisory functions.

The organisation structure of the Guyana Energy Agency consists of a Chief Executive Officer, Deputy Chief Executive Officer, Secretariat and the following five Divisions: (1) Energy & Energy Statistics Division; (2) Legal & Licensing Division; (3) Fuel Marking Division; (4) Administration/Human Resource Division; and (5) Finance Division. The structure is provided in **Appendix 5**. There is an Energy Agency Board which consists of the Chief Executive Officer, Deputy Chief Executive Officer and other three members appointed by the Minister.

iii. Guyana Power and Light Incorporated

The Guyana Power and Light Incorporated is a state-owned power company in Guyana with its operating area encompassing all three counties of Demerara, Berbice and Essequibo. It is responsible for the generation of most of the electricity in Guyana from its own power plants, transmission and distribution of electricity to residential, commercial and industrial customers. Additionally, it is authorised to purchase power from Independent Power Producers. Power generation is dominated by thermoelectric plants with engine driven generators that are based on liquid fossil fuels (diesel and Heavy Fuel Oil). In 2015, the Guyana Power and Light Incorporated's effective capacity was about 173.2 MW (Brugman, 2016; Guyana Energy Agency, 2016b).

iv. Hinterland Electrification Company Incorporated

The Hinterland Electrification Company Incorporated (HECI) has as its origin the Project Execution Unit (PEU) of the Office of the Prime Minister, Guyana. The PEU was established in 2004 to manage the implementation of the previously mentioned Government of Guyana/Inter-American Development Bank sponsored UAEP. When the UAEP ended in December 2010, it was decided to maintain the PEU to provide technical and other support to hinterland projects implemented under the UAEP.

The Unit was also expected to develop and implement new projects based on government's development plan for the hinterland. As a consequence, the PEU was renamed Hinterland Electrification

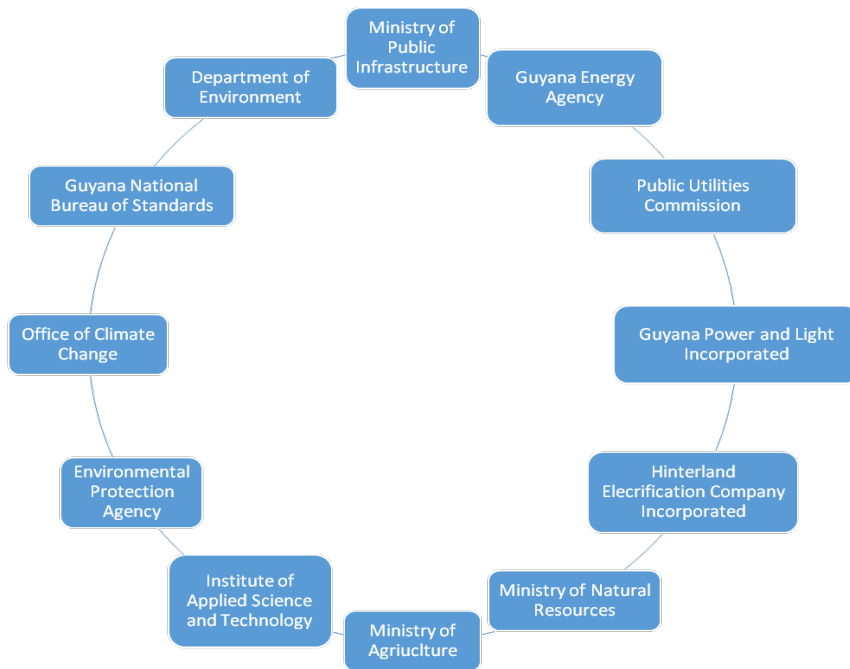
Unit (HEU), and it remained part of the Office of the Prime Minister. In January 2015, however, the HEU was incorporated (with the name Hinterland Electrification Company Incorporated - HECl) as a subsidiary of National Industrial and Commercial Investments Ltd. (NICIL) for holding of all satellite electricity companies owned by NICIL; namely: Linden Electricity Company Incorporated, Kwakwani Utilities Incorporated, Lethem Power Company Incorporated, Mabaruma Power & Light, Port Kaituma Power & Light Incorporated, Mahdia Power & Light Incorporated and Matthew's Ridge Power & Light Incorporated. The HECl is now part of the Ministry of Public Infrastructure (Hinterland Electrification Company, n.d.).

v. Public Utilities Commission

The Public Utilities Commission is a corporate body with members appointed by the Minister for a three-year period. It covers a wide range of public services, like electricity, telecommunications, water supply and transport. The Public Utilities Commission is responsible for monitoring and enforcing operators' compliance with commitments to customers emanating from licences and standard terms and conditions for operations, including operating standards and performance targets and development of expansion plans; handling consumers' complaints; and advising the Minister on these issues. The Commission is also responsible for confirming and approving tariffs charged by public suppliers (Guyana Energy Agency, 2016b).

The Guyana Energy Agency also collaborates with the following other entities: the Ministry of Natural Resources, the Ministry of Agriculture, the Environmental Protection Agency, the Guyana National Bureau of Standards, the Institute of Applied Science and Technology, and the Office of Climate Change (Guyana Energy Agency, 2016b) (see Figure 3.2). A brief description of the mandates of these entities is provided in **Annex 6**.

Figure 3.2 Entities involved in the energy sector in Guyana



It is note worthy that an Energy Programme Implementation Working Group was recently established; it is an interagency team that supports the sharing of information on developments in the energy sector and ensures a coordinated, efficient and sustainable approach for planning, implementation and management of all energy infrastructure projects within a programmatic framework. The Working Group is comprised of representations from the Government of Guyana, the Utilities, supporting Regional Partners, and supporting Development Partners. The roles and responsibilities and the representative entities are provided in **Annex 6**. Such a Group should be a mechanism through which inter-sectoral coordination could be achieved.

While the entities have their individual mandates, there are areas for synergies in execution of mandates. An example is evident from the fact that while energy efficiency and transitioning to renewable energy are climate change mitigation measures, and therefore, are of relevance to the work of the Office of Climate Change, these are also core responsibilities of the Guyana Energy Agency. More specifically, the Office is implementing the “Transitioning to National Energy Security (TNES): Bartica as a model ‘Green’ Town Project” in partnership with the Caribbean Community Climate Change Centre (CCCC) and funded by the Government of Italy under the Italy-Caribbean Community (CARICOM) Partnership Programme. The project is expected to gather and compile data on energy use in Bartica, which will be used to inform evidence-based decision making for the future implementation of projects and programmes (Ministry of the Presidency, 2018). Without a doubt, data collection regarding energy use is one of the roles of the Guyana Energy Agency. This emphasises the need for effective inter-sectoral coordination in the energy sector and this could be achieved through the Energy Programme Implementation Working Group.

Notwithstanding the need for inter-sectoral coordination, from an assessment of the mandates of the Guyana Energy Agency and its Draft Strategic Plan it is evident that the Guyana Energy Agency would be the appropriate institution to coordinate the implementation of the four core strategic areas for modernisation of the energy sector and increasing the energy mix with clean and renewable resources identified in the Green State Development Strategy Framework to transition Guyana towards renewable energy and greater energy independence.

Existing Infrastructure on Oil and Gas

The infrastructural plans for the oil and gas industry were noted as follows:

A Department of Energy under the Ministry of the Presidency, as well as the Petroleum Commission, will be the two entities responsible for the development of the oil and gas sector. The Local Content Policy, revision of the Petroleum Act, and National Upstream Policy- these are subject to public consultation and are at various stages of development.

The Environmental Protection Agency remains in continuous training, as is the Coast Guard regarding compliance and setting safeguards. GNBS has also commenced an Expression of Interest process for the Identification of National Quality Infrastructure services to support the Oil and gas Industry (K. Mattai, personal communication, 14 June 2018).

Institutional and Capacity Development (Knowledge, Training/Skills, and Innovation/R&D)

The Guyana Energy Agency's organisation structure was revised in 2010 to accommodate the following new positions: Energy Economist, Energy Engineer, Hydropower Support Engineer, Licensing Administrator, Internal Auditor, Public Communications Officer, Human Resource Officer, [additional] Legal Officer, Field Operations Coordinator, Senior Investigator and Investigator. The organisation continues to strengthen its capacity and has since increased the number of Energy Engineers and Hydropower Support Engineers to three and two, respectively.

According to the Guyana Energy Agency (2016b), the Agency aims to build capacity through participation in professional development programmes to equip various classes of employees with the requisite knowledge and skills to ensure the organization's mandate is achieved. The Agency will continue to organise and install suitable capacity building and professional development programmes to provide employees with requisite knowledge and skills.

More importantly, there are plans for the Agency's Engineers to pursue the MSc in Renewable Energy Technology at the University of Guyana (or similar degree) and receive training for Energy Management (CEM programme) and Project Management. Additionally, efforts are being made to have senior staff (HODs) receive online leadership and management training. The Agency has also recently added another technician to its staff complement with plans underway to fill positions of Energy Engineer and Senior Engineer.

As a member of International Solar Alliance, there are opportunities for capacity building in solar energy available for Guyana. The members of staff of the Guyana Energy Agency have also benefited in the past from other training programmes offered by the Government of China and India and international institutions, such as the Energy and Resources Institute (TERI), Japanese International Cooperation

Agency (JICA) and Latin American Energy Organisation (OLADE) (K. Mattai, personal communications, 2018).

There has also been capacity building for the utility; the currently IDB-funded Power Utility Upgrade Program (PUUP) is designed to strengthen GPL's management capabilities by providing its senior management with technical support in the following areas: (i) operations and projects; (ii) commercial services and information technology; (iii) finance and procurement; (iv) human resources; and (v) loss reduction.

It has been reported in the Annual Reports that the Guyana Energy Agency has been involved in research; for instance, in 2016, the Agency notes that its research consists of work on updating Guyana's Energy Policy, and participating in the IDB-funded Optimal Generation expansion study for the Guyana Power and Light Incorporated and supporting the IDB-funded Arco Norte Electrical Interconnection Study. In 2015, under the Green Bartica, the Agency conducted energy assessments targeting government buildings and schools, assessed the potential for rooftop grid-tie and stand-alone solar PV installation. Additionally, in the same year, the Guyana Energy Agency collaborated with the National Ozone Unit to compare energy efficiency of R-290 with R-22 in air-conditioner systems. While some of the activities mentioned most likely will not result in innovations, at the very least the Agency is involved in investigation into situations in order to establish conclusions.

Notwithstanding the above, a Technology Needs Assessment conducted in 2017 identified the need for the preparation of a human resources development plan. In the development of the plan, a number of assessments would be conducted - an assessment of the human resources needs for the energy sector, an assessment of the current national institutions (with a view to identifying gaps and areas of overloaded responsibility), and an assessment of the curricula of the national institutions offering training and capacity building programmes and identify target institutions to participate in the process (Office of Climate Change, 2018).

Operations

Energy Resources and Use

Guyana has extensive resources in renewable energy and has more recently made extensive discoveries in non-renewable energy. However, Guyana is yet to explore its renewable energy potential, instead, it spent US\$333M in imported fuels in 2016, a figure which represented approximately 17% of its 2016 GDP. Although its carbon footprint is relatively small, representing 0.007% of the world's energy use in 2013, price volatility in the international markets and rising temperatures have necessitated that Guyana concentrates on the development and exploitation of its renewable energy resources which are hydropower, solar, wind, and biomass. While its present use of these resources is less than 1% of its electrical energy generation, Guyana is now making a definite commitment to develop these resources in its drive for a green economy (GEA Annual Reports).

The main power utility in Guyana, Guyana Power and Light, Inc. (GPL), is a vertically integrated state-owned utility whose operations comprise generation, transmission and distribution, and is the main electricity supplier in Guyana. GPL's nominal installed generating capacity is 172-MegaWatt (MW), with 136 MW effective and operable, delivering 762-GigaWatt-hour (GWh) of energy in 2017. GPL supplies electricity to nearly 189,000 customers in the coastal communities, serving a relatively small urban and suburban area of roughly 500-square kilometers (km²), where more than 80 percent (%) of the

population resides. The power generation installed capacity is 90 per cent (%) based on heavy- fuel oil (83% of the total electricity supply) and 10% on diesel.

In addition to four small isolated systems in the Essequibo region, GPL operates the Demerara/Berbice Interconnected System (DBIS), a 60Hz system interconnecting the Demerara and Berbice regions at 69 kV. In 2017, the peak power demand in the Demerara Berbice Interconnected System was 115-MW. Electricity demand in Guyana is expected to continue growing on a 4.8% yearly average based on GPL's 2017-2021 Development & Expansion (D&E) plan, mainly due to the positive trend in economic growth. New developments in the commercial, industrial and residential sectors are expected to contribute to the increase in electricity demand. The 69 kV Demerara/Berbice interconnected transmission system (DBIS) consists of a total length of 276 km of transmission circuits interconnecting 6 power stations and 14 substations from Skeldon in the East Corentyne to Edinburgh, West Demerara. GPL's primary distribution network is at 13.8 kV and emanates primarily from 69/13.8 kV distribution substations although some feeders are connected to the power stations.

Private investments in the power sector are limited to: (i) 18-MW of installed capacity to supply electricity to Linden and to other locations in the hinterlands; (ii) Independent Power Producers (IPP) providing approximately 10-MW of additional capacity to GPL; and (iii) self-generators with an estimated installed capacity of 50-60-MW which represents about 23% of Guyana's total installed capacity. In order for the self-generators to switch to GPL's supply, it will be necessary for GPL's output to be of suitable quality and reliability, and for electricity prices to be lower than the marginal cost of self-generation.

Key operational results and indicators show critical weaknesses in GPL's operations, such as: (i) the persistence of high electricity losses after several years of trying different strategies to curb them; and (ii) low quality of service, partly due to an aged, weak and overloaded transmission and distribution network. These factors, together with low technical and executing capacities of GPL, high generation costs, and constraints to raising already-high tariffs, all contribute to poor financial results, which in turn, limit the company's ability to finance its capital expenditures.

Additionally, GPL has developed the necessary grid codes and is working on the feed-in tariffs and other technical and institutional requirements to encourage large scale distributed generation on its networks.

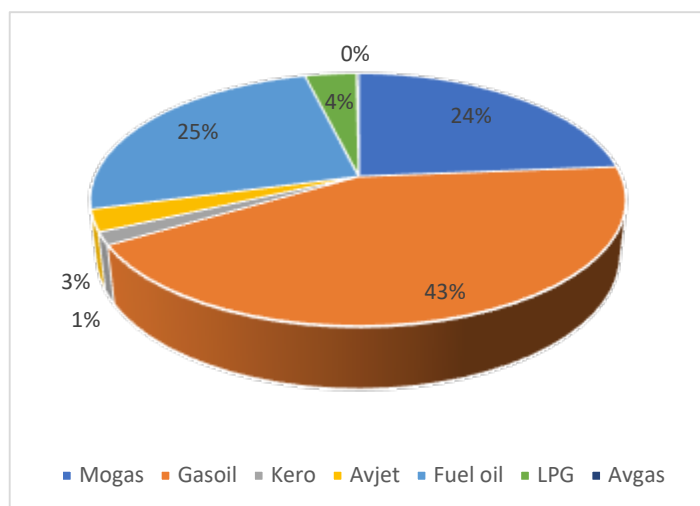
Non-Renewable Energy Use

The primary source of energy for Guyana is imported fossil fuels. During 2016, the total petroleum imports amounted to 5,547,048 barrels (and an average of approximately 15,156 barrels per day), which represented an increase of 10.9% over 2015. The petroleum imports consist of Mogas (gasoline), Gasoil (diesel), Kerosene, Avjet (Jet Fuel), Fuel oil and Avgas (aviation gas), and liquefied petroleum gas (LPG - cooking gas), and there were increases in all products, except for LPG. These imported petroleum products were acquired at a cost, insurance and freight (CIF) value of US\$333,248,345 in 2016, representing a decrease of 6.18% from the acquisition cost in 2015 due to the reduction in the average cost per barrel of petroleum-based imports from US\$71.02 in 2015 to US\$60.08 in 2016, a decrease of 15.4% (Guyana Energy Agency, 2017).

In examination of the various imported petroleum products, for the year 2016, Gasoil accounted for the most imported product, representing 43% of total imports, followed by Fuel oil and Mogas, reflecting

25% and 24% of total imports, respectively. The other products represent 8% of the total imports (Guyana Energy Agency, 2017).

Figure 3.3 Percentage of Total Imports (2016)



Source: Guyana Energy Agency (2017)

A total of 5,580,696 barrels of petroleum-based products was consumed in 2016 at an average rate of 15,248 barrels per day. This represents a 12.6% increase when compared to 2015 and a slightly higher percentage of 12.7% when compared to 2014 consumption. Table 3.6 shows the trend in consumption of petroleum-based products over the period 2014 to 2016. There were increases in the consumption of all products (gasoline, diesel, kerosene, jet fuel, fuel oil, cooking gas and aviation gasoline) from 2015 to 2016.

Table 3.6: Total Consumption of petroleum-based products (barrels) for the period 2014 – 2016

Year/Imported product	Amount of petroleum-based products imported (barrels)			% change between 2016 and 2015
	2014	2015	2016	
Mogas	1,214,868	1,244,943	1,322,842	6.3
Gasoil	2,110,143	1,986,647	2,387,793	20.2
Kero	86,023	88,031	89,746	2.0
Avjet	77,309	102,498	155,678	51.9
Fuel oil	1,258,669	1,323,033	1,408,915	6.5
LPG	197,121	201,454	206,648	2.6

Avgas	9,813	8,407	9,074	7.9
Total	4,953,946	4,955,013	5,580,696	12.6

Source: Guyana Energy Agency (2017)

An examination of the consumption of petroleum products by the various sectors reveals that in 2014 the transportation and electricity sectors consumed almost three-quarters of total petroleum products; with the latter being the country's largest energy user by a small margin (36%) over the transport sector (35%); followed by agriculture, fishing and mining (21%); residential sector (4%); and industry/manufacturing (3%) (Guyana Energy Agency, 2016b). Therefore, actions targeting at reducing the important and consumption of non-renewable energy have to target the electricity and transportation sectors which is in accordance with the initiatives under the Green State Development Strategy Framework.

Non-Renewable Energy Resources – Oil and Gas

On 20th June, 2018, Exxon Mobil Corporation announced that it had made its eighth oil discovery offshore Guyana at the Longtal-1 well, creating the potential for additional development in the southeast area of the Stabroek block. (See Figure 3.4 below for the eight discoveries). The Stabroek block consists of 6.5 million acres or 26,800 km and Exxon’s share of this block is 45%.

Figure 3.4 Present Offshore Oil Discoveries for Guyana



Source: Department of Public Information, Guyana

ExxonMobil has also announced the following development phases. Liza, Phase 1 will comprise seventeen 9170 wells connected to a floating production, storage and offloading (FPSO) vessel designed to produce up to 120,000 barrels of oil per day. First oil is expected in 2020. Liza, Phase 2 concepts are similar to Phase 1 and involve a second FPSO vessel with production up to 220,000 barrels per day. A third development, Palmyra is planned to follow Liza Phase 2.

The government, to enable its discussions with ExxonMobil for the development of such a facility onshore, is studying a feasibility report on the use of natural gas for electricity generation. It has been indicated by the government that it is currently being considered to install this infrastructure with a capacity of 145 mmcf⁹. Under this situation, for the supply of gas for electricity generation, two options, one for 30 mmcf and the other for 50 mmcf have been considered.

Renewable Energy Resources and Use

Hydropower Resources and Projects

A 1974 survey of Guyana's hydropower potential by Montreal Engineering Company Ltd (Monenco) estimated that there were 76 sites, each capable of providing at least 6 MW of power, and totalling approximately 7,660 MW. A more recent study by S. Brugman (2016) identified 19 potential sites with capacities between 15 and 120 MW average continuous rating. The maximum total output of these sites was nearly 4600 MW with average continuous rating of just under 1000 MW. It is to be noted that capital investment cost per kW varies from around US\$1,500 to US\$12,000. (p. 52). Interest during construction and transmission line costs are not included.

Prior to the Monenco assessment, in 1957, the British Guiana Goldfields Limited constructed the Tumatumari Hydropower station comprising 2, 750 kW Francis turbines (Maxwell, 2017). In 1959 the company ceased operations and closed the hydropower plant. Private developers are now seeking to recommission the Tumatumari hydroelectric plant (GEA, 2018).

The following hydropower projects have been pursued over the years (Maxwell, 2017, GEA Reports, 2016):

- In 1974 the Upper Mazaruni Hydroelectric project was designed consisting of 4, 775 MW units. This project was discontinued due to financial constraints.
- Starting in 1998 with the Synergy and Harza companies and later with Sithe Global and finally reviewed in 2016 by Norconsult, the Amaila Falls hydropower project, rated at 165 MW units, was developed to feasibility stage but is presently on hold.
- In November 1999, a 2, 250 kW hydropower project at Moco Moco, built through a joint arrangement with the Governments of Guyana and China was commissioned. In July 2003, severe rainstorms and a landslide resulted in the station experiencing a fractured penstock. The station is still out of commission.

The Government of Guyana has initiated technical studies with respect to the following hydropower development:

⁹mmcf – million cubic feet of gas

- In 2012 an MOU was signed with Brazil for feasibility studies for 4,500 MW hydropower projects in Upper and Middle Mazaruni areas intended for export to Brazil
- Kamaria (180 MW), Kumarau (149 MW), Tumatumari (152 MW) and Tiger Hill (28 MW) have been selected to be assessed through IDB funding for possible development
- Funding is being sought for mini/micro hydroelectric projects for hinterland communities.
- The IDB funded Arco Norte Electrical Interconnection study which evaluated the feasibility of EHV transmission line interconnections between Guyana, Suriname, French Guiana and the Northern Brazilian cities of Boa Vista and Macapá found this to be a viable project. The study assumes that the majority of the power along this network would originate from hydropower projects in Guyana.

The proposed investment in mini hydropower projects is nearly US\$15M. The government is yet to decide on ownership schemes for these projects. A summary of the proposed hydropower projects is shown in Table 3.7.

Table 3.7: Proposed Hydropower projects

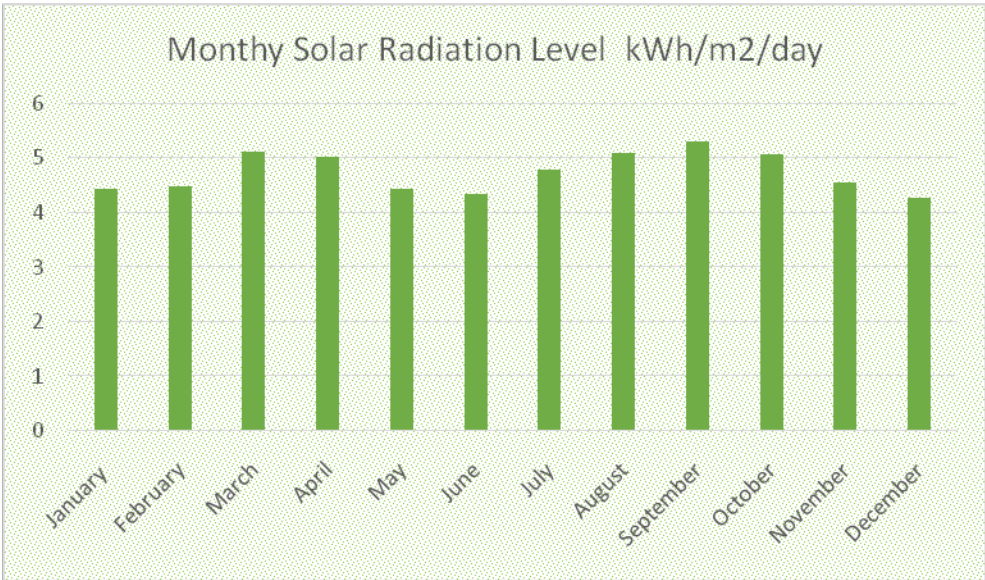
Year	Project	Location	Size (MW)	Cost (US\$M)	Status
1957	Tumatumari		1.5 2.2 (proposed)	N.A.	Private developers now (2018) seeking to recommission
1974	Upper Mazaruni		4,775	N.A.	2012 MOU with Brazil for feasibility studies. Arco Norte Interconnection study for export of energy to other countries proves feasible
1998 - 2014	Amaila Falls		165	858.0	On hold
1999	Moco Moco	Region 9	0.7	2.2	Funding for recommissioning requested from UAE
2018	Ikuribisi	Region 7	1.0	5.22	Funding requested through Guyana REDD Plus Investment Fund (GRIF)
2018	Kumu Falls	Region 9	1.5	6.42	Proposed funding from UAE and GRIF
2018	Kato	Region 8	0.2	0.2	GOG and GIZ Rita funding
2018	Hosororo	Region 1	0.02		Proposed funding from UAE and GRIF

Source GEA Reports

Solar Resources and Projects

The daily average solar insolation incident over Guyana varies from about 4.1 to 5.5 kWh/m²/day with a clearness index of approximately 50 % depending on the location and the time of year. These levels are among the highest globally and therefore Guyana can benefit greatly from solar energy as a means of energy production (GEA Draft Solar Road Map, 2018, p 5).

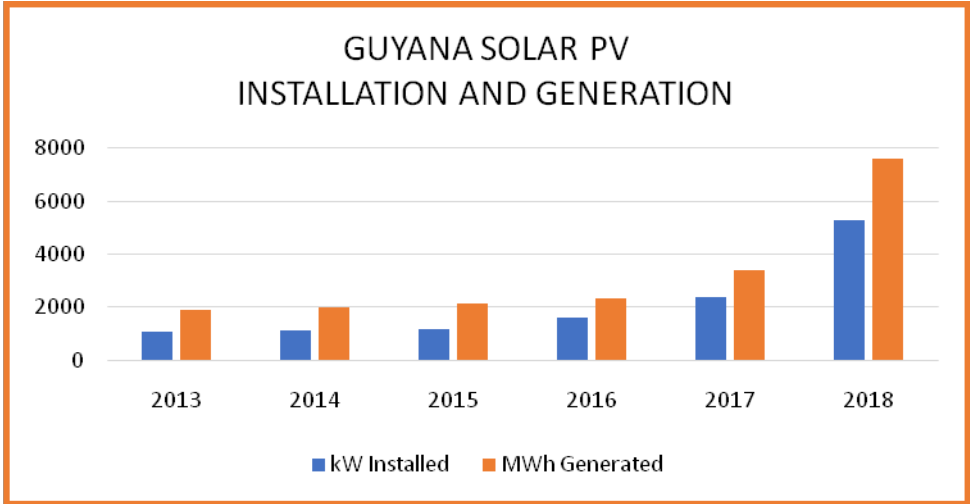
Figure 3.5: Average Monthly Solar Radiation for Guyana



Data Source – GEA Annual Reports. (2018 Estimated)

The Government of Guyana has been pursuing solar energy initially primarily for the off-grid communities and a total of approximately 20,000 solar systems rated at 65 W in homes and 125 kW for schools and other community buildings in 21 hinterland communities. (Williams, 2017). These systems were given free of charge to hinterland homeowners who were expected to contribute G\$500 monthly to a scheme to facilitate maintenance and replacement of the batteries.

Figure 3.6: Growth of solar PV installations in Guyana.



Data Source – GEA Annual Reports. (2018 Estimated)

Figure 3.6 shows the growth of PV installations in Guyana from 2013 and GEA’s Draft Solar roadmap states that the ‘capacity of Solar PV Projects in the pipeline (financing not secured but being pursued) is

34.2 MW (20 MW from GGGI initiatives with self-generators + 9MW GPL + 5.2 MW IRENA)'. At a current cost of US\$1.09 per watt this would represent projected investment costs of nearly US\$40M. (p. 3,4)

The developmental plan for solar installations is as follows:

- Grid tie solar systems on government buildings;
- Private grid tie solar systems;
- Utility grid solar systems for hinterland towns; and
- Utility solar systems for GPL's grid.

Several solar PV projects are in various stages of development as detailed in several GEA documents. Many of the costs below are best estimates. Table 3.8 below gives a list of some of these projects and their present status.

Table 3.8: Proposed and Existing Solar PV Projects

Project Location	Project Size (MW)	Project Cost (US\$)	Type	Funding	Status
Georgetown	1.0		Grid tie	GOG	Installed
Hinterland Communities	1.5		Individual solar	IDB	Installed
Bartica	1.5	3.87	Utility	IDB	Feasibility study being done
Lethem	1.0	2.6	Utility	IDB	In progress
Mabaruma	0.4	1.3	Utility	GOG	In progress
West Coast Berbice	4.0	N. A.	Utility	Republic of China	Feasibility study being done
Port Kaituma	0.6	2.6	Utility	N.A.	N.A.
Kwakwani	1.0	1.8	Utility	N.A.	N.A.
Matthews Ridge	0.4	2.0	Utility	N.A.	N.A.

Source: GEA Reports

Additionally, there have been several private installations of solar PV, notably Demerara Bank and Starr Computers. GBTI also offers a 'Green Loan' for person interested in installing grid tie solar schemes. However, GPL's present policies do not offer feed-in tariffs.

GPL has advertised for private investment in 3,3 MW utility solar farms to be installed along the coastal areas of the country and to be integrated into the 69 kV transmission line network. Early indications are that there has little response to this request.

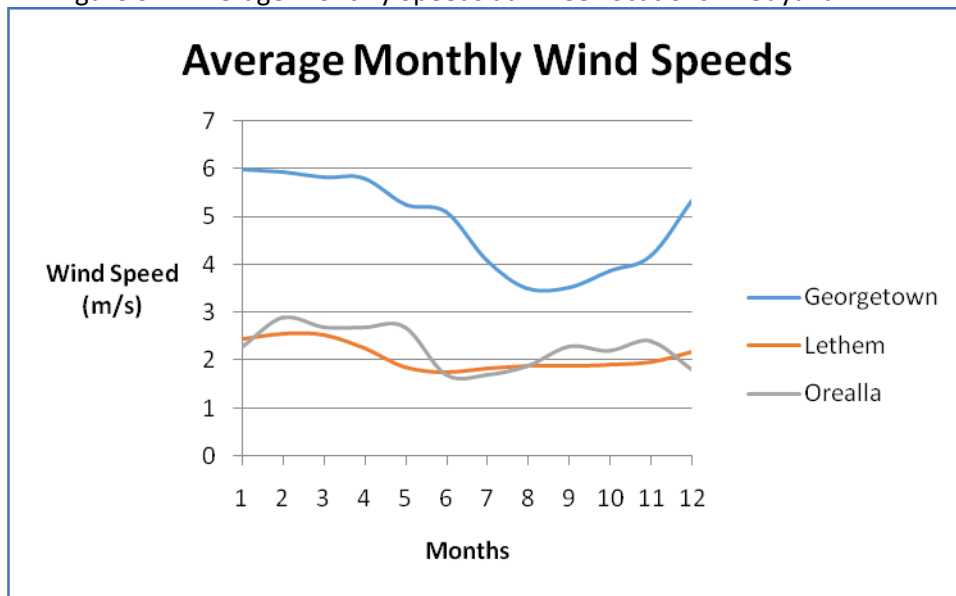
Wind Resources and Use

Guyana's wind potential is more favourable along its coast than its interior locations as shown in the graph in Figure 3.7. During the period 2002/3 a wind power feasibility study, sponsored by the Dutch Government with Delta Caribbean, NEG-Micon and Rheden Steel as co-sponsors, was carried out for the Guyana government.

Wind speed data was recorded at Hope Beach, an area on Guyana’s coastline 20 km from Georgetown, and the results were favourable for the installation of onshore wind turbines. Figure 3.8 shows a plot of frequency of occurrence against hourly speeds.

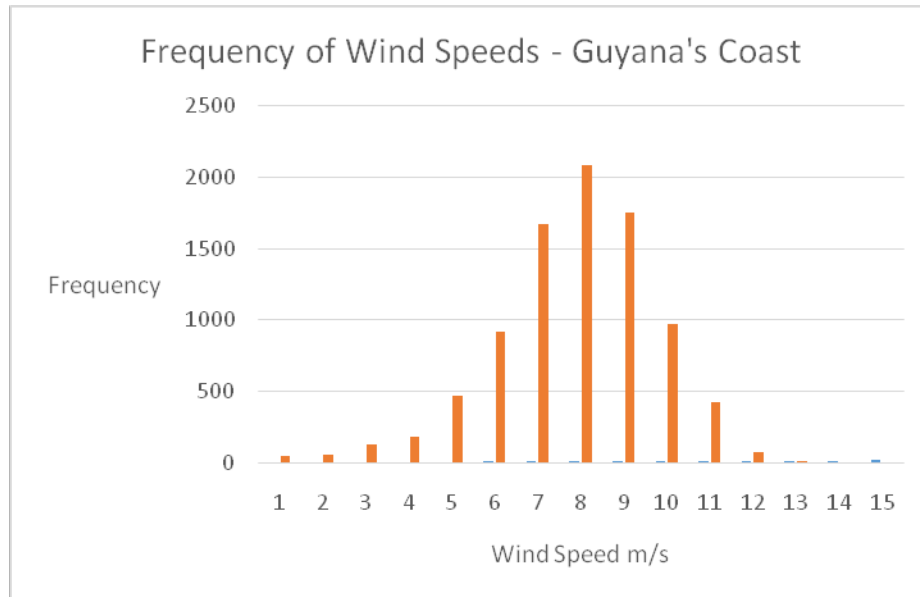
Although the Government of Guyana and DELTA Caribbean N.V, signed an MOU (Memorandum of Understanding) in March 2007 for the construction of a 13.5 MW Wind Farm at Hope Beach, ECD, this project was not developed. There have been other investors interested in this project, however, it is still to be developed, mainly because of the difficulty in negotiating a selling price per kWh of the wind energy with the main utility.

Figure 3.7: Average Monthly Speeds at Three Locations in Guyana



Source 1: NASA Langley Research Centre Atmospheric Science Data Center: New et al. 2002
 Source 2: Orealla, Region 6 – Office of the Prime Minister (Measurements taken in 2008/09)

Figure 3.8: Frequency of Wind Speeds on Guyana’s Coast



Source: Data from Report by Dutch Caribbean 2003

Although there has been little progress on the development of wind as an energy source for Guyana, it is still deemed as a good prospect and it has been determined as a priority to collect wind speed data on the coast and other interior locations, so that such data is available for investors. GOG will also be actively pursuing any interest in the investment in provision of wind energy for the national grid.

Biomass Resources and Use

Biomass is described as an energy source derived from organic/biological sources. In his presentation on the Scope of Bioenergy in Guyana given at Regional Symposium on Renewable Energy on February 08, 2017 at Regency Hotel, Georgetown, Guyana, Dr C. Clementson shared the following data on Guyana’s biomass potential. These statistics are based on production data for the period 2014 to 2016 (Clementson, 2017).

Table 3.9: Estimated Annual Energy Production from Waste Products

Biomass Source	Annual Waste Quantities (tonnes or m³)	Equivalent Fuel Production (barrels)	Estimated Annual Energy Production (GWh)¹
Rice Husks	368,047 tonnes	74,655 (diesel)	127
Wood waste/Forest Residue	82 tonnes	109,394 (diesel)	4.4
Animal Waste	208 Mm ³	231,754 (LPG)	260.5
Household Waste	199,169 tonnes	1,622 (LPG)	0.2
Sewerage	1.4 Mm ³	113 (LPG)	1.8
Sugar Industry (Molasses) ²	91,090 Tonnes	94,232 (gasoline)	3.3
Sugar industry (Bagasse) ²	683,181 tonnes	383,199 (diesel)	15.4
Total			412.6

¹Based on Data provided by Clementson 2017;

²Based on annual sugar production of 227,727 tonnes

There was also the recommendation that the Palm Oil and the Giant King Grass (Elephant Grass) which if planted on poor agricultural lands can produce enough energy to meet Guyana’s requirements. However, the capital costs for these investments were not given (Clementson, 2017).

Guyana has begun to utilise its biomass/biofuel resources in the following ways:

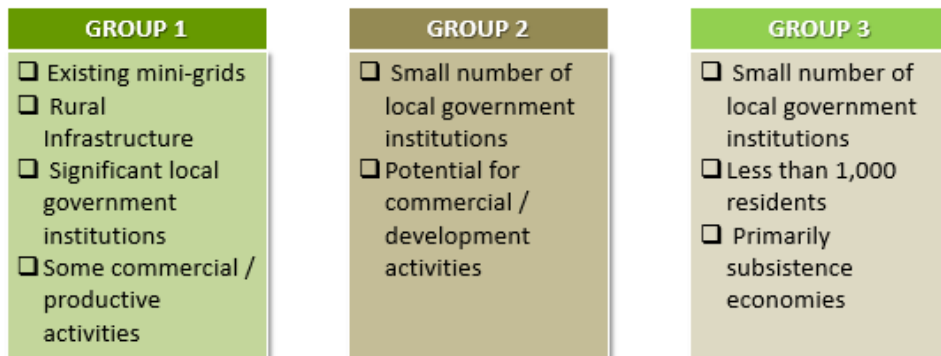
- Guysuco has been using bagasse to provide for the electricity and steam needs of their estates
- DDL uses distillate waste to produce biomethane for use in its boilers

A feasibility study is required to determine which of the above resources would offer the most economic means of generation of electricity and a biomass project be executed for the generation of electricity.

Rural/Hinterland Electrification

Guyana’s hinterland covers 85% of the country’s territory with 20% of its population. It is occupied mainly by the country’s indigenous peoples in about 200 communities. Families exist mainly by subsistence farming, fishing, and hunting. Prior to 2007, access to electricity was very low. A Hinterland study proposed the division of the hinterland communities into the following three social Groups shown in Figure 3.9. It was found that the majority of the communities were in Group 3. (Williams, 2017).

Figure 3.9: Classification of Hinterland Communities



Source: Williams (2017)

As indicated previously, the HECl, a company within the Ministry of Public Infrastructure is the holding company for all satellite government owned electricity companies, and is also been responsible for the provision of electricity supply for all hinterland communities.

Some of the challenges of providing electricity to these communities are listed below.

Figure 3.10: Challenges Facing Rural Electrification



Source: Williams (2017)

In a report on the status of hinterland/rural electrification, the CEO of HECI stated that of the nearly 20,000 individual solar units which were given free of cost and installed in homes in hinterland communities, possibly only 50% are still functioning because of the batteries becoming inoperable. MOUs had been established with the village councils, which required them to collect G\$500 a month from each homeowner and to be responsible for maintenance, which included replacement of batteries, however this system has not been successful. The major problems affecting sustainable hinterland electrification are:

- (1) lack of the required skills in communities to properly maintain the electricity systems; and
- (2) consumers/beneficiaries' inability to pay for the service.

In dealing with the lack of skills, several training programmes were conducted to train residents of hinterland communities to maintain the energy systems. In most cases, the trained persons left the communities shortly after the training in pursuit of better economic opportunities. Because of the lack of economic opportunities in the communities, where residents exist mainly on subsistence farming etc., it is difficult for many residents to pay for the electricity service. When asked whether there was an analysis of the success of the above-mentioned programmes, the CEO indicated that they were in the process of contracting someone to do the evaluation of these projects.

To combat the above and to obtain more sustainable energy supplies, it is the plan of the HEI to, firstly, provide the energy supply at the community level to support the provision of social services and productive activities. Residents of the community can access the energy from a central point for livelihood activities. The plan is to install ICT hubs with the energy systems to give residents Internet

access to facilitate distance education and connectivity and communications with other communities to encourage entrepreneurship. Mainly local government (RDCs) will maintain the community-based systems since most of the energy will go towards the facilities providing the social services (schools, health clinics, water supply systems) managed by local government. The economic development that results is expected to facilitate the expansion of the service to meet the needs at the household level (H. Williams, personal communication, 05 June 2018).

In keeping with the above new policy for hinterland electrification, ten communities have been chosen for the establishment of 15 kW mini grid solar systems the main community buildings. These communities consist of 7949 persons, 1353 households and 101 community buildings. Bids have been sought from contractors with previous experience in the design, supply and installation of similar solar PV systems for seven of the communities. The total cost of this project is US\$800,000 and will be financed under the IDB Sustainable Energy Programme.

While this new effort at community-based electricity solar interventions may have more positive results, however, it is unlikely that this can provide sustained entrepreneurship activities in the hinterland as many of the challenges identified above will remain.

Additionally, mini hydro schemes are being pursued where feasible. These are mainly those sites that are relatively close to the larger hinterland communities (such as Lethem, Mahdia and Port Kaituma) with a fair amount of physical infrastructure and economic activities. These communities now have mini grids with generation using diesel that is transported from the coast. The idea is to use indigenous sources as much as possible in hinterland communities, whether it is solar, wind, hydro or biofuels.

Energy Efficiency

Renewable energy and energy efficiency are twin pillars of a sustainable energy future. The Guyana Energy Agency has been in the forefront of public awareness and promoting energy efficiency measures in Guyana. In its Strategic Plan 2012-16, the GEA indicated its plans for Energy Efficiency Interventions in several areas. These areas are shown in Table 3.10 together with the progress made to date:

Table 3.10: Energy Efficiency Measures and Progress Made

Energy Intervention	Status
Energy Assessment Audits	Ongoing assessments of government buildings and schools
Energy Efficient Buildings <ul style="list-style-type: none"> ○ Building Code ○ Occupancy Sensors ○ Cool Roof ○ Natural Lighting ○ Solar Water Heating 	Limited changeover to LED lighting with occupancy sensors, however no adaptation of new building codes. Limited use of solar water heaters
Energy-Conscious Procurement Policy	To be developed and enforced
Labelling Standards	To be developed and enforces
Prioritised Appliance Changeout Programme	To be developed for refrigerators
IS 50001 Energy Management Standard	To be adopted
Energy Efficient Street Lighting	Changeover from high pressure sodium (HPS) to

	LED lighting saving 42 MWh
Transport Sector Efficiency	To explore opportunities
Energy Efficient Cooking	Already in use in hinterland communities
Data Collection/Surveys	Limited data collection

The above table shows that although some work has been done in government audits and replacements of inefficient lighting systems enough has not been done to convince the public, including the private sector, of the benefits of energy efficiency.

The following energy efficiency measures shown in Table 3.11 will allow Guyana to move progressively forward in its efforts to reduce electrical demand through energy efficiency (Brugman, 2016 p.191).

Table 3.11: Energy Efficiency Initiatives

Energy Efficiency Measures	Actions
Institutional Arrangements	<ul style="list-style-type: none"> Form specialised Group to oversee energy efficiency programmes Provide better coordination between GPL and GEA
Market Capacity	<ul style="list-style-type: none"> Form an Energy Service Company model (ESCO) for delivery of energy efficient measures Train professionals and organisations to be knowledgeable about energy efficiency
Technology	<ul style="list-style-type: none"> To be made available in the market at an affordable price and with the correct financing package
Information and Communication	Provide better <ul style="list-style-type: none"> Coordination Sharing of information Measurement of electricity end-use
Legal and Regulatory Framework	<ul style="list-style-type: none"> Make energy efficiency a priority Introduce and enforce energy efficiency standards
Financing and Pricing	<ul style="list-style-type: none"> Provide innovative financing Provide low interest rates Provide subsidies in energy efficiency rather than in tariff reduction
Program Execution	<ul style="list-style-type: none"> Adopt international best practices Provide funds from different stakeholders Reduce electricity demand gradually according to energy efficiency targets established by authorities

In determining the energy that can be saved by utilising more efficient equipment for lighting, motors, air conditioning, refrigerators, and freezers, a cost benefit analysis was done by S. Brugman who concluded that investment in energy efficiency measures would reduce electricity consumption by about 8.3% in 2035 and if distributed generation was also encouraged and implemented these could serve to delay investment in new utility scale generation facilities.

The above recommendations need to be reviewed and appropriate measures accepted and plans put in place for their implementation.

Expansion of Generation System – 2018 Study

The energy sector in Guyana has benefitted from an updated, 2018 version, of the IDB financed study on the Expansion of the Generation System. This detailed study gives various options for generation expansion (natural gas, renewable energy, hydro, etc.), details of plans required in each of the areas of renewable energy if their development is to be achieved and detailed plans for energy efficiency measures both in the areas of policy and plans for achievement of goals. However, to date, there has not been any formal acceptance of these plans nor decisions for their implementation.

In one area, that is distributed generation, the study recommends that GEA (or GEA and PUC) be given the authority to instruct GPL to adopt certain measures. This consultant is recommending that the energy sector needs to be reorganised to outline the following:

- Which agency develops policies and strategies for the sector
- Which agency should adopt the development plans and is responsible for the financing of these plans
- Which agency authorises the implementation of policies and plans

Existing financial/budgetary structure and allocations

The Guyana Energy Agency Act of 1997, Section 17 identifies the funds and resources for the Agency. The capital and recurrent expenditures of the Guyana Energy Agency are financed from revenue generation by the Agency and from Government subventions. The primary sources of revenue that the Agency generates are:

- fees for facilitating the purchasing and importing of fuel from Petroleum de Venezuela (PDVSA) and from Petroleum Company of Trinidad and Tobago Limited (PETROTRIN);
- fees for marking and handling of fuel; and
- fees from the issue of licenses to import, store, utilize, sell and transport fuel.

Under the Ministry of Public Infrastructure, a budget allocation is estimated for the Guyana Energy Agency. The budget allocated for the Guyana Energy Agency for 2018 is shown in Table 3.12. The revised estimates for the previous four years are shown as a comparison. While the allocation for the Agency for 2018 showed an increase of 13.8% over the 2017 revised estimate, it is a significant increase of 800% over the 2014 revised estimate to a sum of \$1,167,833,000. The significant increase commenced in 2017 in both areas of subsidies from the government and revenues from operations as well as capital investment revenues. It can be argued that this signals the government’s emphasis on the energy sector.

Table 3.12: Details of Budget allocated to the Guyana Energy Agency from Central Government

	(G\$'000)				
Details of Revenue	2014 (revised estimate)	2015 (revised estimate)	2016 (revised estimate)	2017 (revised estimate)	2018 (budget)
Recurrent revenue	119,775	130,384	136,601	498,023	667,833
- Subsidies and contributions from Central Government	73,500	83,680	83,680	100,000	264,877
- Revenue from operations	46,038	46,230	51,323	396,525	401,458
Other recurrent revenue	0,237	0,474	1,598	1,498	1,498

Capital Revenue	10,000	10,038	7,975	527,726	500,000
Total revenue	129,775	140,422	144,576	1,025,749	1,167,833

Data extracted from GoG (2014; 2015; 2016; 2017; 2018a)

The HECI, which was incorporated in 2015, also receives a Government subvention under the Ministry of Public Infrastructure to fund its capital and recurrent expenditures. This entity does not generate revenue. The budget allocated to HECI for 2018 is shown in Table 3.13. There was a reduction in the amount allocated to HECI in 2018 in comparison to the revised estimate for 2017 which was due to a reduction in amount allocated for the capital expenditure arising from the completion of some capital projects. It can be argued that the marked increase in the allocation of capital revenues in 2017 is another indication of the government's emphasis the energy sector and, specifically on hinterland electrification and its recognition of the importance of the energy sector to the development of the hinterland community.

Table 3.13: Details of Budget allocated to the HECI from Central Government

Details of Revenue	(G\$'000)				
	2014 (revised estimate)	2015 (revised estimate)	2016 (budget)	2017 (revised estimate)	2018 (budget)
Recurrent revenue	-	31,623	43,201	46,681	46,942
- Subsidies and contributions from Central Government	-	31,623	43,201	46,681	46,942
- Revenue from operations	-	-	-	-	-
- Other recurrent revenue	-	-	-	-	-
Capital Revenue	-	2,910	110,990	369,600	65,500
Total revenue	-	34,533	154,191	416,281	112,442

Table 3.11 Details of Budget allocated to the HECI from Central Government

Data extracted from Government of Guyana (2014; 2015; 2016, 2018a)

Additionally, the following companies, which are under the purview of the HECI as of 2015, also receive subventions from Central Government for their recurrent expenditure. The amounts allocated for the period 2014 to 2018 are shown in Table 3.14. With the exception of Lethem Power Company and LINMINE Community Power (which were given smaller allocations), the amounts provided to the other companies over the period 2014 to 2018 were approximately the same. (NB: all companies were not allocated funds from 2014, while others received subsidies from different Ministries prior to the establishment of HECI).

Table 3.14: Central Government subvention to the companies under the purview of HECI

Agency	Amount of subsidies from central government (G\$'000)				
	2014 (revised estimate)	2015 (revised estimate)	2016 (budget)	2017 (revised estimate)	2018 (budget)

Lethem Power Company	165,000	105,000	105,000	105,000	105,000
Kwakwani Utilities Inc (Formally BERMINE/AROAIMA Community Services)	345,734	319,615	345,734	350,734	374,826
LINMINE (Community Power)	3,108,436	2,597,221	2,735,478	2,162,963	2,162,963
Mabaruma Power Company	-	-	-	27,000	37,378
Mahdia Power & Light Company Inc.	20,000	25,000	25,000	27,000	27,000
Maruca Power & Light Company Inc.	-	-	10,000	10,000	10,000
Matthews Ridge Power & Light Company Inc.	10,000	10,000	15,000	15,000	15,000
Port Kaituma Power & Light Company Inc.	20,000	25,000	25,000	27,000	27,000
Total	3,669,170	3,081,836	3,261,212	2,724,697	2,759,167

Data extracted from Government of Guyana (2014; 2015; 2017; 2018a)

For the year 2018, there was no allocation from the Central Government to the Guyana Power and Light Incorporated for recurring costs. However, allocations from Central Government have been provided to the Company in years when the cost of fuel has been prohibitive. For instance, in 2012, “as a result of the stark escalations in fuel prices, the Shareholder made a G\$6B injection into the Company which was utilized to subsidize the overall cost of fuel.” (Guyana Power and Light Incorporated, 2012, p. 7).

The allocations from Central Government for capital projects in the energy sector for 2018

A total of 3,084.663 (G\$M) was allocated to energy projects. Additionally, the Government allocated a sum of 8,275.745 (G\$M) to the Guyana Power and Light Incorporated for capital expenses for 2018. It is not certain whether this includes the sum that has been allocated to the Power Utility Upgrade Programme.

Public-Private Partnership

Guyana is seeking to make its foreign investment policies supportive of private sector ownership in many sectors including energy. In April 2018, a Public-Private Partnership (PPP) Policy Framework document was tabled in Parliament. The document sets out to outline the following:

- Institutional Responsibilities
- Processes
- Commercial Principles
- Fiscal Management and Accounting, and,
- Transparency and Accountability

The PPP is defined in the document as follows:

A public-private partnership (PPP) is a long-term procurement contract between public and private entities, in which the proficiency of each party is focused on the designing, financing, building, and operationalising of an infrastructure project or, providing a service through the appropriate sharing of resources, risks and rewards. (p. 8)

In its introduction the stated objectives and goals were given as follows:

The objective of this strategy is to enhance the employment-generation potential of the economy and raise the quality of life of all sections of the population. To attain this objective, Government will invest heavily in catalytic physical infrastructure; renewable energy and the environment; agricultural diversification; agro-industrial development; education and training; and information technology. These prioritized interventions will focus on programmes geared towards critical economic diversification initiatives which are needed to ensure economic growth and stability and the development of non-traditional economic sectors, particularly through the raising of value-added in both traditional and non-traditional industries. (p. 5)

Four key pre-conditions have been identified as necessary to the successful outcome of PPPs. These are affordability, the legislative environment, institutional arrangements, and capacity building. PPPs will be used to support many of the government's key economic policy objectives, namely, infrastructure, efficiency, balancing fiscal prudence with fiscal stimulus and achieving diversification.

However, Brugman (2016, p. 64) recommends PPP for the construction of the Amaila Falls hydroproject with its associated transmission line. This relationship Brugman states will strike a balance between the three components of the project structure, namely, ownership structure, financial structure, and financial package.

In terms of royalties, S. 15.6 of the Production Sharing Agreement between Government of Guyana and Esso, Nexen and Hess prescribes a royalty rate of 2% of all petroleum produced and sold, minus the quantities used for fuel or transportation in petroleum operations. Accordingly, royalties are only payable on production of petroleum.

Incentives for Renewable Energy Development

The Government of Guyana has created fiscal incentives for developers, such as tax and excise duty exemptions for renewable electricity equipment and corporation tax holidays for importers of items for wind and solar energy investments:

- One-off tax holiday of two years for corporation tax to importers of items for wind and solar energy investments;
- Lowering of the excise tax on hybrid and electric vehicles;
- Granting of tax exemptions to set up electric vehicle charging stations;
- Zero-rating the excise tax on biofuel.

The following items are ZERO RATED for VAT and fully exempt from Import Duties:

Machinery and equipment for obtaining, generating, and utilizing energy from renewable energy sources, including: Solar panels, Solar Lamps, Deep-Cycle Batteries, Solar Generators, Solar Water heaters, Solar Cookers, DC Solar Refrigerators, DC Solar Freezers, DC Solar Air Conditioners, Wind Turbines, Water Turbines and Power Inverters. (Draft Solar Roadmap, Guyana, 2018, p. 15)

There is a greater awareness of the use, especially of solar PV panels for electricity generation and some local importers are taking advantage of the tax incentives in the importation of these items. There is however the absence of collection of data to critically examine the success of these measures in the actual utilisation of distributed solar energy.

Sovereign Wealth Fund

Government's 'Green' paper titled "Managing Future Petroleum Revenues and Establishment of Fiscal Rule and a Sovereign Wealth Fund" was laid in the National Assembly by Minister of Finance, Winston Jordan on 08 August 2018. The government will be issuing the document to present preliminary proposals to stimulate discussion. It details specific issues and points out possible courses of action in terms of policy and legislation and is intended to capture key issues for consideration, including the mechanisms to ensure sustainable use of petroleum revenues to achieve a diversified and green economy, with a specific predisposition to avoid mismanagement of the national patrimony.

- There would be one Sovereign Wealth Fund rather than multiple funds
- It will contribute to economic stability and ensure that there is no volatile public spending that would lead to loss of economic competitiveness
- It will ensure that future generations benefit from the present oil resources
- It will finance national priorities via the national budget
- A five-member macroeconomic committee consisting of persons from the Ministry of Finance, the Bank of Guyana, a leading macroeconomic expert and two persons, one each nominated by the Institute of Chartered Accountants and the parliamentary opposition would be formed. The main purpose of this committee would be to determine the amount of monies that would be spent each year from the sovereign wealth fund by a pre-determined formula.
- A seven-member investment committee would be formed to recommend investment portfolios for part of the Sovereign Wealth Fund
- A senior investment analyst and adviser of international repute would be recruited to develop the investment mandate and to audit the use of the SWF.

The objections that have been made to these proposals is that there may not be a wide enough involvement in the decision making concerning the use of the sovereign wealth funds as these can be approved by a simple majority in parliament.

Guyana Power & Light Tariff Structure

The Guyana Power & Light Company Incorporated is the main power company in Guyana. As indicated previously, it is responsible for the generation, transmission, and distribution of electricity to residential, commercial, and industrial customers and it is authorised to purchase power from Independent Power Producers.

The Guyana Power & Light company issued the following tariffs shown in Table 3.15 effective April 01, 2016. As can be seen there is a residential lifeline tariff for low income households that utilise less than 75 kWh per month. The lifeline customer base was reported as being 66,000 out of a total customer base of 166,000 (~40%) in 2012. The lifeline customers will receive approximately 3% reduction in fixed charges and 10% reduction in energy charges. The tariff structure also shows increased tariffs (~4%) for government locations.

Table 3.15: GPL Tariff Structure

Category	Tariffs	Current Fixed Rate / Demand Charge	Fixed Rate / Demand Charge effective April 1, 2016	Current Energy Rate	Energy Rate effective April 1, 2016	% Fuel Rebate	15 Fuel Rebate G\$	Net Energy Rate GY\$ effective April 1, 2016
Non Government								
Residential: Lifeline	A >75 kWh	359.52	341.54	48.42	46.00		6.90	39.10
Residential Commercial	A <75 kWh B	369.52 2596.84	351.04 2467.00	53.78 69.82	51.09 66.33		7.66 9.95	43.43 56.38
Industrial	C	1852.86	1760.22	63.07	59.92		8.99	50.93
Industrial Street Lights	D E	1852.86	1760.22	60.41 53.35	57.39 50.68		8.61 7.60	48.78 43.08
Government								
Residential	GA >75 kWh	406.81	386.47	58.42	55.50		8.32	47.17
Residential Commercial	GA <75 kWh GB	406.81 2709.74	386.47 2574.25	59.21 72.85	56.25 69.21		8.44 10.38	47.81 58.83
Industrial	GC	1933.42	1836.75	65.81	62.52		9.38	53.14
Industrial	GD	1933.42	1836.75	63.04	59.89		8.98	50.90
Industrial	GE			55.67	52.89		7.93	44.95

Monitoring and Evaluation Mechanisms

The Guyana Energy Agency does not have an established a separate Monitoring and Evaluation Unit or mechanism. However, to a certain extent, monitoring is conducted by the Energy and Energy Statistics Division of the Guyana Energy Agency which is responsible for collecting energy data from various stakeholders.

Additionally, in accordance with its terms of reference, the Energy Implementation Working Group is expected to report to the Minister of Public Infrastructure and the reports from the Working Group are to be structured to quantify the progress on achieving the overall objective. The reports are to be submitted on a regular basis of quarterly reports and, also, on an ad-hoc basis at the request of the Minister of Public Infrastructure. Therefore, once this Group functions in accordance with its Terms of Reference, then it could function as a monitoring and evaluation body. Of importance, this Group could fill the gap of “lack of coordination among different authorities and agencies” as mentioned in the study by Gardner (2014).

Existing Data Systems and Analyses

As required by law, the Minister maintains a database of self generators based on filings with the Minister. Additionally, the Guyana Energy Agency has an Energy and Energy Statistics Division, which collects data, manages and analyses data relating to the sector for update of its energy statistics database, preparation of its annual report and update of its Strategy Plan. Further, as a member state of Latin American Energy Organization (OLADE), the Guyana Energy Agency also supports the update of OLADE’s Energy Information System for Latin America and the Caribbean (SIE-LAC) and preparation of Energy Statistics Yearbook. It is noteworthy that the following are among the key responsibilities of the Energy and Energy Statistics Division:

- to update the country's energy data with respect to acquisition prices, wholesale prices and retail prices;
- to prepare and analyse energy demand and supply data;
- to supply petroleum information and analysis of the relevant energy data as required; and
- to supply the Caribbean Energy Information System (CEIS) and OLADE databases with energy information.

Donor/Development Partners Support (since 2010)

Over the years, the IDB and, more recently, Japan have been donor partners particularly in the electricity sector of the energy sector (**see Annex 7**). Specifically, the IDB has also funded a number of studies, such as the Optimal Generation expansion study for the Guyana Power and Light Incorporated and Arco Norte Electrical Interconnection Study. In 2010, Guyana took a US\$39.6M loan from the Export-Import Bank of China (China's Eximbank). It was also used on an Infrastructural Development Project for the Guyana Power and Light (GPL) – upgrading transmission lines and construction new substations.

Issues

The GSDS thematic group on Energy, Group #3 highlighted its vision for the energy sector as: *'a transformed energy sector, with an optimal mix of indigenous, clean and renewable resources, utilised in accordance with the principles of sustainable development, that provides stable, reliable, affordable energy for all in Guyana and promotes a sustainable pattern of energy consumption at the least cost to consumers.'*

However, in order to achieve this vision, the following challenges, gaps, risks and barriers will need to be addressed. These are highlighted in this section together with the necessary recommendations.

Challenges/Gaps/Risks/Barriers

There are many problems within the national power system network that, if not addressed, would hamper the development of renewable energy systems. These are:

Generation:

- Poor reliability of electricity supply which increases the level of self generators within the country.
- There is a lack of clarity concerning the generation licensing issues for distributed generation.
- High levels of penetration into the national grid of intermittent renewable energy generated from distributed systems are likely to cause integration problems such as stability, inadequate ramping and voltage impacts. There is a lack of planning for this eventuality.

Transmission:

- Lack of a substation and transmission intertie between geographic areas for prospective mid-scale (150 – 180 MW) hydropower development to serve both Linden and the Demerara/Berbice Interconnected System (DBIS).

Distribution:

- High levels of technical and non-technical losses which increase the selling price of electricity and promote a high level of self generation among the major industries.
- Poor quality of supply which affects the operation of distributed generation connected to the network.
- Lack of feed-in tariff and regulatory regime to govern the pricing, service standards and mandate concerning the interconnection of roof top and commercial scale distributed generation (of less than 1.5 MW) to the distribution grid.
- Lack of an operational protocol for GPL to manage the integration of high level of intermittent renewable energy integration.
- Lack of a grid modernisation plan and investments aimed at high levels of penetration of intermittent renewable energy and the deployment of smart grid concepts.

There are also many challenges involved in providing sustained electricity to the hinterland/rural communities. These are identified below.

Hinterland Electrification

- Low purchasing power and low demand for electricity.
- Limited technical skills and limited economic activity.
- Electrification not linked to any industry because of remoteness of the communities which result in high transportation costs.

There are also many policy, fiscal and operational issues that hinder the proper functioning of the energy sector and would not enable the vision earlier outlined in this section to be realised. These are:

Policy

- There is no clear indication in the policy documents reviewed of the role of the Guyana Energy Authority vis-s-vis the Guyana Power & Light Company. The necessity for this to be streamlined is made clear by certain recommendations in the Generation Expansion study.
- The Energy Policy has been a draft document for several years. It needs to be approved by the relevant authority and plans made for its implementation.
- There is no clear indication of the acceptance of any specific generation option and plan of implementation of the measures indicated in the Generation Expansion Study.
- The Generation Expansion study recommends clear plans in each of the areas of renewable energy and outline specific steps for the various plans. It is evident that such planning mechanisms are not presently available within the energy sector.

Fiscal

- The Guyana government has been approaching funding agencies for most of the financing of its energy projects. This is because the government is not yet able to finance these.
- There is no indication that investment in renewable energy projects have been defined in terms of their ownership structure neither is it clear whether consumers will be paying the economic cost of these investments.
- More work needs to be done on promoting the financial benefits of energy efficiency to the public.

Operational

- There is not enough data collection and analysis of measures that have been implemented (for example tax exemption on renewable equipment) or projects that have been completed (for example the installation of PV systems in the hinterland communities) to determine their successes or failures and any need for changes in the future.
- Although much progress has been made in the study/development of the solar and hydro resources, enough is not being done towards the development of wind and biomass resources.
- Although a wide range of energy efficiency measures have been proposed, there has only been action on a few of these measures
- There is need for further training in the technical and financial aspects of the renewable energy technology and energy efficiency.
- The private sector has complained of planning delays and restriction in the working of the energy sector and many other sectors of the country.
- There is insufficient use of modern technologies - data storage and retrieval, modern modelling systems, etc. need to be implemented.
- There is little monitoring and evaluation within the agencies and none seems to be done overall within the sector.

Lessons Learned/Recommendations

These recommendations are being suggested to deal with some of the challenges described above.

- All policies and plans must be approved by the relevant authorities and acceptance must be mandatory for all the agencies within the sector.
- The Energy Programme Implementation Working Group should be expanded to include the other members of the GSDS Thematic Group #3 on Energy in order to promote a greater level of collaboration and cooperation among stakeholders in the energy sector.
- Tariff structures must reflect the real cost of electricity production or they will not promote energy efficiency.
- Energy efficiency measures must be aggressively promoted to the residential, commercial and industrial sectors.
- The model being utilised for hinterland electrification must be reviewed taking into consideration what has worked in hinterland electrification in other countries.
- Definite measures must be taken for human resource development for the renewable energy sector.
- All projects must be supported by adequate monitoring and evaluation mechanisms and the entire energy sector must also receive such analysis.
- There should be consideration of a higher level of economic and financial incentives to promote greater 'buy-in' of renewable energy and energy efficiency investments by the private sector; this is contingent on the conduct of a study that evaluates the successes and/or failures of current incentives.

The following additional specific recommendations for an energy roadmap have been taken from the documents produced by GSDS Thematic Group #3 on Energy.

Table 3.16: Strategic Areas, Goals and Targets

Strategic Areas	Goals (Transformative Change)	Targets
Achieving a transition to an	Diversify the energy supply matrix for	70% installed renewable power

<p>optimal mix of renewable and clean energy in the Energy sector, with immediate focus on fortifying the national grid to efficiently and effectively transmit and distribute energy and to attain higher levels of renewable energy penetration</p>	<p>the local power sector to ensure adequate reserves and reliability: 17 MW HFO by 2019 8 MW Wind by 2020 10 MW Solar by 2020 40 MW Wind by 2021 (additional) 40 MW Bagasse Power by 2021 (additional) 4 MW rice husk/wood waste by 2022 170 MW Natural Gas 2021 to 2025 51 MW Solar by 2025 (additional) 265 MW Hydropower by 2028</p>	<p>capacity by 2030/2039</p>
<p>Improving access to reliable and clean energy services for all</p>	<p>Power newly established townships using renewable energy sources Construct mini-hydro stations at Kato (0.15 MW), Moco-Moco (0.7 MW), Tumatumari (2.2 MW), Ikuribisi (1.0 MW) and Kumu (1.5 MW) by 2025 (total installed capacity – 5.55 MW) Construct solar PV farms in Lethem (1 MW), Bartica (1.5 MW), Mahdia (0.65 MW) by 2021(total installed capacity – 3.15 MW) Install 19 MW solar PV by 2025 to meet off-grid demand for hinterland and rural areas where grid access is not feasible Construct solar PV farms in Port Kaituma, Kwakwani, Matthew’s Ridge and Ituni</p>	<p>Hinterland utilities in the towns of Mabaruma, Lethem, Bartica and Mahdia can provide 24-hour electricity supply to customers by 2025 using solar/hydro hybrid systems</p> <p>All 200+ communities (100% of households) in the Hinterland have electricity access* by 2025 * electricity access meaning able to power lights and electronics with small loads (approximately 750 W per household).</p>
<p>Ensuring security, quality and competitive cost of energy for business growth</p>	<p>Develop a modern Smart Local Grid inclusive of automatic generation control, network automation, protection coordination, redundant feeders and circuits to achieve 99% reliability of supply by 2025.</p>	<p>99% reliability of supply for the local power sector by 2025</p>
<p>Increasing energy efficiency</p>	<p>Conduct energy audits and replace inefficient lighting at public, residential and commercial buildings to reduce energy consumption Implement Energy Efficiency Building Code (An adopted standard for Guyana) Public education and awareness programmes to provide consumers with information and tools to reduce energy consumption and expenditure</p>	<p>750,000 inefficient lights replaced with LEDs by 2039 at public, residential and commercial buildings Energy efficiency building code adopted by Guyana by 2021 7000 interventions annually (60 newspaper ads printed, 60 TV ads and 615 radio ads broadcasted, 5000 brochures printed, 1000 booklets printed, 100 posters printed, 60 infomercials and 50 documentaries broadcasted, 5 seminars/workshops and 50 presentations to schools, ministries, agencies and private</p>

		sector)
Develop policies and encourage the development of a sustainable Transport sector	Develop Sustainable Transport Policy that is aligned with a broader land use policy	Procure vehicles using alternative transport fuels such as compressed natural gas and electric vehicles with solar-powered charging stations for Ministries and Government Agencies by 2025. Foster the production of biofuels such as anhydrous (fuel-grade) ethanol (for gasoline blend or use in flex-fuel vehicles) and bio-diesel by 2030
Develop the oil and gas sector for export and domestic use	Sale of electricity to neighbours such as Suriname and Brazil from natural gas (by 2028) then hydropower (by 2039). Use of proceeds for investments to develop the Energy sector, particularly for hydropower development.	

3.1.4 Social Sector Assessment (Education)

Sector profile

Policy, Action Plans and Legal Framework

In the vision of the Ministry of Education, education is positioned as the main and most effective contributor to the development of a citizenry able to modernise Guyana, with the Ministry supporting the citizenry in becoming more productive and tolerant and to live in mutual respect.

The National Development Strategy or NDS (1996, 2000) informs the specific policy and strategic framework for the Education Sector. The Strategy aimed to realise a resource effective and flexible system that addresses regional inequalities in education and gender sensitivity of the education system; focuses more on scientific and technical education, computer literacy, and informatics; and maximise the results throughout the formal education system (from Kindergarten to University). The Strategy also aimed to, among other things, increase the importance of primary education, provide universal secondary education and undertake remedial adult education.

Due to the focus in the PRSP on improving access to social services, gross enrolment rates at the primary level exceeded 100% during 2002-2006 at the national and regional levels, with net enrolment ratios topping 96%. Access to secondary education rose with an enrolment rate of more than 65% of that cohort being enrolled. Reduction in overcrowding, introduction of nutrition programmes, and implementation of other support programmes extended to students in difficult situations may have contributed to the increased access in secondary education particularly in rural coastal and hinterland areas (PRSP, 2011).

The Curriculum Development Unit of the National Centre for Educational Resource Development (NCERD) developed literacy and numeracy standards for Nursery 1 to Grade 2 Primary. The Cyril Potter

College of Education began delivering the teacher training certificate programme by distance education and there was an increase in the number of students who are in General Secondary School and who have an opportunity to take Secondary School Certificate Examination. In addition, the Basic Competency Certificate Programme (BCCP), an alternative pathway for secondary students with high academic qualifications and an interest in technical subjects was launched.

One of the key challenges highlighted was the high student teacher ratio, despite training more teachers annually over the past years. In particular, for primary education, student trained teacher ratio averaging about 50 students to 1 which far exceeded the level for the Caribbean. Administrative Regions 1, 8 and 9 have student teacher ratios that accounted for about twice the national average. The Remote Area Incentive (RAI) through providing improved remuneration and other incentives for hinterland teachers has helped to bridge the national divide of student teacher ratio between the coastal and hinterland regions (PRSP, 2011).

The 2011-2015 PRSP recommended attention be focused on improving access to quality and equitable education at the pre-primary and primary level; improving literacy and numeracy; improving School/Classroom Environment; improving Innovative Technology; strengthening school health, nutrition, HIV& AIDS in the curriculum; and attaining universal secondary education. The goals were also reflected in the Education Strategic Plan (2014-2018). The challenges for the successful implementation of the PRSP identified included availability of financing which would require a prioritization of development needs; human resources constraints in engineering, ICT and agro-processing; poor telecommunication infrastructure; uncertainties in energy and food prices; climate change and natural disasters.

In addition to the NDS, several other interrelated strategies including the National Competitiveness Strategy (2006) and the Low Carbon Development Strategy or LCDS (2010, 2013) informed the 2011-2015 PRSP. Under the National Competitiveness Strategy, access to new knowledge, skills and competencies, and lifelong learning to cope with rapid changes to improve employability and entrepreneurship were critical factors identified so that Guyana can adapt to a fast changing global economy. The strategy recommends investments in skills at all levels and measures to reverse brain drain.

Specific interventions include greater vocational and technical training, strengthening links with the Diaspora communities, maximizing remittances, special incentives for retention of skills, changing donor modalities to retain specialists within the public services and the enactment of the Technical and Vocational Education and Training Act.

The LCDS called for investments to expand and improve the delivery of education, particularly for Indigenous communities and capacity building in agencies responsible for micro and small enterprise development. The Climate Resilience Strategy Action Plan or CRSAP (2016) provides a point of reference in the process of identifying key climate risks and priority resilience building actions, capacity building, and the institutional framework. Further, it informs the types of interventions that are necessary at the sectoral level to increase Guyana's resilience to a variable and changing climate. Regarding education and capacity building, the CRSAP recommended tailoring and generating climate change knowledge products to meet the educational needs of targeted communities and helping local government agencies access skills, training, knowledge and tools to understand and manage climate change risks.

One of the central themes of the GSDS is Human Development and Well-being, of which empowering youth and indigenous people, and access to good quality of education, human development and green

skills have been identified as key strategic areas. This means that the Education sector will also have to be responsive to this transformation. Universal access to quality education and training, sufficient quantity and quality of teaching staff, updated curriculum, methodology and tools, youth empowerment, and improving the standard of living of indigenous people are still important areas for the GSDS to address.

The foundation has been set with the drafting of the Education for Sustainable Development (ESD) Policy in 2015. The goals of this Policy are to integrate sustainable development into education, and integrate education into sustainable development through a shared commitment to education that empowers people for change.

The policy objectives developed to realise these goals are:

- i. Develop education and training strategies that will enhance capacities for the achievement of sustainable development;
- ii. Embed ESD into the education system through literacy and lifelong learning in all aspects which concern sustainability;
- iii. Provide equitable and inclusive access to high-quality formal, non-formal and informal education which includes the ESD thrusts and strategies;
- iv. Raise public awareness and understanding of the principles of sustainable development, drawing on the capacities and comparative strengths of the media, public sector, private sector, and civil society.

Additionally, implementation of the policy objectives is supported by institutional capacity; integration of ESD into the formal, non-formal and informal education system; equitable and inclusive access to ESD in all communities; and public awareness and understanding of sustainable development.

It should be noted that there were efforts in 2014 to update legislation for the education sector via the Education Bill of 2014. This Bill was drafted to repeal the Education Act of 1876 and 1976 amendments, to reform the legal framework of education in Guyana and provide an effective system of education related to the needs of the people. It addresses, among other things, areas relating to the administration of the Education System, Rights and Responsibilities of Students and Parents, Management of Public Educational Institutions, other Types of Education, Employment of Teachers, Curriculum Assessment, and Inspection and Review of the Education System. A review of the Bill is needed to ensure alignment with the GSDS.

In light of the restructuring of the Ministry of Education to consider the interrelationship among education, culture, youth and sports, the Department of Culture, Youth and Sports has been subsumed under the purview of the Ministry of Education. As such, the Guyana's Framework National Cultural Policy would have implications on the changing activities of the Ministry of Education. The National Cultural Policy provides a framework to guide the implementation of specific policy interventions for the period of 2018 to 2025 in 3 main areas: Mainstreaming Culture in Development; Cultural Heritage Preservation, Protection and Promotion; and Creative Arts and Industries Development.

Commitments under the policy include:

- Comprehensive examination of the challenges faced by students, particularly in the Indigenous community, and implement courses in the language of first instruction.
- Enhancement of arts education in schools within a comprehensive STEM+A policy paradigm.
- Ensuring that cultural equity is created and sustained within the public education system.
- Enhancement of the role of multicultural education as a critical component of curriculum reform.

International and Regional Agreements

Guyana has committed to a number of International and Regional Agreements for the Education sector. Some international agreements are the Millennium Development Goals (MDGs), the Education for All (EFA) goals and the Sustainable Development Goals (SDGs). At a regional level, there is the work of the Caribbean Examination Council (CXC), the regional framework to support the delivery of Health and Family Life Education in CARICOM countries, the agreement through the Council for Human and Social Development (COHSOD) for the Caribbean Vocational Qualification (CVQ), and the establishment of the CARICOM Accreditation Agency for Education and Training.

Institutions

Existing/Past institutional structure and inter-sectoral coordination mechanism

Guyana is divided into eleven education districts. Ten of these education districts correspond with the administrative and geographical regions of the country, while the capital, Georgetown, is treated as a separate education district (UNESCO, 2015).

The formal education system of Guyana has a structure that moves up from nursery education through primary education, secondary education, technical/vocational education and training (TVET), teacher training, and ending at university, the highest level. There are 333 nursery schools, 440 primary schools and 110 general secondary schools under the management of the Ministry of Education. In addition, there are 6 special schools that cater to students who have physical, sensory and mental needs, and for others who are socially disadvantaged or in especially difficult circumstances (UNESCO, 2015).

Continuing education is also provided by the Institute of Distance and Continuing Education (IDCE), an arm of the University of Guyana (UG) and the Adult Education Association. There is also a growing number of private schools and private sector institutions that provide nursery to post-secondary education.

The Ministry of Education (MOE) through its various units is responsible for:

1. Policy formulation and development.
2. Policy analysis and review.
3. National Education Strategic Planning.
4. Resource mobilization.
5. Provision of centralized services - teacher training and development, curriculum development, procurement and distribution of text books and exercise books, school feeding, administration of external and local examination and reporting, setting of Academic and Non-Academic Standards.
6. Monitoring, Evaluating, Reporting and Development of the entire education delivery process.

The implementation of the education programme in all geographical regions of Guyana is the responsibility of the 10 Regional Democratic Councils (RDCs), with the exception of Georgetown, which is a special education district that is directly managed by the Ministry of Education. Each region has its own education budget and is responsible for education delivery, which includes among other things staffing and infrastructure. The Education Departments in the regions are accountable to Regional Democratic Councils, which in turn reports to the Ministry of Communities. On the other hand, Georgetown is accountable to the Ministry of Education. The structure was instituted to decentralise the management system and achieve greater use of human resources. There is a direct line relationship

between the RDC and the Department of Education with a staff relationship between the Department and the Ministry of Education.

The different levels of Regional Education Management are as follows:

- The Regional Democratic Council (RDC), the overarching authority in the Region, exercises control of the Education Sub-sector through the Education Department.
- The Regional Education Committee, a sub-committee of the RDC, gives support to the Regional Education Department and advises the RDC on education matters. The main area of focus is to enhance the management of education delivery by creating conditions for greater collaboration between schools and their communities.
- The management and supervision of education in the Regions is a direct responsibility of the Regional Education Departments. The teams for the administration of these departments include District Education Officers. The number and types of schools that fall within the boundaries of the education districts, as well as their demographic make-up determine the number of District Education Officers assigned to a department. The Regional Education Department (RED) manages the entire education process at the Regional level and an Administrative Officer is responsible for the day-to-day management of the department, dealing with all personnel, administrative and financial matters (including budgeting).

The Administrative Head

- ***Permanent Secretary***

The Permanent Secretary (PS) is the Administrative Head of the Ministry of Education who facilitates its efficient management. The Permanent Secretary acts as advisor to the Minister of Education in the formulation of policies and the preparation of Ministry's Annual Work Plan/Programme, Budget, Annual Report and provides responses to parliamentary questions and motions.

Two Deputy Permanent Secretaries (Finance and Administration), a Human Resource Manager and the Chief Planning Officer assist the Permanent Secretary, who has direct responsibilities for the Examination Division, Education Planning Unit, Management Information System (MIS) Unit, the National Centre for Education Resource and Development (NCERD) and School Health, Nutrition and HIV/AIDS Unit.

The units directly supervised by the Permanent Secretary are as follows:

- ***Examination Division***

The Examination Division administers national and international examination for candidates of public and private schools at the Primary, Secondary and Post-Secondary levels of the education system. These examinations facilitate selection for higher levels of education and for training and employment, as well as provide feedback on the curriculum and the effectiveness of strategies employed by the Ministry.

The work at the Examinations Division relates directly to the work of other agencies in the Ministry of Education namely, primary schools, secondary schools, technical and vocational schools, the Monitoring, Evaluating, Reporting and Development (MERD) Unit, the Education Planning Unit, Departments of Education, Policy Implementation and Monitoring Unit (PIMU), and the National Centre for Education

Resource Development (NCERD). This Division also supports the Ministry's monitoring and supervision of the system, providing statistics and other feedback for devising development plans.

- ***Education Planning Unit***

The main objective of the Education Planning Unit is to provide effective support to the Ministry of Education in its development, implementation and monitoring of education policies and plans. This Unit is responsible for preparing long and short-term education plans that relate to national development plans; data collection and analysis; reporting on statistical data and indicators for the education system; monitoring and evaluation of the Ministry's plans, programmes and projects; among other responsibilities.

The Planning unit works in close collaboration with the professional educators especially the Assistant Chief Education Officer (Nursery, Primary and Secondary). This unit will be critical in aligning the Ministry's Education Strategic Plan for the next 5 years with the Green State Development Strategy, for policy review and securing project financing from donor agencies.

- ***Management Information System (MIS) Unit***

Management Information System Unit is a sub-unit of the Central Planning Unit. The Unit is responsible for leading the MOE in the use of Information Technology (IT) as a tool for teaching and learning, with the provision of technology assisted education delivery solutions and the general administration of education in offices and schools. It also has the much wider function of driving the data gathering, compilation and retrieval process in the Ministry. The responsibility of this sub-unit of the Central Planning Unit will likely expand to monitor and report on progress of policies aligned to the GSDS and will be an important source of support for policy review.

- ***National Centre for Education Resource Development (NCERD)***

The role of NCERD is to provide professional support to all levels of education management that will result in the delivery of quality education in schools. The support is generally in the form of development of training packages to meet the needs of the Education Departments. Specifically, the key areas are as follows:

1. Providing updated curriculum guides and related learning materials to support quality classroom teaching and learning.
2. Training of teachers and officers in the methodologies underpinning the revised curriculum guides and related materials.
3. Training of teachers in the use of audio / visual and multimedia materials to enhance the quality of teaching and learning.
4. Training of school plant managers and education officials in the principles of education management through a Distance Education Certificate Course.
5. Upgrading the content and methodology of teachers across all levels to make them more proficient and efficient in the process of curriculum delivery.
6. Providing a variety of diagnostic test materials to be used to measure mental and attitudinal growth across the school levels.

7. Providing validated instruments to measure learning outcomes based on standards determined for each grade. The validation process involves, at some point, the Board of Examiners where NCERD has a vital role to play.
8. Providing evaluative information based on national assessments for Grades 2, 4, 6, 9 and 11.
9. Providing a variety of distance learning materials, both print and electronic, to support classroom instruction.
10. Supporting the Ministry's inspection of schools and departments by providing a range of specialists to serve as members of the monitoring teams for the regions and schools.
11. Procuring and supplying equipment and supplies to science laboratories in schools and training laboratory technologists to manage the laboratories.
12. Ensuring that all national and overseas examinations are administered in a highly professional manner through a process of training of officers involved. The training will be in keeping with national and international guidelines for ensuring the integrity of the process.

- ***Science Education Unit***

The Science Education Unit functions as a unit under NCERD. It is headed by a Science Education Coordinator who ensures that Science Education is given due emphasis in the school system. This unit oversees this area and ensures that there is sufficient personnel with the appropriate science background by providing teachers with the necessary training and equipment to deliver the curriculum.

- ***Special Education Unit***

The Special Education Unit within NCERD support the policies and plans of the Ministry of Education related to Special Needs Education. Its primary role is to coordinate Special Education Needs (SEN) training through customized curriculum development and coordinate from a national perspective, the national response to Special Education Needs.

The Unit therefore aims to improve the quality of teaching and SEN services offered throughout the national education system through professional development programmes, teacher training, and the production of teaching materials developed in conjunction with other Education departments.

NCERD, and its sub-units, as the supporting agency for the implementation of the Education for Sustainable Development Policy will be critical in rolling out capacity building initiatives under the GSDS.

- ***School Health, Nutrition and HIV / AIDS Unit***

This unit was established to coordinate Health, Nutrition and HIV / AIDS related policies throughout the eleven Education Districts. This Unit is headed by a Coordinator, who has a reporting relationship to the Permanent Secretary.

Other officers include The Health and Family Life Education Officer, HIV/AIDS Focal Point officer, Health and Safety Officer, and Special Education Needs Officer. Special training packages have prepared officers for these roles. This unit assists in monitoring health and related matters in schools. Follow up actions are taken as required to ensure each Education District addresses its School Health, Nutrition and HIV/AIDS needs. The unit may progressively evolve to support the Ministry of Public Health to address the possible increased transmission of infectious diseases associated with the expected expansion of the business process outsourcing and tourism industries. Consideration should also be taken as to whether the unit should have a permanent presence in each administrative region for greater coordination with the regional management personnel.

The Professional Head

- ***The Chief Education Officer***

The Chief Education Officer (CEO) is the Head of the Professional Arm of the Ministry of Education. Reporting to this officer are 3 deputies: Deputy Chief Education Officer (DECO) responsible for Policy Implementation and Monitoring Unit, DCEO responsible for Monitoring, Evaluating, Reporting and Development Unit, and DCEO responsible for Technical and Vocational Education and Training Unit; and 3 Assistant Chief Education Officers, with responsibilities for Nursery, Primary and Secondary Levels.

In addition to these officers, 4 other officers: Director of NCERD, Principal of CPCE, Human Resource Manager and DPS (Administration) comprise the Education Coordinating Committee. The Education Coordinating Committee has the overall responsibility for managing the entire education delivery process, policy formulation, problem identification, problem solving, performance review and identifying emphases. The Chief Education Officer also has direct responsibilities for Teacher Education and Training at Cyril Potter College of Education, and the Unit of Allied Arts.

- ***Policy, Implementation and Monitoring (PIM) Unit***

This unit is headed by the Deputy Chief Education Officer (Administration). It has the responsibility of ensuring that all Education Districts comply fully with the Education Act, Policies and Regulations developed by the Ministry of Education. The head of this unit, DCEO (Administration), is the Chief Liaison between the Ministry of Education and Departments of Education to ensure a high level of overall accountability.

Generally, this unit has the responsibility to:

- Assist in the development of the national education plan and policies;
- Prepare Work Plans, estimates and their review;
- Prepare quarterly and annual reports; and
- Perform general administrative functions for the education system.

The sub-units of this unit are the Schools Welfare Unit, School Boards Secretariat and Parent Teacher Associations. With the expected revision of the Education Act, the Policy, Implementation and Monitoring (PIM) Unit will have to ensure that required legislative and regulatory changes are put into action. Additionally, coordination with the Ministry of Education and Departments of Education will have to be emphasized. Moreover, to ensure greater parent participation in the education system, this unit will also coordinate with the Parent Teacher Associations.

- ***Monitoring, Evaluating, Reporting and Development (MERD) Unit***

Monitoring of education delivery in the eleven Education Districts is conducted by the Monitoring, Evaluating, Reporting and Development Unit, headed by the Deputy Chief Education Officer (MERD at the Ministry). It absorbed some of the roles and functions of the School System Management Committee and all those of the Inspectorate Unit in respect of quality assurance.

The MERD Unit conducts a monitoring visit to each Education Department at least once per school term, and reports from these visits are disseminated to the Regional Education Departments and other top managers. This allows the Ministry to improve where the deficiencies are in areas such as work and academic programmes. An adapted version of the Monitoring Instrument for Professional Officers are used to gather information on the management and supervisory practices of officers and school managers. A sample of schools is also visited to validate the data presented on them by the officers, which focus on learning and teaching and student achievement.

- ***Technical and Vocational Education and Training (TVET) Unit***

The Technical and Vocational Education and Training (TVET) Unit is currently headed by an Assistant Chief Education Officer (ACEO-Tech), who reports to the CEO. The ACEO (Tech) activities include the co-ordination of the implementation of TVET Policies across the TVET Institutions that comprise the post-secondary Institutions and secondary schools in the country. Traditionally, the system has ensured that technically component individuals are trained for the labour market in Guyana. The development, implementation, supervision and management of TVET policies for the appropriate and acceptable implementation of its curriculum in diverse technical disciplines in the eleven (11) education districts, are of maximum importance so as to successfully meet and fulfill the needs of respective communities and the nation.

This unit is responsible for Practical Instructional Departments (PIDs), Practical Instruction Centres (PICs), Technical Institutes (TIs), Industrial Training Centres (ITCs) and Carnegie School of Home Economics (CSHE).

Given the changing dynamics in the workforce, national and regionally, the Ministry has adopted the new international trend in workforce development – the Competency Based Education and Training (CBET) and Prior Learning Assessment and Recognition (PLAR), which in the case of Guyana and the Caribbean leads to the award of National Vocational Qualification (NVQ) and Caribbean Vocational Qualification (CVQ). This new mode of training required the establishment of the **Council for TVET**, through Technical and Vocational Education and Training Act of 2004. The CBET involves:

1. The continuous study and review of the labour market in Guyana (Labour Market Information/Intelligence), to inform on the programmes and courses to be offered by the TVET Institutions;
2. The engagement of practitioners in various occupational areas to develop the requisite skills needed to meet the competencies of each occupational area;
3. Development of curriculum by the CTNET for the Training providers;
4. The training of assessors, internal and external verifiers; and
5. Training, assessment, verification and certification of persons.

The CBET process follows the Caribbean Association of National Training Agencies (CANTA) quality assurance processes. Guyana has commenced this new mode of training in post-secondary institutions and has introduced it in the secondary schools through the Secondary Competency Certificate Programme (SCCP) of the Ministry of Education.

- ***The Unit of Allied Arts***

Specific art forms such as dance, drama, music, art and craft, physical education and gymnastics will be coordinated by this unit and must form part of the national curriculum of schools. The unit must also

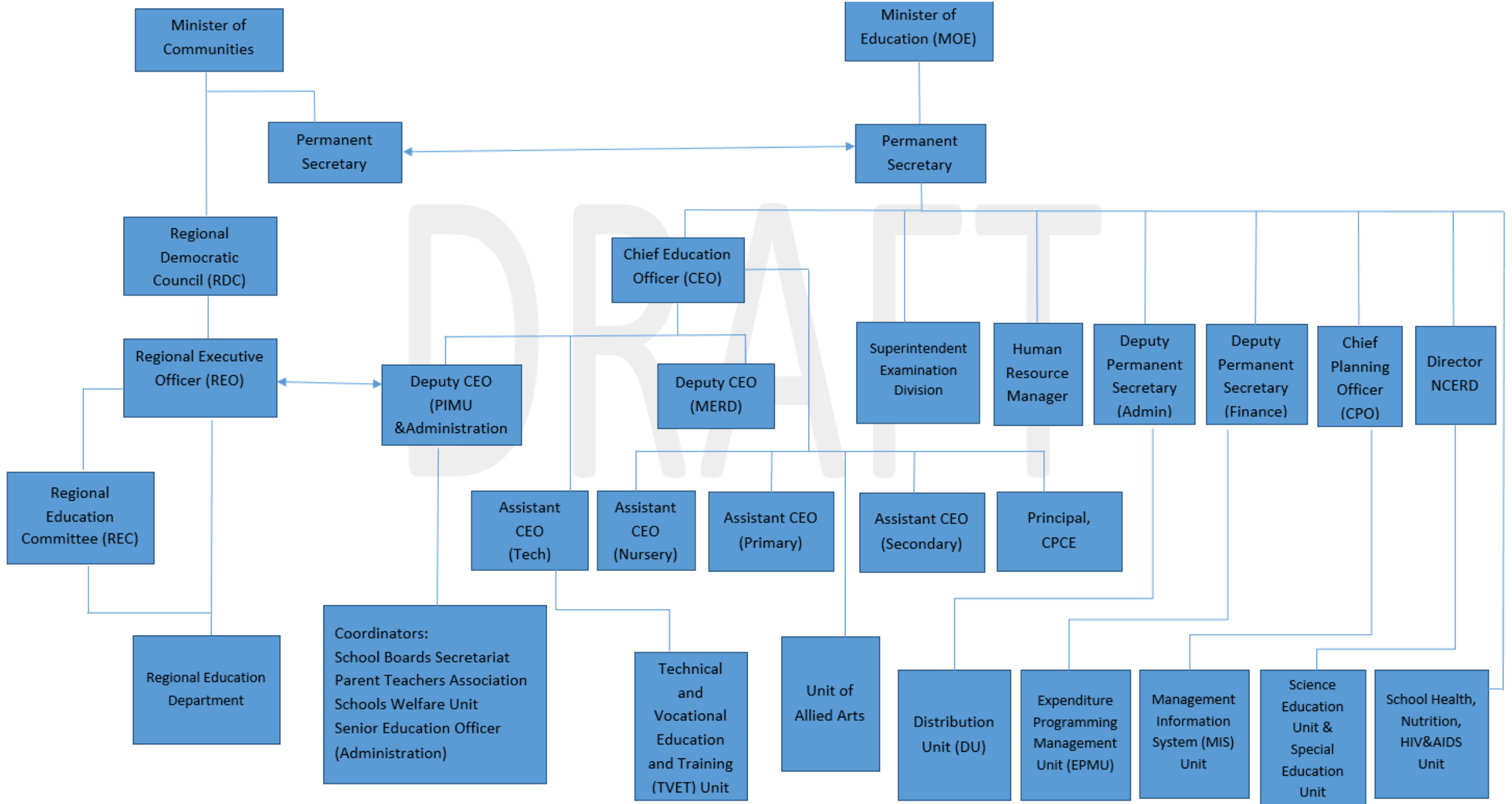
counter the hindering factors for successful implementation of the programmes, such as appropriate physical facilities, limited teaching personnel and inadequate supply of instructional material and equipment.

The Allied Arts Unit has been tasked with the responsibility of ensuring Physical Education (PE) is given its rightful place on the curriculum of schools. To this end selected teachers, who have undergone training in Physical Education are being placed in the Unit to service the Regions. These officers will conduct workshops for teachers in the regions to increase their knowledge of PE, visit schools to monitor their activities and provide guidance to ensure viable PE programmes are conducted in schools.

- ***Regional Education Management***

The Ministry of Communities (previously the Ministry of Local Government) at the level of the Regional Development Council, the Regional Education Committee (REC) and the Regional Education Departments (RED) share functional relationships with the Ministry of Education.

Organisational Structure for the Education Sector



Inter-sectoral coordination mechanism

Outside of the formal school systems, education in sustainable development is provided by several agencies working in the civil society, public and private sectors. These institutions include the Environmental Protection Agency (EPA), National Centre for the Educational Resource Development (NCERD), and Conservation International.

Also, the policies relating to Culture have also cited the need for collaboration among the Departments within the Ministry of the Presidency and the ministries responsible for Education, Communities, Indigenous Peoples Affairs and Natural Resources.

NCERD also has collaboration with the National Agricultural Research and Extension Institute (NAREI) to implement the public awareness and education component of the National Mangrove Management Action Plan. In addition, The Protected Areas Commission (PAC) has included biodiversity education in school programme tours and the Nature School Zoo camp.

For effective implementation of the Education for Sustainable Development (ESD) Policy, the creation of a National broad-based ESD Coordinating Body (ESDCB) was recommended. Within the Ministry of Education, the ESDCB will work in tandem with the NCERD to support the implementation of the respective policy pillars that are linked to the curriculum development and implementation.

In addition, the ESDCB will work closely with the Cyril Potter College of Education (CPCE), the Ministry of Education, other Ministries, the University of Guyana (UG), the Institute of Applied Science and Technology (IAST), the Teaching Service Commission (TSC), the private sector, NGOs and related institutions to support curriculum design and development, its implementation and improvement. The ESDCB will operate as a sub-committee within the National Science and Technology Management System of the Guyana. The National Science and Technology Council was established following the approval of the National Science and Technology Policy and Master Plan in May 2014.

It is envisioned that this sub-committee on ESD will act in an advisory role to the Minister of Education, the Chief Education Officer and the Permanent Secretary on the direction of ESD for Guyana, taking into account national priorities and current global trends in sustainable development to provide the overall strategic direction for ESD in Guyana.

The ESDCB will liaise with the private sector, the public sector, NGOs and other civil society organisations in a collaborative way to obtain full participation and commitment in making a positive change in sustainability for all.

Institutional and Capacity Development (knowledge, training/skills, and Innovation/R&D)

The Cyril Potter College of Education is responsible for all initial training for teachers, which is provided in Pre-Service mode at its main campus in Turkeyen and In-Service distance mode at various centres throughout the country. This training provides teachers with the skills to deliver quality education to students. The training programmes offered also equips teachers to cater for all round development of the child.

In addition, the role of NCERD within the Ministry of Education is to provide professional support through the development of training packages to all levels of education management and meet the needs of the education departments.

The University of Guyana offers undergraduate and postgraduate programmes, including Master’s Degrees in Renewable Energy Technologies and Environmental Management and a Doctorate degree in Biodiversity. The Centre for the Study of Biological Diversity (CSBD) at the University of a non-governmental organisation (NGO) dedicated to the study, documentation and conservation of nature. The Centre houses a herbarium, a zoological collection, a small library, a GIS Centre, staff offices, and some exhibit space.

The Institute of Applied Science and Technology is an industrial research organisation, which has as its mandate the development and/or adaptation of appropriate technology for the utilisation of Guyana’s natural resources, so that these resources can be gainfully developed and exploited for the benefit of the people of Guyana.

Under the Guyana Improving Teacher Education Project (GITEP), the main intervention was the New Associate Degree programme at the Cyril Potter College of Education (CPCE) and the Bachelor of Education at University of Guyana (UG). Also, in 2016, the Minister of Education also indicated the addition of Green Engineering to the curriculum of senior secondary schools at the Caribbean Advanced Proficiency Examination (CAPE) level.

Operations

Existing financial/budgetary structure and allocations

The activities of the Ministry of Education are predominantly financed annually through allocated public expenditure from the National Budget. Over the last 10 years, expenditure on education has grown by 129% from G\$19.3 billion in 2009 to G\$44.2 billion to 2018, yielding an annual average growth rate of 9.7% for the period 2009-2018. This also translates into an average 16% of the National Budget that was allocated to education during this period, and education as a percentage of the Gross Domestic Product (GDP) was an average of 3.1%.

Table 3.17: Education expenditure as a Percentage of National Budget and GDP (2009-2018)

Year	Percentage of National Budget	Percentage of GDP
2009	16%	3.5%
2010	15%	3.6%
2011	16%	3.1%
2012	15%	2.9%
2013	14%	3.1%
2014	15%	3.2%
2015	16%	3.3%
2016	18%	3.0%
2017	17%	3.0%
2018	17%	2.0%

Source: Education Strategic Plan 2014-2018; National Budget Speeches 2016 and 2018; Bureau of Statistics National Accounts.

Recurrent expenditure accounted for 67-69% of education expenditure during 2009-2012 with significant allocations to the primary and secondary levels. Between 2009 and 2012, the primary and secondary levels received a steady 53-55% of the recurrent expenditures. This corresponds with the Ministry's priorities at the primary and secondary levels expressed in the last Education Strategic Plan (2008-2013), which were improving literacy, numeracy, science and technology.

Table 3.18: Percentage of education recurrent expenditure by level (2009-2012)

Year	Nursery	Primary	Secondary	TVET
2009	11%	28%	25%	3%
2010	11%	27%	28%	3%
2011	10%	27%	28%	3%
2012	10%	26%	28%	3%

Source: Education Strategic Plan 2014-2018

In addition, the secondary level had the highest public expenditure per student for most years in the 2009-2012 period, as shown below in Table 3. This higher per capita cost results from initiatives during the last ESP period in science and technology, including the establishment of computer laboratories, the refurbishing or construction of new science laboratories, the distribution of Micro-Science kits to schools, and establishing the Technical Vocational Education Training (TVET) workshops to facilitate the Secondary Certificate Competency Programme (SCCP) in schools. The unit cost for nursery education is also higher than that of primary education, primarily because the nursery level has a lower student to teacher ratio.

Table 3.19: Average public recurrent expenditure (US\$) per pupil by education level (2009-2012)

Year	Nursery	Primary	Secondary
2009	323	221	223
2010	308	242	323
2011	313	272	350
2012	333	304	395

Source: Education Strategic Plan 2014-2018

According to the Education Strategic Plan 2014-2018, fifty-five percent (55%) of the estimated budget is recurrent cost while forty-five percent (45%) is capital cost associated with new, rehabilitated or maintenance of infrastructure; purchase of equipment and tools and developmental projects.

The major areas of expenditure are employment cost, training and development, construction/rehabilitation of education buildings, school feeding programme, equipment and learning materials, and developmental projects.

Employment costs for teachers and administrative staff of the sector account for just under half (42%) of the overall cost of the Education Strategic Plan. Employment costs are projected to grow due to increases in salary, the proposed increase in the number of trained teachers, and any salary increases associated with upgrading the skills of existing staff in the sector. Also, training and development costs are direct costs associated with initial teacher training and continuous professional development for teachers across all levels.

The major expense under construction/rehabilitation of education buildings is associated with construction/rehabilitation of schools and teachers houses. Almost one third of this cost will be committed to rehabilitation/maintenance of schools, reinforcing the Ministry's commitment to its maintenance plan of maintaining 20% of hinterland schools and 15% of coastal schools per annum.

School feeding expenditure continues funding of the community-based hot meal programme in the hinterland regions, which started under the EFA-FTI programme and the national snack programmes. This covers all other nursery school students and Grades 1 and 2 students at the primary level. Moreover, spending on equipment and learning materials is geared towards improving the teaching-learning process, including the provision of textbooks, expanding the integration of ICT, promoting Inquiry Based Science Education (IBSE); and the distribution of literacy tool kits into schools.

The share in education over the five-year period accounts for 95% of the overall projected costing of this plan. The remaining 5% is allocated to other initiatives that target support services of the sector, such as for welfare, school health and nutrition.

Table 3.20: Estimated Education Expenditure by level for 2014-2018 (G\$000)

Year	Nursery	Primary	Secondary & TVET	Overall projected costing
2014	3,386,880	10,938,669	20,581,130	34,906,679
2015	3,908,199	11,399,134	22,238,817	37,546,150
2016	4,513,157	13,367,726	22,831,535	40,712,418
2017	4,582,090	13,998,289	24,925,755	43,506,134
2018	4,859,906	15,118,667	26,758,603	46,737,176
% average share per level	10%	30%	55%	95%

Source: Education Strategic Plan (2014-2018)

The sector continues to benefit from development partners contributions. Table 3:20 below shows continued donor commitment to various initiatives articulated in the Education Strategic Plan (2014-2018). The majority of donor funding is expected to come from the World Bank, as shown in Figure 3.4.

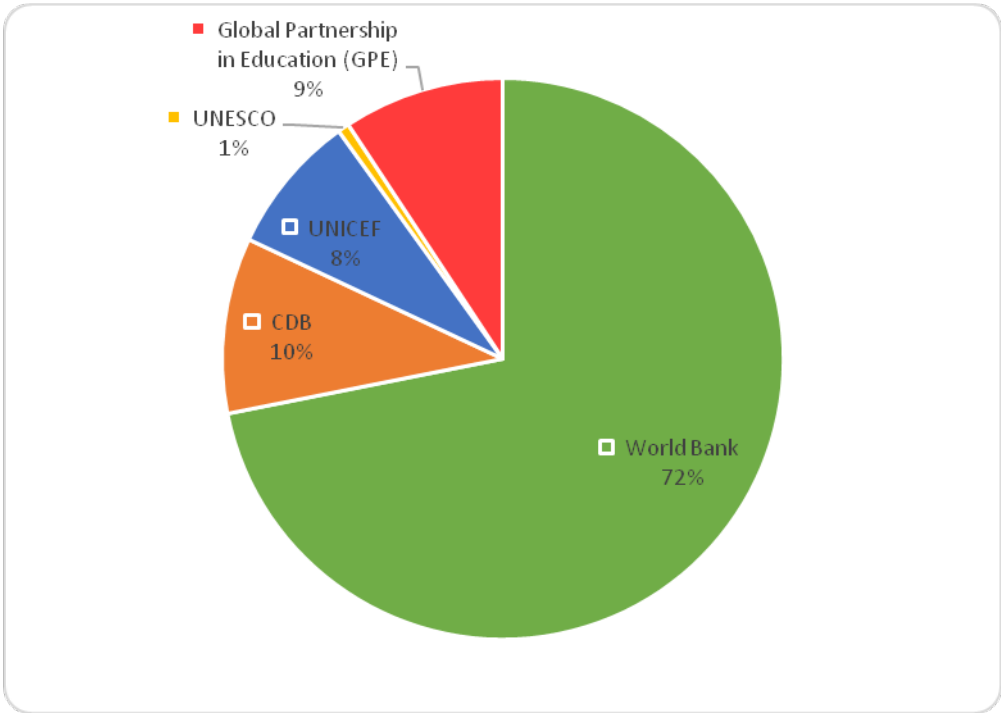
Table 3.21: Donor Commitment

Year	Donor	Total
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	World Bank	CDB	UNICEF	UNESCO	Global Partnership in Education (GPE)	
2014	2,912,242	-	278,000	-	-	3,190,242
2015	7,779,629	354,768	300,000	30,000	700,000	9,164,397
2016	1,151,764	1,500,000	300,000	30,000	850,000	3,831,764
2017	1,321,624	-	300,000	30,000	150,000	1,801,624
2018	-	-	300,000	30,000	-	330,000
Total	13,165,259	1,854,768	1,478,000	120,000	1,700,000	18,318,027

Source: Education Strategic Plan (2014-2018)

Figure 3.11: Share of donor funding



Source: Education Strategic Plan (2014-2018)

When a comparison was made between the estimated Education Sector budget needs outlined in the Education Strategic Plan (2014-2018) and budgetary allocations to the Education Sector for 2014-2018, there was an average difference of 11% or G\$3.21 billion.

Table 3.22: Comparison between estimated Education Sector budget needs for Strategic Plan (2014-2018) and National Budget Allocation to Education Sector (2014-2018)

Year	Estimated Education Sector budget needs (2014-2018)	National Budget Allocation to Education Sector (2014-2018)	Difference	% Difference
	G\$ billion	G\$ billion	G\$ billion	
2014	36.75	32.2	(4.55)	-12%
2015	39.52	31.8	(7.72)	-20%
2016	42.83	40.3	(2.53)	-6%
2017	45.78	43.1	(2.68)	-6%
2018	49.17	44.19	(4.98)	-10%
Average	42.81	38.32	(3.21)	-11%

Source: Education Strategic Plan (2014-2018) and National Budget Speeches 2014-2018

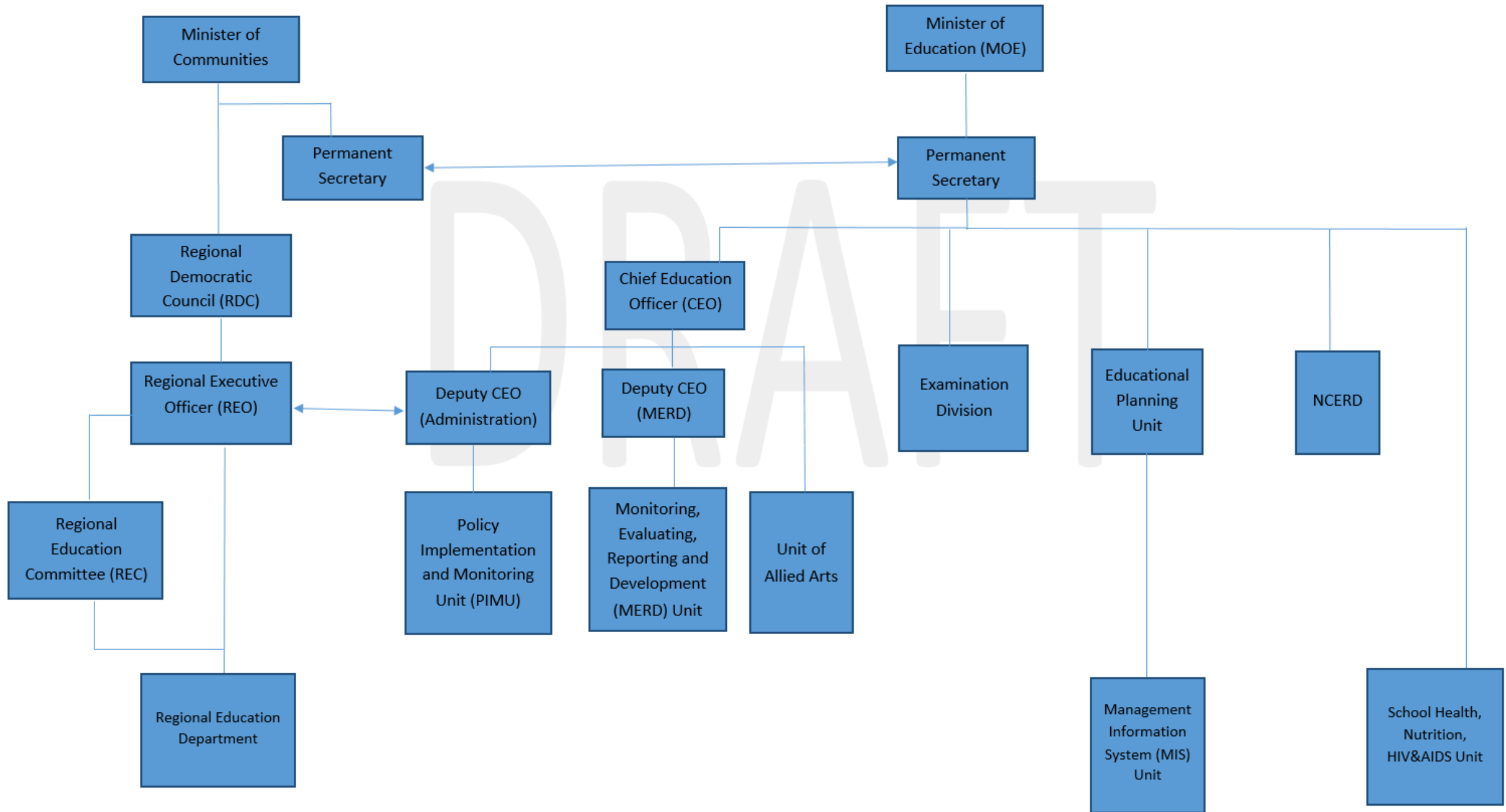
Monitoring and Evaluation Mechanisms

The Permanent Secretary, supported by the Examination Division, Education Planning Unit and Management Information System (MIS) Unit, National Centre for Education Resource Development (NCERD), School Health, Nutrition and HIV/AIDS Unit reports to the Minister of Education on the progress of Government policy decisions.

In addition, the Chief Education Officer, supported by the Policy Implementation and Monitoring Unit (PIMU) and Monitoring, Evaluating, Reporting and Development (MERD) Unit and Allied Arts Unit (Physical Education), report to the Permanent Secretary, At the regional level, the regional education department collect relevant data and prepares reports to assist the Ministry in the monitoring and decision making process.

With use of the ICT to bridge the communication gap with remote hinterland areas under the e-government project, monitoring activities can be improved and the responsibilities of the Education Planning Unit and Management Information System (MIS) Unit will likely expand.

Institutional Structure for Monitoring and Evaluation in the Education Sector



Existing Data Systems and Analyses

The Ministry utilises a Management Information System (MIS) run by the MIS Unit of the Ministry of Education. This MIS Unit is working to complete a unified data information system, which provides a complete database of all the government schools, institutions and Department of Education, spread across the country. Under the World Bank funded “Guyana Secondary Education Improvement Project”, an education management information system (EMIS) has been implemented for School Heads, Regional Education Officers, District Education Officers, and MOE policymakers to more efficiently manage education sector data and effectively use data to address key sector issues. All 110 General Secondary Schools (GSS) received two tablets to upload and access EMIS data. The application was developed by a consultant and the Management Information System Unit (MISU) within the MOE, and subsequent installation and trainings on how to use tablets and perform data entry were conducted. Data from all 20 pilot schools (which represent 16.7% of the GSS) has now been collected. 17 out of 20 schools used the live online application successfully, while the remaining three are expected to be online shortly.

The system will also be expanded to the additional secondary and primary schools as internet connectivity through the eGovernance Agency reaches those schools. The system is expected to be fully customised and all GSS to start using the EMIS by September 2018. The Education Management Information System will allow for ‘real time’ details including enrolments, pupil-to-teacher ratios, students’ performance among other areas for policy making, evaluation and distribution of resources.

During the development of the Education Strategic Plan, data is usually analysed to assess the performance of the sector for the previous period of the Education Strategic Plan. The country has made significant progress in meeting goals set in the period since 2008, including having more than 70% of the teaching force professionally trained. Nevertheless, concerns remain about school attendance and performance in core subject areas. Between 2008 and 2014, there was little improvement in attendance (less than 80% at all levels, and in all regions), and the aim of increasing attendance by ten percentage points was not met.

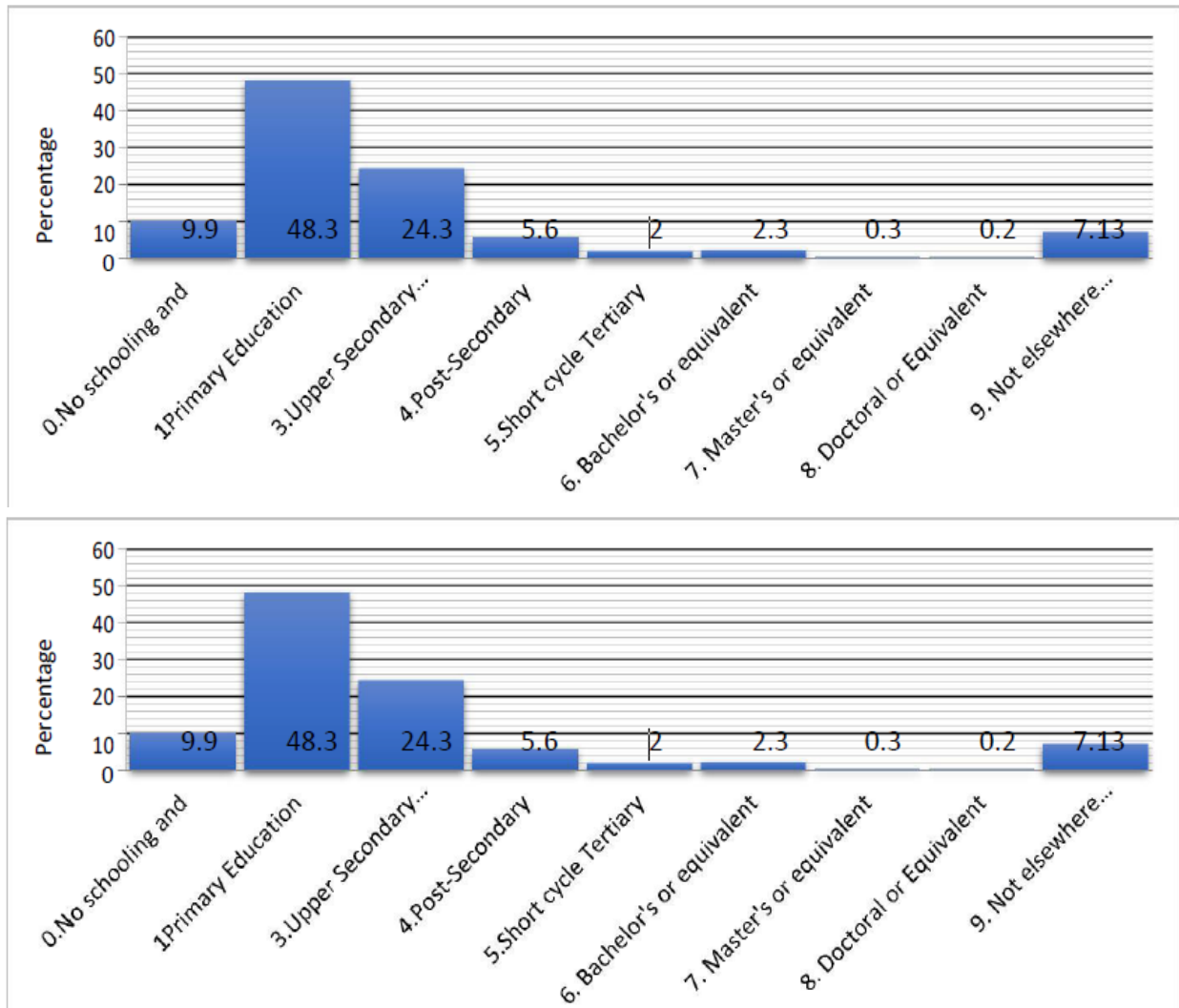
Primary school performance, according to the National Grade Six Assessments, did improve substantially between 2009 and 2013, especially in Mathematics, but the proportion of students scoring better than 50% remained at 31%, 20%, and 18% in Mathematics, English and Science respectively. Moreover, the disparity between the hinterland and coastal regions increased.

Secondary school results between 2008 and 2013 were more mixed, according to the Caribbean Secondary Education Certificate (CSEC) examination, with scores falling across the board in Mathematics but rising substantially in English, and with far less than 50% achieving a passing grade in both subjects. One of the main challenges highlighted for data analysis was the unavailability of recent population data from the Bureau of Statistics (BoS), which led to the use of estimated and dated information.

The Bureau of Statistics conducted a Labour Force Survey in 2017 and it surmised in its 2017 Third Quarter Report that the reduction in the youth unemployment rate from 25.3% in 2012 to 21.6% in 2017 was possibly facilitated by an increase in educational enrolment. However; there is still a proportion of youth (35.2 %) not in education, employment, or training. It is higher for young women (63 %) and young urban dwellers (76.4 %).

The report indicated that it appears that educational achievement in Guyana has a pyramidal structure, with less than 10% of the population having completed any degree higher than secondary. This means that there is a shortage of highly qualified human resources in the labour market and reflects the seriousness of the issue of outmigration of tertiary-educated people. Furthermore, about 10% of the migrated population hold at least a short cycle tertiary diploma or above and 55% hold at least a secondary education degree¹⁰. Additionally, in 2012, 5.3% of the total employed population worked in the Education sector and this figure grew to 5.7% by the third quarter of 2017 when the labour force survey was conducted.

Figure 3.12: Percentage Share of Working-age Population by Level of Education Completed



Source: Guyana Labour Force Survey, 2017

¹⁰Based on elaboration on the weighted data. The GLFS also includes a module on former household members that are now living abroad (Note: these are only the emigrants who still have ex-household members in Guyana).

Donor/Development Partners Support (since 2010)

The World Bank funded Education for All-Fast Track Initiative (EFA-FTI) Project (2008-2012) aimed to achieve universal primary school completion for girls and boys by 2015 by improving primary education in the hinterland regions (1, 7, 8 & 9). As a result, the nationwide primary completion rate increased and the primary completion rate in the hinterlands increased from 64.8% to 118.8%. There were positive results on school attendance, completion rates, academic performance, nutritional status and parent and community participation.

The Enhancement of Technical and Vocational Education and Training (TVET) Programme (2008-2014) funded by the Caribbean Development Bank (CDB) and GoG improved the quality and effectiveness of, the Technical and Vocational Education and Training (TVET) system in Guyana through the construction of 2 new technical schools and capacity building of personnel from the technical institutes. A TVET strategic plan and regional standards for key occupational activities was adopted and a teacher training programme, a competency framework, a TVET electronic database and a comprehensive maintenance plan for facilities were developed.

The Guyana Improving Teacher Education Project (2011-2015) funded by the World Bank and GoG aimed to improve the efficiency and effectiveness in the delivery of quality teacher education in Guyana. The project resulted in a reduction in the time taken to earn a Bachelor of Education Degree from 7 years to 4 years, reduction in the cost of teacher training related to Associate Degree programme at the Cyril Potter College of Education (CPCE) and the Bachelor of Education at University of Guyana (UG), an increase in the number of teachers graduating from the Associate's Degree programme and an improvement in the performance of CPCE Lecturers and student teachers.

There are also ongoing projects that would improvement the performance of the Education sector as **outlined in Annex 8**.

National Projects and Programmes

- **National School Feeding Programme**

The Government of Guyana commenced its National School Feeding Programme in February, 2010. The Ministry of Education receives support from the Ministry of Local Government and other stakeholders to ensure that this policy initiative of the government is successfully implemented.

The National School Feeding Programme targets all Nursery Schools and all Primary Schools in Grades 1 and 2. The School Feeding Programme was implemented in Regions 1, 2, 3, 4, 5, 6, 10 and Georgetown. (Regions 7, 8 and 9 are targeted separately).

- **Youth Innovation Project of Guyana**

The Youth Innovation Project of Guyana, is the flagship project for the Department of Youth, funded by the Government of Guyana 2017 budget. It is a collaborative multi-ministry, multi-stakeholder project that includes governmental, regional, international, and corporate agencies. This project provides grant funding for proposals developed by persons of 16-35 years for solutions in the areas of **STEAMS**, while fostering a green economy.

- **Secondary Competency Certificate Programme (SCCP)**

The Secondary Competency Certificate Programme (SCCP) seeks to improve students' attendance, reduce school dropouts, shore-up equity and enhance quality and relevance in the area of technical and vocational education at the Grade 9 and Grade 10 levels.

The competency-based modularized programme is designed with strong emphasis being placed on what students can do in the workplace after completion of training. The SCCP also serves as an alternative pathway for the acquisition of knowledge, skills and desirable attitudes that will prepare students for further training and/or the world of work.

- **Adapted Curriculum for Deaf Education**

The Ministry of Education (MOE) in collaboration with the Deaf Association of Guyana (DAG) launched the Adapted Curriculum for Deaf Education in Guyana at the National Centre for Education Resource Development (NCERD) in 2016.

The adapted curriculum reflects the bilingual/bicultural approach and that deaf children will be taught to be functional and comfortable in two languages—sign language and English, as well as two cultures—deaf culture and the culture of the hearing. The launch of the curriculum for Deaf Education signals the Ministry's commitment to ensuring inclusive and quality education and promotion of life-long learning.

- **The Literacy Hour**

The Literacy Hour is a special period conducted during the school day and is designed for teaching literacy. During this time an attempt is made to help pupils to become highly competent in reading and writing also in speaking and listening. It is expected that pupils will develop specific skills and be able to gather information, think critically and communicate effectively. The five areas of focus for reading instruction during the Literacy Hour are Phonemic Awareness, Phonics, Fluency, Vocabulary, and Comprehension.

Other initiatives

- **Sagicor Visionaries Challenge**

Guyana has participated in the Sagicor Visionaries Challenge (SVC), the aim of which is to encourage secondary school students to utilise STEM, in whatever way they can, to develop effective, innovative and sustainable solutions to challenges facing their communities or schools.

- **Climate change and biodiversity education resources**

The Ministry of Education, with international support, is engaged in piloting the infusion of climate change and biodiversity education in all levels within the school system. Conservation International – Guyana (CI-Guyana) has collaborated in the recent past with the Ministry of Education, through the National Centre for Educational Resource Development (NCERD) to complete a number of strategic initiatives. These include the development of a video series on climate change and biodiversity for secondary school students (Grades 9-12); drafting a climate change and biodiversity resource book; and completion of a study for inclusion of climate change and biodiversity education at the primary level.

Additionally, UNICEF supported the development of a video on climate change titled, "Our Earth is Heating Up? Let's Take Action Now", for the Nursery Level (age 3 years to 5 years 9 months). Reviews by

primary school teachers indicate this is also useful for the primary level (age 5 years 9 months to age 11 years 9 months). At the primary level, teacher training workshops targeted the use of the Inquiry Based Science Education (IBSE) approach in teaching climate change. Several IBSE lessons were developed for Grades 1-6 for Science and Social Studies. These lessons, which were developed in collaboration with technical expertise sourced through UNICEF, were piloted in 16 primary schools throughout the country. A recent review of the pilot has revealed the need for additional school-based training and the provision of resources to support effective lesson delivery.

In 2011, Guyana was selected as a pilot country by UNESCO to implement its Global Micro-science Experiments Programme. The Micro-science Programme was merged with the Inquiry Based Science Education (IBSE) approach that mirrors the scientific method. This implementation promotes the development of competencies such as critical thinking, imagining future scenarios and decision-making in a collaborative way. As a result of the successful implementation, Guyana's model is being adapted and expanded with great success by other Caribbean territories such as Belize, Jamaica, St. Lucia, St Kitts and Nevis and Trinidad and Tobago.

Problems/Challenges

Due to the consistent emigration of skilled personnel, the country suffers from 'brain drain' and lacks a critical mass of expertise. In fact, human resources constraints were identified as a challenge for the successful implementation of the PRSP and NCS and will affect the implementation of the GSDS.

Moreover, inequalities exist in access to quality education as low-income families are unable to afford the high expenses. The Education Act is outdated and little progress has been made in revising the act since 2014. Also, Teachers' performance, and thus milestones, are also impacted by a culture of poor curricula delivery and insufficient remuneration packages and incentives for teachers, which contributes to the human resource problems.

The existing education system does not produce the required number of highly skilled personnel. This shortcoming is even more pronounced in remote hinterland communities, as there are wide disparities between the Hinterland and Coastal regions in the availability of education, both in regards to, number of trained teachers, quality and physical facilities.

Guaranteeing a therefore a good quality of education in primary and secondary schools for the indigenous children is one of the main challenges related to education in the country. Despite improvements in primary education grades for indigenous children, the grades in the hinterlands are still below the grades from the coastland. In fact, the gap between the coastland and the hinterlands has increased, indicating that improvements were more significant on the coast than in the hinterlands. Similar disparities are also evident in secondary education when CSEC scores between the two geographic areas are compared, particularly for Mathematics and English.

Deficiencies in quality of education for children and adolescents in the hinterlands are as a result of a lack of qualified teachers and resources such as books and learning materials as well as poor infrastructure at the schools, including old buildings, a lack of ICT resources and internet access and a lack of science labs in general. Also, despite the fact that English is the official language of Guyana and it has been taught in all the schools, many students struggle with how to properly write and speak in English.

Furthermore, the educational system does not sufficiently focus on the training of Guyanese in science and technology, on technical and vocational subjects, entrepreneurship and computer science. There is also poor performance in core subjects – Mathematics and English at CSEC level that would affect job eligibility and enrollment in tertiary institutions. Also, due to limited integration between public and private sectors, the mismatch of skills by graduates hinder their ability can find employment within the private sector.

Issues

Day care centres are not considered to be part of the formal educational system and are not managed by the Ministry of Education, despite their contribution to the cognitive and physical development of the child. Most of the children living in indigenous villages are only exposed to formal education at the age of three years and three months old when they start nursery school.

In addition, while children can attend nursery and primary schools in their villages, the same was not true for secondary schools. Due to the low demand in every community, it is not cost effective to build secondary schools in every village. However, indigenous children have the opportunity to attend secondary schools in other communities, and even tertiary educational institutions, through the hinterland scholarships programme. Students that do not perform well at the Grade Six Exam are placed in secondary departments of primary schools in a location nearest to their home but not necessarily in the same primary school where they attended. However, primary schools with secondary departments do not always have trained teachers to teach secondary education.

Access to school is relatively high in primary education; however, the numbers are not the same for nursery and secondary education. Besides the lack of secondary schools, the distance and the rough terrain between children's homes and the schools in one way or another limits physical access. Moreover, indigenous children with disabilities do not have access to any type of education. The absence of children with disabilities may be influenced by the lack of disabled-friendly infrastructure, lack of trained teachers to handle children with physical and learning disabilities, and ignorance of children's rights.

Also, a growing number of adolescents do not complete their formal education and dropout of secondary school. Some of the factors that increase school dropouts and absenteeism are poor financial situations, lack of employment opportunities and teenage pregnancy. Another reason is the inadequacy of the schools' curricula. The content taught in primary and secondary schools has no relationship with the situation that indigenous children face daily in their villages. Additionally, the school's curriculum is too theoretical and does not give the opportunity for those children who do not want to advance into tertiary education but would like to have a profession after finishing secondary school. Some technical classes are available, but they do not fit the interests of the adolescents and are expensive.

Furthermore, the absence of extracurricular activities in some schools such as music, drama, games, sports, life skills education and opportunities for technical and vocational skills, adds to the strain of coping in the school system.

In addition, there is a disparity to the quality of education received at both primary and secondary institutions for children living in the hinterland when compared to the children living on the coast. This may lead to a vicious life cycle where, if there is no qualification it can result in the lack of skills thereby attracting low paid jobs and consequently poverty in the indigenous communities.

Moreover, despite consistent public spending for the education sector over the years, there is a dependence on donor support for fill financing gaps. Consequently, there is a risk of changes in donor priorities or loss in funding eligibility, which would undermine the level funding for projects.

Additionally, income-earning opportunities from the emerging oil and gas sector will attract high-skilled individuals away from other sectors such as agriculture and services, so there is a need to balance the development of all economic sectors. Political instability, changes in the Government priorities and economic disruptions that undermine Government funding are also considerable risks that would delay or prevent the implementation of the GSDS.

Lessons Learned and Recommendations

The existence of a policy on Education for Sustainable Development and the role that NCERD plays in capacity building means that there is a foundation established for the GSDS and support should be given to ensure its successful implementation. Also, the preparation of periodic Education Strategic plans indicates that there is a planning process with monitoring, verification and reporting systems in place to contribute to the development of responsive action plans. The next strategic plan will cover the time horizon 2019-2023 so this is an opportune time to craft an updated Education Strategic Plan and initiate a Curriculum Review to align with the GSDS. Furthermore, reforms to the education sector will require a reform of the antiquated Education Act. Consequently, immediate action should be taken to revise and update this legislation.

The Education Management Information System (EMIS) will be a tremendous asset in monitoring and inform decision making. Consequently, it is important to ensure that there is sufficient physical and human resources at the decentralized level to ensure effective management and use of the EMIS. Also, the use of Smart Classrooms and ICT, in addition to incorporating indigenous languages and knowledge into the formal and informal education system, can help address in the disparity between the coastland and hinterlands.

Better remuneration packages, employment incentives, training and more academic programmes should be provided for teachers and education officials to recruit and retain more employees of the Ministry. The scope of Ministry's management of early childhood education should be expanded to include pre-nursery education and the Ministry of Education should work with day care centres to improve the delivery of this service.

Opportunities for networking and partnership with private sector should be maximized and a coordinated approach should be instituted to reduce the level of mismatch in skills. The tertiary educational institutions, particularly technical and vocational institutions, should be strengthened to adequately prepare students for future employment and to promote innovation and research and development. There should also be financial support and employment guarantees for prospective students in critical areas including engineering, ICT, agro-processing, environmental management, renewable energy, and project management.

The Government should continue to support existing programmes such as the literacy programme and climate change and biodiversity education resources. Support programmes for school feeding, scholarships, disabled children and training of school dropouts should be continued and extracurricular,

language and cultural activities should be promoted. Also, financial and technical support to promote entrepreneurship, especially for youth and indigenous peoples.

Finally, the Government should continue to commit a significant proportion of its National Budget and establish progressive spending targets to Education, particularly to improve the quality of educational facilities. Additionally, funding opportunities could emerge under the Sustainable Development Goals framework, the oil revenues under the Sovereign Wealth Fund/Natural Resources Fund are expected to be a significant source of finance.

3.1.5 Social Sector Assessment (Health)

3.1.5.1 Baseline Assessment of Policies and key institutions at National, Local and Sector Levels Sector Profile

i. Policy, Action Plans and Legal Framework

The Pan-American Health Organization/World Health Organization (PAHO/WHO) Country Cooperation Strategy (CCS) is the Organization’s medium term strategic vision to guide its work in and with a country in support of the country's National Health Policy, Strategy or Plan (NHPS) (PAHO/WHO, 2017).

At the sub-regional level, the Caribbean Heads of Government (CHOG) have been extremely vigorous in defining and outlining the health agenda. They have identified two (2) pillars to implement the elements of the Nassau Declaration 2001: the Caribbean Cooperation in Health Initiative and the Pan Caribbean Partnership against HIV/AIDS (PANCAP). The latter has been recognized as a best practice and regional cooperation model for the world. The Caribbean Cooperation in Health Initiative is entering its fourth phase and the health priorities selected are health systems for universal health; safe, resilient, healthy environments to mitigate climate change; health and well-being of Caribbean people through the life course; data and evidence for decision-making and accountability; and partnerships and resource mobilization for health (PAHO/WHO, 2017).

According to the Global Health Observatory Guyana’s Health profile (See Table 3.19 below) has increased over the years. However, even with strides in the public health system, life expectancy remains one of the lowest in the Caribbean and Latin America.

Table 3.23: Guyana’s Health Profile (Source: Global Health Observatory updated May 2018)

WHO region	Americas
World Bank income Group	Upper-middle-income
Child health	
Infants exclusively breastfed for the first six months of life (%) (2009)	23.3
Diphtheria tetanus toxoid and pertussis (DTP3) immunization coverage among 1-year-olds (%) (2015)	97

Demographic and socioeconomic statistics	
Life expectancy at birth (years) (2015)	63.9 (Male) 66.2 (Female) 68.5 (Both sexes)
Population (in thousands) total (2015)	767.1
% Population under 15 (2015)	28.8
% Population over 60 (2015)	8.3
Poverty headcount ratio at \$1.25 a day (PPP) (% of population) ()	
Literacy rate among adults aged >= 15 years (%) (2007-2012)	85
Gender Inequality Index rank (2014)	114
Human Development Index rank (2014)	124
Mortality and global health estimates	
Neonatal mortality rate (per 1000 live births) (2015)	20.0 [13.2-30.5]
Under-five mortality rate (probability of dying by age 5 per 1000 live births) (2015)	32.4 [22.1-48.3]
Maternal mortality ratio (per 100 000 live births) (2015)	229 [184 - 301]
Births attended by skilled health personnel (%) (2014)	85.7
Public health and environment	
Population using improved drinking water sources (%) (2015)	98.2 (Urban) 98.3 (Rural) 98.3 (Total)
Population using improved sanitation facilities (%) (2015)	83.7 (Total) 82.0 (Rural) 87.9 (Urban)

Nationally, The Ministry of Public Health has the mandate in law, through the Public Health Act 2005, for the health of the population. Other key legislation framing the sector includes the Public Health Ordinance 1934, the Regional Health Authorities Act 2005, and various acts governing health practitioners. Cabinet sub-committees in health and local government continue to provide high-level forums for inter-sectoral discussions, coordination and decision-making on health and public policies (Ministry of Health , 2013). The Ministry is responsible for setting effective national policies, regulating, coordinating, monitoring and evaluation and setting standards; for building and initial furnishing of facilities; and for initial financing of 100% of the employment of doctors, nurses, and other health care professionals, such as Medex's (Government of Guyana, 2014). However, service delivery, which is provided through five levels of care (from health posts to national level facilities) is the responsibility of the ten (10) Regional Democratic Councils (RDCs). The RDCs have the autonomy to assess, plan and implement health services, in addition, to manage the facilities for a defined population in a defined geographic area, including day-to-day management of the facilities and employment of all other staff working in the health sector (ISAGS and UNASUR, June 2014).

Since 2005, the Ministry of Health has targeted the strengthening of health governance. The Georgetown Public Hospital Corporation (GPHC) and the Regional Health Authorities (RHA) Acts of 2005 have facilitated improved management of the national referral hospital and the establishment of the Berbice Regional Health Authority (RHA), allowing for increased flexibility and capacity to improve

resource use and health outcomes. The National Health Sector Strategy, 2008-2012, (NHSS) planned for the decentralization of health services to the RHAs, the restructuring of the Ministry to focus on its leadership role, and the strengthening of human resources and strategic information support services. To date only the Berbice RHA was established, despite plans for four other RHAs to be established. The Berbice RHA does not cover Region 5, as intended, and is not yet autonomous with respect to its budget, thus limiting its capacity to manage its resources as flexibly as the law intended. In addition, at the regional level, multiple reporting lines and lack of clarity on roles and responsibilities among the regional health offices, the regional democratic councils, the Ministry of Public Health (MoPH) and the Ministry of Local Government and Regional Development (MOLGRD), contributed to an absence of performance incentives, and fragmentation in leadership, communications, and management of health programmes across the regions (Ministry of Health , 2013).

In 2010, the Ministry concluded an action plan for strengthening health human resources in Guyana for 2011 – 2016 (A Health Human Resource Gap Analysis was also completed in 2010 to provide guidance to the implementation of the Package of Publicly Guaranteed Health Services (PPGHS), Second Edition). The Action Plan noted that Human Resources for Health (HRH) is challenged by urbanization, high attrition rates and out-migration, vacancies and deficiencies in technical and clinical skills; particularly affecting Levels 1 to 3 service facilities, and weaknesses in human resource information systems, management and development. Worker motivation is adversely affected by existing working conditions, including lack of incentives and inadequate infrastructure. These challenges are compounded by the absence of a Human Resource (HR) information system to inform decision-making (Ministry of Health , 2013).

Launched in 2013, The Health Vision 2020 – A National Health Strategy for Guyana is the Strategic Plan for Guyana with the vision that “All people of Guyana are among the healthiest in the Caribbean and the Americas” by the year 2020. It sets the strategy and overall planning for the health sector. The document has as one of its priority areas to focus on the reduction of maternal and child mortalities, and the improvement of health for adolescents. This strategy sits on two main pillars; those are Universal Health (UH) and addressing the Social Determinants of Health (Ministry of Public Health, Dec 2013). UH promotes a renewed focused on Primary Health Care (PHC) as the main approach to public health care provision in Guyana. UH reinforces Guyana’s pro-poor development agenda as set out in its Poverty Reduction Strategy Paper (PRSP). The PRSP provides an explicit definition of UH, including the three dimensions (population coverage, health care services and financial protection).

The Strategy takes into consideration the plans already developed such as the Strategic Plans for the Integrated Prevention and Control of Non-Communicable Diseases and the Reduction of Maternal and Neonatal Mortality. It is also informed by global and regional policies and plans.

The National Health Strategy is explicit in the mechanisms for financing, implementation and management including methods for monitoring and evaluation. Some of the processes envisaged for achieving the goals have been established, for example, the National Health Policy Committee; however, other mechanisms have not been put in place or, even if instituted, have not been sustained. The Strategy recognizes that the demands to expand coverage and to improve quality of services will require increased funding. It emphasizes the need for building strategic partnerships and recognizes the contributions of the various actors in health. An Implementation Plan was developed and this was costed in 2015.

Several factors have influenced the selection of the priorities. These include the global Sustainable Development Goals in which Goal No 3 is “Ensure healthy lives and promote wellbeing for all at all ages”. Other influences included the Strategic Plans of WHO and PAHO and the Health Vision 2020.

The selected Strategic Priorities are:

1. Strengthening health systems for universal health;
2. Achieving health and well-being throughout the life course;
3. Promoting safe, resilient, healthy environments;
4. Reducing the burden of non-communicable diseases; and
5. Reducing the morbidity and mortality due to communicable diseases.

There have been significant positive strides in health since the development of the last Country Cooperation Strategy in 2010. These include increased life expectancy; reduction in maternal and child mortality; decreased incidence, prevalence and mortality from communicable diseases; high levels of immunization coverage; greater awareness of environmental health issues; and improved water and sanitation facilities.

It is pertinent to note that Guyana is experiencing an epidemiological transition. Communicable diseases are still prominent in the disease profile while there is the increasing burden of the chronic non-communicable diseases (NCDs). The reduction of infectious diseases in Guyana can be attributed to several factors, including better sanitation and a strong immunization programme and strategies, which include better integration of vertical programmes into the health services.

In Guyana, prevention and control of NCDs is being given increasing priority and there have been new policy developments and strategic initiatives for NCDs at national and subnational levels; however, these diseases have not awakened the kind of public concern they merit. There is also the popular perception that NCDs are an inevitable consequence of the ageing process this has led to a national multi-sectoral NCDs Strategy 2013-2020 was developed and launched in 2013. Other NCDs targeted are mental health, accidents and violence. The Ministry’s Strategic Plan for 2013 – 2020 for the Integrated Prevention and Control of Non-Communicable Diseases in Guyana addresses improved health outcomes related to chronic diseases. Key strategic actions in the other NCDs address the need for a strengthened mental health system, reducing the prevalence of gender-based violence and the physiological consequences and mortality of accidents, injuries and violence (Ministry of Health, 2013).

Non-communicable diseases are the major causes of morbidity and mortality while there is still a significant burden of communicable diseases. Violence and injuries are among the ten (10) leading causes of mortality and exact a terrible cost in terms of morbidity, mortality and disability. Increasing incidence of domestic violence and road traffic accidents has led to the creation of The National Road Safety Strategy 2013-2020 that is currently being implemented and the sexual violence protocol used to guide training of health care providers is being finalized. Several gains have been made with respect to maternal and child health. There is a very successful immunization programme and trained health personnel attend nearly all births.

The country is making efforts to also reduce the modifiable risk factors, namely tobacco use, unhealthy diet, physical inactivity, and harmful use of alcohol through the implementation of strategic interventions which include National Tobacco Legislation, the introduction of a Tobacco Cessation programme and taxation of sugar beverages. A national Mental Health Strategy 2015-2020 is currently being implemented and the Suicide Prevention Action Plan 2015-2020 has been completed (Government of Guyana and PAHO/WHO, Suicide Prevention and Control Action Plan 2015-2020).

The Government Analyst-Food and Drugs Department (GA-FDD) is the National Regulatory Authority for food and drugs in Guyana. Legislation guiding the Department is old with the Food and Drug Act coming into force in 1971 and its regulations in 1977. Some of the provisions such as the establishment of a Drug Advisory Committee have not been implemented. The legislation has been reviewed and recommendations to inform the review and updating process have already been made.

The Essential Medicines List (EML) was updated in line with the revisions of the Package of Essential Health Services. Several issues exist with respect to the supply and distribution of pharmaceuticals and medical supplies. These include shortages, wastage, and expired drugs. The country takes part in the PAHO Revolving Fund for the purchase of vaccines and has recently signed on to the PAHO Regional Revolving Fund for Strategic Public Health Supplies to ensure improved access to safe, quality and effective essential medicines and supplies. Interventions proposed in Health Vision 2020 include development of a national pharmaceutical policy in line with the Caribbean Policy; monitoring compliance with the Standard Treatment Guidelines to ensure rational use of drugs and the establishment of a management information system for drugs and medical supplies.

Climate change and environmental health are high on the country's agenda. Guyana launched its Low Carbon Development Strategy (LCDS) in 2009. The Strategy "outlines Guyana's vision to promoting economic development, while at the same time combatting climate change. However, given the fact that over 85% of our country is covered in forest, we can play an important role in addressing the global problem of climate change and its effects." In addition, the Government has promoted sustainable socio-economic development, good governance and human safety within a green economy (A Green Economy as proposed by the Government is one that seeks to improve human well-being and social equity, while significantly reducing environmental risks and ecological scarcities).

ii. Past and current policies related to the Health Sector

The past policies for the health sector has been built on the premise and commitment to provide free health care to all citizens and by creating five distinct levels of health care with an effective referral process. The role of the private sector in providing health care remains undefined, which has existed since the 1960s. In the distant past, fiscal allocations to health was not at a level which would be consistent with the provision of quality health care to all, and the consequence has been the documented deterioration in many principal indicators of the health of the population. In addition, the service is not free in reality, as most patients have to purchase essential medical supplies for hospital stays.

Figure 3:13 Guyana health structure and number of facilities

	Number of facilities	
	Coastal Region	Hinterland
National Referral Hospital	2	0
Regional Hospital	5	2
District Hospital	10	8
Health Centre	217	12
Health Post	65	136

Source: ISAGS and UNASUR, June 2014

As expected, the lowest tier of the health system, namely the Health Posts are predominantly located in the Hinterland while the Health Centres and District Hospitals are more prevalent in the Coastal Region. A factor that influences not only access to healthcare, but also affects the wellbeing of all indigenous community, is the low quality of healthcare at village level, mainly caused by lack of trained human resources, deficient healthcare infrastructure and the constant lack of medication in the health facilities (UNICEF, 2017). The secondary and tertiary levels of care, that is, the Regional and National Hospitals as well as the private sector hospitals and private physicians are located primarily in the Coastal Region. The largest concentration of beds were found in the Coastal Region. However, of the total number of facilities, the largest concentration of beds were found in Georgetown (Region 4/Coastal Region) followed by Regions 1 and 9 located in the Hinterland.

In the past, the administration of the health system of the public sector has been divided between several Ministries, two public corporations, and the Regional Development Councils. This has now expanded to include the creation of RHAs. The exception to this rule has been the "vertical programmes," such as vector control, maternal and child health, dental care and the AIDS programme, which fall entirely under the aegis of the Ministry of Public Health for all regions of the country. In addition, The HIV Prevention of Mother-to-Child Transmission (PMTCT) program is available countrywide. HIV testing of all pregnant women is a requirement during prenatal care. In 2014, 94.4% of the pregnant women accessed PMTCT services and were tested for HIV. The epidemic of HIV/AIDS, malaria and tuberculosis is being brought under control through an aggressive national response (Ministry of Health, 2013).

The Prevention of Mother to Child Transmission (PMTCT) programme has seen a decline in the Mother to Child Transmission of HIV from 7% in 2003 to less than 2% at the end of 2014. This has been accomplished through various efforts such as early screening for and identification of mothers with HIV, use of DNA PCR testing in infants as early as 6 weeks and use of ARV drugs at 6 weeks once the infant is born to a mother who is HIV positive. PMTCT interventions are now fully integrated into the Maternal and Child Health (MCH) programme. The Expanded Programme on Immunization has been a success story for many years. The immunization coverage has been maintained at over 95% for all the routine vaccines. In 2011, Guyana added two new vaccines PCV 13 and Rotavirus vaccines, and their coverage increased to over 95% in 2014. A pilot programme for Human Papilloma Virus vaccine was introduced in four areas in Guyana for young girls 10-13 years. In 2015, Inactivated Polio Vaccine was added as part of the PAHO/WHO Polio End Game strategy. Based on findings of the MICS, nutritional issues significantly affected children under 5. The prevalence of underweight children Under 5 was 8.5% for moderate and severe with 2.2% severe. Stunting prevalence for the same age Group was 12% moderate and severe with 3.4% severe. Wasting prevalence was 6.4% moderate and severe with 1.7% severe. The overweight prevalence was 5.3%.

Tuberculosis is one of the leading causes of mortality due to communicable disease. The incidence rate in 2013 was 78/100,000; 72/100,000 in 2014 and 76/100,000 in 2015. Regions 1, 4, 7, and 10 have incidence rates above the national average. Of the 545 new and relapsed cases in 2014, 2% were under 15 years old. The male/female ratio is 2:6 but there are no data or studies to identify the reason. There has been improvement in programme management and increased directly observed treatment short-course (DOTS) placement. Of concern is the presence of MDR-TB cases. HIV seroprevalence among TB cases has fluctuated over the period 2010-2014 and was 25% in 2013 and 22% in 2014.

In respect of the three traditional diseases areas of HIV/AIDS, Malaria and Tuberculosis, the Ministry has already concluded detailed strategic Plans up to 2020 and these are integrated in Health Vision 2020. Strategic actions also include the strengthening of vector control services through the establishment of a unified framework and strategic information system for vector-borne diseases (Ministry of Health, 2013).

In the past considerable emphasis was placed on immunization programmes, which continues to date due to a high degree of success. Vector control and in general programmes for environmentally related maladies have started to receive high degree of priority, as well as education on maternal health and sexually-transmitted diseases.

In very recent years, the trend toward increasing real budgetary allocation to the health sector has helped in trying to meet the health goals of the country. Funding requirements, however, still exceed the availability of funds by a considerable margin, and as such, restrictions on private provision of health services have been relaxed. Now almost half the patients seek treatment in the private sector (and small number use traditional healers) (PAHO/WHO, 2017). The respective roles of the private and public sectors in the provision of health services have not been defined but the private sector has provided an increasing share of those services, especially in respect of curative care. Nevertheless, the most specialised procedures still are available only in the principal public hospital.

Investments in facilities and equipment have been greatly increased, with donor assistance, and a clear priority has been given to rehabilitation of the Georgetown Hospital. Questions on skilled/trained and qualified staff was covered in The Health and Human Resources Action Plan 2011-2016 that identified challenges with planning, capacity development, attrition and workforce optimization.

In the past, the National Health Plan, a document with lots of information and insights about prevailing health standards and the health care system, prepared by the Ministry of Public Health, was used to identify and analyzed many of the problems besetting the health care system. The plan identified priority areas of health care, and raised significant questions about possible reforms in the institutional aspects of health care in the course of establishing a national health policy. The National Health Plan has now morph in a new health strategy "Health Vision 2020" which is the national health strategy for Guyana for the period 2013-2020.

The strategy aims to make persons resident in Guyana the healthiest people in the Caribbean and the Americas by the year 2020. The mission is to create an enabling framework for full participation in leadership and integrated health services to deliver quality, efficient and responsive health services and prevention measures also to improve the physical mental and social well-being of all the people of Guyana. The Health Vision 2020 was developed based on a number of locally recognized declarations, including the United Nations Human Rights Declarations and its objectives are close to those of the Millennium Development Goals (MDGs).

In recent years, In terms of causes of morbidity and mortality, the most pressing priorities had been identified as malaria, sexually-transmitted diseases, acute respiratory infections, immunisable diseases, and perinatal problems. However, currently priority areas includes malnutrition, diarrheal disease, abortions, maternal mortality, accidents and injuries, diabetes and hypertension, dental caries, mental ill health and drug abuse, and skin conditions (primarily scabies among children). Because of the importance of improving nutrition in general and maternal health in particular, programmes of nutritional fortification of wheat have been implemented. Maternal and Child Health services are provided by a multi-disciplinary team as part of the Ministry of Public Health's Family Health Programme, in hospitals, health departments and health posts and in homes through the introduction of Integrated Management of Childhood Illnesses (IMCI) and Community-Integrated Management of Childhood Illnesses and Community Health Workers (CHWs). The CHWs are front-line workers, mainly situated in the hinterland regions where the indigenous population lives.

According to analysis from the Pan American Health Organization (PAHO), the country's health system performance and health outcomes have improved over the years, but challenges remain, especially related to data management and quality of care. Formal data needed for monitoring and evaluating health system performance at the regional level are limited, and information flows among central, regional, and facility levels are fragmented and not fully integrated. In addition, data from the private sector are not systematically collected, analysed, and integrated. With respect to quality of care, while protocols and guidelines exist, and training is conducted, inadequate monitoring and enforcement of standards and loss of trained health human resources present barriers to sustained improvement (PAHO, 2012).

For the health delivery system as a whole, the plan has defined objectives and targets for expanding primary health care, improving secondary and tertiary health care, and strengthening the management of the health sector, but new policies to achieve those objectives are still being define. Similarly, the option of instituting partial fees for selected services, in order to strengthen the system's finances, is raised, but no policy decision is indicated.

Health Vision 2020 shows a willingness to come to grips with the main issues in health care, and many useful lines of action are set out. On that foundation, the strategy sets out the principal national health policies that will be necessary to facilitate the achievement of the plan's main objectives.

Institutions

i. Existing/ past institutional structure and inter-sectoral coordination mechanism

Guyana has made progress with the implementation of the International Health Regulations. As demonstrated by the Annual Reports submitted to the World Health Assembly from 2011 to 2016, progress has been made for virtually all core capacities. A National IHR Inter-sectoral Action Plan was developed in 2009 and updated during 2014 in response to the challenges posed by the Ebola outbreak in Africa. Several activities have taken place including training workers at designated Ports of Entry and defining isolation areas. Public health emergency contingency plans have been tested and updated. Surveillance and response have increased and an early warning system has been established. Health care workers were trained in surveillance, infection prevention and control (IPC) and the use of Personal Protective Equipment (PPE) in those hospitals where isolation rooms have been identified. A National Command Center and a Rapid Response Team are being prepared (PAHO/WHO, 2017).

A national multisectoral NCDs Strategy 2013-2020 was developed and launched in 2013 and a three-year implementation plan is being finalized with the participation of sectors other than health such as education, agriculture, trade, local government and regional development, Amerindian development and professional associations (Ministry of Health , 2013).

The Country Coordinating Mechanism (CCM), which was established under the Global Fund to fight AIDS, Tuberculosis and Malaria, exists as a model from which lessons can be applied to improve the effectiveness of inter-sectoral and multi-stakeholder actions in other issue areas including NCDs. Other mechanisms for inter-sectoral coordination exist but are often inadequately utilized. The Cabinet Subcommittee on Health and the Cabinet Subcommittee on Local Government are forums for the Ministry of Health to coordinate in ensuring the effective management and implementation of health services. Public-private partnership arrangements have also been developed on a case by case manner to support the delivery of critical and advanced services such as HIV/TB care, open heart surgery, radiation therapy and dialysis.

Due inter-sectoral cooperation among the Regional Office, Pan American Health Organization, and recently, the Inter-American Development Bank and the Canadian Government through the CIDA project, Mass Drug Administrations there have been a decline in cases of filariasis which is concentrated mainly in the coastal areas.

While there have been some successes with planning and executing multi-stakeholder actions, bureaucratic, political and capacity challenges still impeded the full realization of the potential of collaborations and partnerships in health. The government is often challenged in taking ownership and leading programmes due to overcommitted human and other resources. These experiences can contribute to articulating a more strategic approach to partnerships in health and identifying the principles that should guide such engagements.

ii. Institutional and Capacity Development

The Health and Human Resources Action Plan 2011-2016 identified challenges with planning, capacity development, attrition and workforce optimization. Main priorities identified were the need for a Human Resource Strategy, improving the quality of pre-service training programmes, ensuring the right staff is hired; and improving employee incentives. One concern expressed was the probable over-supply of some health workers including physicians (over 500 entered the system over the last 5 years). Shortages exist in areas such as registered nurses and nurse midwives, radiographers, medical technologists and social workers.

The Ministry of Health has succeeded in increasing the supply of trained health workers through its health science education program. Training programmes exist under Georgetown Public Hospital Corporation (GPHC) and the University of Guyana (UG), in addition to the programme for recruiting Cuban doctors and training new doctors in Cuba. Notwithstanding, there is a continuing need for improved training methodologies and modalities to safeguard quality and ensure specialist skills are available as needed. Further, there is a need for improved leadership and coordination with the Public Service Ministry (PSM), as well as the MOLGRD to ensure the timely hiring and retention of HRH (Ministry of Health , 2013).

Operations

i. Existing financial/budgetary structure and allocations

An efficient and effective financing system for the health sector ensures sufficient resources to provide adequate health services, required by the populace. It also safeguards against any form of financial calamity associated with payment for services and should operate on an incentivized system for providers and users in order to be efficient.

The lack of strategic information in health financing directly undermines the capacity of the Ministry of Public Health (MoPH) to plan for and evaluate resource adequacy, sustainability, equity, and efficiency/value for money. As a first step, the MoPH, with support from DFID and PAHO, has conducted a review of health financing in Guyana, which looks at the public, private, non-governmental and external actors involved in purchasing health services. The review maps the existing health financing structure, estimates a baseline for total health expenditure in Guyana and assesses the capacity of existing institutional mechanisms to address financial risk protection, particularly amongst the poor, and to ensure the equitable and cost-effective service delivery required to achieve UHC.

In Guyana, the public health sector is primarily financed from the Government of Guyana budgetary allocations, and is supplemented by International Donor organizations and Non-Governmental Organizations (NGOs). Through consultations, the Ministry of Finance determines the budgetary allocation. The MoPH recognizes the importance of informed decision making in the allocation of resources within the health sector, as there is need to correlate actual cost with health outcomes for better management of resources.

Budgetary flows and lines of responsibility have been agreed on between the Ministry of Finance, the Ministry of Local Government and Regional Development, the Ministry of Public Health, and the Regional Democratic Councils (PAHO, 2012). The right to healthcare free of charge is guaranteed in the country's constitution. Total Expenditure on Health as a percentage of GDP declined from 7.3% in 2008 to 3.1% in 2013 with a slight increase to 3.3 % in 2014. Government health expenditures averaged 3% of Gross Domestic Product (GDP) representing 9% of government spending. General Government expenditure on health represented 13.9% of total Government expenditure in 2013. Out of Pocket payments were estimated at 33.8%. Donor funding decreased from 40.7% in 2008 to 7.18% in 2014. This has necessitated the Ministry of Public Health developing transition plans to ensure sustainability of the donor-funded programmes and services. In addition, in 2008, total health expenditure (THE) was GYD 23.6 billion with public expenditure comprising 54% (12.6 billion), and donor and private sector comprising 34% and 12% respectively. Government funding targeted the overall support of the NHSS including significant capital investments, predominantly in new hospitals.

Development partners also provided significant funding towards vertical disease-based programmes with the majority going to HIV/AIDS, malaria and tuberculosis. During the period of the NHSS, the level of donor funding decreased at an average real rate of 15% per year while public expenditure increased at an average real rate of 6%. At the end of the period, THE stood at GYD 26.9 billion, of which Public Expenditure comprised 69% and donor and private sector spending comprised 18% and 15% respectively. Private sector spending was notable for being the only source that showed consistent real growth at an average of 4% per year, whereas real public expenditure growth fluctuated between -4.4% and 12.2%, and real growth in donor funding was consistently negative, ranging from -5.4% to -23.4%.

A National Health Accounts (NHA) study has been initiated with support from PAHO and WHO. Implementation has been slow due to staffing constraints. There is no national health insurance but there is a national insurance scheme that provides some health insurance benefits.

In 2015, the budgetary allocation to the health sector was \$23.2 billion with the emphasis on remodeling the public health infrastructure and delivery of systems to focus on prevention and promotion of wellness for all people, to achieve and maintain a good life (Jordan, 2015). \$28 billion was allocated to the health sector in 2016, which represented a significant increase (Jordan, 2015) whereas in 2017 a marginal increase of \$31.2 billion was allocated to the health sector (Jordan, Budget Speech 2017, 2016).

The National Health Sector Strategy – the Health Vision 2020 – continues to guide investments and interventions in the sector, with the ultimate aim of achieving universal coverage for health care. However, this cannot be achieved without an efficient, modern health system, with adequate human capacity and quality health infrastructure. Core issues must be addressed in a timely manner as these hamper the ability to address serious health challenges such as the proliferation of non-communicable diseases (NCDs), mental health, and emerging diseases.

The Government has committed to a multi-sectoral, low-carbon approach to development, which prioritizes improvements in public health. In 2018, \$33.3 billion was budgeted for the health sector, 7% more than in 2017, 12.5% of Budget 2018 and 4.2% of the GDP, in the quest to modernize and transform the sector. These statistics testify to the seriousness with which the sector is viewed and its significance in the attainment of the good life. Whereas there may be much debate about the adequacy of Government allocation to the health sector serious concerns exist with respect to the perceived level of waste and pilfering that occurs. Poor inventory systems, ad-hoc procurement and inefficient maintenance of facilities and equipment also contribute to wastage within the health system. Government has made efforts to address waste and issues related to procurement, utilities, inventory management, and M&E within the health sector. One such effort is the creation of the Public Procurement Commission (PPC), which was established in 2016.

ii. Monitoring and Evaluation Mechanisms

Currently, monitoring and evaluation is done heavily through surveillance, which encompasses notification of births and deaths. Notification of births for both private and public institutions identified for obstetrics and gynecology care must be done through monthly reports to the Ministry of Public Health. Surveillance is done through forms denoted S₁, S₂, S₃ and S₄. S₁ speaks to Diagnosis and syndromes in relation to age range and gender with the emphasis being placed on early detection. S₂ in theory gives a summary of the S₁ forms. S₃ is prepared monthly and gives details on chronic disease and Non-Communicable diseases (NCDs). S₄ provides a 4 weekly report on confirmed cases such as dengue. A summary and analysis is then prepared and sent to the Caribbean Public Health Agency (CARPHA).

In relation to specific diseases such as malaria, for example, which continues to be a major public health problem showed 17,599 reported cases in 2014, which represent a sharp decrease compared with 30,542 in 2013. During an external evaluation of the malaria data carried out in August 2015 by PAHO/WHO, only 57.8% of the information from health facilities was received at the national level. After adjusting this under-reporting at the health facility level, the number of cases in 2014 could be higher

(19,005) but still fewer than the 2013 levels. However, in 2015, there was a reduction to 13,096 which is due in part to increased control measures such as distribution of long-lasting impregnated nets (LLINs)

Chronic Diseases are major contributors to morbidity and mortality in Guyana but they have not been able to attract much donor support. A review of the leading causes of death over the period 2008-2012 shows the predominance of the chronic diseases with cerebrovascular disease and ischaemic heart disease ranking as the two main causes of death with neoplasms third. It is estimated that the prevalence of diabetes is 6.2% of the population over 30 (31,000 persons) while hypertension affects 18% of that same population (52,000 persons). New cases of diabetes and hypertension annually are estimated to be 2,000 and 9,000 respectively. It was projected that in 2015, 9% of all deaths (7.2% males and 10.9% females) were due to diabetes. A National NCDs Commission was established to guide and monitor implementation of the Strategy, assess the impact on NCDs and on health that result from policies, programmes and budgets.

Monitoring and Evaluation in relation to Health vision 2020 will imbedded into the Monitoring and Evaluation unit, which forms part of a subcomponent of the Planning Unit. The mandate of this unit is to continually update the M&E framework and monitoring and reporting on the implementation of Health vision 2020. The on-going national capacity building effort to establish a coherent national M&E system will support the institutionalization of M&E within the health sector, including through its linkages with surveillance, statistics and other strategic information elements at the regional, facility and national levels.

Health Vision 2020 will be reviewed at three levels including annually at the programmatic level in line with the programme reporting and budget review activities and will further be subject to more in-depth evaluations at the conclusion of Phase 1 and Phase 2 of the health strategy. The Final Performance Reports will be disseminated to all partners and also made available to the public and other stakeholders through partners and government information sources and websites, and at the National Health Day Events.

- *Annual Planning and Budget Review*

The Health Vision 2020 implementation plans will provide the key tool for the annual review of the strategy. The annual review process will focus on the execution of strategic actions, the milestones and intermediate outputs realized and input and process level indicators reflected in the implementation plans and the M&E Framework. This review exercise will heavily depend on the maintenance of sound monitoring and statistical databases in order to track progress against targets.

- *Mid-Term Evaluation*

The mid-term review will be conducted towards the end of 2015, the concluding year for Phase 1 of the strategy, and will address the assessment of progress towards the goals of the strategy in line with the input, process and output indicators of the M&E Framework. In particular, it will identify the level of health coverage (population, services, finance) in Guyana. The timing will also allow the mid-term review to feed into the MDG progress report for Guyana. The focus of the mid-term review will be to identify any impediments to progress, assess changes in the contextual environment and the success of risk mitigation measures and make recommendations on corrective measures to realign actions to the targets. The mid-term report will also include the outcomes of the review of the implementation of the PPGHS Third Edition.

• *Final Strategy Evaluation*

The final evaluation will address a comprehensive assessment of the impact of Health Vision 2020 in realizing the targeted goals and objectives in line with the M&E Framework. The final evaluation will commence by June 2020 and conclude by the end of 2020 so that its findings can inform health planning from 2021. The final evaluation will synthesise the results of programme-specific evaluations, research and survey-level information that is available, and in particular, track the progress towards increased health coverage (population, services, finance) in Guyana between 2016 and 2020.

iii. Existing Data Systems and Analyses

An assessment of the health information system identified constraints such as fragmentation and inadequate human and financial resources (PAHO/WHO, 2017).

Health Vision 2020 recognizes that improving the quality and availability of health information will increase its value and utility. The strategy therefore targets the establishment of systems, structures, policies, protocols, standards and capacities for improving evidence based decision-making and the promotion of a culture that values information as a national asset and a policy resource. Key strategic actions include the consolidation of strategic information system elements within a new strategic information unit and the establishment of capacities in monitoring, evaluations and research (Ministry of Health , 2013).

iv. Donor/Development Partners Support (Since 2010)

From the year 2010 to 2018, there has been a continual reduction in the donor support, which has been further escalated because Guyana is now considered an upper middle-income country. The decrease in funding poses challenges as to how to maintain gains in areas such malaria, tuberculosis and HIV/AIDS and the vaccine preventable diseases that through the technical and financial support of donors have resulted in a decrease in cases.

The Global Alliance for Vaccines and Immunization (GAVI) has reduced its support and the funding for Rotarix and PCV 13 in 2016 and 2017 respectively, when the government is expected to take on full financing of the programme.

Donors including the Global Fund, Clinton Foundation, PEPFAR and the World Bank have supported the National HIV/AIDS Programme (NAP), which has seen a decline in the number of reported new HIV and AIDS cases during the period 2010-2014. However, there was an increase in 2015 with 789 new cases of HIV compared with 758 in 2013 and 751 in 2014. Several strategies have been used including an increase in treatment sites and strengthening of Voluntary Counseling and Testing (VCT) services. The increase in HIV in 2015 follows the reported trend in the Caribbean. Along with the increase in incidence of TB, it points to the need for continuous heightened focus despite any decrease in international funding.

The government, through the Ministry of Public Health has oftentimes acquired technical support from PAHO which has continue to strengthen key areas in the health sector. UNICEF and UNAID, which is currently providing technical support in relation to the Zika response has also continued to lend its support as needed.

Problems/ Challenges

The health sector is multi-dimensional and requires integrated and a multifaceted approach to be remotely effective in achieving the quality of life outlined in the Health Vision 2020 plan.

i. Strengths

- i. Increase budgetary allocations which has been geared at modernizing the health sector and bringing much needed health services closer to Guyanese in need, not just in central locations such as Georgetown (Georgetown Public Hospital) but in rural areas such as Linden (Linden Hospital Complex) where lifesaving surgeries are being performed.
- ii. Increase in Medical Practitioners has been realized through the Cuba-Guyana scholarship programme, which has produced a number of young Guyanese medical professional. This has allowed for resident doctors in rural and hinterland areas.
- iii. The Ministry of Public Health – Health Sciences Education Division which trains much needed support staff such as Laboratory Technicians, Pharmacy Assistants, X-ray Technicians among other health specialties provides that support in the delivery of health
- iv. Partnerships with US Medical Missions, USAID, Peace Corps, Canadian Embassy and UK Embassy allows for an open channel for dialogue in assistant in Health Care, most often times specialized care.

ii. Weaknesses

- i. Inadequate Infrastructure-Guyana’s infrastructure is still inadequate due to the size and age of most of the infrastructure networks; the insufficiency of resources allocated to maintenance in the past; and the need to modernize institutions and systems to meet current and future demands. The application of modern and appropriate standards will also be key to the sustainability of future infrastructure investment.
- ii. There is need for much Health Promotion and Health Education within the general population into the Levels of Heath Care and their uses as lack of this knowledge has led to an over-burden of the National referral hospital (Georgetown Public Hospital) which has caused longer wait times for non-critical emergencies.

iii. Opportunities

- i. Guyana’s LCDS, which aims to leverage environmental preservation to spur socio-economic development, could be its most important development tool. This strategy will see Guyana receiving substantial returns for reducing carbon emissions by avoiding deforestation and degradation. Guyana is the first country to have submitted a readiness plan for the new WB-administered Forest Carbon Partnership Facility and, as such, has already received and will continue to receive substantial financial transfers in return.
- ii. The health vision 2020 gives Guyana a new approach and perspective on health with achievable goals. Once all parties concerned are committed and health becomes a

priority regardless of expenditure the returns are bound to be seen in generations to come.

iv. Threats

- i. Guyana is also exposed to natural disasters, especially floods. Flooding is most prevalent in the coastal plains region, which is 2.4 meters below sea level, hosts 90% of the population. This threatens the health of the people, critical infrastructure and food security. Therefore, efforts must be put in place to safe guard these things such as adequate disaster preparedness promotions, building codes that adequately ensure buildings are flood proof and research into crops not affected by climate change threats.
- ii. Change in Government threatens to slow or stymie the progress made in advancing the health care system as often times good policies are changed because of change in Government.
- iii. Brain drain of skilled profession threatens to destabilize the health care system which is due largely in part to poor working conditions, poor salaries and overall feeling of being unappreciated.

Issues

i. Identifying Gaps and Entry points/ Opportunities and associated Risk and Barriers

There are several gaps and opportunities for improvement that exist within the policies and programmes within the health sector. For example, Guyana has a National School Feeding Programme that seeks to address the issues of nutrition and stunting, specifically in the hinterland region. The National School Feeding Programme supplies biscuits and fruit drinks (for Region 9 it also supplies peanut butter and cassava bread), and targets all Nursery and Primary Level Schools (up to Grade 2). As of April of 2016, more than 45,000 boys and girls were beneficiaries of the programme. In 2016 government has also started a pilot community based school feeding (hot meal programme) with selected Nursery and Primary schools within the Buxton/Friendship and Enmore communities. With this it is pertinent to note that there is no coordination with the Ministry of Public Health (MOPH).

Worth noting as well, is the fact that there is lack of coordination between the Ministry of Public Health and the Ministry of Education in providing meals for children that attend special schools. These children received the same meals as those that attend regular schools. A study done by Boston, et al., (2015) at a selected special school showed that the meals and snacks sent to the school was not nutritional for down syndrome children as it had an extremely high sugar content. This information was shared with the Ministry of Education but to date the situation remains the same. It suggests that there is a problem of policy development and implementation to ensure that persons at special school are given every opportunity to be productive members of society.

In terms of Nutrition, many Indigenous Communities have their own staple diet, which includes fish, which is rich in protein, cassava bread and fruits from their farms. Hence, the Hinterland communities have a relatively healthy diet as against persons living in the Coastal Regions. However, many young children lack calcium in their diet, as much emphasis is not placed on milk because it is expensive. Thus, many children are prone to fractures because of the lack of calcium. There is lack of mechanisms that foster adequate production of food rich in dietary nutrients and reduce the dependence on foods high in sugar, fat and salt. In addition, coordination with the Guyana Revenue Authority (GRA) and the Ministry

of Public Health is needed to help reduce the importation of unhealthy foods by applying hefty taxes that will serve as a deterrent and propel innovative ways in making healthy foods.

In relation to vaccination, Amerindian children are less likely to be vaccinated than other ethnic backgrounds. Reasons for this lies within cultural and religious beliefs, in addition to lack of facilities and educational programmes to inform this vulnerable Group. Almost half of the children from the Amerindian communities were not fully vaccinated, creating a constant risk of outbreaks. One fact to be further explored is that the percentage of children fully vaccinated is higher in those families in the mid-quintiles than poor and richer families. Therefore, coordinated efforts between the Ministry of Education and the Ministry of Public Health should be employed to arrest misconceptions that may exist among this community.

Although the Hinterland population has numerous facilities compared to the small proportion of the total population, these guarantee only local access to limited health services. For access to a broader range of diagnostic and treatment services individuals of the Hinterland will need to overcome large distances and travel frequently over rivers, by road and sometimes by air (ISAGS and UNASUR, June 2014). Most common vaccine-preventable diseases remain under control in Guyana (PAHO, 2012); nonetheless, around 22% of children aged 24-35 months were not fully vaccinated against vaccine preventable childhood disease in the country. This percentage varies across background characteristics except for the sex of the child, where approximately the same proportion was vaccinated. Children from the urban areas and those on the coast are more likely than their rural and interior counterparts to be fully vaccinated. It is noteworthy that the likelihood of children in the coastal areas to be fully vaccinated is 29 percentage points greater than those in the interior areas, with 85% and 56% respectively. In terms of regions, less than 50% of the boys and girls in Regions 1 and 5 were fully vaccinated. According to PAHO, these facts indicate the need to scale up efforts to reach these populations and improve the quality of vaccination services overall, including recording and monitoring systems (PAHO, 2012).

The HIV Prevention of Mother-to-Child Transmission (PMTCT) programme is available countrywide. HIV testing of all pregnant women is a requirement during prenatal care. In 2014, 94.4% of the pregnant women accessed PMTCT services and were tested for HIV. Among those identified as HIV positive, 97% of them had received ART in 2014. There were 37 new cases of HIV reported among children (ages 0 to 19) in 2014, number that represents a reduction when compared to 2010, but an increase when compared to 2013 (32 new cases). The efficiency of the PMTCT programme in Guyana is affected, however, by the same bottlenecks related to maternal and child health: shortage of essential commodities, difficulty of access to health facilities, financial constraints, and social and cultural practices and beliefs. Deficiencies in the prenatal care, delivery and postnatal care affect not only the detection of the virus in mothers and babies, but also in the follow up that identified what is required by the patients.

It is noteworthy that the National Public Health Reference Laboratory (NPHRL) and the Guyana Livestock Developmental Authority (GLDA) Veterinary Lab have new infrastructure to receive Level 3 biosafety samples but there is need for trained human resources to test biological and chemical specimens. The Pan American Foot and Mouth Disease Centre (PANAFTOSA), the Caribbean Public Health Agency (CARPHA), and PAHO/WHO, are providing support. A Draft National Risk Communication Plan has been developed and the most challenging risks have been identified. Strategic partnerships in Health Vision 2020 will enable increased health coverage of the population and expanded skills, resources and technologies in the health system. Key strategic actions aim to identify instruments and modalities that can promote effective, mutually satisfying partnerships. New approaches, non-traditional partners and

innovative mechanisms will be sought out and encouraged. To this end, an Office of Strategic Partnership will be established to institutionalize this approach and ensure robust, sustainable partnerships (Ministry of Health, 2013).

Lesson Learnt and Recommendations

Lessons learnt include:

- i. The recognition of Capacity Constraints, which are widespread across the Public Sector and must take into consideration the design, structure and expected outcomes of strategic interventions.
- ii. Guyana has a high external vulnerability and the unpredictability of resource inflows can significantly delay project implementation.
- iii. There must be country ownership and commitment, which are essential for programme success.
- iv. The recognition for the need for policies to be grounded in facts and data through collaborative research with the University of Guyana.

Recommendations:

- i. Policies need to develop that target more healthy food choices among the population such as higher taxes in fast foods outlets and incentives for healthier alternatives.
- ii. Policies need to be driven by empirical data and research to assess the true cost of adequate health care.
- iii. More collaboration with the University of Guyana in Health Research.
- iv. More coordination with inter-sectoral agencies with clear lines of responsibilities to avoid duplications in efforts.
- v. Improve remunerations and better working conditions for health care professionals

3.1.6 Social Sector Assessment (Housing, Water and Sanitation)

Sector Profile

Policy, Action Plans and Legal Framework

Housing in Guyana is managed under a legal framework in which the Housing Act, Cap. 36:20 and the Town and Country Planning Act, Chapter 20:01 Laws of Guyana are key pieces of legislation. These Laws position the Central Housing and Planning Authority at the heart of the legal system regarding housing development in Guyana, both from the perspective of a developer in the sector, as well as from the perspective of a regulatory agency. In fact, and as concluded in the Guyana National Development Strategy (1996), the Central Housing and Planning Authority (CH&PA) is the principal element in the local physical planning and housing system. It is the hub with direct functional linkages with Regional Democratic Councils (RDCs), local authorities, and the Central Board of Health (CBH) as the statutory body responsible for public health matters in Guyana.

The major way in which the CH&PA affects housing in Guyana is through allocation of government and state land for residential use.

The Housing Act, Cap. 36:01, Laws of Guyana

The Housing Act (Cap. 36:20) is entitled “An Act to make provision with respect to the housing of persons of the working class and for purposes connected therewith”. This Act provides for the incorporation of the Central Housing and Planning Authority (CH&PA) as the statutory body with the following key duties:

- a) To prepare Schemes for housing purposes
- b) To provide housing for the working class
- c) To manage the Authority’s Housing Fund

In view of the fact that the Housing Act was promulgated since 1946 and was never subjected to legislative review, there are now issues of relevance of some sections. In this regard, Tipple, G. (2016) noted that one key problem with the Housing Act is that there has been no legal framework to replace those sections of the Act that have become obsolete over the years, and it has thus become increasingly irrelevant to the current housing environment. There is for example much reference within the act to renting of houses by the CH&PA, but the Authority no longer does this.

The Town and Country Planning Act

The Town and Country Planning Act sets out a series of interventions by the CH&PA ‘to make provision for the orderly and progressive development of Land, Cities, Towns and other areas, whether Urban or Rural, to preserve and improve the amenities thereof, and for other matters connected therewith’ (Town and Country Planning Act, Cap. 20:01, Laws of Guyana).

Under the Town and Country Planning Act, the CH&PA has the duty of:

- a) Enforcing land use/development control through the instrument of Planning Schemes and Interim Development Control.
- b) Executing land use planning by way of three types of land use planning interventions:
 - Town Planning Schemes for cities and towns;
 - Regional Planning Schemes for areas not cities or towns; and
 - Supplementary Schemes for smaller areas covered by a regional scheme.

The CH&PA’s authority with respect to land use/development control is grounded in Section 21 of the Town and Country Planning Act. It stipulates that all applications and proposals for development with an area covered by a Scheme or an area for which there has been a declared intent to prepare a Scheme must be submitted to the Authority for permission or prohibition as the case may be. However, while the Town and Planning Act provides the legal basis for planning and land use control relative to Guyana’s housing sector, it is pertinent to note that this legislation was based upon 1939 British planning legislation and was never comprehensively reviewed. Some of its provisions may therefore now be out of line with current issues and trends in urban and rural planning.

Additionally, under Act No. 15 of 1999 the Guyana Lands and Surveys Commission was assigned the duty ‘to prepare land use plans for Guyana or any part of Guyana, except any municipality which is subject to a planning scheme (or interim development control pending the preparation of a planning scheme) under the Town and Country Planning Act’.

Other legislation relevant to the housing sector

In view of the fact that housing delivery typically requires a supporting system of co-ordination and collaboration with other agencies or stakeholders, several other pieces of housing-related laws are of relevance to the legal framework for housing in Guyana. These are as follows:

- The Housing Development Act, Chapter 36: 24
- The Public Health Ordinance, Cap. 145 Laws of Guyana
- The Environmental Protection Act, Cap. 21:02 Laws of Guyana
- The Deeds Registry Act, Cap. 5:01, Laws of Guyana
- The Land Registry Act, Cap. 5:02, Laws of Guyana
- The Guyana Lands and Surveys Commission Act, Act No. 15 of 1999
- The State Lands Act, Cap. 62:01, Laws of Guyana
- The Municipal and District Councils Act, Cap. 28:01
- The Local Government Act, Cap. 28:02
- The Local Democratic Organs Act, Cap. 28:09, Laws of Guyana
- The Guyana Water Incorporated Act, Act No. 5 of 2002, Laws of Guyana
- The Guyana Power and Light Act, Electricity Reform Act No. 11 of 1999, Laws of Guyana.

These related pieces of legislation are of notable significance given the practical need for the housing development process to be coordinated with many other agencies with responsibility for specific supporting areas of operation. There is however need to note that despite the existence of the wide array of supporting legislation of relevance to the housing sector, the law is however notably silent on how coordination and collaboration can be achieved in practice. This has prompted the use of non-legal instruments to secure coordination, such as the memoranda of understanding and inter-agency coordination committees.

Past and Current Policies related to housing sector

While there have been many instances of reference to a Guyana Housing Policy, this area of policy development remains relatively weak and undeveloped. In this regard, the situation in Guyana is no different from that of other developing countries. In an examination of this scenario, Arnott, R (2008) for example noted that the housing experience in developed countries (as opposed to developing countries) is considerably better documented and analysed.

Currently in Guyana one key issue in the housing sector is that there is no approved National Housing Policy. Under the Government of Guyana/Inter-American Bank Low-income settlements Programme (2012) a draft National Housing Policy was prepared but was never implemented due to shifting sector priorities and limited institutional capacity to sustain the policy process. One can therefore conclude that there is therefore a policy gap in the housing sector. However, judging from the content of public speeches made by various Housing Ministers, it is clear that the Government of Guyana largely embraced a past 'policy' centred on housing for the low-income Groups and public/private partnership in housing development.

Essentially, the new policy direction is to provide **accessible and affordable housing in sanitary and safe communities with the necessities for wholesome and dignified living**. Pivotal to this policy direction is moving beyond the approach of providing serviced lots, to creating cohesive and sustainable communities (CH&PA 2017). Inherent in the context of this policy direction is therefore the alignment of housing development to building sustainable communities and partnership with the private sector in housing delivery.

Other measures to be pursued under the new policy direction (medium-term outlook) include the following:

1. The creation of resilient communities
2. The relocation and re-settlement of squatters
3. The consolidation of existing housing areas
4. The expansion of the hinterland housing programme

In terms of past housing policies, the National Development Strategy (2001) provided the following summary of significant elements of past policy perspectives:

- Enactment of legislation: in 1941, to control the rental of certain premises (private); in 1947, to regulate the relationship between landlord and tenant; in 1940, to make provision for the orderly and progressive development of land, cities, town and other areas whether urban or rural, to preserve and improve the amenities thereof, and for other connected matters; in 1940, to make provision with respect to the housing of persons of the working class.
- State control over the sale of lands formerly owned by sugar companies and measures to curb speculation in land.
- Public provision of subsidized rental accommodation for low income households. The sale of some of these to sitting tenants commenced around 1990.
- Encouragement of house ownership through various schemes, including making available serviced land and housing units at subsidized costs, and also sponsoring self-help Groups and housing Groups.
- Promotion of the private sector's involvement in the implementation of housing projects through tax relief, the allocation of land, and technical assistance.
- The creation of formal institutions for housing development and financing and for guaranteeing mortgages for low-income housing.
- Measures aimed at population redistribution and development of settlements in the hinterland.
- Upgrading measures aimed at urban depressed areas and selected squatter areas.

The Draft National Housing Policy (2012) identified the following challenges in the housing sector and these are still largely relevant:

- Formal housing is not affordable to many households and there is no system for improving household affordability.
- There is little institutional capacity nor are there established procedures for improving and redeveloping unplanned settlements.
- There is an acute shortage of buildable land especially in Georgetown.
- The land management structure is not effective in converting land to residential use or making land parcels easily available to developers.
- The private sector is constrained by incomplete legal and regulatory systems.
- Mortgage lending is inefficient and not targeted at low-income households.
- Infrastructure is failing to keep up with development and service levels are low owing to inadequate maintenance.
- Under-investment in housing maintenance is reducing housing supply and the capital value of the existing stock.
- The construction sector is undercapitalised but dominated by poorly performing public companies. Not surprisingly, therefore, few investors/developers are likely to build for lower and middle income Groups and in sparsely populated areas.

An examination of housing policy trends in Guyana over the colonial (pre-independence) period to the current period reveals a clear policy shift from Government as a provider of housing, in the context of welfare concerns to a current policy position as an enabler of housing. In its current enabling role land divesture, incremental land development and public-private partnership are key policy pillars.

A summary of policy trends in the housing sector is illustrated below.

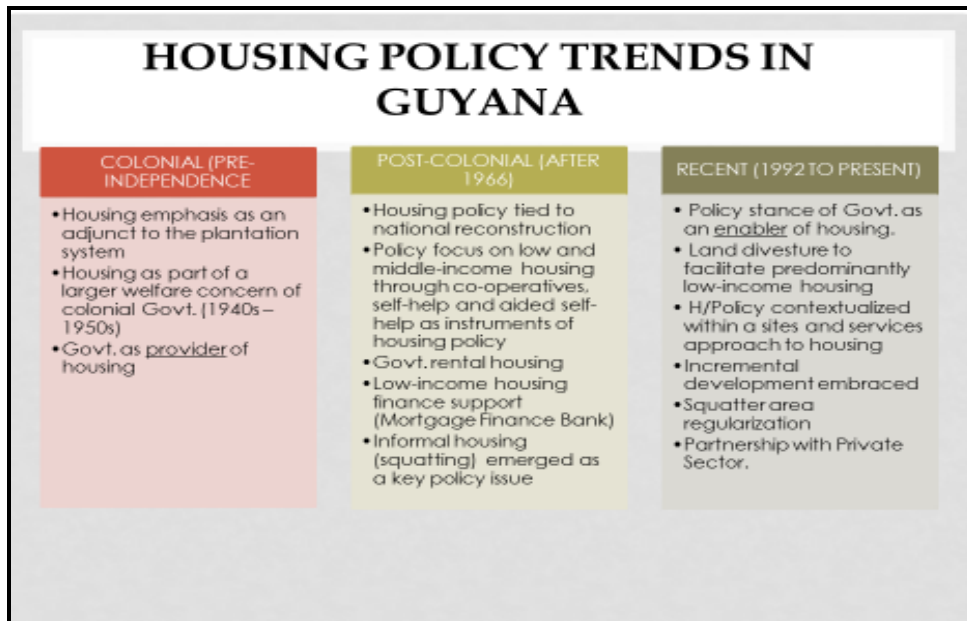


Figure 3.14: Housing Policy Trends in Guyana Source: R. Edinboro, 2016

Policies in support of sustainable housing investments

In the housing sector, there is a notable lack of specific policies in support of sustainable housing investments. While there were attempts at stimulating private sector investments in the housing sector, these were in the form specific agreements between the private sector developer and the CH&PA without any strategic alignment to an overarching investment policy that addresses the issue of sustainability.

In recognition of the several sustainability challenges to housing investments, several response measures were identified. These measures include subsidies and the promotion of the sweat equity (self-help) approach targeting those at the lowest end of the scale who may be desirous of reducing construction costs or who may be unable to access finance (CH&PA, 2017).

In practice, there has been considerable emphasis in giving effect to government’s housing policy through the continued allocation of serviced plots, the processing and distribution of titles and the regularization of squatter plots (Table 3.24). However, this was not adequately balanced by concurrently addressing other sustainability aspects in relation to investments, infrastructure maintenance etc. The current policy focus on housing and sustainable communities provides an opportunity to address this gap.

Table 3.24: Land distribution by CH&PA (2010-2015)

	2010	2011	2012	2013	2014	2015	Total 2010-2015
Distribution of plots	4,707	6,922	4,132	4,417	2,304	1,223	23,705
Processing and distribution of titles	2974	2,889	2,577	3,643	No data	3,170	15,253
Squatter plots regularised	1,387	1,387	1,765	613	No data	656	5,808

Source: CH&PA

INSTITUTIONS

Institutional structure and inter-sectoral coordination mechanism

As the statutory/regulatory agency responsible for housing development in Guyana, the Central Housing and Planning Authority falls under the ministerial umbrella of the Ministry of Communities. It is managed by a Board with a Chief Executive Officer reporting to the Board and the Minister with responsibility for housing.

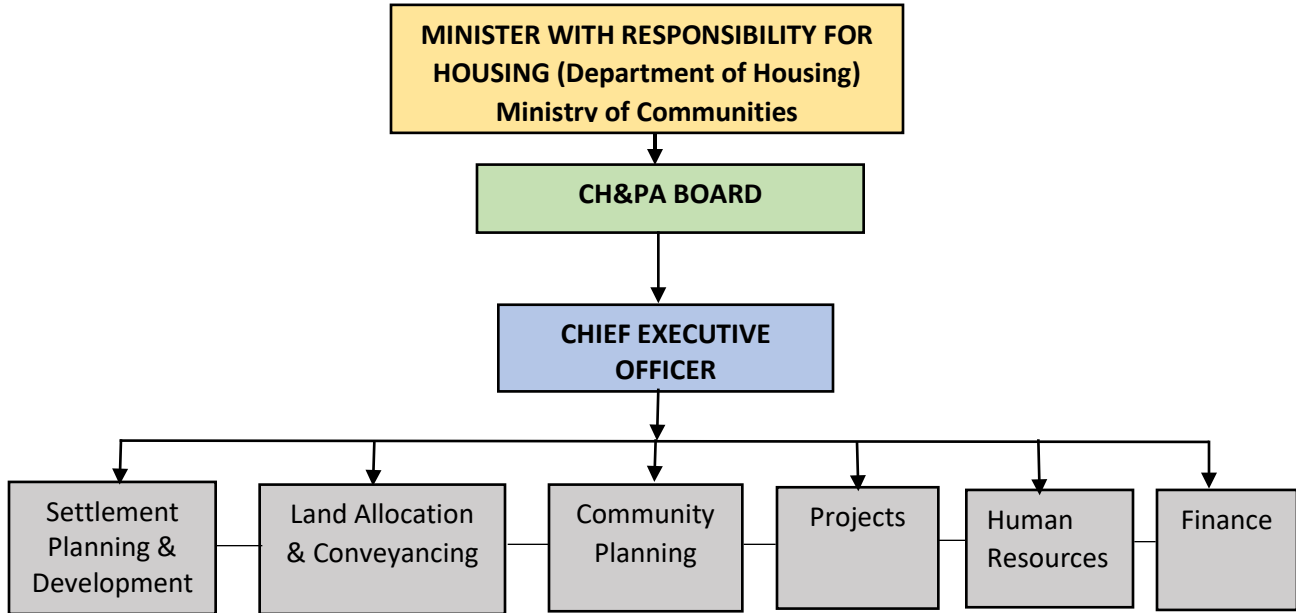
The Chief Executive Officer is directly responsible for the day-to-day operations of the following Departments:

- Planning and Settlement Development
- Land Allocation and Conveyancing
- Community Planning
- Projects
- Human Resources
- Finance

The Planning and Settlement Development Department is responsible for the design and development planning for new housing projects. On the other hand, the Projects Department is responsible for the implementation of infrastructural works, based upon cadastral survey plans derived from approved planning designs prepared by the planning department.

The organizational structure of the Central Housing and Planning Authority is shown below.

Figure 3.16: Organisational Chart of the Central Housing and Planning Authority



Source: R. Edinboro, 2018

OPERATIONS

In the context of the existing organizational structure, it must be noted that there is an absence of any policy or structured mechanism that speaks directly to the issue of inter-sectoral co-ordination. In view of this achieving co-ordination in practice is a problem. This can be attributed to factors such as legislative and functional overlaps, the lack of an integrated cross-sectoral approach to planning and the formulation of work programmes, along with the absence of clear policies on issues such as data sharing.

Attaining effective coordination and collaboration has therefore proven to be very challenging and the absence of plan-led development has made matters worse, particularly by fueling a project-based approach rather than a spatial strategic plan-based approach to housing development. It is also the general view that the way housing development projects and land use matters in our city, towns, rural areas and the country in general are being handled shows very little regard for the principles of coordination and collaboration.

Notwithstanding these challenges, there is need to note that the Central Housing and Planning Authority Board serves as a mechanism through which some degree of inter-sectoral co-ordination is achieved. In this regard, the Board comprises representatives from other sectors related to the housing sector, such as public health and the environment.

Inter-sectoral co-ordination is also achieved through focused institutional mechanisms such as the establishment of an inter-agency co-ordination committee to support the delivery of housing initiatives under the IDB/Government of Guyana low-income housing programme for example.

Existing financial/budgetary structure and allocations

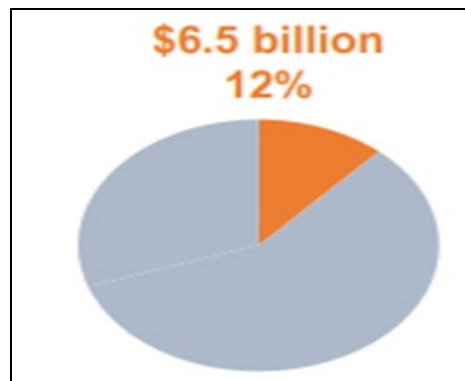
Budgetary provision for housing is essential for the achievement of economic development, social equity and social cohesion (Budget Speech, Minister of Finance, 2018).

Financial/budgetary support for Guyana’s housing sector is typically enabled through three sources of funding:

1. Government subventions through yearly national budgetary allocations
2. The Housing Fund – a revolving fund managed by the CH&PA, and
3. Donor-support funding.

In the specific case of donor-support funding, approximately USD \$30M was earmarked under a Government of Guyana/ Inter-American Development Bank for support to Guyana’s Housing sector. The key challenge however remains the cost of financing housing particularly for the low to middle-income Group. While 6.5 billion dollars was allocated in the 2018 national budget towards communities (National Budget 2018), the housing sector is still plagued by the lack of a holistic approach in providing quality, affordable housing in safe, well-serviced communities.

Figure 3.15: 2018 Budgetary allocation to communities



Source: Guyana Budget Policy Institute, 2018

Additionally, the sector is increasingly looking towards project financing support through public/private partnerships.

Monitoring and Evaluation Mechanisms

While there are deficiencies in the area of monitoring and evaluation of housing projects, the following are worthy of mention:

- a) The Central Housing and Planning Authority established a Monitoring and Evaluation Unit. However, staff resources assigned to this unit are limited in number and require further training.

- b) Infrastructural works in the housing sector are monitored based upon the terms and conditions set out in contracts governing such works. The problem however is that of post-contract monitoring; an area for which there is no standard system in place.
- c) The existence of a draft National Building Code points in the direction of standard-based monitoring, in line with the need to ensure the long-term sustainability of physical infrastructure in the housing sector. There is however the need for this draft Code to be effectively aligned to climate change and made legally enforceable.
- d) In the case of donor-funded housing programmes, such as the GoG/IDB Low-income Settlements Programme, detailed arrangements for monitoring and evaluation are built within the operational scope of such programmes and executed as planned.

Existing Data Systems and Analyses

The Central Housing and Planning Authority has its own Geographic and Land Information System for managing data as required by the sector. This system is however specific to the Government Housing Schemes. While sharing of data with other stakeholder agencies such as the Guyana Lands and Surveys Commission may occur as the need arises, this is not backed up by legislation.

Institutional and Capacity Development

Most of the notable interventions targeting institutional capacity and development in the housing sector were one-off interventions tied to the capacity-building component of agreements with donor agencies such as the Inter-American Development Bank. However, there is the need for institutional and capacity development to be mainstreamed as essential on-going sector activities that addresses not only needs at the central level but the local levels as well.

PROBLEMS/CHALLENGES

The key problems impacting on the idea of sustainable housing communities are predominantly related to the issues of lack of approved policy, quality of supporting infrastructure, environmental management and access to local employment opportunities. The absence of a holistic approach in providing quality, affordable housing in safe, well-serviced communities, the cost of financing housing and inadequate infrastructure are indeed areas that must be addressed in order to enhance the efficiency of the housing sector.

Additionally, and from a local government perspective to sustainability, there are critical issues in terms of the capacity of the various local government authorities to sustainably manage housing communities. One example of challenges in this area is the general inability of local Neighbourhood Democratic Councils and Municipalities to keep up with the environmental management demands these housing communities pose.

Sustainable housing communities also require that the local authorities (Neighbourhood Democratic Councils) possess adequate financial resources to manage schemes handed over to such Councils. Since property valuations form the basis for rates and taxes to be levied on properties, the lack of up-to-date property valuations is a major issue. This subsequently negatively impacts on local Councils revenue streams and hence their ability to adequately service areas. The result is that supporting infrastructure for housing continue to be poorly maintained; a situation that also affects the take-up of allocated plots.

A participatory approach to the planning and development is also essential for the development of sustainable housing communities. Largely speaking, such approaches are lacking in the sector and as a result there is major gap in the procedural aspects that ought to inform sustainable housing communities.

Outdated planning legislation that does not adequately address the planning requirements for sustainable housing communities is also currently an area of concern. This is coupled with the fact that there is an absence of an approved legally enforceable national building code for Guyana; a critical ingredient in ensuring that standards in the sector are well aligned to the need for resiliency and sustainability.

There are several gaps affecting work in pursuance of the goal of sustainable housing communities. To some extent this may be related to the lack of a clearly defined and comprehensive housing policy. However, also of significance are issues such as limited institutional capacity at both the central and local levels of government to efficiently administer or deliver housing interventions in a sustainable manner, outdated legislation and the absence of any structured mechanism for the co-ordination of activities in the housing sector with that of other agencies/stakeholders.

The Housing Sector: a SWOT analysis

One noteworthy strength of the housing sector is the fact that currently there exist a high level of commitment on the part of Government to housing provision, especially for the low-middle income Groups. This is encouraged by the fact that large tracts of State land are available for accommodating new housing initiatives and there are good indications of private sector support.

Weaknesses in the area of policy, regulations, institutional capacity and jurisdictional conflict over land development must however be addressed. Consideration also ought to be also given to reducing the over centralization of decision-making in the sector.

On the other hand, an assessment of the current situation points to clear opportunities for projecting the housing sector to a higher level based on the idea of developing sustainable communities with international donor support as well as with support from the local private sector. In this context, the fact that areas of State land are available for future housing emerges as a favourable land tenure factor.

In contemplating the future of the sector, there are however certain threats that must be borne in mind. Among these include the inadequacy of skilled labour, lack of adequate financial resources, lack of institutional capacity, expensive local materials and poor infrastructure. It is essential that these threats be managed in order to avoid possible negative implications that may be manifested due to the retardation of development in the sector.

Through proper planning, there is however the opportunity to use housing investments as a catalyst through which the goal of sustainable housing communities can be realized. In this regard, public/private partnerships are one opportunity through which housing investment support can be addressed. Once sustainable housing communities are realized, this can open the door for ultimately achieving more balanced and sustainable development across regions of Guyana. **Annex 9 depicts a SWOT analysis of the housing sector.**

ISSUES AND KEY AREAS OF INTERVENTION

In response to the challenges posed by way of gaps in the housing sector, the State Paper on Housing in Guyana (2017) suggested certain key areas of intervention in relation to the following areas:

Use of Local Materials

Maximizing housing benefits from the housing programme can be greater if local materials are used in the construction of housing units. Less need for foreign exchange to fund imports will aid in the stabilization of exchange rates and will also positively contribute to the contraction in the current deficit of our Balance of Payment (BoP). Moreover, local materials especially the use of lumber will sustain over 24,811¹¹ jobs that currently exist within the forestry sector¹². The use of clay bricks will be considered, particularly for external walls of buildings, since wooden external walls may attract higher maintenance costs (CH&PA 2017).

Funding support and the targeted application of subsidies

For the Government to provide the necessary financing to facilitate the guaranteeing of loans administered by a Financial Institution, a revolving loan will be explored as the gap financing measure (CH&PA 2017). Consideration will be also given to possible approaches to international lending institutions for financial support for the sector. It is also envisioned that the Government will continue to subsidize the provision of housing for eligible Guyanese with low level of affordability.

Legislative amendments

Based upon the State Paper on Housing (2017), the Government intends to facilitate amendment to the Condominium Act to enable beneficiaries to be granted Certificate of Title instead of Certificate of Sale in the acquisition of a duplex, townhouse or apartment unit. Proposed amendments will also be recommended for the individual ownership of land to the front and rear of a duplex or townhouse unit.

Decentralised decision-making through the involvement of Regional Housing Committees in beneficiary selection

In keeping with the Government's commitment of decentralization of functions and services, it is proposed that Regional Housing Committees be enhanced to play a key role in the beneficiary selection process (CH&PA, 2017).

Deepening consultation and participation in the housing development process

This intervention measure is targeted at ensuring that the housing development process is made more inclusive.

Promoting public/private partnerships

This intervention will address the gaps created due to limited public funds to support the housing delivery programme.

Expansion of the Hinterland Housing programme

This intervention is significant, in terms of not only enhancing the livelihood situation of hinterland peoples, but also as a strategic response to the threat of climate change and its likely impact on coastal

¹¹ Forestry Sector Information Report January to June 2015

¹² The average contribution of the forestry sector to overall GDP is approximately 3.17%.

Guyana. From the standpoint of the Green State Development Strategy Framework, there is also a nexus between hinterland housing and considerations of social cohesion and inclusion; well-being and quality of life of the indigenous people as a vulnerable Group in society.

In the consideration of the Hinterland Housing Initiative targeting the indigenous people, it is important to note that the foundation for this was already set by way of the 2009 – 2015 Sustainable Housing for the Hinterland Project executed by the CH&PA with funding support from the Inter-American Development Bank to the tune of US \$3.1 M. This Project targeted twelve (12) indigenous hinterland communities in Regions No. 1 and 9. In Region No. 1, the targeted communities were Whitewater, Kamwatta, Haimacabra and Sebi.

In Region No. 9, the targeted communities were in North Rupununi, Central Rupununi and South Rupununi. Included were communities such as Kwatamang, Katoka, Massara, Karasabi, Hiawa, Sand Creek and Potarinau.

The 2009-2015 Hinterland Housing Project had two components, namely:

- a) Construction of full houses together with pit toilets and rainwater harvesting systems.
- b) The replacement of derelict thatched roof with zinc roofs complete with rain water harvesting systems and toilet.

Importantly, from the perspective of sustainable housing, the Project incorporated the following elements:-

- Community participatory design
- Short and long-term sanitation solutions
- Improved access to drinking water
- Minimal environmental damage and footprint
- Use of local labour

The successful application of these sustainability considerations to hinterland housing under the 2009-2015 Project may have influenced Government's decision to allocate \$240 Million in its 2018 Budget for Hinterland Sustainable Housing (Budget Speech, 2018).

Recommendations

The policy gap in the housing sector is most significant since the absence of an approved national housing policy can negatively impact on areas such as co-ordination and decision-making. Serious attention should therefore be given to the approval and implementation of a comprehensive national housing policy that builds on the principles of sustainability, and that is well aligned to scenarios posed by current issues such as climate change.

Secondly, approved national building codes and regulations must be established and enforced in order to allow for more effective monitoring of housing sector physical infrastructure based upon accepted standards. This must however be considered in the context of revamped national housing and planning legislation. If these areas are not addressed, there will be continued challenges in pursuit of the idea of sustainable communities.

Thirdly, it is essential for the sustainability perspective that housing be placed in the context of a national long-term strategic spatial development plan that integrates housing with other sectors. In this way, the context will be well set for a more holistic approaching providing quality, affordable housing in safe well-serviced coastal and hinterland communities.

WATER AND SANITATION

Water and sanitation is a key strategic priority area focus to any country's pursuit of environmental sustainability. To this extent, PAHO/WHO identified water and sanitation as an area that can directly impact on the goal of promoting safe, resilient, healthy communities. In the context of strengthening health systems to achieve universal health, PAHO/WHO under its 2016-2020 country co-operation strategy for Guyana singled out as a focus area the issue of improving access to quality water and sanitation (PAHO/WHO 2017).

SECTOR PROFILE

Administratively, the responsibility for water, sanitation and sewerage services in Guyana is largely that of the Guyana Water Incorporated (GWI). This entity is a Government of Guyana solely owned Public Corporation whose mission is directed towards equity of services of potable water with the highest quality standards at affordable rates and the furtherance of government's policy regarding watershed management. (GWI Business Plan, 2017)

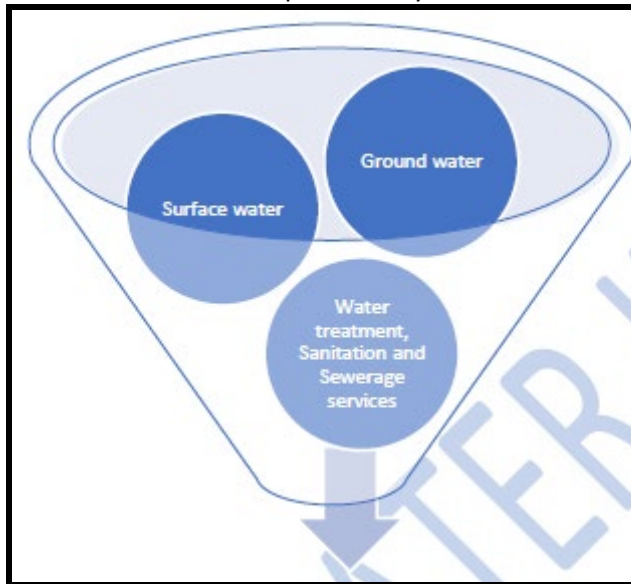
The principal partners in water management can be named as:

1. The Ministry of Communities – the responsible government Ministry
2. The Guyana Water Incorporated – the water and sanitation service provider
3. The National Drainage and Irrigation Authority – a key partner agency dealing with surface water management
4. The water users – domestic, commercial, industrial and agricultural users of service provided.

As illustrated in Figure 3:17, there are three perspectives to the mandate of the GWI. These are:

- Surface water management
- Ground water extraction
- Water treatment, sanitation and sewerage services.

Figure 3.17: Water production, distribution and sewerage and sanitation services provided by GWI



Source: GWI Water and Sanitation Business Plan 2017-2021 p. 2

The Legal Framework

The Water and Sewerage Act (2002) is the main governing legislation governing the use and regulation of Guyana's water resources. Additionally, and specifically in terms of regulating the water sector there is also the Public Utilities Act, Cap. 25:01, Laws of Guyana. The sub-section on extractive sectors also discusses some aspects of water.

The Water and Sewerage Act provides for the incorporation and functioning of the Guyana Water Incorporated as the authority responsible for water supply and management in Guyana while under the Public Utilities Act, the Public Utilities Commission (PUC) performs duties as the regulator of water as a utility.

Given the integrated nature of water management, the GWI operates within a wider legal framework in which the following pieces of legislation are relevant:

- The Environmental Protection Act, Cap. 20:02 Laws of Guyana
- The East Demerara Conservancy Act (1935 revised in 1988)
- The Creeks Act, Cap. 50:04 Laws of Guyana
- The Municipal and Districts Council Act, Cap. 28:01, Laws of Guyana
- The Mining Act Cap. 65:01 Laws of Guyana
- The Sea Defence Act, Cap. 64:02 Laws of Guyana
- The Drainage and Irrigation Act, Cap. 64:03, Laws of Guyana

- The Town and Country Planning Act, Cap. 20:01, Laws of Guyana

The Policy Context

In addition to what is discussed under the Extractive Sector with specific reference to water, GWI has in place a set of operational policies pertaining to several areas of operation, such as:

- Service delivery
- Improving hinterland water supply
- Greater use of surface water in order to conserve and balance the use of ground and surface water sources with appropriate treatment to meet water quality and demand
- Protection of watersheds.

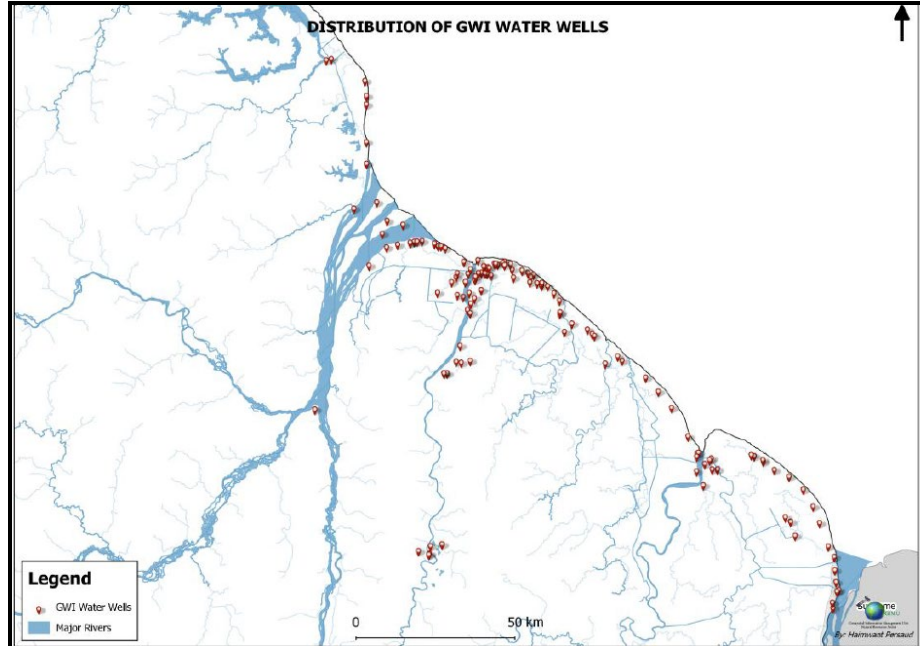
On the issue of sanitation, while there is no single integrated national sanitation policy, GWI is committed to improving the operational efficiency of sewerage pumping stations under the Georgetown Sanitation Improvement Programme (GSIP). In this context there is need to note the following:

1. GWI currently operates twenty-four sewerage pumping stations in Georgetown under the Georgetown Sanitation Improvement Program (GSIP) and 12 for the Urban Sewerage and Water (USWS).
2. GWI operates and maintains two interconnected sewerage systems in the City of Georgetown. One system serves Central Georgetown while the other serves the Tucville community.
3. There are plans to build two additional sewerage plants in Georgetown during the period 2018-2021 (GWI Water and Sanitation Strategic Plan, 2017).

In terms of ground water demand, coastal Guyana presents the greatest challenge since with the exception of Georgetown, the country's coastal population is heavily dependent on ground water resources to service its domestic, commercial and industrial needs. Most of GWI's water infrastructure is therefore concentrated along the coast. This includes one hundred and twenty-five (125) wells distributed across Administrative Regions 2, 3, 4, 5 & 6. Map 1 shows the distribution of GWI wells along the coast.

Given this current situation along with planned interventions, there will be need to carefully measure operating efficiency. However, one key problem in this area is the lack of data. The discharge of waste water directly into the rivers is also an issue that requires attention from an environmental management perspective.

3.18: Location of Guyana Water Inc. wells along the coast



Source: State of the Environment Report, pg. 218 E.P.A 2017

Along the coast, ground water is predominantly used for potable water supply. With the majority of wells and greatest demand in this area, there is the likelihood that pollution or decline in the volume of water can cause some degree of conflict; a point noted in Guyana’s State of the Environment Report, 2017. Conflicts may also arise along the Coast between the private supplier (GWI) and private users of the aquifer system in relation to the over abstraction of ground water resources. There is need for clear policies to address matters of this nature.

Institutional Structure and Inter-sectoral co-ordination

Guyana Water Incorporated (GWI) was created in 2002 under the Water and Sewerage Act of Guyana and serves as the Public Supplier of water and sewer services in Guyana under a license issued by the government and functions under the ministerial control of the Ministry of Communities. Its service standards and rates are monitored and regulated by the Public Utilities Commission (PUC), which sets its tariffs or charges for consumer water and sewerage services. The Minister of Communities is required to present GWI’s Annual Report to Parliament by the ninth month each year in a report to the sole shareholder (government) on behalf of the citizens of Guyana. Its functions and responsibilities are administered by a Board of Directors comprised of persons appointed by the Government of Guyana and the day-to-day administration is the responsibility of the Managing Director with the Corporate Management Team (CMT) comprised of various Executive Directors, in addition to managers, supervisors and non-management personnel. (Water and Sanitation Strategic Business Plan 2017-2021, GWI)

Co-ordination or collaboration in the water and sanitation sector happens at two levels:

- a) The supranational level
- b) The national level

At the supranational level, there is collaboration for example at the level of the Amazon Co-operation Treaty Organisation and cooperation under the Cartagena Convention for the protection of the wider Caribbean from land-based pollutants. At the level of Caricom, cooperation in the sector is focused on regional approaches to water management in the context of climate resilient infrastructure.

In the context of local level coordination, GWI seeks to advance its coordination with several agencies that require water as an essential utility. These agencies include:

- The Central Housing and Planning Authority
- Commercial business entities
- Private housing developers
- Municipalities and Local Authorities
- The Fire Service
- The National Drainage and Irrigation Authority

Essential to the issue of coordination is the timely sharing of information and this has been a problematic area over the years. This lack of timely sharing of information affects the quality of coordination and decision-making and can lead to a waste of time and resources. For example, there are cases whereby GWI attempts to install water supply infrastructure in a new housing scheme can be affected by the untimely sharing of information on new drainage or road construction works. In situations such as this, there is always the risk that projects can experience both time and cost overruns at the implementation stages.

In response to the lack of coordination as a risk factor, the possible establishment of a National Water Council may help in terms of bringing relevant agencies together under one 'umbrella' to give more focused attention to the idea of coordination.

OPERATIONS

In recognition of the societal importance of water and sanitation, there are plans to further invest in this sector in order to address gaps in the range of service delivery and attain a higher level of operational efficiency.

Based upon the Water and Sanitation Strategic Plan 2017-2021, Government investment for water and sanitation is estimated to increase to US \$30 million or 0.2% of GDP by 2021 (GWI 2017). In addition to Government, other infrastructure funding sources to support the Company's operations are:

- Revenue from operations
- Donor support funding through agencies such as the IDB and the European Union

While there is in place an extensive coastal water supply infrastructure, there are several inefficiencies that present themselves as gaps in the areas such as revenue collection and this may pose a risk to the financial sustainability aspect of service provision. There are also service provision gaps due to the fact that several hinterland areas do not receive water and sanitation services. To address these gaps, two priority investment areas were identified:

- New meters to improve billing and address revenue gaps due to unmetered accounts, and

- Expand hinterland coverage to narrow the gap in terms of the spatial articulation of water and sanitation services in Guyana.

When examined in the context of related overarching strategic priorities of the Ministry of Communities, and once the identified gaps are addressed, the outlook for water and sanitation appears very good.

To address operational challenges in the area of water and sanitation, two key strategic objectives identified were the promotion of water resources management and the promotion of integrated solid waste management. In the area of water resources management, key identified activities were the resuscitation of a National Water Council; the updating of water quality regulations; the increase of treated water coverage and the review and update of the draft integrated water resources management policy and road map.

In relation to the promotion of integrated solid waste management, three prioritized activity areas were the completion and implementation of a national solid waste management strategy; the preparation of regional solid waste and wastewater management plans and the design and construction of sanitary landfill sites. These strategic objectives and planned activities are summarized in Table 3.21.

Since operational management in the water and sanitation sector is not just purely a centralized activity, the achievement of the stated strategic objectives and execution of planned activities must be supported by investing in human resource and management capacity at both the central and regional/local levels of operation. In this regard, it will also be strategically important to develop a high sense of awareness of the sector’s objectives and planned activities with both the national level stakeholder agencies, such as the Central Housing and Planning Authority, and the various Regional Councils, Municipalities, and local Neighbourhood Democratic Councils.

Table 3.25: Water and Sanitation: Strategic objectives and planned activities

Strategic Objectives		Planned activities
a)	Promote water resources management	<ul style="list-style-type: none"> • Resuscitation of a National Water Council • Protection of Dakoura Creek watershed • Updating water quality regulations • Reduction of non-revenue water and improve energy efficiency • Increase treated water coverage • Installation of new mains • Review and update the draft Integrated Water Resources Management policy and road map
b)	Promote integrated solid waste management	<ul style="list-style-type: none"> • Complete and implement a national solid waste management strategy • Prepare regional solid waste and wastewater management plans • Design and construct sanitary landfill sites

Source: Ministry of Communities, 2018

Monitoring and Evaluation (M&E)

While it is obviously clear that monitoring and evaluation is key to the efficient and effective management of the water and sanitation sector, one key issue in this area is that of lack of data. This is important so that more evidenced-based considerations can be factored into the decision-making process.

Although it was noted that GWI currently has a dedicated unit tasked with monitoring performance criteria, there are challenges to the agency's ability to do proper monitoring and evaluation due to the data issue. As a consequence, the effectiveness of monitoring and evaluation as a decision-making and planning support tool is significantly compromised.

Additionally, while it has been recognized that monitoring and evaluation must best be applied to water resources management as an integrated process among different stakeholders. However, a review of the efforts expended on Water Resources Management revealed that there were no structured processes for coordinating the activities of the various stakeholders (GWI, 2017).

In terms of indicator-based monitoring, PAHO/WHO (2017) identified two basic indicators that can be applied to operations monitoring in the water and sanitation sector. These are:

- Population using improved drinking water
- Population using improved sanitation.

These indicators will allow for assessment of progress made in pursuit the goal of promoting safe, resilient, healthy communities. Both of these indicators are well aligned to GSDSF focus on health promotion.

Monitoring support from PAHO/WHO will take the form of conducting reviews of the status of water supplies and sanitation services in health facilities.

To mitigate against the risk lack of data poses to effective monitoring and evaluation, emphasis must be placed on creating and maintaining national data bases that providesadequate and up-to-date information for research and M&E for sound water resources management.

PROBLEMS/CHALLENGES

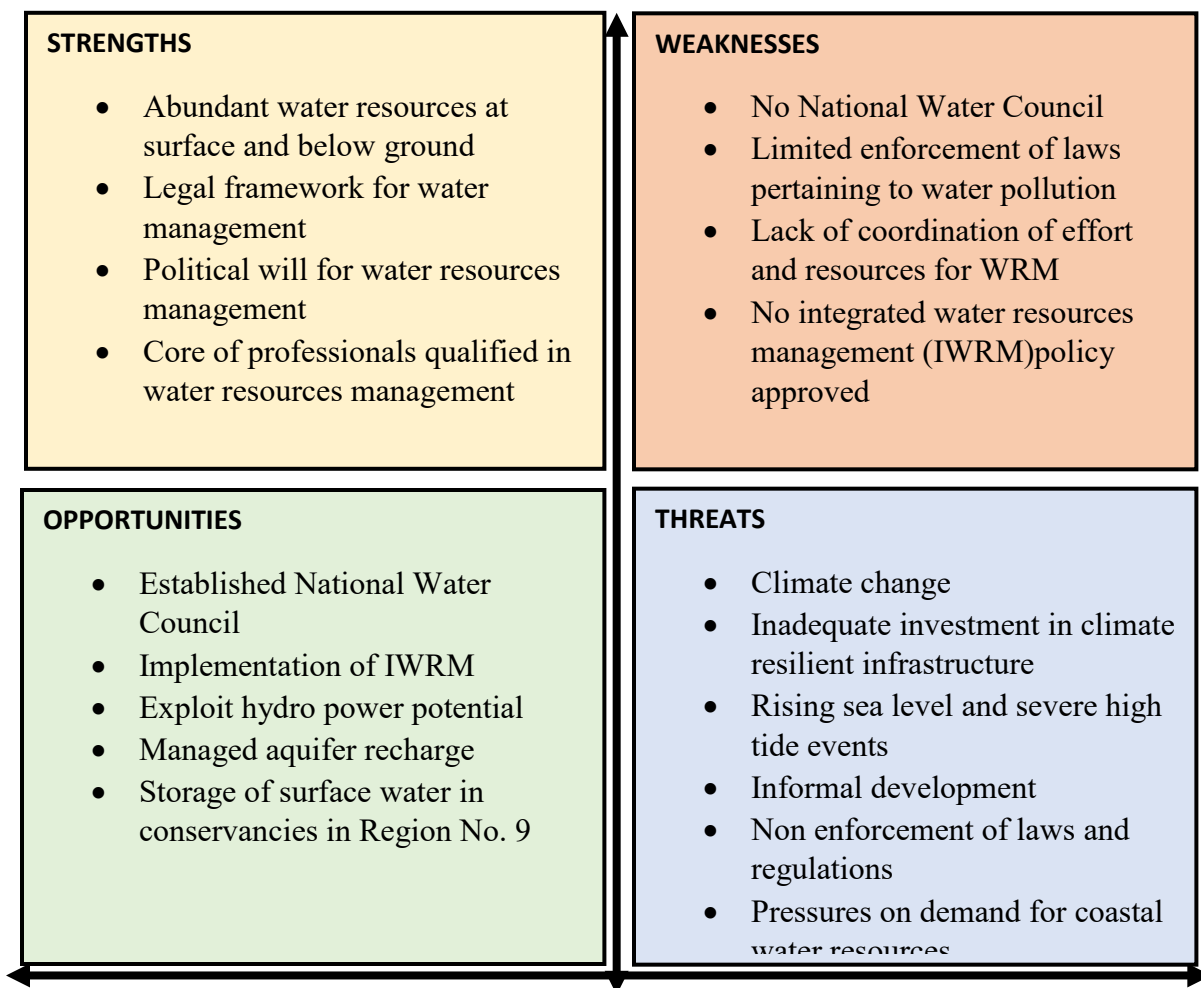
While there is a positive outlook for the water and sanitation sector in Guyana based on strengths such as having an abundance of water at surface and below ground, effectively aligning this sector to Guyana's emerging GSDS must confront certain problems or key weaknesses, foremost among which is the lack of co-ordination of effort and resources for water resources management and the absence of an approved policy for integrated water resources management.

In response to certain institutional gaps in the sector, the intended establishment of the National Water Council is an opportunity that can potentially bring significant benefits to the sector, particularly in the areas of decision-making co-ordination and management oversight. In all of this, there is however need to be aware of certain threats posed by climate change, the non-enforcement of laws and regulations and the growing pressures on the demand for coastal water resources.

The issue of regulation and enforcement of regulations is particularly important in view of growing trends of the abuse of the use of water resources and the perpetual problems associated with bad sanitation practices.

Figure 3:19 summarily illustrates the strengths, weaknesses, opportunities, and threats in the area of water and sanitation.

Figure 3.19: Water and Sanitation Sector SWOT analysis



Source: GWI, 2016 & author's insertions

ISSUES

The Guyana Water Incorporated (2018) identified three key water and sanitation issues and related response gaps. These issues are:

- Management of underground aquifers
- Protection of watersheds from pollution
- Treatment of waste water in the city and towns

While these issues are of a practical/environmental nature, there are also additional key policy-related and management issues such as the challenge posed to coordinated decision-making due to absence of an approved integrated water resources management policy and the effect lack of appropriate data on the ability to effectively monitor and manage operations.

Specifically, in relation to the collection and treatment of sewage from all source, the State of the Environment Report concluded that Guyana lacks a system to fully collect and treat sewage from all sources (EPA 2016); a critical issue to be addressed within Guyana’s waste management and sanitation framework. The importance of this perspective is supported by the finding that with the exception of pit latrines, the sewage generated by 41.5% of the population requires some form of collection and disposal (E.P.A 2016).

In relation to the identified issues, the response gaps identified by were the following:

- No proper quantitative and qualitative data on these resources
- Lack of proper land use planning
- No up-to-date legislative framework to treat with integrated water resources management
- Limitation enforcement of laws pertaining to water pollution.
- Limited financial resources to design and build new treatment systems.
- Lack of system to fully collect and treat sewage from all sources.

Table 3.26: Key water and sanitation issues and response gaps

Key Issue		Response gaps
1.	Management of underground aquifers	<ul style="list-style-type: none"> • No proper quantitative and qualitative data on these resources.
2.	Protection of watersheds from pollution	<ul style="list-style-type: none"> • Lack of proper land use planning • No up-to-date legislative framework to treat with integrated water resources management • Limitation enforcement of laws pertaining to water pollution.
3.	Treatment of waste water in the city and towns	<ul style="list-style-type: none"> • Limited financial resources to design and build new treatment systems. • Lack of system to fully collect and treat sewage from all sources.

Source: Information sourced from GWI (2018) and the State of the Environment Report, 2016

RECOMMENDATIONS

As a matter of priority, urgent steps should be taken to put in place an approved integrated water resources management policy. This will surely set the stage for more integrated and coordinated decision-making in the sector. As a result, more operational sustainability can be achieved.

Certainly more institutional focus in the sector can be achieved by way of the establishment of the National Water Council. It is recommended that this initiative be pursued with a greater sense of urgency, particularly given its relevance to improving the overall decision-making environment in the water sector.

While attention to policy and institutional matters are important, the fundamental issue of developing a stronger and more effective regulatory framework in the water and sanitation cannot be understated. In this regard, there is need to develop specific regulations governing water and sanitation and to put in place systems to ensure that such regulations are effectively enforced at all levels. This is particularly important in securing environmental sustainability as the sector develops in areas with varying degrees of environmental sensitivity.

The need for effective monitoring in the sector as a mechanism for improving operational efficiency has been noted. However, a proper data base is required to provide the platform for effective monitoring and to ensure that there is an evidenced-based approach to policy and management decision-making. The improvement of the data systems relevant to the work in the area of water and sanitation is recommended as a key area of intervention.

In view of the fact that issues of water and sanitation are central to development at the national, regional and local levels of planning and decision-making, it is recommended that serious attention be given developing a stronger awareness of issues and plans at all levels and among key stakeholders. This would serve to counter the constant claim that critical information relevant to the sector is only concentrated in the central agencies; a factor that serves to limit the effectiveness of participation of other stakeholders in the work of the water and sanitation sector.

Finally, consideration should be given to the designated of protected area status to important watersheds. This must be supported with the development and enforcement of appropriate regulations to protect the defined watershed areas from inappropriate land use practices that may have potential of causing land degradation and thus impacting negatively on water quality.

4. CROSS-SECTORAL INFRASTRUCTURE DEVELOPMENT – STRATEGIC AREAS FOR INVESTMENT

4.1 Land Tenure Outlook

One of the pathways for transitioning Guyana into a Green State economy is clearly the need to build strategically on the country's natural capital assets. In this regard, the issue of land and land tenure (rights to land) are of particular significance. From this perspective, it is important to channel development under a Green State Strategy within defined ecological limits and the country's natural resource endowment (including the fundamental issue of land and the associated rights to its use). It is in this context that land tenure issues emerge as significant in the move towards a Green State.

Brief Profile of the Land Sector from a land tenure perspective:

In Guyana, the vast majority of land in the country is under State and Government ownership (80-85%). This places the Guyana Lands and Surveys Commission (GLSC), as the custodian of all State Lands, at the centre of the current institutional environment linked to land administration and land management in Guyana.

In the land sector, three forms of land tenure arrangements are applicable and these are as follows:

- Public Lands (including state lands, government lands and lands under leasehold arrangements)
- Freehold lands (held by private proprietors)

- Amerindian lands

Public land comprises several different forms of land tenure, which include leasehold land, proprietor estates, land schemes, land cooperatives/communal land, sub-let land, squatter land and unused or abandoned land. The standard 50-year lease is the main instrument for land tenure on public land (Bishop, 2003).

Public lands also include lands owned by the State and administered under the State Lands Act, Cap 62:01 Laws of Guyana. Government lands are areas of lands assigned by the State to various Government agencies for use for public purposes such as schools, transport and government administrative facilities.

Freehold lands are lands held private under two key instruments of land title, namely the Transport issued under the Deeds Registry Act, Cap. 5:01 Laws of Guyana and the Certificate of Title issued under the Land Registry Act, Cap 5:02 Laws of Guyana. Leases are also granted for private lands where the lands are under the dimensions required by the Deeds Registry Act or the Land Registry Act.

Amerindian lands are land collectively held by Amerindian communities by virtue of the Amerindian Act Cap. 29:01 under either the State Lands Act or the Land Registry Act.

Certain Government entities also have some level of authority over land for specific purposes. This includes the following:

- The Guyana Forestry Commission under the Forestry Act No. 20 of 2007 – assigns the management of lands under State Forests to the Guyana Forestry Commission.
- The Guyana Geology and Mines Commission under the Mining Act, Cap. 65:09, Laws of Guyana – assigns the management of lands for mining purposes to the Guyana Geology and Mines Commission.
- The Central Housing and Planning Authority under the Housing Act, Cap. 36:20 Laws of Guyana – provides for the Central Housing and Planning Authority to acquire and use lands for housing.

Problems/challenges

Lack of decentralized decision-making on matter of land administration

Land administration in Guyana is still very much managed from the centre based upon centralized structures of decision-making. While there were past attempts at more decentralized arrangements, such as the involvement of Regional Land Selection Committees these are now largely defunct. As a result, there is no structured arrangement for organs of local government to contribute to the land administration process.

Institutional fragmentation in the sector

Due to outdated and overlapping laws governing land in Guyana, there is the issue of institutional fragmentation affecting the work of agencies involved in the land administration process. This issue presents a coordination challenge and works to slow up the land titling process.

Unregularised unofficial land tenure arrangements

Unregularised unofficial land tenure arrangements (tenure informality) are particularly prevalent in the agricultural sector. In this regard, the ability of the occupier of plot (s) of land to pursue financing sources for further development may be affected due to lack of security of tenure or issues such as undocumented forms of 'ownership'. Tenure informality can also affect the land occupier's willingness

to invest in essential land development practices key to the prevention of land degradation for example. It is due to these considerations that land tenure regularization exercises are typically considered as a desirable form of intervention.

Amerindian lands Not Titled

The Amerindian Act has been noted for its recognition of indigenous land rights through full and absolute collective title, constitutionally guaranteed against a taking by the State, for its recognition of the collective identity of Amerindian communities, as well as for giving statutory recognition to the spiritual relationship which Amerindians have with the land in the mechanism for settling land claims (Janki, 2009).

However, although there is legislation specific to the issue of land titles to Amerindian communities in Guyana, many such communities still experience a lack of security of tenure to the lands they have traditionally occupied. According to the Ministry of Indigenous People's Affairs, there are one hundred and sixty-nine (169) Amerindian Communities, inclusive of Satellites, Settlements and Villages. However, ninety-six (96) communities have legal recognition to the lands they use and occupy¹³.

In 1996, the Government of Guyana in an attempt to address Amerindian land claims formulated a Policy after consultation with Amerindian Toshias (elected leaders) at a meeting held at Paramakatoi, Region No. 8. Coming out of this initiative, a two-phased approach was designed as follows:-

- 1) Demarcation of the existing seventy-four legally recognized (titled) Amerindian communities.
- 2) Addressing extensions of titled communities and the request for titles by those communities without legally recognized lands¹⁴

Over the years, the Guyana Lands and Surveys Commission (GLSC) has been pursuing an on-going Amerindian Land Title programme but this has not been without its challenges.

Firstly, Titling of Amerindian lands requires a commitment of a considerable amount of funds due to the remote and isolated location of many communities and logistical challenges of the land demarcation process.

Secondly, the Government of Guyana, which pays the entire cost of the demarcation and titling process, has had limited financial resources to apply to the timely execution of the surveying of Amerindian lands. Furthermore, the existing communication strategy needs to be improved to ensure that Amerindian communities are informed and aware of the benefits of demarcation and titling. In the event of a dispute, there is no established alternative dispute resolution mechanism. However, the Amerindian Act provides for communities that are not satisfied with the outcome of their application to challenge the decision in court (UNDP 2013).

Historic Tenure Claims – Ancestral Rights

The issue of ancestral rights to land was one issue noted by Mohamed (2017) as a land tenure problem in Guyana that has strong historic roots¹⁵. The nature of this problem is grounded primarily in the view

¹³ <https://mopia.gov.gy/land-tenure/>

¹⁴ <tps://mopia.gov.gy/land-tenure/>

¹⁵ Wazir, M (2017) 'Guyana Land Tenure Problems – Historic Roots' accessed on 2018-08-14 via <https://www.researchgate.net/publication/32344947/download>

of Guyanese descendants of African slaves that they have rights to lands formerly tilled by slaves, particularly in those cases where such lands are contiguous to villages purchased by slaves after the end of slavery.

Issues

One major gap in the area of land and land tenure in Guyana is the fact that there is no national land policy. Such a land policy can provide the overarching framework through which land tenure issues can be rationalized and conflicts surrounding land tenure addressed. The Land Policy will also serve as an objective guide to decision-makers tasked with discharging land administration responsibility. In 2013, the Guyana Lands and Surveys Commission developed a National Land Use Plan (Guyana Lands and Surveys Commission, 2013).

While a land tenure regularization programme was previously executed by the Guyana Lands and Surveys Commission, expectations in this area still remains high particularly among those in the farming community and the Amerindian community. However, the cost associated with land tenure regularization, coupled with a slow land titling process and problems of coordination due to overlapping responsibilities among institutions are key and critical areas for which serious attention is needed.

The effectiveness of land tenure regularization, as a response to the land tenure challenges in Guyana, is also affected by the high degree of centralization in the land administration decision-making process. Such centralization leaves little room for local community stakeholders to be actively involved in the process.

Land tenure regularization requires good data and other institutional resources. The level of institutional capacity to sustain efficiently the process is therefore a key concern. In this regard, the limited institutional capacity of the Guyana Lands and Surveys Commission for example is a major gap.

A significant issue is the process of acquisition of land through adverse possession. Presently, this is in relation to privately held land under both the Deeds Registry Act and the Land Registry Act. The acquisition of land by adverse possession has been part of the land tenure system in Guyana since titles to land were first recognised. Increasingly through decisions of the Court at all levels, the system and requirements for the acquisition of title by adverse possession are being refined.

Recommendations

The legislative environment related to the issue of land and land tenure in Guyana consists of some archaic pieces of legislation and is very much fragmented. To overcome the negative impacts of this situation a comprehensive process legislative review/harmonization should be pursued.

The development of a National Land Policy that comprehensively deals with land tenure as a policy issue should also be given priority attention. As part of this policy initiative, the issue of data sharing for effective and efficient land administration in Guyana should be addressed. Generally, land administration capacity should be strengthened.

Clearly, land tenure regularization (LTR) as a mechanism through which land property rights can be reviewed and rationalized should be continuously pursued and not just confined to sporadic intensity of effort under 'projects'. In support of this, Government must ensure that the responsible agencies have all the requisite resources to efficiently manage the process. Additionally, certain clear guiding principles, as expressed by Bishop (2003) must be applied to the process. These are:

- *Establishing rights to land*

Many individuals or organisations in occupation of public land have established rights to the land that need to be recognised and confirmed. However, some occupants do not have proper documentation of their rights or have no documentation at all. . Furthermore, many do not have a simple and transparent mechanism available to them through which they can have their rights recognised and recorded, or a means by which they can borrow against those rights, or transfer them easily or cheaply.

- *A transparent mechanism for resolving disputes*

The most difficult issue in LTR is competing claims for specific parcels of land. These must be resolved in a manner that is satisfactory to and binding on both sides.

- *Public and open process*

Public information should be based on two types of activity: firstly the distribution of written information and personal consultation; and secondly through open public meetings. The more information and participation provided to the public, the fairer and more sustainable the process will become. In essence, the process should be fully participatory based upon the public availability of information and consultations.

Initiatives at improving land tenure security will also be of relevance to the agricultural sector since secured land tenure arrangements can be an incentive to invest and thus positively influence food production. This perspective was highlighted in the National Strategy for Agriculture, which recommended improving land tenure as an approach to increase food production in the country.

Current issues of ‘ancestral lands’ and land rights of Guyana’s indigenous peoples can also be addressed under the land tenure regularization initiative.

In consideration of the possibilities for more effective and efficient decision-making through decentralization, consideration should be given to developing Regional level land administration capacity, in the context of a more decentralized approach to land administration.

4.2 Transport Infrastructure Outlook

Sector Profile

The transport sector consists of a totality of physical facilities for land, air and water transport in Guyana. This includes terminals, fleets and ancillary equipment of all the various modes of transport operating in Guyana. Included in the sector are the transport services, transport agencies providing the services, the organisations and people who plan, build, maintain, and operate the system, and the policies that mould its development (National Development Strategy 2001).

It must be noted that the transport sector – land, air and river/marine represents a very important component of our country in terms of its socio-economic impact on national development. In this regard, issues such as traffic management, safety, and technological advancement and fuel costs are important considerations.

Regarding the socio-economic impact of the transport sector on Guyana's development, one of the most fundamental attributes of the sector is the ability to move persons, goods and essential services between spatial locations at the local, regional and international levels. Other sectors such as mining, manufacturing, trade, tourism and agriculture, which are critical to Guyana's growth and development, depend upon transportation. Without adequate transport infrastructure to facilitate the movement of people and goods, economic and social benefits will be limited and Guyana's economic and social development negatively affected.

The Legal Framework applicable to the Transport Sector

While there are several pieces of legislation that are applicable to the transport sector's legal framework, the principal legislations are:

- **The Roads Act Cap. 51:01 Laws of Guyana**
This Act explicitly sets out to make provision for the construction and maintenance of public roads in Guyana. The responsibility for the administration of this legislation is that of the Ministry of Public Infrastructure.
- **The Guyana Shipping Act Cap. 49:01 Laws of Guyana**
This Act provides for the regulation of ships, and the property therein and owners thereof, the behavior of the master and mariners and their respective rights, duties, and liabilities as regards the carriage of passengers and goods by ships, collision between ships, salvage, rights, liabilities, claims, contracts, and matters arising in respect of ships and for matters connected therewith and incidental thereto. The responsibility for the administration of this legislation is that of the Maritime Administration Department of the Ministry of Public Infrastructure.
- **The Civil Aviation Act No. 10 of 2000**
The Civil Aviation Act provides for the establishment of the Guyana Civil Aviation Authority as the regulatory body with responsibility for regulating air traffic in Guyana. It is an Act 'to make provision in respect of the regulation and control of civil aviation in Guyana and for purposes connected therewith'.

Other legislation relevant to the operation of the transport sector are:

- **The Motor Vehicles and Road Traffic Act Cap. 51:02 Laws of Guyana**
This Act provides for the licensing, regulation and use of motor vehicles, the regulation of traffic on roads and otherwise with respect to roads and vehicles thereon. The duty of enforcing the specific provisions of this Act is that of the subject Minister.
- **The Public Lands (Private Roads) Act Cap. 62:03 Laws of Guyana**
This is an Act to enable persons to construct and maintain roads for mining, woodcutting, and other purposes on Public Lands, and to impose and recover, subject to certain conditions, Tolls for use by other persons of such roads. The duty of enforcing the provisions of this Act is that of the subject Minister.
- **The Municipal and Districts Councils Act Cap. 28:01 Laws of Guyana**
An Act to make provision for Local Government in the City of Georgetown and the Town of New Amsterdam and in other areas of Guyana. The duty of carrying out the provisions of this Act is that of the Minister of Communities.

- The DemeraraHarbour Bridge Corporation Act No. 2 of 2003
This is an Act to establish the DemeraraHarbour Bridge Corporation. The provisions of this Act are carried out by the DemeraraHarbour Bridge Board.
- The Berbice Bridge Act No. 3 of 2006
This is an Act to make provision for a privately financed Berbice River Bridge and to confer regulatory authority to the Minister responsible for Public Works and for matters incidental thereto and connected therewith. The duty of carrying out the provisions of this Act is that of the Minister and the Concessionaire (the Berbice Bridge Company).
- The Environmental Protection Act No. 11 of 1996 Laws of Guyana
This Act provides for the management =, conservation, protection and improvement of the environment, the prevention or control of pollution, the assessment of the impact of economic development on the environment, the sustainable use of natural resources and for other matters incidental thereto or connected therewith. The Environmental Protection Agency of Guyana has the responsibility of carrying out the provisions of this Act.
- The Town and Country Planning Act Cap. 21:01 Laws of Guyana
This is an Act to make provision for the orderly and progressive development of Land, Cities, Towns and other areas, whether Urban or Rural, to preserve the amenities thereof, and for other matters connected therewith. The responsibility of carrying out the provisions of this Act is that of the Central Housing and Planning Authority.

The Policy Context

There is no overall coherent transport policy to guide the development of Guyana’s transport sector. As noted in Guyana’s Transport Sector Study (2005), a focused vision is needed to ensure that the changes being made to the transport system are consistent with one another, that they are in accordance with national objectives, and that they will help meet the future needs of the country as the economic environment and trade relations change.

In the absence of an overarching transport sector policy, certain clear policy directions can however be pinpointed:

- Regional Integration – efforts to integrate the local transport network with that of neighbouring countries.
- Modal integration and interconnectivity – the integration of different public transport modes (mini bus/riverain transport; air/road transport)
- Urban transport planning –specific interventions aimed at improving the levels of efficiency and safety of the urban transport system in line with sustainability goals.
- Public-Private Partnership – brokering partnership agreements between the public and private sectors entities in the development of Guyana’s transport system. In this regard, a public/private partnership policy framework specific to the needs of transport sector was recently approved by the Cabinet (Thompson, 2018)
- Subsidies –the application of user subsidies as in the case of the public use of the DemeraraHarbour Bridge for example.

In addition to the policy direction herein outlined, the Government of Guyana is also pursuing the Sustainable Transport Sector Plan (STSP) 2016-2026. This is intended to be one of the key economic infrastructure plans to support the socio-economic development of Guyana. This Plan is also in line with the sector-wide planning approach adopted by Government to provide a coordinated and cohesive

planning framework that enables a broader Government perspective in the prioritization and funding of investments in the transport sector. This approach is supported by a consistent policy and regulatory regime that ensures efficiency, safety and sustainability in the construction, maintenance and use of physical transport infrastructure and services (Ministry of Public Infrastructure 2016).

Institutions

The Transport sector is principally managed by the Ministry of Public Infrastructure. This Ministry is the country's epicenter of engineering and technical excellence. Its key responsibilities, among others, include the planning, creation and maintenance of major public civil works infrastructure throughout Guyana¹⁶. The mission statement of this Ministry is: to plan, build and maintain a reliable, safe, efficient and cost-effective Main Road Network and Sea and River Defense system to protect life and property; support the movement of people, goods and services; reduce the cost of transportation; promote economic growth and quality of life and protect the environment'.

The work mandate of this Ministry is delivered through the following Departments:

- Civil Aviation
- Work Services
- Maritime Administration
- The Central Transport Planning Unit

Specifically, in relation to the management of Guyana's sea and river defences, the Sea and River Defence Board plays a critical role. However, co-ordination in other areas of work is achieved primarily through mechanisms such as inter-ministerial protocols and inter-agency representation on state boards.

There are also institutional and operational links between the transport and tourism sector. However, issues of coordination affect to effective and integrated manner in which these two sectors ought to operate. In this regard, the development of the National Tourism Policy can serve to provide a better institutional context for more effective co-ordination of work in the tourism sector with that of the transport sector, other agencies and Ministries.

Operations

The financing of transport sector operations is catered for primarily through national budgetary allocations to the Ministry of Public Infrastructure. In year 2018 for example, the sum of \$35 billion was allocated to support infrastructure development across the country. More specifically, the sum of \$14.3 billion was allocated for the construction, rehabilitation, upgrading and maintenance of the road network (Minister's Budget Speech, 2018).

¹⁶ <https://mopi.gov.gy/about-us>

Donor support

The level of investment needed in the case of road development as one key area of focus in the transport sector is overwhelming. In this regard, it is expected that government will seek donor support in order to boost its financial readiness to implement its sector development plan and thereby fill funding gaps. The areas of river and air sub-sectors for example play a key role in the national economy and supporting tourism, mining, and logging. However, some of the infrastructure required to support these sectors have been underfunded for many years, resulting in a state of disrepair. Donor support in these cases of local financial limitations helps to overcome the funding gap and ensure project completion and implementation.

The Inter-American Development Bank (IDB) is the largest donor in the country, with an active programme of loans, technical cooperation, studies and technical advice to government (IDB 2014). In this context, some of its interventions in support of the transport sector include improving the regulatory capacity to enforce standards and a market demand study of the Linden to Lethem road corridor.

One example of a major donor intervention by the IDB in Guyana's transport sector was the recently completed Transport Infrastructure Rehabilitation Programme, which included the rehabilitation of existing structures along the main roads, improving road safety conditions and contributing to the management and maintenance of infrastructure by implementing both pavement and bridges management programmes. The level of investment was US\$27 million¹⁷.

In other donor support scenarios, the IDB's involvement was aligned to the execution of projects such as the east bank four-lane extension project; the preparation of a National Aviation Master Plan; and various other road network upgrading and expansion projects. The key objectives underlying the IDB's transport sector donor support were:

- a) Support the shift from rehabilitating the road system to expanding its capacity;
- b) Improve urban transportation in a sustainable manner; and
- c) Align legislative, operational aspects, and the restructuring of the sector to improve its efficiency.

An assessment of the current realities in the transport sector clearly points to the continued relevance of these objectives in the present context.

Table 4.1 provides an overview of the IDB's involvement in operations of the transport sector during the period 2006-2016. In the case of the Caribbean Development Bank (CDB), recent donor support for the transport sector was centred on the following areas:

- Construction of community roads
- Improving the West Coast Demerara public road (30.7 kilometers of highway from Vreed-en-hoop to Hydronie)
- The rehabilitation and maintenance of 240 roads across a number of communities.

¹⁷ <http://competecaribbean.org/wp-content/uploads/2016/01/DMX-Guyana-2014.pdf>

Road maintenance under the CDB support was tagged at US \$ 16.4 million¹⁸. The Government is also pursuing support to the tune of US \$ 15 million from the CDB to support the upgrade of aerodromes and airstrips across the country (Minister of Finance Budget Speech 2017).

Recognising the need to make much-needed improvements to the wharfs, stellingings and other points linking the country's major rivers, as well as upgrading roads (See Figure 4.1) and facilities in key towns along the water-routes, the Caribbean Development Bank is also rendering financial support to these projects¹⁹.

While it is clear that donor support has a critical role to play in the development of Guyana's transport sector, it is important as well that greater attention be given to the effective monitoring of projects in order to safeguard quality and ensure that stated projects outputs are delivered with efficiency (being on time and within budgets). Additionally, in its 2016 country evaluation the IDB noted that there was little progress with respect to restructuring the transport sector or improving urban transport in a sustainable manner (IDB 2016). In 2018, this situation remains largely unchanged, except for the conduct for the sustainable urban transport study.

Table 4.1: IDB's involvement in operations of the transport sector, 2006-2016

Objectives for continued strategic dialogue:	1. Support the shift from rehabilitating the road system to expanding its capacity. 2. Improve urban transportation in a sustainable manner. 3. Align legislative regulation, operational aspects, and the restructuring of the sector to improve its efficiency.				
	Operation name	Type	Approval year	Amount (US\$)	Percent disbursed
	Transport Infrastructure Rehabilitation Program	IL	2006	24.3 M	100%
	Road Improvement and Rehabilitation Program	IL	2009	24.8 M	83.7%
	East Bank Demerara Four Lane Extension	IL	2010	20 M	100%
	Road Network Upgrade and Expansion Program	IL	2012	66.2 M	2.1%
	Support to the Road Improvement and Rehabilitation Program	TC	2009	600,000	100%
	Support to the Road Improvement and Rehabilitation Program	TC	2009	400,000	100%
	Support for Road Network Upgrade and Expansion Project	TC	2011	1 M	100%
	Expansion of Preinvestment Program for Georgetown-Lethem Hwy	TC	2011	360,000	100%
	Guyana - Brazil Land Transport Link and Deep Water Port	TC	2013	1.5 M	18.4%
	Support for a National Aviation Master Plan for Guyana	TC	2016	500,000	0%

Source: IDB 2016

Monitoring and Evaluations Systems

¹⁸ <http://www.caribank.org/uploads/2012/05/CDB-guyana-SDFU.pdf>

¹⁹ <http://www.caribank.org/uploads/2012/05/CDB-guyana-SDFU.pdf>

In both the transport and tourism sectors there is a lack of effective monitoring and evaluation. This is tied primarily to two key areas of weaknesses:

- a) Lack of adequate data; and
- b) Lack of an integrated policy framework.

Additionally, there is need at all levels to build the institutional capacity for research and development to better support arriving at a stage where there is very effective monitoring and evaluation.

PROBLEMS/CHALLENGES

While one may recognize certain strengths in the transport sector such as a prevailing long-standing institutional framework appropriate to the needs of the sector and dedicated technical staff, there are certain notable weaknesses. These include:

- Outdated laws
- Lack of policy
- Poor infrastructure maintenance
- Limited finance
- Lack of a comprehensive integrated national spatial development plan

The combined effects of these problems pose serious challenges for the development of transport infrastructure in Guyana. However, once addressed in a sustainable manner, several opportunities are possible.

These include:

- Economic growth through inter-regional trade
- Increased production
- Enhanced tourism potential
- Regional integration.

Certain threats may however be encountered in pursuit of development opportunities in the transport sector. Some of these threats may be:

- Failure of the part of stakeholders to agree and policy and plan issues.
- Weak institutional capacity to support policy and planning agenda.
- Inappropriate and outdated legislation (transport sector)
- Lack of private sector support
- Limited sources of funding
- Impact of climate change
- Unregulated implementation environment (need for appropriate technical regulation of transport operations).
- Abuse of monopoly by certain transport enterprises, whether state or private

Transport Sector Issues and Gaps

From an investment standpoint, there is need to note that infrastructure investment in the road sub sector has been largely left to the Government while investments (infrastructure and services) in the air

and river/marine sub sectors are dominated by the Private Sector. This includes the speed boat and air/charters operators (Thompson, 2018).

The magnitude of the investment needed in the road transport subsector is overwhelming. Due to limited resources, the Government is unable to undertake these massive investments. There is scope for private investment in other modes of transport, namely in railways and bridges, and to a limited extent in road transport also. Private sector investment is encouraged to supplement the Government's effort through concessioning the construction and operation of new transport infrastructure, with participation of both domestic and foreign investors. However, the legal/regulatory framework for private sector involvement is weak.

An arrangement, as described above, allows for private investors to build and operate infrastructure facilities, to recoup their investment and make reasonable profits. Allowing such a policy to prevail will materialise in more roads and allied transport networks, thus relieving the communication bottlenecks considerably (Ministry of Public Infrastructure 2016).

While the transport sector is somewhat integrated, network limitations affect the full integration and optimal working of the system. These limitations affect for example the efficiency with which the road transport system can be integrated with the air transport system.

The effectiveness of the transport sector is also affected by a lack of regulations. In this context, there is need to note that many of the Laws governing the sector are outdated and in need of comprehensive overhaul. This regulatory perspective is particularly important in view of the fact that most of public transport provision is through the private sector.

Maintenance issues are also critical. In the case of road transport, there is a persistent heavy financial cost associated with the maintenance of the road network, particularly the hinterland road network. Similarly, the cost of maintain and upgrading rural aerodromes is also significantly high. The 2005 Transport Sector Study for example concluded that: *'it is clear that the funds being made available for road maintenance are grossly inadequate. Despite the recent rehabilitation of much of the primary network, there must remain serious concern about the capacity to continue high-quality maintenance in future. This is related not to the technical capacity of the new institutional arrangements, which indeed represent a great improvement, but to the fear that funding for routine maintenance will continue to be insufficient. Current expenditure on maintenance has remained far below optimal levels, and it seems clear that it will remain difficult to secure the necessary funding in future'* (Guyana Transport Sector Study 2005).²⁰

In terms of airport development, two key issues noted in the Transport Sector Study, 2005 were:

- The possible establishment of a separate air transport safety authority;
- The most appropriate vehicle for regulating air navigation services;

²⁰While the 2005 Transport Sector Study is dated, during an interview with the Chief Transport Planning Officer on June 20, 2018 it was indicated that the findings of this study are still of relevance.

The port sector is not fully efficient and for this efficiency to be attained, it was suggested in the Transport Sector Study (2005) that a Port Council be established for Georgetown and that there was need for better co-ordination of port operations and development planning and a need for better liaison between MARAD and private port operators.

These issues all have the potential to affect the attainment of a fully integrated transport system. In terms of response, there is need to note that many of the sector priorities identified in the Guyana National Development Strategy (2001) are still relevant. These are:

(a) Road

- Construct a national road network which would provide the basis for the economic development of the whole country, and assist in the attainment of its social integration.

(b) Air

- Improve the standard of living and the quality of life of Guyanese (through international and domestic services);
- Enhance penetration into the country's interior;
- Provide facilities to enable easy (access to and from) the interior in times of emergency; and
- Assist the tourism industry.

(c) Marine

- Promote reliable and efficient maritime transport in the coastal and riverine areas of the country;
- Ensure that facilities and services (at ports and harbours) optimise the export and import of all types of commodities from and into Guyana.

Investment Plans

In order to address major transport sector issues and gaps, the Ministry of Public Infrastructure (2017) developed a 2017-2025 infrastructural development plan. This multi-faceted plan covers the following areas:

- Urban and suburban transport development
- Hinterland Roads and Bridges
- Sea Defence, Stellings and Ports
- Aerodromes
- Energy
- Expansion of urban administration outside Georgetown

Of significance as well is the expression by Government of supporting a mass public transport system by introducing a rail connection along the east bank corridor as an alternative means as accessing the city and the international airport.

The specific projects comprising this infrastructural development plan are indicated in **Annex 11**.

Measures to promote sustainability

Sustainability is a major issue in the transport sector and it has been recognized that the key to sustainability in the transport sector is to ensure that adequate funds are available for maintenance of infrastructure and equipment. The lack of maintenance funding is acute in the road and river / ferry sectors (Transport Sector Study 2005). Of significance as well is the task of ensuring that the design process embraces principles of sustainable design and secondly there is need to ensure that decision-making in the transport sector is well coordinated and integrated. It is in this regard that the relevance of the Sustainable Urban Transport Sector Study for Georgetown must be noted. The objective of this study was set out as follows:

“... to conduct a comprehensive urban study aimed at improving mobility in and around Georgetown. The study will provide specific recommendations and options to allocate road space more efficiently among users and to increase the use of cleaner and more sustainable transportation modes, such as, public transportation and non-motorized modes. It will develop a specific diagnostic of the urban transport situation, problems and trends, and provide recommendations on matters of public transport infrastructure, operations, financing and institutional organization. The study will support the design of a public transport system, to provide users with a safe, efficient, clean and affordable service”(Sustainable Urban Transport Study for Georgetown 2017)

From an environmental perspective, there is no system in place to monitor emissions from motor vehicles. These emissions can affect air quality and monitoring supported by appropriate regulations is an essential control mechanism.

Recommendations

In the context of the defined issues, one key high-priority recommendation is that urgent emphasis must be placed on the issue of policy development to guide future operations of the transport sector along more integrated and sustainable lines.

Secondly, the laws governing the sector must be reviewed and be brought more in line with modern approaches to transport infrastructure planning and administration. Concurrent with this is the need to address the regulatory gaps in the sector, particularly as this relates to private transport service providers.

Careful long-term planning that links transport to broader strategic spatial land use considerations is essential. Through this process, issues of long-term sustainability can be addressed. In this regard, the 2017 Sustainable Urban Transport Study for Georgetown can be regarded as a step in the right direction.

Finally, the financial requirements for transport infrastructure development must be addressed as part of a long-term plan for the sector. In doing this, opportunities for public/private partnership should be considered. **See Annex 12 for Key Future Transport Sector Projects.**

4.3 ICT and Services

Information and Communication Technology is specifically related to target area 6 of the GSDSF specifically under the heading of Knowledge Management, Information and Communications (GSDSF, 2017, pp.43-44). The Ministry of Public Telecommunications and the Ministry of Business are the main policy institutions. It should be noted that for the GSDSF knowledge management, information and communications are seen as essential in formulating and implementing green evidence-based policy (GSDSF, 2017, p.44). As will be seen from the existing activities of the National Data Management Authority there are several of the existing goals and targets of the GSDSF that are being realised.

Legal framework

There are several laws that are directly relevant to the ICT sector in Guyana. These include, **National Data Management Authority Act Cap.27:13 (National Data Management Authority Act)** and the **Telecommunications Act, Act No. 18 of 2016 (Telecommunications Act)**. The **National and Data Management Authority Act** in addition to creating the National Data Management Authority provides the basis of managing data among public sector institutions. The objectives of the National Data Management Authority directly relevant to the GSDSF include the development of computer systems in the Public Sector to satisfy its information needs as well as the establishment and maintenance of reliable communication linkages in the Public Sector in order to achieve optimal utilisation and deployment of computer resources.

The Information and Communication Technology sector is supported by additional laws, which make provision for digital document recognition, evidence, interception and monitoring and certain aspects of consumer protection. These laws include the **Evidence Act Cap. 5:03 (Evidence Act)**, which provides for the recognition of electronic documents as part of evidence in Court proceedings; and **Consumer Affairs Act No.13 of 2011** that provides a framework for the protection of consumers in the conduct of electronic sale transactions. Electronic signatures are recognised by both the **Evidence Act** and the **Interception of Communications Act Cap. 47:03**.

Recent amendments to both the Income Tax Act by the **Income Tax (Amendment) Act, Act No.3 of 2018** and the **Value Added Tax (Amendment) Act, Act No. 2 of 2018**, which amended the Value Added Tax Act to both, allow for information technology to be used to support compliance with the respective taxing statute. Planned lawstonote include the **National Payment System Bill 2018** which was published in the Ofáicial Gazette on the 24th May, 2018 (Official Gazette, 2018), and the Cyber Security Bill which was first published in the Official Gazette of 2016 (Official Gazette, 2016).

Policy

There is no national ICT Policy. The planned actions and interventions are targeted and focused.

Institutions

The divisions of the National Data Management Authority (National Data Management Authority, 2018a) include:

- Research and Development.
- e-Services Division.
- Policy, Planning and Training Division.
- Community Development and Social Management Division.
- Infrastructure Division.
- Cybersecurity Division.

Strategies and Plans

There are several strategies and plans for the ICT sector through the programme performance statements of the Ministry of Public Telecommunications. The Programme Objective stated for the Ministry of Public Telecommunications has been stated to be *“To establish ICT systems which allow for*

the smooth and effective IT functioning of all Government Agencies and Ministries in the delivery of services to the public.” (Ministry of Finance, 2017a, p. 157). It is observed that the budgetary estimate for the Ministry of Public Telecommunications has increased to \$4,394,693,000 for 2018 from the revised estimate of \$1,923,104,000 for 2017 (Ministry of Finance, 2017b, p. 114). This can be viewed as an indication of priority placed on information and communication, technology.

Telecommunication companies and the use renewable energy technology for isolated areas

Telecommunications companies in Guyana have commenced using renewable solar energy technology in isolated areas of Guyana. It is reported that Digicel Guyana has commenced the use of solar energy. In 2015 it was noted that:

“To date, Digicel Guyana is the only network that has decided to expand its network using this alternative power source. The first solar-powered site became live in October 2010 at a remote location in the north-western region of Guyana, Wakapoa. At present, a number of other sites in rural Guyana (are operational solely due to the use of solar power, with Digicel being the lone telecommunications service provider of any kind in the community as well).” (Campbell, 2015, p. 35).

ICTs in key segments of tertiary/services sector

The plans and strategies have been to expand ICT in the use and context of education. This is highlighted by the Ministry of Education Ministry of Educations (n.d.). The initiatives were noted in the Education Strategic Plan (2003-2007).

New jobs being created as a result of ICT improvements

There are several jobs and other development promoted by the Ministry of Public Telecommunications. The jobs are in both the public sector and the private sector. In the public sector the e-government initiative will create several ICT related jobs in the public sector.

Public programmes for technology infrastructure that support digital learning

There are several projects in development to support digital learning. Stakeholders have highlighted the fact that there is an absence of adequate and reliable connectivity in several communities.

Digital learning is presently being supported through a Schools Connectivity project, which aims to *“connect 50 pilot secondary schools in the first instance into a private lease connection with the National Center for Education Research and Development those that these schools can directly access a number of e-learning resources and provide real time feedback to NCERD. The connection will facilitate faster communication between NCERD and these schools and thus enable monitoring, reporting and problem resolving in the roll out of programme.”*(National Data Management Authority, n.d.)

An earlier One Laptop per Teacher initiative further supported the expansion of digital learning. It was observed that:

“To date, over eight thousand laptops have been distributed to teachers across Guyana. A total of eight thousand, six hundred and thirty-three (8,633) of the laptops were distributed in 2016 and three hundred and eleven (311) were handed over to teachers in 2017”. (Ministry of Public Telecommunications, 2017).

There are other projects being operated by the National Data Management Authority, which will support the GSDSF. These include projects under several areas identified by the National Data Management Authority under the pillars identified to be e-Administration, e-Participation, e-Services and Cyber security (National Data Management Authority. 2018b). The GSDSF identifies similar goals and targets under the heading E-participation, e-Security and E-Administration (GSDSF, 2017, p.44).

5. FINANCIAL RESOURCES AND OTHER MEANS OF IMPLEMENTATION (CAPACITY DEVELOPMENT, SKILLS AND TRAINING)

This section focuses on the infrastructure needed to transition to a green state and the potential sources of finance. In addition, focus will be on the capacity, skills and training needs required to reach to a green state and provide an insight into private sector operations and development. The chapter concludes with investment financing gaps, specific interventions to attract private sector in priority areas, credit guarantee schemes, and insurance and financing opportunities, which will affect the operations and development of the private sector, and ultimately the successful implementation of GSDS.

5.1 Infrastructure investment needs and financing gap

Infrastructure investments are traditionally provided by the public sector (Otto & Voss, 1995). These investment needs include energy (electricity grids, power generation and supply), transportation systems (roads, rail systems, bridges and tunnels), water (sewage systems, wastewater treatment and water supply), telecommunications (telephone and internet connections) and social infrastructure (health care systems, education systems, prisons, courts, museums and government accommodation) (Grimsey & Lewis, 2002:108; Otto & Voss, 1995).

Infrastructural development priorities will be financed from existing resources, grants, and government borrowings. However, government will prioritize development needs, and intergenerational savings once oil revenues start to flow in the future (Ministry of Finance, 2018a).

Improving the road network is an ongoing Government priority. Currently, there are a number of large-scale projects underway with respect to most major aspects of the road infrastructure (GOINVEST, 2018).

A number of transformative initiatives were outlined in 2017 and 2018 Budgets. These include:

- i. The Cheddi Jagan International Airport (CJIA) Expansion Project
- ii. Commence the first phase of the Linden to Lethem Road project which spans Linden to Mabura Hill;
- iii. Commence work on a permanent fixed bridge across the Essequibo River at Kurupukari;
- iv. Seek funding to construct a road from Parika to Goshen, followed by the construction of a bridge from Monkey Jump to Bartica, complementing the bridge crossing the Essequibo River at Kurupukari;
- v. Resurface and rehabilitate, where necessary, the Linden-Soesdyke highway;
- vi. Pursue negotiations for the dredging of the Demerara River, in order to reduce the need for high frequency, low capacity, offloading of vessels;

- vii. Commence discussions to develop a national port authority and to reconstruct, refurbish, and upgrade Port Georgetown to reduce shipping costs, improve storage capacities, and minimise loading and off-loading times.
- viii. Conduct a detailed feasibility study for a permanent high level Demerara Bridge for which the Government intends to launch a prospectus to invite public private partnership for its construction.
- ix. Commence the first phase of the waterfront development programme, which includes undertaking feasibility studies and designs for the construction of boardwalks along Stabroek to Ogle and Vreed-en-Hoop.
- x. Continued development and maintenance of roads and bridges including those in the hinterland (Port Kaituma Road, from the airstrip to Fitsburg Housing Scheme, in Region 1; Issano Road and Karrau to Buckhall Roads, in Region 7; Karasabai to Monkey Mountain, in Region 8; and Aishalton Junction to Shea, in Region 9).
- xi. Construction of the country's first pedestrian overpasses at Liliendaal, Houston, Eccles, and Peter's Hall, as well as the first ever vehicle overpass at the Diamond main access road.
- xii. Rehabilitation of stellings at Bartica, Supenaam, Mazaruni, Morawhanna, New Amsterdam and Rosignol.
- xiii. Recondition of the Malali, Sandaka, and Lady Northcote vessels.
- xiv. Purchase of a barge and dock several vessels.
- xv. Construction, rehabilitation, and maintenance of sea defence infrastructure in Regions 3, 4, 5, and 6.
- xvi. Rehabilitation of airstrips across the hinterland
- xvii. Upgrade aerodromes and airstrips across the country

The Government has commissioned several studies and begun due diligence to commence major infrastructure interventions, including the Linden-Mabura Road Upgrade, the River Crossing at Kurupukari, and the Coastal River and Infrastructure Project. Also, plans for the design, build, own, operate and transfer option for the New Demerara River Bridge was commissioned (Ministry of Finance, 2017).

In 2018, the Government allocated GYD 35 billion to support infrastructural development across the country, compared to the GYD 37.2 billion in 2017. About 41% of the 2018 allocation will be devoted to the construction, rehabilitation, upgrading, and maintenance of the road network (Ministry of Finance, 2017). Several key roadways in the Hinterland, aimed at providing easy travel and transportation access between and among hinterland communities, as well facilitating gold miners and loggers, will be upgraded, in 2018 (Ministry of Finance, 2017).

In 2018, the sum of GYD 2.4 billion has been budgeted to improve the sea defence countrywide. Specifically, construction and rehabilitation of sea defence structures will be undertaken at Ruimzeigt/Waller's Delight, DeWillems, Grove/Look Out, Pomeroun, Cottage (Mahaicony), and Uitvlugt (Ministry of Finance, 2017).

A total of GYD 250 million has been allocated, in 2018, for the upgrade of stellings at Bartica and Leguan. A further GYD 160 million has been allocated to support the reconstruction of the Vreed-en-Hoop and Stabroek stellings, into modern water taxi terminals. Additionally, the sum of GYD 1.1 billion has been budgeted to commence the construction of an ocean going passenger and cargo ferry, which will ply the Parika-Mabaruma route. A sum of GYD 500 million has been budgeted for the rehabilitation of the existing fleet of river and ocean going vessels (Ministry of Finance, 2017).

In an effort to guide the continued transformation and modernisation of the aviation sector, work on the development of an aviation master plan will commence in 2018. An allocation of \$250 million will go to improving the airstrips and aerodromes across the country, of which \$140 million will be used to commence the rehabilitation of airstrips at Bemichi and Kamana. Another 12 airstrips across the hinterland regions will be rehabilitated at a cost of GYD 110.3 million. Government is also in negotiation with the Caribbean Development Bank to secure a USD 15 million loan, to finance a project for further aerodrome and airstrip development across the hinterland. Under that programme, the Lethem airstrip will be upgraded into a regional hub and international aerodrome, in order to receive flights originating from Brazil and other Latin American neighbours (Ministry of Finance, 2017).

GSDS will require infrastructure investment but the cost of financing will not be known until feasibility studies have been undertaken. Some of the infrastructure investment needs identified through GSDS thematic group, private sector consultations and government plans are highlighted in Table 5.1 below:

Table 5.1: GSDS Infrastructure Investments Needs

Sector	Selected Infrastructure Needs
Agriculture, Forestry and Fishing	1. Agricultural Commodities Exchange
Livestock	2. Construct abattoir of international standards
	3. Construct laboratory for poultry sector
Fishing	4. Establish a Brackish Water Aquaculture Station
Sugar	5. Establishment of small distillery
Electricity and Water	6. Hydropower projects at Kumu Falls/ Moco Moco Falls/ Amaila Falls
Transportation and Storage	7. Develop air cargo space storage with refrigeration facilities at Cheddi Jagan International Airport and Eugene F. Correira International Airport (formerly Ogle)
	8. Develop aerodrome and airstrip across the hinterland including upgrading the Lethem airstrip into a regional hub and international aerodrome to receive flights originating from Brazil and other Latin American neighbours – estimated cost US\$15 million
	9. Develop a deep-water port
	10. Georgetown – Lethem Gateway including Linden to Mabura Hill; Soesdyke-Linden Highway; and Linden-Ituni-Kwakwani Corridor
	11. Higher-capacity, fixed bridge across the Demerara River
	12. Agricultural post-harvest facilities
	13. New Amsterdam-Moleson Creek Road and the South Entrance to Georgetown
	14. Guyana-Brazil Road.
Financial and Insurance Activities	15. Establish a Junior Stock exchange
	16. Investment Development Bank
Public Administration	17. Electronic Single Window System
	18. Establish special economic zones
	19. Establish export processing zones
Other Service Activities	20. Establish an accredited testing facility/ laboratory for local products to become ISO certified

Source: Private Sector Commission (2018); Multi-Stakeholder Expert Groups (2018); Ministry of Finance (2018a)

According to an IDB survey conducted in 2016 it was concluded that in addition to new bridges, ports, roads and energy sources, hospitals, health clinics and schools are also vital for stimulating productivity and inclusive, sustainable growth (Betts, 2014). Guyana’s investments should be made for Easily

Adaptable Agriculture Infrastructure. For example, irrigation infrastructure developed for rice production can be easily adapted to serve commercial aquaculture, reducing the cost of the initial investment necessary to initiate operations. Considerations should also be made for climate smart infrastructure to minimize the effect of natural disaster (flood and drought) on people, animals and crops.

5.2 Capacity, skills and training needs

GSDS will require the development of capacity, and human resource skills and training. Some of the human resource capacity, skills and training needs identified through GSDS thematic group, private sector consultations and government plans are highlighted below.

Agriculture Sector generally will require technical assistance to producers to meet quality standards; improve research of agriculture products to withstand climate change. Training in basic literacy, numeracy, computer and bookkeeping skills is necessary for farmers. Further, smart agricultural training including hydroponics, aqua phonics, shade houses, green houses and research into more effective techniques for harvesting coconuts is needed. Along with this, technology development and transfer and agri-business processes related to sanitary and phytosanitary systems (SPS) must be developed.

Specifically, Rice sector will require technical training to support rice diversification initiatives; strengthening of the Guyana Rice Development Board (GRDB) and Rice Producers Association; more research and sensitization in the area of pest control; and mechanization of some aspects of rice industry to cope with labour shortages.

The Livestock sector will require training on standards for animal husbandry and an upgrade of the veterinary diagnostic capacity along with a training program for the Ministry of Agriculture and a number of private operators to establish HACCP procedures for slaughtering and meat handling.

Fishing sector will require the creation of a semi-autonomous Fisheries Authority to address human and technical capacity issues and expansion of aquaculture in interior locations by facilitating the use of cage technology.

Forestry sector will require education campaigns on biodiversity conservation; enhanced certification of quality management systems for Non-Timber Forest Products (NTFP) certifications for export markets. Forestry management training is required with a focus on operational efficiency assessments. There is need for the establishment of a Forestry Research and Development Unit and working with a crosscutting section of loggers, manufacturers and other stakeholders to put in place forest products strategy to ensure maximum value added.

Mining and Quarrying sector will require human resource development and educational awareness in compliance in the extractive industry.

Manufacturing sector will require technical assistance for producers to meet quality standards with packaging, labeling, certification and recertification. An electronic platform to providing marketing support, business information services and market information access to key stakeholders (New GMC, Go-Invest and MOB) is important to facilitate the flow of trade information between institutions. . It will also assist in providing technical assistance to small businesses to strengthen their capacity to penetrate new markets. In addition, hosting of trade sensitization workshops with MFA, MOB, Go-Invest, SBB, GRA, CARICOM, PSC and Chamber of Commerce will help with information dissemination. Meanwhile, there should be a focus of maximizing the New Guyana Marketing Corporation (NGMC) limited resources by re-focusing the target of export promotion on providing information and advisory services that support value added initiatives.

Services sector will require technical experts to conduct resilient industries case studies to promote business continuity plans. The use of information technology to allow for the automation of all registration procedures, the conversion of all manual records into digitized images, and the backward integration into the new Tax Identification Number (TIN) system at GRA. There is need for the development of an Integrated Management Information System (MIS) and Electronic Data Interchange (EDI) for the shipping community and the design and implement an information system for land lease requests and setting up a non-discretionary land lease and water rights allocation system.

Tourism sector will require training programme to improve communication, attitude and general hospitality skills and services.

Financial services will require market research on a development fund and insurance programme and improved technical capacity of businesses, banks and other relevant stakeholders with respect to green practices, green products and green financing.

Public sector will require an improved judicial/court system and legislation on patents, trademark and intellectual property rights. Institutional strengthening of Guyana National Bureau of Standards capacity, and Food and Drug Department to carry out nutritional analysis and risk based certification testing. Additionally, improve current mechanisms for the collection, analysis and dissemination of labor market information and establish a proper industrial classification of occupation, wage structure and trends in employment.

Education sector will require a skills mapping tool to match needs to training opportunities and using ICT in the development of human capital. There is need to improve the supply of more highly skilled workers needed by the non-traditional agricultural sector through the expansion of the technical training programme at the GUYUCO/ Port Mourant Apprentice Training College, Guyana Technical Institute (GTI). Invest in strengthen the capacity of research and developments institutions like National Agricultural Research Institute (NARI), Institute of Applied Science & Technology (IAST), and Iwokrama International Centre for Rainforest Conservation and Development. Further, invest in institutional strengthening of the Environmental Protection Agency, Hydro meteorological Service, Guyana School of Agriculture, Bina Hill Institute, and University Of Guyana.

Health and Social Services sector will require development of rapid response skills training to meet urgent needs in basic technical skills through a multiplicity of training centres and improved search and rescue capacity.

Overall, there is need for training programmes targeting the development of a National Conformity Assessment System for a number of international standards, including assist firms and government agencies in their efforts to receive certification in ISO 9001, 14001, 17025, 17020, 22000 guide 65 and GYS 231. There is need for continued efforts in research and development to bring Guyana's productivity in line with internationally competitive levels, improved factory layout and management, production processes, quality control, scheduling and plant/employee safety and upgrade of the SPS inspection service process for outgoing products. Guyana should also consider the introduction of Green Business Certification programmes (Private Sector Commission, 2018; Multi-Stakeholder Expert Groups, 2018; Ministry of Finance, 2018a)

5.3 Private sector Operations and Development

Institutions

There are several private sector operations and public supporting ministries including: Private Sector Commission; Guyana Manufacturing and Services Association; Ministry of Business; Small Business Bureau; Institute of Private Enterprise Development; Centre for Local Business Development; and Caribbean Export Development Agency. An overview of each of these agencies is given below.

Private Sector Commission

The Private Sector Commission of Guyana was established in 1992 by five Private Sector Associations with the aim of bringing together all Private Sector Organs and Business Entities under the purview of being one National Body. The Private Sector Commission is governed by a Council, which comprises the Head of all Members Sectoral Organizations and a number of elected members. The Council is headed by a Chairman who can serve a maximum of two consecutive one-year terms.

An Executive Management Committee, which comprised the following elected officials, coordinated the overall activities of the Commission: Chairman, Vice Chairman, Honorary Secretary, and Honorary Treasurer. The Executive Director is also a member of the committee by appointment. Priority areas of the Private Sector Commission are Economic Growth and Development, Exports and Investments, Information and Communication, Governance and Security, Harmonizing and Creating Alliances and Human Resources Retention and Development.

Guyana Manufacturing and Services Association

The Guyana Manufacturing and Services Association (GMSA) is a business support institution functioning as the liaison between the businesses involved in manufacturing and social and business services and the Government of Guyana. As such, GMSA maintains relationships with other Private Sector business support organizations, government agencies, regional and international organizations and financing agencies.

The GMSA President is directly responsible for Government/Industry liaison, fund raising and development financing. Sub-Sector committees or Technical working Groups are also established to oversee and cater to the specific needs of members in their respective sectors. Submissions and reports from the heads of these Groups/sectors form the basis for the development of policies, deployment of resources (financial, human, natural), internal and cross-border product marketing and market access, implementation of national and international standards, and for the conduct of research and feasibility studies that work for the benefit of members' businesses and for industry as a whole.

The sub-sectors of the GMSA are: Agriculture and Agro-processing, Construction and Engineering, Services, Fast Food production, Chemicals and Pharmaceuticals, Forestry and Forest Products, and Minerals and related industries. Work programmes from every sector are overseen by the Sub-Sector Coordinator.

In addition, there are also several Chambers of Commerce that advocate on behalf the businesses for specific locations across Guyana: Georgetown Chambers of Commerce and Industry (GCCCI), Bartica Chamber of Commerce and Industry (BCCI), Berbice Chamber of Commerce and Development Association (BCCDA), Central Corentyne Chamber of Commerce (CCCC), Essequibo Chamber of Commerce and Industry (ECCI), Linden Chamber of Commerce and Industry (LCICD), Mahaica Chamber of Commerce and Industry (MCCI), Matarkai Chamber of Commerce and Development Association (MCCDA), Rupununi Chamber of Commerce and Industry (RCCI), Upper Corentyne Chamber of Commerce and Industry (UCCI), West Berbice Chamber of Commerce and Industry (WBCCI), West Demerara/East Bank Essequibo and Islands Chamber of Commerce and Industry (WD/EBE/I), Matarkai Chamber of Commerce and Development Association (MCCDA), and National Association of Regional Chambers of Commerce of Guyana (ARCC).

Ministry of Business

The Ministry of Business addresses the matters of investment promotion, work force enhancement, sustainable development and export promotion. The Guyana Office of Investment (GOINVEST) falls under the purview of the Ministry of Business and is responsible for Investment Facilitation and Promotion and Export Promotion.

Small Business Bureau

The Small Business Bureau (SBB) was established under the Guyana's Small Business Act (2004) to implement programmes and offer services, which address major constraints faced by small businesses – access to finance, business management and technical skills; promote policies which foster small business development; and monitor small businesses' access to designated 20% of Government's procurement of goods and services.

Institute of Private Enterprise Development

Institute of Private Enterprise Development (IPED) is a not for profit, tax exempt, non-governmental organization that provides business guidance, technical assistance, training and finance to micro and small business entrepreneurs in Guyana.

Centre for Local Business Development

The Centre for Local Business Development provides a space for local firms to learn about opportunities in the oil and gas sector, strengthen their competitiveness, and prepare to supply the oil and gas sector with various services.

Caribbean Export Development Agency

The objective of the Caribbean Export Development Agency is to foster environments for the successful advancement of trade and investment within the region. A key element of this is the area of capacity building for private sector firms and Business Support Organisations (BSOs). The Agency offers training programmes designed to provide institutional strengthening and thus increase CARIFORUM firms' productivity and competitiveness. Training available to CARIFORUM firms include ProNET Training, Branding and Packaging Workshop, Advocacy Training and BSOs: Benchmarking and Assessment, Trade Information Training, Small Business Development Centres.

Financial Operations

In 2017, the Government supported the continuation of the Micro and Small Enterprise Development (MSED) Project with its financing and training and development activities, targeting prospective and established entrepreneurs and small businesses. Additionally, to ensure a level playing field in bidding for government contracts, the Government is enforcing the requirement that every endeavour be made to ensure that at least 20% of public contracts be awarded to small businesses. Moreover, the establishment and growth of small and micro-enterprises will continue to be supported through a suite of programmes, including the Sustainable Livelihood and Entrepreneurial Development (SLED) programme, which provides business grants and training for vulnerable Groups (Ministry of Finance, 2018a). **Annex 13** outlines budgetary measures in support of the Private Sector, 2018.

5.3.1 Estimated Financing-Investment Gap

The Bank of Guyana acts as the Central Bank of Guyana to formulate and implement monetary policies and monitor the functioning of the financial system (Bank of Guyana, n.d.). There are six commercial banks in Guyana offering services such as deposit accounts, credit facilities for loans, overdrafts, bonds, and export and import trade financing among other services. The minimum reserve requirement at commercial banks was over 158 percent of the required reserves as at April 2018 while excess liquid assets was 64 percent above the required amount (Bank of Guyana, 2018). At the end of December 2017, the commercial banks weighted average lending rate was 10.19 % while prime lending rate was 13.0% (Bank of Guyana, 2018).

Guyana's banking system is relatively stable, with banks having adequate capital buffers. Loans to the private sector accounted for GY\$146 billion at the end of 2017. However, non-performing loans (NPLs) remain high at 12.2% of total loans at end-2017, down from 12.9% at end-2016 (IMF 2018). The high NPLs is attributed to underperforming sectors, slow execution of fiscal projects, and dampened consumer and private sector confidence in doing business in Guyana (Bank of Guyana, 2018). These Commercial banks can provide private financing for GSDS initiatives to private sector companies through

secured loans. However, commercial banks will find it difficult to invest in infrastructure projects because of the long-term nature of infrastructure financing. Infrastructure financing creates asset-liability mismatches for commercial banks (EPW Research Foundation, 2009). Further, the Minister of Finance must grant permission for a foreign investor to borrow more than USD 10,000 from a local bank.

There is need for the development of the domestic capital markets in favour of attracting long-term institutional investors since Guyana does not yet have any established credit ratings. Guyana adopted the Credit Rating Reporting Act No. 9 of 2010, which guarantees consumers' right to access their data. The credit-reporting bureau has been working with banks and utility companies to compile reliable credit information for use by lenders. Lack of access to capital remains a serious barrier to entrepreneurship and business expansion.

The private sector can develop, own and operate infrastructure facilities alone or enter into a joint venture with the government and private sector entities (Grimsey & Lewis, 2002). Infrastructure investment for the Green State Development Strategy can be financed through this joint-venture arrangement also known as Public-Private Partnerships (PPPs). However, there are inherent risks in PPPs such as long-term contractual obligations in a changing economic and social environment, project cost overruns, maintenance and operations risks (Albalade, Bel, Bel-Piñana, & Geddes, 2015).

To overcome risks, there is need for legislation to govern PPP infrastructure projects. For example, in Taiwan, there is a Promotion of Private Participation in Infrastructure Projects Act 2000 (PPIP Act) and Urban Renewal Act 2010, which encourages joint public and private sector development by making use of land acquisition incentives and tax incentives for the private sector (Kuo & Cheng, 2018).

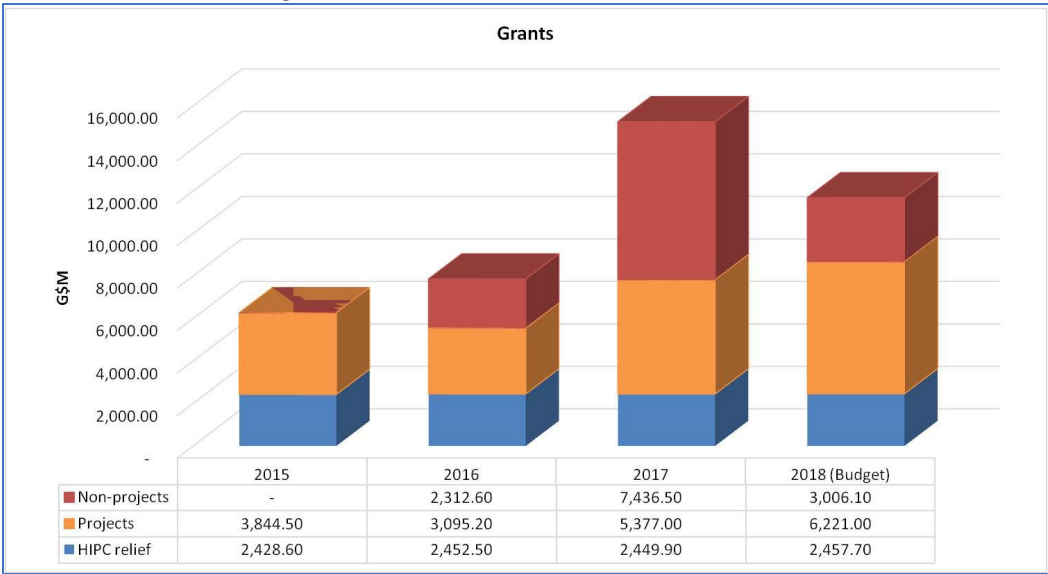
The Ministry of Finance (2018b), in recognition of the need to narrow the infrastructure deficit in the country, is pursuing other financing options, including Public-Private Partnerships (PPPs), for large-scale transformative projects. As such, a Public-Private Partnership Policy Framework was developed with a view of initially developing Public-Private Partnerships for the following key areas of development: Demerara Harbour Bridge; Linden-Lethem Road Link; Deep Water Harbour and Container Port; Mini and Maxi Hydro Plants and Energy Farms; Plantation Agriculture; Modernisation and Dredging of Port Georgetown; Milk Plant for Guyana; Information Technology Farm; and Agro-industrial and Small Manufacturing parks.

Additionally, Guyana has been able to leverage support from development partners such as the United Nations Development Programme (UNDP) and the Inter-American Development Bank (IDB) to develop policy documents, strategies, as well as implement projects. Other sources of support include the World Bank, Caribbean Development Bank (CDB), Caribbean Community Climate Change Centre (CCCCC), European Union/European Commission, Japan International Cooperation Agency (JICA), Japan Caribbean Climate Change Partnership (JCCCP), the German Agency for International Cooperation (GIZ), United States Agency for International Development (USAID), United Nations Education, Science and Culture Organization (UNESCO), Food and Agriculture Organization of the United Nations (FAO), United Nations Children's Fund (UNICEF), World Health Organization- Pan-American Health Organization (WHO-PAHO), and The Energy and Resources Institute (TERI).

Lending Resources include Inter-American Development Bank; Caribbean Development Bank; World Bank; Export-Import Bank of India; Export-Import Bank of China; and the Islamic Development Bank. During 2015-2017, grants (consisting of HIPC relief, projects and non-projects) have increased each year. Figure 5.1 below shows a breakdown of grants for 2015 and 2016 as well as budgeted grants for 2018.

Projects accounted for the majority of grants with the exception of 2017. There is a projected 55% increase in grants compared to 2016.

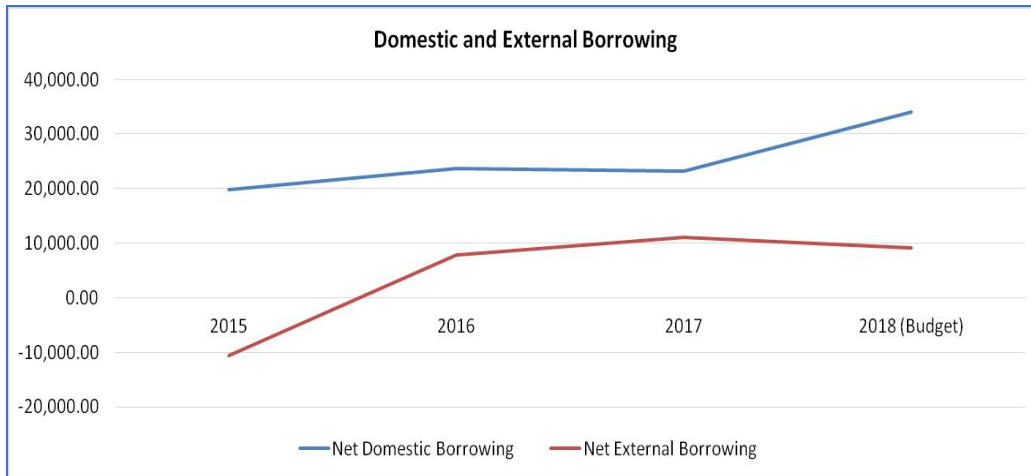
Figure 5.1: Grants 2015 to 2018 (GY millions)



Source: National Budget Speeches, 2017-2018

Additionally, the majority of financing for Central Government deficit was sourced from domestic borrowing. Figure 5.2 below shows a projected increase in net domestic borrowings and a net decrease in external borrowing. Lending Resources for Guyana include Inter-American Development Bank, Caribbean Development Bank, World Bank, Export–Import Bank of India, Export–Import Bank of China and Islamic Development Bank.

Figure 5.2: Net Domestic and External Borrowing 2015 to 2018 (GY millions)



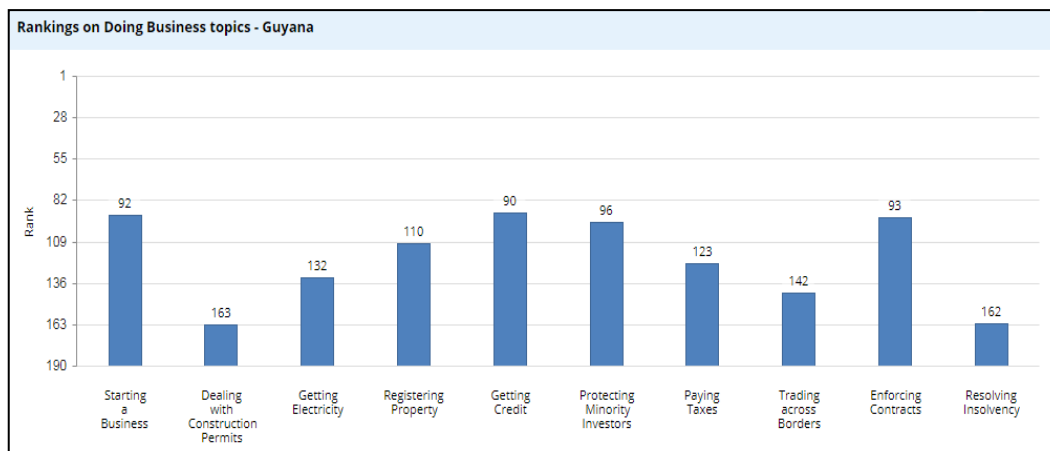
Source: National Budget Speeches, 2017-2018

5.3.2 Specific Interventions to Attract/ Mobilize Private Sector

IDB (2014) private sector assessment of Guyana notes that data on private-sector issues is limited, and points to priority information gaps. The data gaps that need to be filled in include: a mapping of the private sector; a mapping of the financial sector and the services that are provided to the private sector; an analysis of labour markets; an analysis of the tax system and its impact on the informal sector; an analysis of property rights and proposals for modernization; and a mapping of licensing requirements.

World Bank Group Flagship Report, Doing Business (2018), sheds light on how easy or difficult it is for a local entrepreneur to open and run a small to medium-size business when complying with relevant regulations. For 2017, Guyana ranks 126 out of 190 countries with score of 56.28. Figure 5.3 illustrates the areas of business and Guyana’s ranking — starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency.

Figure 5.3 Guyana’s Ranking on Doing Business



Source: World Bank Group Flagship Report, Doing Business (2018)

The Private Sector Commission (PSC) (2018) prepared an action plan comprising of specific actions and recommended policy options for the sustainable development of Guyana. The PSC sought to address issues affecting the business community by reviewing past development documents, reports and business forums and conversations to develop the specific interventions. These interventions are in the areas of economic stability; export market and trade; competition and consumer protection policy; taxation policy; export promotion and facilitation; access to finance; human capital development; business development services; infrastructure; energy; bureaucratic procedures; land and property markets; sector policies; contract manufacturing and services exports; business and eco-tourism; and governance & legal architecture.

See **Annex 14**, which outlines some of the private sector's specific interventions for sustainable development of Guyana, excluding the interventions already discussed under infrastructure needs and capacity, skills and training needs.

Local content policy requires value maximization from resources. Value maximization from capacity building, local content and value added will focus on the benefits to be gained from training and employment, localized supplier development, ownership/partnerships for effective transfer of knowledge, taxation for infrastructure and social services, and procurement strategies, which will support Guyana's petroleum resources.

In addition to the interventions identified above, private sector stakeholder sessions were held with the Bartica Chamber of Commerce on 5th June, 2018, Georgetown Chamber of Commerce and the Private Sector Commission on 6th June, 2018; and the Linden Chamber of Commerce on 7th June, 2018. The aim was to garner specific feedback related to the interventions necessary to attract the private sector as a key stakeholder in the implementation of the GSDS.

Institutional Capacity Development: the legal and institutional infrastructure, as with any development paradigm, is necessary before the thrust towards green state begins. One of the major concerns of the private sector is the current capacity of the legal and institutional infrastructure to deal with green technologies. For example, a small company wanted to make their entire delivery of products fully green including use of biodegradable plastics and use of green motor cycles but the Guyana Revenue Authority had no mechanism in place, no legislation/regulation/policy or any precedent, which has been set, to categorize and classify green motor cycles.

The institutional capacity of the Guyana Revenue Authority has to be strengthened with training offered to ensure adequate human resource capacity and use of information and communication technology to capture multiple sources of relevant information. Further, new policies and institutions should build on existing institutions and strengthen those with existing capacity. There are policies within each natural resource sector/agency but these agencies have their individual jurisdictions and only operate within it. There is need for a more integrated approach to natural resource management, as many of these agencies operate in isolation and there is need for an overarching policy for the management of resources.

Fiscal Incentives: is very important to compensate for the significant cost of switching to green technologies. This issue needs to be addressed if the private sector is to play a better transformational role as a stakeholder in the implementation of GSDS. The private sector must be able to plan their

production or investment in advance and have government's commitment to support green investments and technologies. For example, the private sector wants to know specifically the fiscal incentives, which will be available such as a specific percentage reduction in corporation tax or reduction on tax for all imports into their production process. It is important that the drafting of policies and/or legislation provide incentives for persons going green, for example, incentives for purchase and installation of solar panels, hybrid vehicles; and penalties for those engaging in actions that are counter to the green agenda. Government has to create an investor friendly environment, assist with financing or access to loans with better repayment terms and provide training and direct support to private sector investors.

Competitiveness: it should be noted that Foreign Direct Investors have an advantage when doing business in Guyana compared to local businesses. Foreign companies benefit from various tax incentives, while local companies are required to pay all taxes. There is need for transparency when issuing tax incentives to foreign companies to ensure domestic companies remain competitive. The local content policy will not be useful if foreign companies have tax incentives and can bring in things for their operations cheaper. Small local contractors will be by-passed.

Public Private Dialogue – there was a high-level mechanism that allowed for the implementation of some aspects of the Competitiveness Strategy through the National Competitiveness Council (NCC). The NCC Secretariat housed Public Private Dialogues chaired by the President, the Minister of Finance, Minister of Agriculture, Head of GRA, along with the private sector, civil society and trade unions (Private Sector Commission, 2018). The NCC meetings drafted decisions to be implemented by the key decision makers. However, the NCC was disbanded in 2015 and since then the private sector has no structured approach to developing policies and implementing them. The policies are sometimes ad hoc with no complementarities to the effort of both the government and the private sector. GSDS has to build in a mechanism to allow for the implementation of the discussion between the private sector and the government. Public Private Dialogue must be continuous so that after the process, discussions can still be held at the implementation stage to see if things are going in the right direction and what needs to be changed.

Land rights: the land rights issue has the effect of deterring investment, slowing modernization and blocking access to finance (IDB, 2014). There is need to strengthening the property rights of miners and farmers as it presently affects them accessing finance to make investments.

Access to Finance: practices in mining and agriculture have not changed significantly for many years because of underinvestment by private sector. Miners use obsolete extractive technologies and create significant environmental damage, including pollution, and farmers have not invested in mechanization because the incentive framework is not adequate for investments. Future growth prospects depend on these sectors but export capacity requiring specialization and investment as well as energy and skills, will take time to build up. Modernization would have a positive impact in reducing environmental risks (Inter-American Development Bank (IDB), 2014).

Quality Infrastructure: poor conditions of infrastructure affect the private sector. The IDB (2014) report notes that government would benefit from the use of public-private mechanisms to fund steps to remedy the country's serious infrastructure inadequacies. There is need for maintenance of roads, improved drainage and irrigation, more consultation with communities on infrastructural needs and priorities, and reliable electricity supply.

Trade Facilitation: the private sector encounters difficulty in identifying and accessing markets. Government can assist with developing markets or marketing products revise export tariffs, provide financial assistance, loans or tax incentives to exporters, and providing training and technical advice.

Enabling business environment: there is a high level of crime and corruption, which affects the ease of doing business. Other issues in private sector include: high tax rates limit the expansion of businesses and the integration of informal businesses into the formal economy; limited supply of and investment in an educated labour force, which contributes to constraints in private sector growth; and the high cost and unreliable supply of electricity that increase the cost of industrial production and limit its expansion (IDB, 2014). There is need for concessions that catalyse investments, access to training and assistance in setting up business and creating an enabling environment.

Other concerns of the private sector included filtering down of GSDS to the poor and vulnerable farmers and communities in Guyana to improve their livelihoods. It was noted that the private sector is the largest overall employer in the economy and should be considered as a major stakeholder of the GSDS, hence the need for an enabling environment that promote its growth. Further, past initiatives have been considered less than optimally effective or efficient due to weak enforcement in implementation, unwillingness to embrace change, and limited participation.

The GSDS therefore requires a behavioural and cultural change. It is currently looked at from a supply-side, what businesses are doing but there is need for GSDS to be a demand driven programme, such as educating the population about what green state means to a good and clean environment. However, there is the risk of political change shelving this proposed national development strategy, rather than implementing and building on the strategies. The strategies need to be more long-term, which can influence multiple generations.

5.3.3 Credit Guarantee Schemes

World Bank Group Flagship Report on Doing Business (2018) identifies getting credit as a key area of business regulation. There is limited access for credit facilities to support high-risk investments, and such investments are mostly only undertaken when collateralized by property. However, through a micro and small enterprise development project, financing was received from the Guyana Redd+ Investment Fund provided by Norway, and implemented through the Small Business Bureau, which allowed for credit guarantee schemes to be offered. This lessens the bank's risk as well as costs associated with loaning to small and medium enterprises.

The Laws of Guyana under the Small Business Act No. 2 of 2004 Chapter 7:01, made provisions for the establishment and management of a small business development fund. The Small Business Bureau has been established by virtue of the Small Business Act 2004 partnered with Financial Institutions, currently Republic Bank Ltd. (RBL), Guyana Bank for Trade and Industry (GBTI), and the Institute for Private Enterprise Development (IPED), to facilitate access to finance through a credit guarantee facility; an interest payment support facility; and a low carbon grant scheme to assist vulnerable persons with viable business propositions in low carbon sectors.

The low carbon sectors identified for funding are: fruits and vegetables (farming and processing); aquaculture; eco-tourism; business process outsourcing; bio-ethanol; energy efficient transportation and logistics; low carbon manufacturing activities; low carbon agriculture and agro-processing; apiculture; low carbon energy production and/or distribution; professional and business services;

internet and computer based services; entertainment, music and performing arts; arts and crafts; and publishing and printing (Guyana Redd+ Investment Fund, 2011).

The loans are offered to qualified micro and small enterprises up to a value of \$30 million Guyana dollars at 6% interest rate with collateral support in the form of a credit guarantee up to 70% of the loan amount (Small Business Bureau, n.d.). However, before the funds could be accessed the borrower has to undertake training and satisfy the loan requirements of the bank. There is need for a Regional or Local Agricultural Development bank to support high-risk investments above the limits offered by the Small Business Bureau.

It is a common and useful government intervention to offer Credit Guarantee Schemes to help businesses access finance and other important services, which would not normally be accessible, especially for high-risk investments. For example, the Malaysian government launched a Green Technology Financing Scheme in 2010, under which the government provides a 60% guarantee of the loan amount and a rebate of 2% on interest charged by financial institutions for all qualifying green technology projects.

5.3.4 Insurance

Agriculture Insurance in the Caribbean is almost non-existent except for two agriculture insurance companies: the Windward Island Crop Insurance Ltd. (WINCROP) provides insurance for banana growers in the Eastern Caribbean and the Aseguradora Agropecuaria Dominicana SA (AGRODOSA) provides multi-peril insurance for 7 percent of the cultivated area in the Dominican Republic (Carballo & dos Reis, 2013).

The insurance sector's total assets in Guyana as at end of 2017 was G\$54,723 million and represented 25% of the total assets of the Non-Bank Financial Institutions (Bank of Guyana, 2018a). Yet, the insurance sector has not ventured out into offering agriculture insurance because the risk is dependent on nature and highly unpredictable to make informed decisions. Further, the financial sector does not currently offer comprehensive export insurance, transport insurance, and insurance against foreign currency losses (National Competitiveness Strategy, 2006).

Ministry of Agriculture (2013) National Agriculture Strategy 2013-2020 indicated that agriculture insurance is an important financial instrument for the prosperity of the sector. Agricultural insurance is a risk-transfer tool, which helps to mitigate the financial impact of natural disasters and allocate resources more efficiently (Hatch, Nunez, Vila & Stephenson, 2012). Agricultural insurance provides indemnification for damage to or loss of crops, livestock, forestry or aquaculture in adverse natural or other phenomenon. There is no government policy to restrict development or national flood insurance offered, despite agriculture being the most vulnerable sector to nature (Government of Guyana, 2002). The Jagdeo Initiative suggested that the Caribbean should develop an integrated regional risk mitigation and relief strategy for agriculture, including agricultural insurance and praedial larceny (Private Sector Commission, 2007).

The Ministry of Agriculture (2013) National Agriculture Strategy 2013-2020 suggested that insurance could help farmers to engage in commercial farming in a more sustainable manner. However, there is need to develop a crop insurance and livestock insurance proposal for farmers; establish linkage with crop farmers and fishing and marine organizations to better assess their needs, and recorded losses and

establish linkages with insurance companies to document their needs for records and losses due to weather conditions. The insurance companies may for example, require reliable data from Hydro metrological Office, and farmer records to assess agricultural insurance indices. Some agricultural insurance products, which could be sold in Guyana include: **traditional individual farmer crop insurance** such as named-peril (e.g. fire, excess rain) insurance, multiple-peril crop insurance (MPCI), and crop revenue insurance; **new index based agricultural/livestock insurance** such as area-yield index insurance, crop weather index insurance, NDVI (Normalized Difference Vegetative Index) insurance, and livestock mortality index insurance; **traditional livestock indemnity insurance** such as mortality cover for individual animals, livestock all-risk mortality cover, livestock business interruption cover, and bloodstock cover for high value animals; and **aquaculture insurance** such as named-peril cover and all-risk cover (World Bank, 2010).

Guyana has agricultural co-operative societies in the 1970s; however, the performance of the majority of them was below expectation because of poor management and lack of interest by members. Agricultural cooperative, where farmers pool their resources, can be reintroduced, supported by management training, as a mechanism to mobilize for insurance. Farmers can pool their resources to jointly undertake risk, through cooperatives. This enables farmers to access financing, insurance and working capital. The spin-off of agricultural cooperatives is farmers can diversify and increase agricultural production – including value-added production.

Public Private Partnership can absorb the financial risks of the insurance industry by pooling resources to counter excessive losses with government providing reinsurance against the excessive loss thereby guaranteeing the industry's sustainability. Government can develop appropriate policies for an agricultural insurance programme, waive taxes to help farmers who experience losses and reduce corporation tax for insurance companies offering agriculture insurance. It is recommended that the Government of Guyana update the regulatory framework for the insurance industry by revising the Insurance Act 2016 to include provisions for Agriculture Insurance or introduce an Agricultural Insurance Act.

Feedback from GSDS Multi-Stakeholder Expert Group One – *Green and Inclusive Structural Transformation: Diversifying the Economic Base, Assessing New Markets and Creating Decent Jobs for All*, offered three suggestions for crop insurance in Guyana including:

- Seasonal rainfall insurance based on aggregate precipitation in rainy season in agricultural areas. There will be need to establish weather benchmarks, and correlated compensation based on weather deviation and commodity damage.
- Sowing failure insurance based on precipitation in rainy season. There will be need to establish and or strengthen facilities for pretesting of seed quality and germination.
- Rainfall distribution insurance with the weight assigned to different periods of the year. Compensation will be based on reliable weather forecasts of hydro metrological office, crop water requirements, and deviation from seasonal rainfall patterns.

There is need for the establishment of an export credit insurance scheme and legal framework to reduce commercial and political risk to exporters. Special consideration has to be made for an Agriculture Development Bank, inclusive of an Insurance facility, to augment the sector's productivity, produce value-added items, create jobs, increase agricultural exports, and boost economic growth.

5.3.5 Innovation and Green Business Financing

There was an Agricultural and Industrial Development Bank in Guyana called the Guyana Cooperative Agricultural and Industrial Development Bank. The functions were to provide financial credit and related advisory service for the development of agriculture and industry; to promote investment in development projects in agriculture and industry; act as an agent of the Government in such matters as may be agreed between the Government and the Bank provided the Bank can do so appropriately and consistently with its functions; and to assist generally in the development of the co-operative movement in so far as it relates to the development of agriculture and industry. There are plans to re-establish the bank. However, the subsidies likely to be offered by the bank can discourage growth and development of agricultural businesses as established farmers will out weight small farmers in receiving the loans, which defeats the purpose of the agricultural bank.

The Bank of Guyana acts as the Central Bank of Guyana to formulate and implement monetary policies and monitor the functioning of the financial system. There are six commercial banks in Guyana offering services such as deposit accounts, credit facilities for loans, overdrafts, bonds, and export and import trade financing among other services. The minimum reserve requirement at these commercial banks was over 158% of the required reserves as at April 2018 while excess liquid assets was 64% above the required amount (Bank of Guyana, 2018). Commercial banks can provide private financing for GSDS initiatives to private sector companies through secured loans. However, commercial banks will find it difficult to invest in infrastructure projects because of the long-term nature of infrastructure financing. Infrastructure financing creates asset-liability mismatches for commercial banks (EPW Research Foundation, 2009).

The Small Business Bureau, set up by virtue of the Small Business Act 2004, partnered with Financial Institutions, currently Republic Bank Ltd. (RBL), Guyana Bank for Trade and Industry (GBTI), and the Institute for Private Enterprise Development (IPED), to facilitate access to loans to qualified micro and small enterprises up to a value of \$30 million Guyana dollars at 6% interest rate with collateral support in the form of a credit guarantee up to 40% of the loan amount (Small Business Bureau, n.d.). Under the Micro and Small Enterprise and Building Alternative Livelihoods for Vulnerable Groups (MSED) programme, the Small Business Bureau can assist businesses that took loans at RBL and GBTI with interest payment subsidies between 3% to 5% per annum. However, to qualify, the loan must be in the low carbon sector (Guyana Redd+ Investment Fund, 2011).

The Guyana Bank for Trade and Industry Limited (GBTI) is a commercial bank, which supports green businesses and start-up initiatives. GBTI (2018) offers loans which support the GSDS drive including agricultural loans for poultry farming, cash crops, aquaculture, agro-processing, livestock and cane farming, manufacturing loans for medium to small scale projects with domestic and export potential; rice farming loans for rice farmers and millers for the acquisition of land, machinery and equipment, paddy, fuel and lubricants and fertilizer; and green loans for solar energy products, water treatment recycling water filters, hybrid motor vehicles, energy saving appliances, air filters, wind powered projects, hand powered projects, and low carbon economic investments.

Demerara Bank Limited offers loans for green projects at a special rate of eight percent interest rate for companies and businesses interested in installing clean-energy systems. However, there is need for collateral including mortgages, bills of sale and cash.

Seed financing could be considered for innovation and green business financing as it is a good source of financing for small and medium enterprises. On the other hand, Venture Capital is more relevant to disruptive start-ups and innovation for a green economy and it is not a good source of financing for small and medium enterprises. Alternatively, peer-to-peer business lending creates an opportunity for non-bank financing. However, the amount of financing required and risk of the investment could deter peer-to-peer lending.

5.3.6 Financing Instruments for Private Sector Capital

Green Financing instruments and modalities that would attract significant and new sources of private sector capital are projects that would increase revenue, share risks or enhance capital structure. The Government of Guyana is considering the development of a bond market to ensure there is a good balance between debt and equity financing (Ministry of Finance, 2018a). Table 5.2 below shows financial instruments and modalities that could be considered to attract private sector capital in Guyana.

Table 5.2: Financial instruments and modalities to attract private sector capital

Financial Products	Description
Green Bonds	Receive money from investors and use the money to build infrastructure-reducing projects. Investors receive cash after a defined period.
Private Equity	Environmental projects secured through private equity financing.
Carbon Finance	Buying carbon credits from Clean Development Mechanism (CDM) and Joint Implementation (JI) projects to meet corporate compliance needs.
Green Funds	Purchasing shares or investing money in a green bank gives citizens exemptions from capital gains tax and discount on income tax
Carbon Funds	Collective investment scheme between private financial institutions and multilateral development banks

Source: Adapted from United Nations Environment Programme Financing Initiative, 2007

5.3.7 Financial Products in Environment and Conservation Areas

Global Environmental Facility (2018) estimated \$400 - \$600 billion per annum is needed for conservation of land, forests and water and over \$350 billion in capital to fund projects in renewable energy and energy efficiency; but only 15% of required capital flows to conservation. There is a financing gap of approximately \$70 billion. Therefore, additional resources are required for conservation efforts. Internationally, environmental, social and economic investors are looking for access to financing to support energy efficiency, renewable energy, green transportation, sustainable agriculture and sustainable waste and water management. In Guyana, Demerara Bank Limited offers loans for green projects at a special rate of eight percent interest rate for companies and businesses interested in installing clean-energy systems. However, there is need for collateral including mortgages, bills of sale and cash.

Guyana Bank for Trade and Industry (GBTI, 2018) offers, green loans but the borrower must satisfy the bank that the purpose of the loan is low carbon-focused. Borrowers are required to put up equity to the amount of ten percent of the loan and interest rates will be between eight and eleven percent per annum, with a maximum repayment period of 60 months. Loans up to GY\$1 million will attract interest

rates of eight percent, loans up to GY\$10 million will attract nine percent, up to GY\$50 million will attract ten percent and over GY\$50 million will attract eleven percent. Collateral will include mortgages, debentures, bills of sale, shares in a trading company and cash. There are no late payment fees and no prepayment penalties.

Notwithstanding, that these two commercial banks have taken a step towards green financial products, there are other forms of green products, which need to be considered and implemented for the domestic market in the area of environment and conservation. United Nations Environment Programme Financing Initiative (2007) highlights some financial products which could be considered for implementation in Guyana: Green mortgages loans for homes complying with green energy consumption standards; Green commercial building loans for commercial buildings with low energy consumption and reduced waste; Green auto loans for low GHG and high fuel efficient vehicles; and Green credit and debit cards with donations made to NGOs based on points for purchasing environmental friendly products.

5.3.8 Green Finance impact/promote Small and Medium Enterprises (SMEs)

Guyana is a developing country, and developing businesses need to balance between environment and business activities. Sustainable development is sometimes not economically viability. There is need for good infrastructure; sufficient and skilled human resources; and diversification even when environmentally oriented. Small and Medium Enterprises (SMEs) see an opportunity cost of utilizing green production processes and services. Those SMEs that can afford green investments will utilize the option because of long-term cost reduction. However, SMEs that cannot afford the high green technology costs will err on the side of profit maximization versus environmental sustainability. For example, during the stakeholder consultations some stakeholders highlighted the significant initial cost to SMEs setting up solar powered systems; a situation made worse given the lack of incentives to support switching to solar energy. This has led to significant solar energy projects being confined mainly to government, RDC or municipal buildings.

There is currently no significant mechanism to support the cost of going green except GBTI Green Loans and DBL clean-energy system loans. However, several businesses in Guyana have taken strides to implement green production/technologies. These SMEs benefit from lower cost of production and increased profits; boosting of their brand through media exposure; customer buy-in; employee satisfaction, strengthened relations with supply partners and other stakeholders.

Green Financing will promote SMEs in various sectors in different ways such as cheaper energy sources/renewable energy sources can encourage value added production; small miners can have access to green financing conditional on land reclamation activities; tourist operators can finance promotion of eco-tourism in Guyana on the international market; green manufacturing and services; transition to biodegradable or reusable packaging; purchase fuel efficient or hybrid powered vehicles, led lighting; sound testing; and waste water testing.

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**ANNEXES FOR GSDS STOCKTAKE
REPORT**

SUBMITTED BY

**FACULTY OF EARTH AND
ENVIRONMENTAL SCIENCES (FEES)**

AUGUST 21, 2018

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ANNEX 1: LIST OF STAKEHOLDERS

NAMES	POSITIONS	INSTITUTIONS	DATE OF ENGAGEMENT
Mr. Richard Rambarran	Executive Director	Georgetown Chamber of Industry and Commerce	June 19, 2018
Mr. David B. Fredericks BSc	Senior Research Scientist	National Agricultural Research and Extension Institute - NAREI	June 5, 2018
Ms. Natasha Beerjit	Monitoring & Evaluation Coordinator	Ministry of Agriculture	June 8, 2018
Dr. Jean David	Agricultural Diversification Specialist	Ministry of Agriculture	June 19, 2018
Mr. Patrick Thompson	Chief Transport Planning Officer	Ministry of Public Infrastructure	June 20, 2018
Ms. Germene Stewart	Chief Development Planner	Central Housing & Planning Authority	June 15, 2018
Mr. J. McKenzie	Permanent Secretary	Ministry of Natural Resources	June 19, 2018
Mr. KhemrarjPersram	Executive Director (Ag.)	Environmental Protection Agency	June 19, 2018
Mr. Colis Primo	Senior Environmental Officer	Environmental Protection Agency	June 19, 2018
Ms. O. Johnson	Personal Assistant to Mr. Francis Simmons – General Manager	National Data Management Authority	June 19, 2018
Mr. Newell Dennison	Commissioner	Guyana Geology and Mines Commission	June 19, 2018
Mr. KiranMattai	Legal/Energy Advisor to the Minister of Public Infrastructure	Ministry of Public Infrastructure	June 14 & 18, 2018
Mr. Horace Williams	Chief Executive Officer	Hinterland Electrification Company Incorporated	June 5 & 18, 2018
Ms. Shevon Wood	Head, Division of Energy and Energy Statistics	Guyana Energy Agency	June 18, 2018

ANNEX 2: GUYANA SCHOOL OF AGRICULTURE GRADUATES, BY GENDER, FROM 2012-2016

Guyana School of Agriculture Graduates 2012-2016															
PROGRAMME	2012			2013			2014			2015			2016		
	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL
TOTAL	75	35	110	77	48	125	71	49	120	85	53	138	97	59	156
Diploma in Agriculture	22	10	32	50	19	69	31	21	52	51	20	71	57	27	84
Certificate in Agriculture	5	7	12	4	8	12	4	6	10	6	1	7	9	6	15
Certificate in Fisheries Studies	9	6	15	4	10	14	8	7	15	9	7	16	0	0	0
Certificate in Forestry	3	0	3	1	0	1	0	0	0	0	0	0	26	10	36
Diploma in Animal Health & Veterinary Public Health	36	12	48	18	11	29	27	11	38	19	13	32	4	6	10
Certificate in Agro-processing	0	0	0	0	0	0	1	4	5	0	12	12	1	10	11

ANNEX 3 AGRICULTURAL INITIATIVES/DONOR DEVELOPMENT PROGRAMMES

Project Title	Funding Source	Implementing Entity	Government Counterparts	Duration	Amount (USD)	Project Details	Project Results
FAO Country Programming Framework(CPF): 2016-2019	Food and Agriculture Organisation of the United Nations (FAO)	FAO	Ministry of Agriculture, Public Health, Education, Social Protection, Natural Resources and Social Cohesion	2016-2019	3,000,000	Focuses on three priority areas: i. Food and Nutrition Security; ii. Sustainable management and utilization of natural resources (land, forest and fisheries), climate change and resilience of livelihoods to disasters; and iii. Agriculture, forestry, fisheries, hinterland and rural development.	<ul style="list-style-type: none">) Improved technical and institutional capacities for disaster and climate risk management and sustainable agriculture in Jamaica, Guyana and Suriname;) Strengthened institutional and coordination mechanisms and technical capacities for DRM/Disaster Risk Reduction (DRR) mainstreaming in the agriculture sector; i) Strengthened technical capacity of national institutions to employ DRR tools, practices and approaches in support of farming communities;) Strengthened capacity of farming communities to be resilient towards disasters;) Public awareness activities and dissemination of information on DRR practices and approaches among farming communities supported; i) Agricultural Diversification Action Plan for Guyana
Letter of Agreement with University of Guyana	FAO	University of Guyana	University of Guyana	2017-?	50,000	A grant for the establishment of a Food and Nutrition Security Institute at the Turkeyen Campus	A Food and Nutrition Security Institute
Letter of Agreement with University	FAO	University of Guyana	University of Guyana	2017-2018	99,500	A grant to facilitate technical socio-economic studies for	A comprehensive proposal for adaptation in agriculture which will be submitted to the

of Guyana						the preparation of a comprehensive proposal for adaptation in agriculture which will be submitted to the Green Climate Fund	Green Climate Fund
Inter-American Institute for Cooperation on Agriculture Technical Cooperation Strategy - Guyana 2014-2018	IICA			2014-2018		New “Flagship Projects: 1. Competitiveness and Sustainability of Agricultural Chains for Food Security. 2. Productivity and Sustainability of Family Agriculture for Food Security and the Rural Economy. 3. Resilience and Comprehensive Risk Management in Agriculture. 4. Inclusion in Agriculture and Rural Territories	
Sustainable Agricultural Development	IDB	Ministry of Agriculture	Bureau of Statistics	2017-2022	15,000,000	The objectives of the project are to produce high quality data for	Institutional strengthening, research, extension and support to farmers for technology adoption.

Program						<p>the agricultural sector; increase the productivity of the agricultural sector while maintaining a sustainable and climate resilient use of natural resources in Guyana; increase sanitary and phytosanitary standards and access to meat processing facilities.</p> <p>Activities will be concentrated in Region 9 and Region 10, where agricultural potential and availability of natural resources is greater</p>	<p>It is expected that higher productivity will also reduce pressure on forest and fragile ecosystems, and at the same time, increase incomes for small and medium-sized farmers.</p>
Promoting a Cluster Approach for Agricultural Diversification in Guyana	IDB	The Institute for Private Enterprise Development (IPED)			US\$1,000,000	<p>The project will enable small-scale farms to capture new commercial opportunities in farming for high value markets; the purpose of the project will be to facilitate the integration of contract</p>	<p>The result is to sustainably increase the crop incomes of contract farms and to provide year-round employment in the cluster for non-traditional agricultural crops.</p> <p>These farms will have access to new production technology and technical assistance provided by CADP to cultivate new crops as</p>

						farms into the cluster for non-traditional crops through the development and delivery of key agribusiness support services and access to investment capital.	well as loans from IPED
Agribusiness Knowledge Exchange Programme	IDB				14,000	The aim of this programme will be to promote an intra-regional knowledge exchange among the countries of the Caribbean, conducive to an expanded understanding of private sector new developments in small and medium sized companies in the agribusiness sector and the transformative power of technology	
Market Development for climate Resilient Food Products in Guyana	IDB				950,000	The project's objective is to develop an approach to work with the smallholders and community based companies to improve	

						the quality of select agricultural products, and to accomplish the requirements to get certifications that will allow these products to compete internationally	
Agriculture Export Diversification Project	IDB	Ministry of Agriculture		2008-2014	20,900,000	The goal of the project was to contribute to the increase of Guyana's growth rate and reduce its volatility. Its purpose was to establish services and institutions for a sustainable increase in the income derived from the export of non-traditional agricultural exports in aquaculture, fruits and vegetables, and livestock subsectors; enhancing the protection of domestic consumers from illness, and domestic production from disease and	The project entailed: <ul style="list-style-type: none"> • Promotion of the three cluster groups - fruits and vegetables, livestock, and aquaculture; • Strengthening of NAREI; • Promotion of Private Sector Entrepreneurship (PSE) in agribusiness; • Procurement of equipment and research materials for the plant and animal health laboratories. • Rehabilitation of control structures, access roads, and pump stations in the Canals Polder area

						contamination.	
Agricultural Support Services Project	IDB	Ministry of Agriculture	Ministry of Agriculture		22,500,000	<p>The project entailed provision for:</p> <ol style="list-style-type: none"> 1. Rehabilitation of control structures, access roads, and pump stations; 2. Completion of rice seed facility; 3. Purchase of equipment for New Guyana Marketing Corporation packaging facility; 4. Institutional strengthening for Water Users' Association and New Guyana Marketing Corporation. 	<ol style="list-style-type: none"> 1. Rehabilitation of control structures, access roads, and pump stations. 2. Completion of rice seed facility. 3. Purchase of equipment for New Guyana Marketing Corporation packaging facility. 4. Institutional strengthening for Water Users' Association and New Guyana Marketing Corporation.

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ANNEX 4 GENERAL SWOT FOR GUYANA'S AGRICULTURE SECTOR

Strengths	Weaknesses
<p>Agriculture contributes almost 20% of our economy, accounts for more than 33% of employment in the country, almost 40% of Guyana's export earnings come from agriculture. An average of about 11% of the national estimates goes to agriculture.</p> <p>The sector has an abundance of arable land and fresh water resources which provides a sufficient resource base for year round agriculture production.</p> <p>The climatic and geographic characteristic of the country is suitable for the growth and development of most tropical crops and livestock species.</p> <p>The absence of major climatic threats such as hurricanes and earthquakes.</p>	<p>Apart from rice and sugar, the commercial agriculture sector is in its infancy and opportunities for taking advantage of economies of scale are limited.</p> <ul style="list-style-type: none"> (a) Low Yields: our weakness lies in having more or less stagnant yields (apart from rice) compared to other countries(GSDS Thematic group 1 draft report) (b) (b) Low value addition and Food processing: Food processing and value addition are still emerging sectors in Guyana. It has the capability to generate employment (especially in rural communities), unfortunately, technology and facilities (e.g. dry tomato project of Paramakatoi) are now reaching these communities. (GSDS Thematic group 1 draft report) (c) Prohibitively high energy cost have a negative effect ON agriculture operations throughout the entire production value chain. <p>Post Harvest losses: On farm (cost of harvesting greater that cost of produce), farm to market (cost of packaging greater that cost of produce), and market (rejection by consumer) wastage of agricultural produce is a reflection of low processing levels in Guyana. (GSDS Thematic group 1 draft report)</p> <p>Lack of specific agriculture regulations (environment regulations, practices, control of residues and waste, control of diseases introduction) for both local and export purposes.</p> <p>Public-Private Sector Partnerships are in need of strengthening.</p> <p>Lack of access to finances</p> <p>Limited farm to market access and means of transport for export.</p> <p>No access to modern technology: The presence of agricultural extension in all regions of Guyana has initiated the vehicle whereby technology can reach farming communities. However, individualism of farmers (as opposed to organized clusters), reliance on traditional farming implements (as opposed to</p>

	<p>mechanization), village marketing of produce (as opposed to linkages with external markets or industry), are approaches that needs to be nurture. (GSDS Thematic group 1 draft report)</p>
<p>Opportunities</p> <p>Availability of land and water at relatively low cost.</p> <p>Decline in ocean capture for fisheries is an opportunity for aquaculture producers.</p> <p>Shade-house Cultivations: The uncertainty (including climatic) of open field vegetable production makes the use of protected agriculture and shade house cultivation an apt response. While shade nets and UV plastic mitigates against harmful radiation, raised beds and mulches mitigates against flooding and moisture loss in a controlled environment. Thus the opportunity exists to transition vegetable cultivation to protected cultivation (GSDS Expert Group 1, 2018).</p> <p>There is growing interest for Guyana’s non-traditional crops overseas. In 2016, Guyana’s exports of non-traditional agricultural commodities totaled 10,121 metric tonnes valued at G\$2 billion to Caribbean region and other overseas markets.</p> <p>The vast Ebini and Rupununi savannahs have been identified as new frontiers for agriculture with the common limitation of irrigation water. The current emphasis of developing water harvesting capacity presents the opportunity to engage research efforts to enhance productivity of these dry land areas and the income of these communities (GSDS Expert Group 1, 2018).</p> <p>Diversification: A number of encouraging research trials in various parts of Guyana were conducted on exotic crops (potatoes, onions, cauliflower, broccoli, spices, etc.). The opportunity exists to strengthen these commodity chains to reduce imports and save foreign exchange, enhance food security and health(GSDS Expert Group 1, 2018).</p> <p>Value added production: There is unlimited</p>	<p>Threats</p> <p>Short, medium and long term threat of flooding and drought, due to climate variability and change, salt water intrusion and disease outbreak. Flooding may also be caused by overtopping and old deteriorating drainage infrastructure.</p> <p>Loss of prime agricultural lands. A number of agricultural producing areas have over time been converted to other land uses (especially housing).</p> <p>Strong market competition from other exporting countries for non-traditional commodities</p> <p>Land Degradation</p> <p>The wetland method of rice cultivation has resulted in tonnes of soil and its nutrients being lost annually. This, coupled with salt water intrusion, and the inherent acid nature of Guyana’s soils poses threats of land degradation to coastal agriculture. As Guyana’s agriculture transition inland to higher elevations, the threat of water and wind erosion becomes a greater factor in our agriculture as land quality continues to diminish. (GSDS Thematic group 1 draft report)</p> <p>Lack of youth’s interest in agriculture: There is evidence (anecdotal??) that the average age of farmers has increased over time. This apparent trend continues even-though intake and outputs from agricultural institution (GSA and Faculty of Agriculture at UG remain high). It may be unwise to say that youths are not interested in agriculture when agricultural environment is not obviously economically rewarding (GSDS Expert Group 1, 2018).</p> <p>Inadequate agricultural policies, laws, regulations,</p>

<p>opportunity to develop this sector. Processing and solar drying are a few low cost and efficient technologies available to enhance this sector. Other low cost technologies such as hydroelectric, natural gas, bagasse energy mixes, etc. should be developed and implemented. If employed farmers, especially in the hinterland regions could realize greater income and create employment within communities (GSDS Expert Group 1, 2018).</p> <p>The Guyana Livestock Development Authority (GLDA) was established in 2010 to ensure that Guyana's livestock industry is developed in a sustainable manner and one which would contribute to the country's drive for self-sufficiency in meat and meat products, and ultimately to capture export markets.</p>	<p>strategic plans(GSDS Expert Group 1, 2018).</p> <p>Weak governance at semi-autonomous agricultural agencies(GSDS Expert Group 1, 2018).</p> <p>Weak and fluctuating state investments in Agriculture(GSDS Expert Group 1, 2018).</p>
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ANNEX 5 NATIONAL LEGISLATION PERTAINING TO ENERGY SECTOR

Title	Year	Description
Guyana Energy Agency Act 1997	1997	<p>The Guyana Energy Agency Act of 1997 (Act no. 31 of 1997) repealed the Energy Act, No. 2 of 1981.</p> <p>The Act makes provisions for the establishment of the Guyana Energy Agency and for specifying its functions and related matters. Part II of the Act details the establishment and constitution of the Guyana Energy Agency, its functions and powers, the terms of office members and their remuneration and other terms and conditions of appointment, the exercise of functions under Hydro-electric power Act, instructions by the Minister, and fees and resources of the Agency. Part III speaks to the establishment and constitution of the Energy Agency Board; Part IV addresses miscellaneous matters; and Part V address prosecution.</p>
Energy Sector (Harmonisation of Laws) Act 2002	2002	<p>This Act harmonises laws governing regulatory functions in the restructured electricity and energy sectors. It includes amendments of the Guyana Energy Agency Act 1997 and the Hydroelectric Power Act Cap 56:03 and direction that any reference in the Guyana Energy Agency Act 1997 to the Electricity Sector Reform Act 1997 would be interpreted as a reference to the Electricity Sector Reform Act 1999.</p>
Guyana Energy Agency (Amendment) Act 2004	2004	<p>The Act amends the Guyana Energy Agency Act 1997 to provide for the implementation of the fuel marking system, creation of offences and also for the granting and issuance of the various classes of licences, such as import licence, wholesale licence, importing wholesale licence, retail licence, bulk transportation carrier licence, storage licence, and consumer installation licence by the Agency.</p>
Guyana Energy Agency (Amendment) Act 2005	2005	<p>That Act clarified the definition of “illegal petroleum” and provided a definition for “markers”. This Amendment also paved the way for the appointment of a Gazetted Analyst, employed for the purpose of testing and identifying petroleum and petroleum products which do not contain the fuel marker in the required concentration.</p>
Guyana Energy Agency (Amendment) Act 2011	2011	<p>This includes provisions for the seizure and disposal of various items. Prior to the amendment, the GEA was required to transfer seized items to the GRA for disposal. Further, the amended Act, among other things, increased the limitation period from six months to seven years for the institution of charges and made provisions for settlement of matters out of court.</p>
Petroleum and Petroleum Products Regulations 2014	2014	<p>The Petroleum and Petroleum Products Regulations 2004 provided the framework for the marking of petroleum and petroleum products, the licensing of sites and related offences. In 2014, these Regulations were amended to reflect changes in</p>

		the Licensing Division and provide a suitable environment for encouraging business and investment. This included the granting of multiple year and Conditional licences and the creation of the Export Licence.
Hydroelectric Power Act and Regulations 1956	1956	<p>This Act makes provisions for the granting of licences authorising the utilisation of the waters of Guyana for the purpose of generating electrical energy.</p> <p>It gives the Minister the following powers: i) grant licenses to use water for power generation; ii) specify the price at which the energy may be sold and that these prices are subject to review during the currency of the license every five years; iii) grant up until 50 years, at the discretion of the President, and may provide a royalty payment; iv) acquire by expropriation the lands; and iv) regulate the construction, maintenance, operation, purchase and taking over of all works which may be deemed necessary for the purposes of the Act.</p> <p>The Hydroelectric Power Act 1956 includes a “Subsidiary Legislation - Hydro-Electric Power Regulations” section which develops in detail different aspects related with the license like application, general lay out plans, reports, amendments, terms of interim and final license, among others.</p>
Hydroelectric Power (Amendment) Act 1988	1988	This Act amends the Hydroelectric Power Act and refers to the delegation of the functions of the President.
Electricity Sector Reform Act 1999	1999	<p>The Electricity Sector Reform Act 1999 is the principal piece of legislation governing Guyana’s electricity sector. It is an Act to provide for the regular, efficient, coordinated and economic supply of electricity.</p> <p>Part II speaks to the requirement for licensing suppliers of electricity, both public suppliers (who provide electricity to consumers on a grid system) including independent power producers and private suppliers (such as individuals and companies that supply electricity to themselves and others in their immediate vicinity).</p> <p>Part III of ESRA establishes Guyana Power and Light Incorporated as a public company limited by shares with a mandate to operate in accordance with commercial principles. This section also sets forth the principles governing such matters as rural electrification programmes and the relationship between Guyana Power and Light Incorporated and independent power producers.</p> <p>Part IV of the Act specifies the Minister’s regulatory powers and limits those powers to areas that are appropriate for governmental regulation, e.g., public safety, the definition of technical standards and the procedure for licensing the supply of electricity, and matters affecting national energy policy.</p>
Electricity Sector Reform	2010	This Act amends the Electricity Sector Reform Act 1999 and

(Amendment) Act 2010		includes enhanced penalties for stealing electricity, meter tampering and illegal connection
Public Utilities Commission Act 2016	2016	<p>This Act makes provision for the establishment, functions, powers and procedure of the Public Utilities Commission and for the development of public utilities including the production and distribution of electricity and supply of water (except retail deliveries) and sewerage services. The Act establishes the Public Utilities Commission as a body corporate.</p> <p>This Act repeals the Public Utilities Commission Act 2010.</p>

ANNEX 6: STRATEGIC OBJECTIVES AND ACTIONS FOR HYDROPOWER AND SOLAR

HYDROPOWER OBJECTIVES	ACTIONS
<ul style="list-style-type: none"> • Develop and encourage the development and utilization of sources of energy other than those sources presently in use. • Conduct research into all sources of energy including those sources presently used will be conducted with the objective of generating energy. • Review hydro-electric power projects to determine the suitability of design and conduct inspections during construction to ensure compliance with the plans in keeping with its mandate under the Hydroelectric Power Act. 	<ul style="list-style-type: none"> • Asses the list of hydropower sites. • Development of a feasibility study for Kumu Falls, however, stream data is not available and as such the Agency is seeking to install a water level recorder to gather data for the design of the hydropower scheme. • From the success of this event, a total of two locations per year will be identified for the installation of these devices to help determine stream flow patterns. • Amaila Falls is expected to have an installed a capacity of 165MW. Construction was anticipated to have begun in 2014. <p>In general, other studies are identified:</p> <ul style="list-style-type: none"> • For Brazil to study the adjacent basins of the Mazaruni and Potaro Rivers and diversions within and between them so as to determine the most favourable arrangements and sequence for the development of hydropower sites. • to evaluate the feasibility of a possible collaboration on the energy transmission system for the electric interconnection of Guyana, Suriname, French Guiana and the northern cities of Boa Vista (State of Roraima) and Macapá (State of Amapa) (the Northern Arc Countries). • Continue to work with the Hydro-meteorological Department of the Ministry of Agriculture to measure and record hydrometric information in Guyana.
SOLAR OBJECTIVES	ACTIONS
<ul style="list-style-type: none"> • Develop and encourage the development and utilization of sources of energy other than those sources presently in use. • Demonstrate, research and utilize solar photovoltaic technology as a source of renewable energy to meet energy needs where appropriate. 	<ul style="list-style-type: none"> • Review and explore options for interconnecting renewable energy generators to the grid. • Once proven beneficial to all parties, encourage grid-tied options as a means of reducing investment in fossil-based generators and meeting incremental demand from renewable energy sources. • Promote the use of solar photovoltaic grid-tied technologies by using the current pilot installation as a working example of the benefits of grid-tied technology. • Continue to actively support the installation of solar photovoltaic systems across the country.

ANNEX 7: DONORS/DEVELOPMENT PARTNERS SUPPORT

Project title	Funding source	Implementing Entity	Government Counterparts	Duration	Amount (G\$million)	Project Details	Project Results
Electrification programme	IDB	Ministry of Public Infrastructure	Ministry of Public Infrastructure	2010-2018	1,025.000	The project entails energy conservation and loss reduction interventions: 1. Rehabilitation of low voltage distribution network. 2. Provision for capacity building.	1. Improved living conditions. 2. Improved efficiency in generation, transmission and distribution of electricity.
Power Utility Upgrade Programme	IDB	Ministry of Public Infrastructure	Ministry of Public Infrastructure	2014-2019	13,431.184	1. Provision for loss reduction. 2. Rehabilitation and upgrading of distribution networks. 3. Upgrade/relocation of distribution transformers. 4. Implementation of systems management software. 5. Institutional strengthening.	1. Improved living conditions. 2. Improved efficiency in generation, transmission and distribution of electricity. 3. Improved operational efficiency and management capabilities.
Sustainable Energy Programme	IDB	Ministry of Public Infrastructure	Ministry of Public Infrastructure	2014-2019	1,040.000	1. Procurement and installation of photovoltaic systems in hinterland and coastal locations. 2. Institutional strengthening.	1. Improved operational efficiency. 2. Improved quality energy access.
Renewable Energy Improvement Power System Project	Japan	Ministry of Public Infrastructure	Ministry of Public Infrastructure	2018-2021	3,120.000	1. Enhancing of sub-station equipment and distribution lines for Guyana Power and Light Inc. 2. Provision for photovoltaic and energy management systems for	1. Improved transmission and distribution capabilities. 2. Increased use of clean energy alternatives.

						CARICOM Secretariat.	
Grid-Tie Photovoltaic Project	CREDP-GIZ	OPM	OPM	2011-2012	7.454	Provision of equipment including promotional aids for grid-tie PV system	Demonstrating and Understanding grid tie solar systems
Grid-Tie Photovoltaic Project		Ministry of Public Infrastructure	Ministry of Public Infrastructure	2015-2016	5.0	Provision of solar grid tie system	Further demonstration of grid tie systems

ANNEX 8: ONGOING PROJECTS FOR THE EDUCATION SECTOR

Project Title	Funding Source	Implementing Entity	Government counterparts	Duration	Amount (USD)	Project Details	Project Results
Education for All-Fast Track Initiative (EFA-FTI) Project	World Bank	Ministry of Education	Ministries of Education and Finance	2008-2012	32.92 million	<p>The aim of the project was to achieve universal primary school completion for girls and boys by 2015 by improving primary education in the hinterland regions (1, 7, 8 &9).</p> <p>Project Components -</p> <ol style="list-style-type: none"> 1. Improving the quality of the teaching force in the hinterland <ul style="list-style-type: none"> • Training of qualified teachers using the Guyana Basic Education Teacher Training approach • Continuous Professional Development for all teachers • Satellite learning centers for teachers within a school cluster • Construction of teachers' houses and payment of remote area incentives 2. Enhancing the teaching/learning environment in primary schools <ul style="list-style-type: none"> • Child-friendly classrooms in coastal schools • Improvement of utilities (water, electricity) and sanitary facilities • Provide primary school students with textbooks 3. Strengthening school/community partnerships <ul style="list-style-type: none"> • Implementation of school improvement plans 	<p>The nationwide primary completion rate increased and reached the target of 100%.</p> <ul style="list-style-type: none"> • from 85.5% in 2000 to 103.8% in 2012 for boys and girls. • from 87.4% in 2000 to 104.6% in 2012 for boys • from 91.6% in 2000 to 104.4% 2012 for girls <p>The primary completion rate in the hinterlands increased from a baseline of 64.8% to 118.8%.</p> <p>Positive results on school attendance, completion rates, academic performance, nutritional status and parent and community participation.</p>

						<ul style="list-style-type: none"> • upgrade the existing school feeding programme in the hinterland 	
Enhancement of Technical and Vocational Education and Training (TVET) Programme	Caribbean Development Bank (CDB) and GoG	Ministry of Education	Ministries of Education and Finance	2008-2014	9.6 million	<p>The project aims to enhance access to, and improve the quality and effectiveness of, the Technical and Vocational Education and Training (TVET) system in Guyana.</p> <p>Components -</p> <ol style="list-style-type: none"> 1. Enhancing the TVET teaching and learning environment – <ul style="list-style-type: none"> • Improvement of the physical infrastructure, the provision of furniture, equipment, and teaching and learning resources to meet facility standards required for Caribbean Vocational Qualification (CVQ) Levels I and II 2. Improving the quality, relevance and effectiveness of TVET instruction <ul style="list-style-type: none"> • Continuing professional development, and diploma- and degree-level training for TVET teachers 3. Strengthening capacity within the educational sub-sector <ul style="list-style-type: none"> • Training and professional development to enhance governance and management of the TVET sub-sector • Review of the TVET sub-sector and the Special Educational Needs Policy framework 	<p>Construction of 2 new technical schools in Leonora and</p> <p>Experiment in Regions 3 and 5 respectively, equipped with state-of-the-art furnishings</p> <p>Equipment for the existing technical institutes and training of over 125 instructors and 25 teachers</p> <p>Adoption of a TVET strategic plan and regional standards for key occupational activities</p> <p>Development of a teacher training programme, a competency framework, a TVET electronic database and a comprehensive maintenance plan for facilities</p>

						<p>4. Enhancing second-chance opportunities for at-risk and unskilled learners</p> <ul style="list-style-type: none"> • Training to develop entrepreneurship capacity and exposure to innovative work-readiness strategies • Distribution of start-up kits to trainees with an interest in business development and entrepreneurship 	
Guyana Improving Teacher Education Project (GITEP)	World Bank and GoG	Ministry of Education	Ministries of Education and Finance	2011-2015	5.12 million	<p>The aim of the project was to improve the efficiency and effectiveness in the delivery of quality teacher education in Guyana.</p> <p>The main intervention was the delivery of the New Associate Degree programme at the Cyril Potter College of Education (CPCE) and the Bachelor of Education at University of Guyana (UG).</p> <p>This project entailed the development of appropriate courses, integration of Information and Communication Technology (ICT) into the teaching learning process, and building capacity through training programmes for teacher educators and administrators at CPCE and UG.</p>	<p>Reduction in the time taken to earn a Bachelor of Education Degree from 7 years to 4 years</p> <p>Reduction in the cost of teacher training related to Associate Degree programme at the Cyril Potter College of Education (CPCE) and the Bachelor of Education at University of Guyana (UG).</p> <p>Increase in the number of teachers graduating from the Associate's Degree programme</p> <p>Improvement in the performance of CPCE Lecturers and student teachers</p>
Guyana Secondary Education Improvement Project	World Bank	World Bank	Ministry of Education	2014-2020	10 million	<p>The objectives of the Guyana Secondary Education Improvement Project is to</p> <p>(i) strengthen the capacity of secondary school mathematics</p>	Ongoing

						<p>teachers nationwide, and</p> <p>(ii) increase enrollment in general secondary schools in targeted regions.</p> <p>Components –</p> <ol style="list-style-type: none"> 1. Strengthen the Capacity of Secondary School Mathematics Teachers Nationwide 2. Expansion of General Secondary School Facilities 3. Strengthen Institutional Capacity and Project Management 	
Guyana Early Childhood Education Project	World Bank	World Bank	Ministry of Education	2015-2018	1.7 million	<p>The objective of the project is to improve emergent literacy and numeracy outcomes for children at the nursery level and primary grade one in Hinterland regions and targeted remote riverine areas</p> <p>Components -</p> <ol style="list-style-type: none"> 1. Capacity Building for Nursery and Grade 1 Teachers in Hinterland Regions and Targeted Remote Riverine Areas 2. Provision of Early Childhood Education Resource Kits to all Nursery and Grade 1 Classes in Hinterland Regions and Targeted Remote Riverine Areas 3. Parental/Caregiver Education 	Ongoing
Guyana Education Sector Improvement Project (GESIP)	World Bank	World Bank	Ministries of Education and Finance	2017-2023	14.03 million	<p>The objectives of the Project are to support the Government in improving</p> <p>-</p> <ol style="list-style-type: none"> 1. Integrated Curriculum Reform and training at the pre-primary, 	Ongoing

						<p>primary, and lower secondary levels in Hinterland Regions 1, 7, 8, and 9, and</p> <p>2. learning environment in the Faculty of Health Science at the University of Guyana (UG) with a new building and facilities</p>	
Guyana Skills Development and Employability Project	Caribbean Development Bank (CDB)	Ministry of Education	Ministries of Education and Finance	2017-2021	14.04 million	<p>The project aims to improve capacity to deliver Technical Vocational Education and Training (TVET) programmes across the secondary education sectors in Guyana.</p> <p>Components –</p> <p>1. Enhanced Learning Environment:</p> <ul style="list-style-type: none"> • refurbishment and expansion works at 7 secondary level facilities • provision of furniture, equipment and learning materials • renewable energy/energy efficiency retrofitting of the existing infrastructure <p>2. Enhanced Capacity for Instructional Effectiveness:</p> <ul style="list-style-type: none"> • continuing professional development, diploma, and degree level training to enhance instructional quality for 188 teachers in specific areas of need • study tours and industry attachments for 10 TVET teachers/instructors. <p>3. Enhanced Governance and Management Capacity:</p> <ul style="list-style-type: none"> • training and professional development for 524 	Ongoing

						<p>teachers, principals, MOE officers and industry experts in specific areas needed</p> <ul style="list-style-type: none"> operational review of the TVET sub-sector and the Special Educational Needs Policy framework strengthen the health and family life education curriculum; implementation of agreed Council for TVET Public Awareness Activities study tours for 26 school leaders and education officers. <p>4. Enhanced Second-chance Opportunities and Entrepreneurship Skills Development:</p> <ul style="list-style-type: none"> review and enhancement of continuing education programming work readiness and entrepreneurship skills development training for 200 participants provision of start-up kits for 100 learners graduating from the project Practical Instruction Centres and Practical Instruction Departments <p>5. Technical Assistance:</p> <ul style="list-style-type: none"> development of a natural hazard risk profile for the education sector development and piloting of a national school health and safety programme design of a new Hospitality 	
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						Training Institute	
Youth Educators Safeguarding our Workforce (YES) Programme	US Peace Corps	Ministry of Education	Ministry of Education	2012	Not available	<p>Project targeting Grades 5 and 9 students in schools across Guyana, focusing primarily on the intervention of trained youth educators as resource personnel in the execution of HIV/AIDS and Health Education sessions in the classroom.</p> <p>The objectives of the project are:</p> <ol style="list-style-type: none"> 1. improve the education and health of school children, teachers and members of the education sector in Guyana. 2. prevent the spread of HIV by educating internal and external clients of the various sectors on HIV & AIDS and its potential impact. 3. provide care and support for persons infected and affected by HIV and AIDS. 4. promote positive behaviour change among internal and external clients of the Ministry. 	<p>Completion and Launch of the Education sector Policy on School Health, Nutrition & HIV & AIDS</p> <p>Introduction of Sexual Reproductive & HIV Prevention Workshop to Hinterland Communities (Regions 1, 7, 8 & 9).</p> <p>Production of a Simplified Handbook of the School Health, Nutrition & HIV & AIDS Policy</p> <p>Production of HIV Prevention Posters and Brochures for under the theme, "Change Begins With Me"</p> <p>Introduction of HIV Risky Behaviour Workshops to Hinterland Scholarship students, Dormitory students & Grade 6 students (Regions 10, 4 & 8)</p> <p>Introduction of HIV Psycho-Social Workshop to Pre and In-Service Teachers at Cyril Potter College of Education.</p> <p>Development of HIV Information</p>

							and Research corner for Teachers, Students, Employees and General Public and Condom distribution at School Health Unit
Other non-specific education interventions	Caribbean Development Bank	Basic Needs Trust Fund (BNTF)	Ministry of Education	2009-2012	6 million	Targeted building capacity in rural/hinterland communities through basic certificate courses in numeracy and literacy and computer training and construction/rehabilitation of schools and teachers' houses in Guyana	Programme increased numeracy and literacy levels among underperforming students
Community, Family and Youth Resilience(CFYR) Project	United States Agency for International Development (USAID)	Ministry of Education	Ministry of Education	2017-2018	18,952	Provision of equipment (included 3 laptops, 3 external DVD Drives, 3 projectors, 3 speakers and 3 CD players) to be used by youth educators for the YES programme. Support Community Enhancement Committees (CECs) to work with administrators of the schools attended by most of the children from target communities to implement Positive Behaviour Intervention and Support (PBIS) systems.	Ongoing
ICT Access and e-Services for Hinterland, Poor and Remote Communities project	Guyana REDD+ Investment Fund (GRIF)	United Nations Development Programme (UNDP)	National Data Management Authority (NDMA)	2017-2021	17 million	Strengthen Guyana's E-government policy environment and legislation with respect to Hinterland, Poor and Remote (HPR) communities Ensure that citizens in these communities have increased access to Public e-services and information and	Ongoing

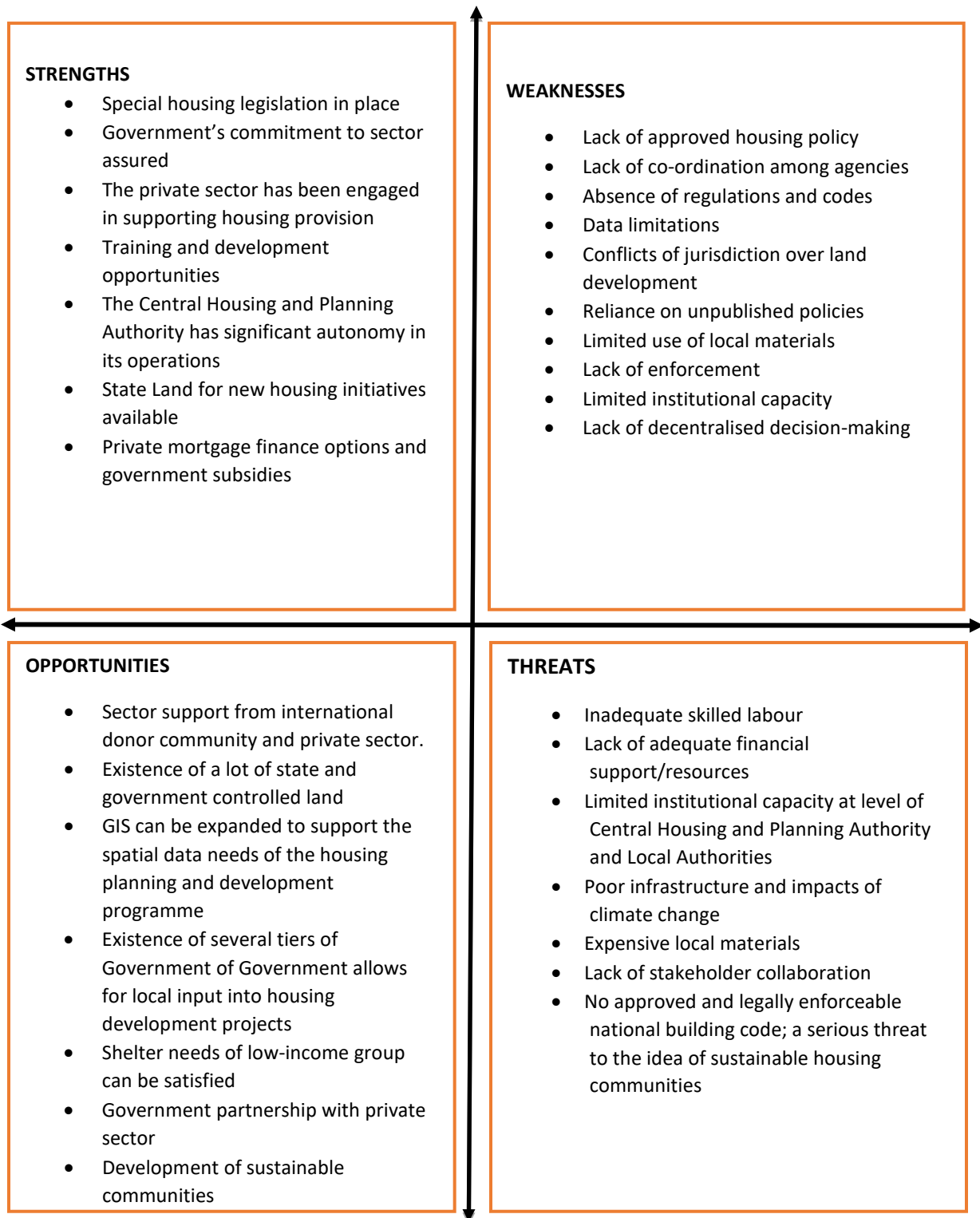
						training to build their capacity to use ICTs.	
Solar Lanterns Project	Panasonic Corporation	United Nations Development Programme (UNDP)	Ministries of Finance, Health and Education	2018	Not available	120 solar lanterns to off-grid communities to extend the duration of social services such as medical services, schools, and ensuring women's safety at night	Not available
Youth Engagement for Community Based Disaster Risk Management (CBDRM) Project	United Nations Education, Science and Culture Organization (UNESCO)	UNESCO	Civil Defence Commission	2018	15,000	Promote disaster risk management awareness among youths while ensuring their active involvement in DRM	Not available
CARICOM/UNFPA Integrated Strategic Framework	United Nations Population Fund (UNPF)	CARICOM/United Nations Population Fund (UNPF)	Government of Guyana	2017-2021	16.8 million (among 22 countries)	Reduce adolescent pregnancy by 20 % by the year 2019 Safeguard adolescents' access to quality sexual and reproductive health services and commodities; age appropriate, comprehensive sexuality education; social protection mechanisms for the prevention of all forms of violence; and countries adopt common legal standards concerning age of marriage and consent across the region	Ongoing
FAO Country Programming Framework: 2016-2019	Food and Agriculture Organization of the United Nations (FAO)	FAO	Ministries of Agriculture, Education, Public Health, Social Protection, Indigenous People's Affairs and	2016-2019	3 million	Supporting government programmes aimed at the vulnerable towards accelerating the reduction of food insecurity, malnutrition and poverty Expansion of the National school feeding programme with emphasis on	Ongoing

			Social Cohesion			nutrition, changes in life long food choices, food safety and linking public purchase to local farmers.	
UNICEF Country Programme (2012-2016)	United Nations Children's Fund (UNICEF)& Pan-American Health Organisation	Ministry of Education	Ministry of Education	2012-2016	1.2 million	<p>Among the initiatives for education are Health and Family Life Education (HFLE), Special Education Needs, Promoting and Upgrading Child-friendly Classrooms and Dormitories, Improving the School Welfare service and supporting Monitoring and Evaluation activities.</p> <p>Develop School Health Plans and programmes to help maintain a clean, safe school environment. The Ministry also drafted a Disaster Preparedness Plan.</p>	Not available
UNICEF Country Implementation Plan (2017-2021)	United Nations Children's Fund (UNICEF)	Ministry of Education	Ministry of Education	2017-2021	Not available	<p>Components -</p> <ul style="list-style-type: none"> • Expand Health and Family Life Education with a focus on skills development and sexuality education, and use evidence from a Teenage Pregnancies Situation Analysis • Equitable and inclusive early childhood services especially for the most vulnerable girls and boys • Promotion of positive learning and inclusive environments for all children and adolescents • Integrate climate change in education, through advocacy with policy makers, integration into existing curricula and 	Ongoing

						education programme, particularly in secondary education, development capacity of teaching staff and staff of organizations involved in formulation and implementation of non-formal education programmes	
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ANNEX 9: SWOT ANALYSIS OF THE HOUSING SECTOR



Source: R. Edinboro, 2018

ANNEX 10: SPECIAL PROJECTS INFRASTRUCTURAL DEVELOPMENT PLAN (TO BE SUBMITTED)

ANNEX 11 KEY FUTURE TRANSPORT SECTOR PROJECTS

TIMELINE OF PROJECTS		
TIME PERIOD	PROJECTS TO BE PRIORITIZED	FUNDING REQUIRED
2020-2025	Expansion of Roads in Regions 1,6,7,8,9 East Bank to East Coast Link Phase 2 Road connectivity along WBD Linden to Lethem Road Upgrade Phase 2-3 Legislative Agenda will be defined early to ensure the right of way for all projects are available and provided for	2B USD
	Development of Waterfront stelling and ports Sea Defense Shore Protection Regional Airport development at Spoken Hubs Natural Gas development Hydropower development Expansion of Urban administration outside of Georgetown	

TIMELINE OF PROJECTS			
TIME PERIOD	PROJECTS TO BE PRIORITIZED	COMMITTED FUNDING	ADDITIONAL FUNDING REQUIRED
2017-2020	Roads: Sherriff Street- Mandela Ave Upgrade ,Carifesta Ave. Roundabout, Pedestrian Overpasses East Bank to East Coast Link Phase 1, East Coast Demerara Improvements , Parika to Goshen Road Link , Goshen to Sand Hills Road Link, Goshen to Monkey Jump , Free N Easy to Goshen Road Link , Light Town to Mara Road Link , Linden to Soesdyke Highway Rehabilitation , Linden to Lethem Road Upgrade Phase 1	175M USD	1.3B USD
	Bridges New Demerara River Bridge Kurupukari Crossing Hinterland Bridges	22M USD	
	Sea Defense Shore Protection of Sea and River Defense , Boardwalk at Georgetown Seawall, Parika Stelling , Vreed-en-Hoop Stelling Bartica Stelling , Stabroek Port development	145M USD	
	Spoken Hub Aerodrome development		
	Renewable Energy: Solar Farm development , Hydro power development ,Windfarm development		

Source: Ministry of Public Infrastructure, 2017

ANNEX 12 BUDGETARY MEASURES FOR THE PRIVATE SECTOR

Budgetary Measures in Support of the Private Sector, 2018																					
Forestry	<ul style="list-style-type: none"> The restriction of the importation of Pine Wood and Pine Wood Products. Increase of Common External Tariff (CET) on Pinewood and Pinewood Products from 5 % to 40 %. The exemption from VAT a supply of logs and rough lumber to the sawmilling industry. Commencement of a forest inventory. Government to partner with the private sector in a Public Private Partnership to establish a Dimension Stockyard. 																				
Gold mining	<ul style="list-style-type: none"> Reduction in the Tributor's Tax from 20 % to 10 %. Replacement of the current "2% of the gross proceeds" regime with a sliding scale percentage that is based on the price of gold: <table border="1"> <thead> <tr> <th>Price of Gold (per ounce)</th> <th>Percentage Income Tax Payable</th> </tr> </thead> <tbody> <tr> <td>Under US\$1,100</td> <td>2% Income Tax (Final Tax)</td> </tr> <tr> <td>US\$1,100 and under US\$1,300</td> <td>2.5% of Gross Proceeds (Final Tax)</td> </tr> <tr> <td>US\$1,300 and under US\$1,600</td> <td>3% of Gross Proceeds (Final Tax)</td> </tr> <tr> <td>Over US\$1,600</td> <td>3.5% of Gross Proceeds (Final Tax)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Price of Gold (per ounce)</th> <th>Percentage Income Tax Payable</th> </tr> </thead> <tbody> <tr> <td>Under US\$1,100</td> <td>2% Income Tax (Final Tax)</td> </tr> <tr> <td>US\$1,100 and under US\$1,300</td> <td>2.5% of Gross Proceeds (Final Tax)</td> </tr> <tr> <td>US\$1,300 and under US\$1,600</td> <td>3% of Gross Proceeds (Final Tax)</td> </tr> <tr> <td>Over US\$1,600</td> <td>3.5% of Gross Proceeds (Final Tax)</td> </tr> </tbody> </table>	Price of Gold (per ounce)	Percentage Income Tax Payable	Under US\$1,100	2% Income Tax (Final Tax)	US\$1,100 and under US\$1,300	2.5% of Gross Proceeds (Final Tax)	US\$1,300 and under US\$1,600	3% of Gross Proceeds (Final Tax)	Over US\$1,600	3.5% of Gross Proceeds (Final Tax)	Price of Gold (per ounce)	Percentage Income Tax Payable	Under US\$1,100	2% Income Tax (Final Tax)	US\$1,100 and under US\$1,300	2.5% of Gross Proceeds (Final Tax)	US\$1,300 and under US\$1,600	3% of Gross Proceeds (Final Tax)	Over US\$1,600	3.5% of Gross Proceeds (Final Tax)
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Housing	Exempt from VAT complete housing units costing up to \$6.5 million, that are built by, or on behalf of, the Central Housing and Planning Authority (CH&PA) or any other approved entity.																				
Transportation	<ul style="list-style-type: none"> Reduction in the rates of Excise Tax on the importation of overland transportation used for tourism purposes in Regions Nos. 1, 7, 8 and 9. This concession will be applicable to vehicles between 2,000 cc and 4,000 cc that are used exclusively in the tourism sector for the transport of persons by incorporated entities that have been operating in those regions for at least five years. <ul style="list-style-type: none"> For vehicles 2,000 cc to under 3,000 cc and which are less than 4 years, the Excise Tax would be slashed from 110 % to zero; for vehicles over 3,000 cc to 4,000 cc and which are less than 4 years, the Excise Tax would be reduced from 140 % to zero Free vehicle licences to motor buses and motor vehicles that operate in Regions Nos. 1, 7, 8 and 9 Removal of VAT on vehicles that are less than 4 years, which are used to transport more than 21 persons Removal of Excise Tax flat rate of US\$6,900 which will be replaced with VAT of 14 %, on 																				

	vehicles 4 years and older that carry between 22 and 29 passengers
Small Business	<ul style="list-style-type: none"> • The Ministry of Business, through GO-INVEST, and the Ministry of Finance, through GRA, will embark on an intensive education program aimed at sensitising small businesses to the availability and accessing concessions available under the various Tax Acts, the Small Business Act and those offered through Investment Development Agreements (IDAs). • The sum of \$100 million has been allocated to replenish the Small Business Development Fund.
Educational Services	<ul style="list-style-type: none"> • Removal of VAT on the provision of all educational services.
Day Care Centres	<ul style="list-style-type: none"> • Employers who provide day care services to their employees, and businesses that provide and construct handicap facilities will be allowed to deduct as an expense the capital costs and expenses related to such provisions.

Source: Ministry of Finance (2018)

ANNEX 13 PRIVATE SECTOR’S SPECIFIC INTERVENTION FOR SUSTAINABLE DEVELOPMENT OF GUYANA

Economic Stability
Adhere to sound macroeconomic policies and framework
Formulate plans for continuous development into the future
Articulate government fiscal policy
Public-Private Dialogues and partnerships
Development of an Economic Growth Council for Guyana
Identification of drivers for economic growth
Economic diversification to withstand external shocks
Improved investment and business climate – enabling environment
Good governance and strengthened public administration
Export Markets/Trade
Enhance knowledge and understanding of trade, business and investment issues within relevant agencies
Facilitate the flow of trade information between public institutions
Develop a civil society outreach program for negotiations especially opportunities of CSME
Strengthen the private sector’s capacity to advocate its interests in the trade negotiation process and the development of policies affecting the business enabling environment
Create Trade Point Guyana at the Guyana Office for Investment (Go-Invest) and links to the other trade related agencies to become a Market Place
Create technical unit of sector specific specialists in Ministry of Business (MOB) & Ministry of Foreign Affairs (MFA) and provide further specialists in other trade-related agencies, including the private sector
Strengthen existing mechanisms to defend Guyana’s trade interests
Pursue more export markets
Establish Export Processing Zones
Improve market access via airport and shipping ports expansion
Competition and Consumer Protection Policy
Strengthen consumer associations
Develop and enforce anti-dumping legislation
Develop and enforce Mergers & Acquisition legislation
Taxation Policy
Conduct a study to examine options for improving the efficacy of the current system of fiscal and duty incentives and tariff structures, as part of the same study that will be looking at the options for unifying and reducing Corporate Income Tax (CIT)
Following the results of the study, refine the system of fiscal and duty incentives and/or tariff structure in a way that improves the business friendliness of the tax environment without unduly compromising government revenue
Improve public expenditure management
Taxation Guide
Review Value Added Tax (VAT)
Review VAT on Water and Electricity
Review of Corporate Tax

Review of Personal Income Tax
Review of measure imposed to transfer zero-rated items to exempt
Supply Side Policies
Ensure effective implementation of the Investment Act through (a) development of appropriate regulations and other implementing measures and (b) setting-up the Investment Promotion Council
Review the Investment Act (and other related legislation) to (i) further reduce outstanding discretionary loopholes; (ii) tighten the article on expropriation; (iii) revise Go-Invest mandate; (iv) review and expand the role of The Investment Promotion Council
Create a new vision for Go-Invest to reflect its increasingly important role in country image building, facilitation, investment generation, policy advocacy, and export promotion by approving a new expanded charter through revised Order under the Public Corporations Act
Expand the capacity and capabilities of Go-Invest
Export Promotion and Facilitation
Refocus Go-Invest export promotion services to offer two key services at the firm-level: exporter readiness assessments and specific “value-adding” advisory services
Improve export facilitation efficiency to internationally-benchmarked standards
Conduct a study to examine options for improving the system for export taxes and incentives for export to (i) give equal treatment to exports to CARICOM and (ii) reduce or eliminate export taxes Following the results of the study, refine the system for export taxes and incentives for export to effectively stimulate exports in a way which does not unduly compromise government revenue
Study policy options for designing tax incentives that do not introduce overly burdensome administrative overheads to encourage the provision of firm-level business to business export promotion services
Maximize use of New Guyana Marketing Corporation (NGMC) limited resources by re-focusing the target of export promotion on providing information and advisory services that support value added initiatives
Maximize the initial impact of activities delivered by the Forest Products Development and Marketing Council (FPMC) by focusing resources on seeking out investment linkages with North American wood processors and CARICOM importers/distributors
Increase the provision of firm-level assistance to firms to strengthen their capacity to penetrate new markets with value added products
Develop in-country programmes to continually promote: (a) Guyanese products in CARICOM markets; and (b) integrated investment promotion/export promotion strategies for investors/exports
Strengthen the capacity of Guyana’s Export Promotion Agencies (Go-Invest, NGMC, FPMC) by: (a) charging user fees; and (b) marketing fee-based project management services to clients
Expand the role of the Investment Promotion Council (IPC)
Revise Go-Invest and NGMC’s charter to reflect their roles in the provision of export promotion services through revised Order under the Public Corporations Act
Establish special Economic Zones across Guyana to facilitate investment and promote exportation
Access to Finance
Develop a comprehensive land and property markets policy
Improve land administration
Promote understanding of property related economic opportunities
Review the legal framework in relation with establishment and perfecting securities interests in other property than land (both movable and non-movable property)
Establish a legal framework which enables profitable leasing activities

Conduct a study examining options for reducing restrictions on borrowing abroad, opening foreign currency accounts and on the use of foreign currency
Following the results of the study, revise regulations governing borrowing abroad, opening foreign currency accounts and on the use of foreign currency to improve the efficiency of business transactions for export
Determine if the competitive situation in the financial sector is delivering value to customers and the wider economy
Study policy options for extending temporary tax incentives for long term lending and investing in enterprises
Develop an awareness program for financial services institutions designed to outline progress made in the areas of property rights and commercial dispute resolution and involve the financial services sector in all future activities related to property rights and commercial dispute resolution
Establish an export credit insurance scheme and appropriate legal framework to reduce the commercial and political risk of exporters
Establish a Matching Grant Fund to address weaknesses of enterprises in the area of business planning, project appraisal, accounting, financial management and marketing and also improve capacity of local financial institutions to appraise long term projects in non-traditional exports
Develop an awareness program for the business community about the availability of typical export finance services in Guyana for the (potential) exporter and prepare a catalogue describing the various services including costs, requirements of accessing them and possible restrictions
Revise Guyana Association of Securities Companies and Intermediaries Inc. (GASCI) Trading Rules to Accommodate the Odd Lot System
Establishment a Junior Stock Exchange
Promote small business finance through Local Government
Human Capital Development
Develop rapid response skills training to meet urgent needs in basic technical skills through a multiplicity of training centers
Design and implement a pilot development project for the forest products sector in partnership with the private sector (especially the FPMC) to test and agree on best practices for developing policy for future sector specific training with multiple partners
Improve current mechanisms for the collection, analysis and dissemination of labor market information and establish a proper industrial classification of occupation, wage structure and trends in employment
Assess the strengths and weakness of the current policy framework for the retention and attraction of skills and identify policy options for improving skill retention and attraction
Conduct a study to assess the human resource needs of the business sector
Need for national apprenticeship programmes
ICT in the development of human capital
Mechanism for training facilities to be incubators for entrepreneurs
Business Development Services
Develop a training programme targeting the development of a National Conformity Assessment System for a number of international standards, including ISO 9001, ISO Guide 65 and ISO 17020
Assist firms and government agencies in their efforts to receive certification in ISO 9001, 14001, 17025, 17020, 22000 guide 65 and GYS 231
Establish a poultry laboratory and upgrade Guyana's veterinary diagnostic capacity
Upgrade the capacity of the Food and Drug Department to carry out nutritional analysis and risk based certification testing
Provide Business Development Services (BDS) support to targeted non-traditional exporters to develop the

systems, standards and capability to grow and become competitive in export markets
Study policy options for designing tax incentives that do not introduce overly burdensome administrative overheads to encourage the development of private BDS networks of service providers, farmers, and enterprises
Maximize the efficiency of existing BDS programmes by stimulating existing networks of BDS service providers through the development of an organizational structure
Enhance certification quality management systems by focusing efforts in a number of strategic areas through (i) introducing Forest Stewardship Council (FSC) and Non Timber Forest Products (NTFP) certifications for export markets in the forestry sector (ii) enhancing organic certification for export markets in the fruits and vegetables sector
Increase support for ISO certification to enhance enterprises quality management systems in strategic sectors
Strengthen the technology promotion infrastructure by (i) creating a food incubator linked to Institute of Applied Science & Technology (IAST) to promote modernisation, innovation and stimulation; and (ii) revamping and reactivating the IAST in order to have a fully functioning technology center providing BDS to companies
Update the legal regulatory framework for BDS by (i) creating a “Guyana food label” with a coordinated quality insurance system and (ii) enacting the food control bill
Establish a Business Information Center / Knowledge Center affiliated to Go-Invest to provide marketing support and business information services through Trade Points software
Assist Businesses to improve export quality standards/certification
Encourage Joint Ventures, Production Licensing Agreements
Inform businesses about sanitary & phyto-sanitary requirements for exportation
Infrastructure
Consolidate structural reforms in the electricity sector, promote the development of markets for energy efficiency, and promote rural energy development
Complete construction and rehabilitation of paved road network through completion of four lane highway, the Harbour Bridge to Ruimveldt, resurfacing of Demerara Harbour Bridge and replacement of wooden bridges along West Demerara road
Rehabilitate the non-paved road network
Support reforms to (i) address Guyana’s capacity to finance, operate, maintain and expand urban infrastructure and services on a sustainable basis; and (ii) rehabilitate infrastructure and re-establish municipal services in Guyana’s six urban municipalities
Prepare a Secondary Towns Development Plan to improve the governance systems, infrastructure and the quality of basic services provided to Charity, Supernaam, Parika and Bartica
Steadily upgrade and improve maintenance of the Linden-Lethem road including bridges to support container trucks
Construction of deep water berth in Berbice, to reduce transport costs
Develop a legal framework and policies for public-private-partnerships (PPPs)
Develop more advanced road maintenance and bridge construction schemes, such as Build, Operate and Turnover (BOAT), to deliver higher quality roads and bridges along the entire transport chain
Revise the legislative and regulatory framework governing the telecommunications sector so as to encourage, facilitate and effectively regulate a fully competitive sector that will act as an engine of growth for the economy
Assess the feasibility of providing air cargo space storage with refrigeration facilities at Cheddi Jagan International Airport and Eugene F. Correira International <i>Airport</i> (formerly Ogle)
Assess the feasibility of introducing an Integrated Management Information System (MIS) and Electronic Data Interchange (EDI) for the shipping community
Strengthen the maritime sector by reorganizing the Maritime Administration (MARAD) operating structure to

enhance planning and regulation of the port and maritime sector
Conduct a spatial analysis of the location of strategic sectors likely to drive growth and diversification and develop an action plan to serve their immediate, medium, and long term projected transport needs.
Establishment of a Public-Private Partnership Unit for infrastructure projects
Energy
Optimal Energy Matrix; Mix of hydro, gas, solar, wind and bio-energy in the energy matrix of Guyana
Cheaper and reliable energy for manufacturing
Removal of VAT on electricity
Provision of dedicated feeders to large consumers (industrial areas)
Adjust tariff to large manufacturers
Provide incentives for investments in renewable energy options
Update government's energy policy
Adjusted/reduced tariffs for manufacturing/private sector entities based on performance thresholds (200 000 kWh)
Incentives for renewable energy options such as gasifiers to utilize biomass, e.g. in wood processing and agro-processing (rice husk etc.)
Accelerate initiatives aimed at grid improvements (transmission and distribution)
Business participation in energy projects – Public Private Participation
Bureaucratic Procedures
Bring Deeds Registry Authority Act into effect and make the agency semi-autonomous
Reorganize the Deed's Registry workforce and develop training programme for staff to meet demands of new agency status
Expand the use of information technology to allow for the automation of all registration procedures, the conversion of all manual records into digitized images, and the backward integration into the new Tax Identification Number (TIN) system at GRA
Land and Property Markets
Improve land administration by streamlining the land lease allocation system, standardizing procedures in order to reduce elements of discretion, and establishing a fast track system for allocation of land leases for small farmers and export oriented producers
Develop a comprehensive land and property markets policy
Further improve land administration procedures by (i) transferring delegation of the transports certificates administration from the Land Registry to the Guyana Lands and Survey Commission (GLSC) and (ii) medium term transformation of transported into titled land and (iii) consolidating processes relating to land administration into the GLSC, including mapping of parcel boundaries and (iv) training staff accordingly
Establish a sole, efficient and updated Land Information System
Promote tenure security as an opportunity for economic development
Develop a public awareness and promotion of accountability campaign with members of the Bar, academia (university professors), Non-Governmental Organizations (NGOs), international cooperation agencies and other governmental authorities to draw public attention to the judiciary's role and specific advances in the establishment of the Commercial Court
Set up a Coordination or Consultative Board, integrated by representatives of the institutions mentioned above, to receive information and reports about the establishment of the Commercial Court
Identify and measure factors having an impact in the judiciary and administrative staff productivity and make recommendations to strengthen judiciary and administrative staff

Evaluate the benefits of establishing a mandatory Alternative Dispute Resolution (ADR) system and make recommendations for establishment of a potentially suitable system taking into account experience with the USAID–Carter Centre including the issue of financial sustainability
SECTOR POLICIES
Sugar
Privatization of the sugar industry
Diversification within sugar industry
Ethanol production from sugar cane
Need for cogeneration
Develop agro-tourism aligned to Caribbean Tourism Organisation roots to rum initiative
Improve agricultural practices and mechanisation aimed at increasing yield
Brand new products such as Demerara Gold for value addition
Construct sugar refinery for production of value added sugar products
Construct a distillery at Skeldon
Expand the Blairmont operations
Continue mechanisation of operations
Provide support to private cane farmers
Address the storage, shipping and logistical constraints facing the sugar industry
Rice
Support the rice sector through targeted measures to (i) strengthen the Guyana Rice Development Board (GRDB) and Rice Producers Association (RPA); (ii) support water rehabilitation through improving drainage and irrigation systems; and (iii) provide credit to rice farmers currently restricted due to high interest rates, short payback periods and lack of collateral
Further diversification of international markets to reduce dependence on EU
Diversification of production to include value added products
Continue efforts in research and development to bring Guyana’s productivity in line with internationally competitive levels
Eliminate bureaucracy amongst agencies and political gamesmanship at local governance level to ensure farmers have timely access to aerial applications services necessary to mitigate pest control
Increase availability of rice land
More research and sensitization in the area of pest control
Synchronization of the management of agencies in charge of drainage, irrigation and dams
Reduction of commission charged by the GRDB and reduced bureaucracy
Mechanization within Industry to cope with labour shortages
Forestry
Improve forest management by continuing ongoing projects
Improve forestry management by holding awareness and training courses/workshops on differing aspects of forestry management
Monitor progress of work plans set by the Forestry Commission
Establishment of a National Forestry Advisory Committee
Completion of the Review of the National Forestry Plan
Decentralization of Guyana Forestry Commission (GFC) key services
Capacity building & skill training with a focus on operational efficiency assessments
Transferal of skills and technology from GFC to forestry industry

Mandate critical training as a requirement to be licensed to operate
Development of financing programmes under the carbon funding
Incentive programmes for highly compliant and efficient operations
Export Levy to Guyana Manufacturers and Services Association (GMSA)
Establishment of a Revolving Fund for the Industry or Development Bank
Need for National Land Use Plan
Marketing and promotion initiatives established under the Economic Diplomacy Policy
Industry analysis of previous two decades to determine trends and policy impacts
Government policy to support locally produced wood products
Policies and practices for resource based marketing
Educate public about grade and building codes
Establishment of a National Infrastructure Committee
Development of a competitiveness and diversification strategy
Review of Niche vs. Commodity Market Approach
Creation of Guyana Timber Brand
Establishment of a Forestry Research and Development Unit.
Extractive Industries
Enact Mining Amendment Act and implementing regulations to improve incentives to invest in the sector and provide adequate environmental protection.
Proper ports to be developed in Berbice and/or Crab Island to cater for Larger Cargo Vessels
Improve road infrastructure to access mining areas
Cheap energy to service extractive industries
Non-Traditional Agriculture Products
Support the development of initial export supply chains in fruit and vegetables and beef to produce a sustainable increase of non-traditional exports of fruits, vegetables, and beef
Construct abattoir of international standards
Increase capacity of government institutions to provide extension services
Establish credit facility for non-traditional exports
Address basic human capital constraints facing individuals engaged in agricultural activities by offering training in basic literacy, numeracy, computer and book-keeping skills for workers in agriculture
Improve the supply of more highly skilled workers needed by the non-traditional agricultural sector through the expansion of the Technical Training Programme at the GUYSU/ Port Mourant Apprentice Training College and the creation of a new college at Enmore
Fisheries
Create a semi-autonomous Fisheries Authority to address human and technical capacity issues
Greater incentives for processing facilities
Make available more land for fish farming
Manufacturing
Organise trade fairs through Go-Invest for the manufacturing sector and facilitate the attendance of the local private sector
Conduct a Strategic Investment Opportunity Assessment for agro-processing and forest products
Support the Guyana Manufacturers' and Services Association to build capacity through the funding of key positions
Improve factory layout and management, production processes, quality control, scheduling and plant/employee

safety
Reduce the trade deficit in manufacturing products by developing a Pride in our Industry campaign to encourage the purchase of locally produced manufactured products
Implement integral plan to promote and attract Foreign Direct Investment (FDI) into labour intensive manufacturing operations
Create a new agency or establish practical ways to combine and upgrade existing functions present in MINTIC, Go-Invest, and/or NICIL
Develop a new turn-key industrial zone with buildings for immediate lease and specialised services
Assess the potential for introducing Export Processing Zone (EPZ) regulations on tariffs for the new zone
Implement marketing plan for the new zone
Develop and implement a specialized training for industrial estates managers and investment attraction specialists
Implementation of a fast track "Production Sharing" action team
Set-up fast-track action plan to support start-up of New Tech Park (for Call Centers and IT)
Reduce taxation on the manufacturing industry
Provide incentives to manufacturing sector
Cheaper and reliable energy for manufacturing
Update national energy strategy
Diversification in manufacturing – need for non-traditional sectors
Review of opportunities for value addition
Clear strategy to stimulate and incentivize growth
Re-energize Public-Private Dialogue
Tourism
Improve communication, attitude and general hospitality skills and services within the sector
Continue ongoing marketing and support services
Improve air access transport
Diversify and expand the tourism product
Increase market demand
Upgrade service skills and standards
Invest in infrastructure and services
Make tourism investment attractive
Organise the sector for growth
Rehabilitation and maintenance of hinterland airstrips
Improve search and rescue capacity
Need major international carriers to operate in Guyana and to include Guyana in their flying routes with scheduled flights
Improved road infrastructure into Hinterland region of Guyana
Expansion of existing airstrips
Incentives to airlines to encourage flights into and within Guyana
Concessions for vehicles to be used in the interior regions
VAT to be removed from primary airstrips
Reduction of VAT on tourism products and services in Guyana to at least 8%
Increase police presence on the streets of Guyana
Police Force need to be educated of how to deal with tourists
Government allocation of funds for the implementation of the ACRON Marketing Plan for Guyana

ICT
Review and revise draft e-commerce legislation and supporting necessary public consultations throughout the process
Develop and implement National ICT strategy
Establish suitable mechanisms to monitor implementation of the National ICT strategy
Establish mobile payment gateway
Establish Single Window Automated Processing System
Oil & Gas Sector
Clear framework for sector development
Strong Local Content Policy
Well-managed Sovereign Wealth Fund
Transparent and Accountable Petroleum Commission
TARGETING STRATEGIC SUB-SECTORS
Aquaculture
Encourage the expansion of aquaculture in interior locations by facilitating the use of cage technology
Enhance technological capacity
Establish a Brackish Water Aquaculture Station
Develop specialised physical infrastructure and identifying priority areas for aquaculture development
Expand integrated pest management in rice production
Make available more land for fish farming
Fruits, Vegetables and Livestock
Support the vegetable and fruit, and beef supply chains through the setting up of an institutional arrangement to provide incremental public goods to current exporters and enterprises with agribusiness potential
Strengthen public services needed to support the livestock and fruit and vegetable chains by support to (i) technology development and transfer; (ii) support implementation of animal and plant health systems; and (iii) facilitate access to foreign markets
Streamline agri-business processes related to (i) sanitary and phytosanitary Systems (SPS) and quality certification systems and (ii) land applications and related incentives for agribusiness investors
Upgrade the SPS inspection service process for outgoing products
Design and implement an information system for land lease requests
Set up a non-discretionary land lease and water rights allocation system
Conduct a pilot program for allocating relative large land plots in order to attract larger investors
Design an investment strategy to attract the private investors, both local and foreign
Improve innovation and the diffusion of new agriculture-related products and services of a technological nature
Develop a training program for the Ministry of Agriculture and a number of private operators to establish HACCP procedures for slaughtering and meat handling
Conduct a feasibility study on the production and export of sheep and goats
Carry out a census of livestock in Regions 5 and 6
Need for new plantations to boost coconut industry
Investment and incentives to increase coconut cultivation
More effective techniques for harvesting coconuts should be researched
Incentives for Animal Feed Facilities to reduce feed cost
Incentives for more processing facilities
More land should be made available for cattle farming

Agro-Processing
Support efforts of local agro-processors to improve marketing activities efforts
Facilitate of agro-processing cluster working group activities
Develop a strategic plan for the sector
Contract Manufacturing/Services
Exports – Garments
Sensitise sector stakeholders to the ramifications of the ATC and develop possible actions initiatives for sector development
Update and create new sector standards
Facilitate cooperation between fabric suppliers and local garment manufacturers
Encourage fabric designers to form an informal association
Facilitate cooperation between small fabric designers and manufacturers and the larger garment manufacturers
Support industry stakeholders in finding new markets
Develop and implement a comprehensive action plan for the future development of the sector
Business and Eco-Tourism
Forest Products
Work with a cross cutting section of loggers, manufacturers and other stakeholders to put in place forest products strategy to ensure maximum value added
Improve quality control and production efficiency of high-end, hardwood door manufacturers
Upgrade the Guyana Technical Institute (GTI) training capacity in wood working
Assist furniture firms with design, prototype, production, and promotion of furniture products, and provide technical assistance in plant design and production efficiency
Governance & Legal Architecture
Appointments to Constitutional Commissions
Constitutional Reform
Improve Efficiency of Judicial/Court System