International Trade Centre

CARIBBEAN DEVELOPMENT BANK

LOGISTICS CHAIN STUDY

FOR SAINT LUCIA

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COMMON ABBREVIATIONS AND DEFINED TERMS

ABBREVIATION / TERM	FULL TERMINOLOGY / DEFINITION
24/7	24 hours a day, 7 days a week
3D	Three Dimensional
AGV	Autonomous Guided Vehicle
AI	Artificial Intelligence
AMR	Autonomous Mobile Robot
ANU	V. C. Bird International Airport (St. John's, Antigua)
AR	Augmented Reality
ASYCUDA	Automated System for Customs Data
ATA	Actual Time of Arrival
ATL	Hartsfield–Jackson Atlanta International Airport
B2B	Business to Business
B2C	Business to Consumer
BGI	Grantley Adams International Airport (Bridgetown, Barbados)
BQN	Rafael Hernández International Airport (Aguadilla, Puerto Rico)
CARICOM	Caribbean Community
CDB	Caribbean Development Bank
CET	Common External Tariff
CIF	Cost, insurance, and freight
CLT	Charlotte Douglas International Airport (Charlotte)
CO	Country of Origin Certificate
CO2	Carbon Dioxide
COVID-19	Coronavirus disease
CPI	Consumer Price Index
CRU	Lauriston Airport (Carriacou, Grenada)
DEIB	Diversity, Equity, Inclusion, Belonging
DOM	Douglas–Charles Airport (Dominican Republic)
DWT	Deadweight Ton
eCO	Electronic Country of Origin Certificate
EDI	Electronic Data Interchange
EIS	Terrance B. Lettsome International Airport (British Virgin Islands)
ERP	Enterprise Resource Planning
EWR	Newark Liberty International Airport
FCL	Full container load

ABBREVIATION / TERM	FULL TERMINOLOGY / DEFINITION
FDF	Martinique Aimé Césaire International Airport (Fort-de-France)
FEU	Forty-foot Equivalent Unit Container
FMCG	Fast Moving Consumer Goods
FOB	Free On Board
FZMA	Free Zone Management Authority of Saint Lucia
GCNA	Grenada Cooperative Nutmeg Association
GDP	Good Distribution Practice
GND	Maurice Bishop International Airport (IATA Code)
GDP	Gross Domestic Product
GEO	Cheddi Jagan International Airport (Georgetown, Guyana)
GRT	Gross Registered Tonnage
GSP	Good Storage Practice
GT	Gross Tons
HACS	Hewanorra Air Cargo Services
Hb	Haemoglobin
HS Code	Harmonised System Code
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ICT	Information and Communication Technology
IMF	International Monetary Fund
IoT	Internet of Things
ISO	International Organisation for Standardisation
IT	Information Technology
ITC	International Trade Centre
JFK	John F. Kennedy International Airport (New York, USA)
JIT	Just-In-Time
KPI	Key Performance Indicator
LCCAS	Port of Castries
LCCDS	Port of Cul De Sac
LCL	Less than container load
LCVIF	Port of Vieux Fort
LGW	Gatwick Airport (London, UK)
LIAT	Leeward Islands Air Transport Services
LOA	Length overall

COMMON ABBREVIATIONS AND DEFINED TERMS

ABBREVIATION / TERM	FULL TERMINOLOGY / DEFINITION
LPG	Liquefied Petroleum Gas
LPI	Logistics Performance Index
LSCI	Liner Shipping Connecitivty Index
MIA	Miami International Airport
MOU	Memorandum of Understanding
MPA	Maritime and Port Authority of Singapore
MSc	Master of Science
NFC	Near-Field Communication
NSW	National Single Window
NTP	Networked Trade Platform
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECS	Organisation of Eastern Caribbean States
PCS	Port Community System
PLSCI	Port Liner Shipping Connecitivty Index
POS	Piarco International Airport (Port of Spain, Trinidad and Tobago)
PPP	Purchasing Power Parity
PTP	Pointe-à-Pitre International Airport (Guadeloupe)
QR	Quick Response
R&D	Research and Development
RFP	Request For Proposal
RFID	Radio Frequency Identification
RoRo	Roll On-Roll Off
SEDB	Singapore Economic Development Board
SITC	Standard International Trade Classification
SJU	Luis Muñoz Marín International Airport (San Juan, Puerto Rico)
SKB	Robert L. Bradshaw Airport (Basseterre, St. Kitts and Nevis)
SLASPA	Saint Lucia Air and Sea Ports Authority

ABBREVIATION / TERM	FULL TERMINOLOGY / DEFINITION
SLU	George F. L. Charles Airport (IATA Code)
SME	Small and Medium-sized Economies
SPS	Sanitary and Phyto-Sanitary
SRO	Statutory Rules and Order
SVD	Argyle International Airport (Kingstown, St. Vincent & the Grenadines)
SWOT	Strengths, Weaknesses, Opportunities and Threats
SXM	Princess Juliana International Airport (Sint Maarten)
TAB	A. N. R. Robinson International Airport (Scarborough, Tobago)
TEU	Twenty-foot Equivalent Unit Container
TMS	Transport Management System
TOS	Terminal Operating System
TPP	Port of Tanjung Pelepas (Malaysia)
TRS	Time Release Study
TTI	Time-Temperature Indicator
TVET	Technical and Vocational Education and Training
UAV	Unmanned Aerial Vehicle
UN	United Nations
USD	US Dollar
UVF	Hewanorra International Airport (IATA Code)
VAS	Value Added Services
VAT	Value-Added Tax
VLCC	Very Large Crude Carrier
VR	Virtual Reality
WMS	Warehouse Management System
WOG	Whole-of-Government
WTO	World Trade Organisation
XaaS	Everything as a Service or Anything as a Service
XCD	Eastern Caribbean Dollar
XR	Extended Reality
YYZ	Toronto Pearson Airport

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CHAPT 01 EXECUTIVE SUMMARY

1.1 Background

The International Trade Centre (ITC) is in collaboration with the Caribbean Development Bank (CDB) to carry out a Logistics Chain Study for Grenada and Saint Lucia. The study is intended to identify challenges and analyse possible solutions to obtain logistics efficiency gains and elaborate a roadmap for each country. This report is focused on the country of Saint Lucia.

1.2 Objectives of the study

The objectives of this study are to:

i. Review the policy and regulatory framework in the transport and logistics sector;
ii. Identify ongoing initiatives aimed at improving logistics performance and their impact on trade and economic development in the region;
iii. Quantify and qualify transport costs in the three modes of transport (i.e., sea, air, road) for imports and exports, and establish the duration and costs involved for importing and exporting through the main port;
iv. Identify emerging trends and propose performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions; and
v. Propose and recommend concrete policy and institutional measures aimed at reducing costs and improve competitiveness in the transport and logistics sector, along with identifying the main cost drivers of the proposed measures (e.g., infrastructure, human resources, training, etc.)

1.3 Approach Adopted for the Study

The approach adopted is presented by the framework shown in **Figure 1** (see **Chapter 2** for details on the methodology and approach). There are five points to address in relation to the objectives of the study. **Point 1** addresses **Objective 1** and **Objective 2** of the study. The aim is to assess the state of the transport and logistics sector in Saint Lucia. This component of the study shall also review the current performance of the transport and logistics sector and its impact on trade and economic development in the country. Content pertaining to this point in the framework is provided by **Chapter 3** and **Chapter 4** of the report.

Figure 1: Framework for Proposed Approach to the Study

Source: International Consultant.

For **Point (2)**, the aim is to establish the supply chain network for key products in the agriculture and manufacturing sectors. **Chapter 5** and **Chapter 6** of the report addresses this part of the study. In addition, this component will identify areas to address regarding supply chain inefficiencies, across different levels and sectors. Focus is to quantify and qualify transport and various logistics costs incurred for imports and exports in relation to the three modes of transport. **Objective 3** of the study shall be addressed in this component.

In **Point (3)**, critical demand drivers and emerging trends relevant for the transport and logistics sector in Saint Lucia are presented. This is an important area to be investigated and addressed **Objective 4** of the study. The component shall also propose performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions. This part of the study shall be addressed by **Chapter 7** of the report.

We shall perform SWOT analysis to assess prospects and potential transport and logistics development strategies for **Point (4)** of the study. intention is to outline core competitive advantages and strengths that are possessed in serving as attractive logistics centres for international trade and market access. The analysis will also propose logistics positioning strategy based on the attributes of key transport and logistics infrastructures. **Chapter 8** addressed this part of the study.

Proposals for concrete policy and institutional measures are addressed by **Point (5)** of the study and **Chapter 9** of the report. The strategic road map for implementation will include recommendations to be implemented over the short term (1 to 2 years), medium term (3 to 5 years), and longer term (6 to 10 years). This component shall address the **Objective 5** of the study. **Chapter 10** concludes.

The deliverables of the study are aligned to the five points shown above in **Figure 1**. They are:

- State of the transport and logistics sector, taking into account policy and regulatory frameworks and ongoing initiatives aimed at improving logistics performance (with reference to objectives 1 and 2, and Point 1 of the framework, and chapters 3 and 4 of the report);
- Supply chain networks for key products with emphasis on the agriculture and manufacturing sectors, including quantifying and qualifying transport costs for imports and exports (with reference to Objective 3, and Point 2 of the framework, and chapter 5 of the report);
- Critical demand drivers and emerging trends along with proposed performance indicators (with reference to Objective 4, and Point 3 of the framework, and chapter 6 of the report);
- Core competitive advantages and strengths required to serve as logistics centres for international trade and market access. Analysis will include food security aspects (with reference to Point 4 of the framework and chapter 7 of the report); and
- Proposals and recommendations along with main cost drivers. Also to include considerations and recommendations to strengthen food security and intra-regional trade (with reference to Objective 5, and Point 5 of the framework, and chapter 8 of the report).

For the purpose of the logistics chain study for Saint Lucia, survey exercises, on-site interviews and workshops were conducted over the period of March and April 2023. The survey forms were sent out to 155 companies/ organisations. Responses were received from 32 entities which yielded a response rate of 20.6%.

Interviews and site visits with stakeholders of the logistics community in Saint Lucia lasted from 17-19 April 2023. The consultants met with 18 companies and organisations. Focus group workshops for Saint Lucia were held from 20-21 April. The workshops were attended by 32 participants. Observations and findings from the field trip and workshops were reviewed and used to prepare the final report. Key observations pertaining to each point of the framework are presented in the following section of this chapter.

1.4 Key Observations

Current Situation Analysis (Chapter 3)

The chapter sets the context for the study by providing the background for developments that affect the transport and logistics sector of Saint Lucia. The chapter addresses the first objective which is to review the policy and regulatory framework in the transport and logistics sector. The chapter also addresses general economic and social conditions, as well as developments in trade performance.

Saint Lucia is a member of the Caribbean Community (CARICOM) which comprises developing countries that are relatively small in terms of land size and population. The country is also founding member of the Organisation of Eastern Caribbean States (OECS). As a full member of the OECS, Saint Lucia can enjoy free movement of people and goods within the Economic Union, including use of the common currency "Eastern Caribbean Dollar" (XCD).

The GDP for Saint Lucia reached USD1.69 billion in 2021, measured at current prices. The COVID-19 pandemic severely affected growth in the country with Saint Lucia's GDP contracting by 24.4% in 2020. Going forward, Saint Lucia is forecasted to see its economy grow at 1.5% to 3.0% from 2023 to 2028. The IMF projects Saint Lucia's GDP per capita to reach USD14,686 by 2028.

The economy of Saint Lucia is dominated by accommodation

and food services activities which are related to the tourism sector. If we include contribution from travel agents and tour operators, the combined GDP will reach almost 25.0% of the economy. Transport and storage activities are ranked in the fifth position, contributing to 5.3% of GDP in 2021. Economic contribution from this logistics-related sector has been relatively stable, fluctuating mostly between 5.0-6.0%.

In terms of trade performance, there is a worrying trend of persistent trade deficits incurred by Saint Lucia. Merchandise imports exceeded those of exports at an average 30.7% of GDP over the period of 1980 to 2021. Trade deficits appear to be worsening as we progress into the 2020s. Persistent trade deficits of such magnitudes put significant pressure on balance of payments and causes outflow of currency. This development may also point to underlying issues plaguing the competitiveness of the export sector.

Analysis of key commodities and products traded for Saint Lucia showed the largest export to be beer made from malt which accounted for 16.3% of total exports in 2021. If we include other alcoholic drinks, exports of such products would increase to 21.3% or more than a fifth of total exports. The largest trading partner of the country is also the US, which accounted for almost 40% of Saint Lucia's imports and 16.8% of its exports. Trinidad and Tobago came in the second position by accounting for 14.1% of imports into Saint Lucia and 9.8% of exports.

Turning to the policy and regulatory framework pertaining to the transport and logistics sector, we note that the country adopts a parliamentary democracy model, where the British monarch is head of state and is represented in the respective countries by the Governor General. Executive authority is vested in the Prime Minister of the country and the Cabinet. As for the judicial system, it is independent from other branches of government.

For Saint Lucia, the customs and excise functions come under the Ministry of Finance. Customs procedures will see cargo being processed using four types of lanes. These are the green, yellow, blue and red lanes. The Saint Lucia Customs and Excise Department shared that initiatives are being taken to go fully electronic which includes developing a system for risk management.

For tariff measures, Saint Lucia is a member of CARICOM which adheres to the Common External Tariff (CET). The CET is a common tariff applied to goods imported into the CARICOM region from outside. The CET is designed to promote regional integration and provide a level playing field for member states.

On the aspect of security, poor security to cargo was not highlighted as a major weakness or threat during the face-to-face interviews and workshops conducted in Saint Lucia. Nonetheless, participants at the workshops mentioned concerns regarding cybersecurity especially on training and awareness for fraud detection and prevention.

State and Performance of the Transport and Logistics Sector (Chapter 4)

The chapter reviews the current state and performance of the transport and logistics sectors in Saint Lucia. The chapter also identifies ongoing initiatives aimed at improving logistics performance and their impact on trade and economic development in the region. The chapter deals specifically with the second objective of the study.

For the port sector in Saint Lucia, the ports of Castries and Vieux Fort are managed by SLASPA while the Buckeye Saint Lucia Terminal at Cul de Sac is managed by Buckeye Global Marine Terminals. The main seaport of the country is the Port of Castries. There are six berths totalling 727m in length with depth alongside the berths ranging up to 9.75m. Berth productivity is currently at 7-8 boxes an hour as an accident in December 2022 caused part of the berth to collapse. Berth productivity used to be at 15-20 boxes an hour. Pilotage is compulsory for vessels exceeding 100 GRT. There are two tugs available to serve the needs of the port.

The Port of Vieux Fort is located at the southern tip of the country. The main berth has a length 190m with maximum draft of 10.7m alongside. The largest vessel to have berthed at the port has an LOA of 174m with draft of 7.7m. Apart from the main berth, there is a 163m-long single finger pier capable to handling vessels on both sides. The Port of Vieux Fort is in proximity to the Saint Lucia Free Zone, Vieux Fort Industrial Estate and Hewanorra International Airport.

For the Buckeye Saint Lucia Terminal at Cul de Sac, Buckeye Global Marine Terminals uses the facility for crude oil storage and transhipment in the southern Caribbean region. The facility offers 10.3 million barrels of storage capacity spread across 35 tanks. The terminal is capable of handling tankers ranging up to the size of VLCCs.

For the air cargo sector, the main aviation gateway is the Hewanorra International Airport. The airport is equipped with a dedicated cargo building with direct access to the airside. Customs clearance is provided on-site and there are security officers stationed at the cargo bay. The airport is also capable of handling a B747-400F aircraft. We note that there is no cold storage facility at the airport. Air cargo is also handled at the George F.L. Charles Airport which is located in Castries city. As with Hewanorra International Airport, the facility is managed and operated by SLAPSA. The airport serves exclusively flights to the region.

Geographical disposition of cargo gateways of the country and key consumption and production activities results in the main cargo consolidation and distribution centres being located at the Parish of Castries, which includes Cul de Sac. For cargo leaving the port in Castries to go to Gros Islet, it will take about 30 minutes to travel the 13km distance to reach Pigeon Point Industrial Estate during non-peak hours. At peak hours, the time taken can increase significantly to 1-2 hours depending on severity of the congestion. For cargo leaving the port in Castries to go to Vieux Fort, the distance of about 55km takes approximately 1.5 hours to complete.

According to data from The World Bank, volume of containers handled by Saint Lucia exceeded those of Grenada's by 1.6 times in 2021. However, the figure also showed that container traffic handled by Saint Lucia appears to be on a declining trend. This lies in contrast to the rising trend seen for Grenada.

Looking at the Port of Castries, majority of cargo handled consists of containerised cargo. Such cargo accounted for 66.5% share of total cargo throughput in 2021. Before the pandemic, the share accounted by such cargo was 77.9% in 2018. Strong performance for dry bulk cargo resulted in an overall positive growth of 15.0% in total cargo throughput processed at Castries for the period 2018 to 2021. In terms of vessel arrivals, the port saw vessel traffic falling continuously over the period of 2018 to 2021. As with Grenada, the substantial drop in vessel arrivals was a result of performance for the cruise sector which was badly affected by the COVID-19 pandemic. Even so, cruise ships continue to account for majority of vessel arrivals with a share of 60.3%.

Turning to the Port of Vieux Fort, the dry bulk trade was also instrumental in driving performance for cargo handled. Dry bulk cargo accounted for the bulk of traffic handled, reaching 50.1% share of total volumes in 2021. Performance of the dry bulk sector drove overall performance of cargo throughput which saw decline in traffic by 18.1% and 14.3% respectively in 2019 and 2020, before recovering by 41.4% in 2021. The strong recovery in total cargo was also made possible by the sharp increase in breakbulk volumes which grew 34.1% over 2020 to reach 61,000 tonnes in 2021. Vessel arrivals at the port fluctuated between 610,000 and 725,000 GT from 2018 to 2021. Vessel traffic consists mainly of general cargo vessels and tankers. The share of general cargo vessels rose from 51.3% in 2018 to reach 74.3% in 2021. However, the scenario was reversed for tankers which saw their share of total vessel traffic fall from 44.8% in 2018 to 25.7% in 2021.

Analysis of the air cargo sector revealed Hewanorra International Airport to be handling 1.6 times as much cargo as George F. L. Charles Airport (SLU) in 2021. In terms traffic composition, we saw both airports handling a higher proportion of export cargo compared to imports. Although cargo volumes have not recovered to pre-COVID levels, throughput for Hewanorra International Airport is expected to exceed 2,000 tonnes in 2023.

Analysis of the list of initiatives implemented or are planned to improve logistics performance in Saint Lucia saw a wide range of aspects covered. They included issues pertaining to intra-region trade, customs clearance, road transport, food security, and airport and seaport infrastructure and operations. We note that funding from international sources and foreign governments play a significant role in many projects.

Supply Chain Network Analysis (Chapter 5)

The chapter analyses supply chain networks from the perspectives of shipping and air connectivities. The chapter further identifies areas to address regarding supply chain inefficiencies across the different levels and sectors. User requirements are determined in relation to developments for international trade logistics for Saint Lucia.

The primary source of international connectivity is shipping networks that connect the island nation of Saint Lucia to overseas exports markets and import sources. The analyses were made using data collected daily for cargo vessel arrivals over the month of April 2023 at the respective main cargo ports of Saint Lucia.

For the Port of Castries, vessel arrivals were spread across containerships (37.3%), vehicles carriers (28.0%), general cargo ships (18.7%) and reefer vessels (16.0%). Vessel arrivals at the Port of Vieux Fort was considerably fewer than the mainport of Castries. Oil and chemical tankers accounted for 39.4% or 26,937 GT of vessel arrivals, followed by general cargo ships (27.9%), oil products tankers (19.6%) and LPG tankers (12,4%). Vessel arrivals at Cul de Sac is exclusively made by tankers transporting liquid bulk cargo.

We saw the Liner Shipping Connecitivty Index (LSCI) for Saint Lucia appears to be trending down. The index for Port of Vieux Fort has also declined.

For issues concerning shipping connectivity and port operations, the first challenge is the limited shipping connectivity faced by Saint Lucia. The issue is partly attributed to inadequate capabilities of the mainport in handling large containerships as well as inefficiencies in port operations. This is the second area of concern. Inefficiencies with operations at the port can result in shipping lines skipping the port-call.

The third area of concern is expensive shipping and port charges facing the trade community in the country. Landing charges in the Port of Castries are approximately USD480 per TEU.

The fourth concern is the seemingly archaic system of port tariffs currently in place. There are calls by the logistics and trade communities in Saint Lucia to review the system of port tariffs.

The fifth area of concern pertains to inefficiencies in port operations that occur at the berth and in the yard. There are calls by the logistics and trade communities in Saint Lucia for the ports to be operational 24 hours a day, seven days a week.

The sixth area of concern is related to customs operations where stakeholders in the country is calling for a fully electronic and paperless system to be implemented.

The seventh concern relates to availability of empty containers and such equipment being in good shipping condition.

Regarding flight networks and air connectivity, there are two aviation gateways for Saint Lucia. For the Hewanorra International Airport, the network of direct flight connections showed the airport to be connected to many cities in the US and Canada, as well as London across the Atlantic Ocean. The main cargo route connects Miami in the US to the airport which is operated by Amerijet International. Hewanorra Air Cargo Services (HACS) is a major cargo handler at the airport. Key customers of the company are Virgin Atlantic, British Airways, Air Canada, Delta Air Lines, Westjet, TUI Airways and Caribbean Airlines.

The other airport in Saint Lucia is the George F. L. Charles Airport (SLU) which is in the capital city of Castries. Unlike UVF, the airport operates entirely regional flights. Despite limited payload of such aircraft, the airport handled sizeable cargo volumes. This is due to the higher frequency of flights operating at the airport.

For issues concerning flight connectivity and airport operations, the first challenge is the issue of flight delays which can cascade through the network. The second concern relates to improvements needed for cargo-handling facilities at Hewanorra International Airport (UVF). Cargo is typically handled on a JIT basis, arriving at the airport ready to be loaded onto the aircraft. The third issue is the concern raised by the logistics communities on the need to have a dedicated facility with cold storage capabilities at the airport. The fourth issue relates to customs operations pertaining to air cargo. The time taken for inspection will depend on the competency of the customs officer.

As a whole, many companies interviewed in Saint Lucia felt that there is potential to do more air cargo. Air cargo volumes have yet to recover from pre-COVID levels. However, the outlook is optimistic as demand returns and as flights resume to operating at pre-COVID levels.

Supply Chain Costs for Selected Products and Note on Food Security (Chapter 6)

The chapter presents the duration and costs involved for logistics activities through supply chain networks. The chapter makes reference to selected key products in the agriculture and manufacturing sectors. The chapter also discusses the aspect of food security in relation to its four pillars which are physical availability of food, economic and physical access to food, food utilisation, and stability over time of the aforementioned dimensions.

For Saint Lucia, bananas formed the sixth largest export in 2021. The biggest supply chain cost component is ocean

transportation, followed by packaging materials. For cardboard boxes, the key export destination is Trinidad and Tobago. Ocean transportation costs accounted for the biggest share despite the relatively short sailing distance. Container lifting charges at the port are ranked second.

The third product considered for Saint Lucia is import of meat and edible offal, which form the fifth biggest source of imports. The US is a key supplying market. Ocean transportation charges account for the largest supply chain cost component. Container lifting charges at the port account for the second largest supply chain cost component.

On the state of food security, the analysis is conducted with reference to Saint Lucia and Grenada. Saint Lucia seemed to have a higher dependency on imported food compared to Grenada. Nonetheless, Grenada saw food imports forming 24.0% of merchandise imports whereas the comparative figure is significantly lower at 10.4% for Saint Lucia. Saint Lucia also have more than five times in arable land compared to 3,000 hectares in Grenada.

For the pillar of economic and physical access to food, prevalence of moderate or severe food insecurity in the total population was about 22% for Saint Lucia. However, the pressure on food security is likely to be much higher in Grenada with 60% of monthly household expenditure spent on food. By comparison, monthly spending on food accounted for 30.3% of household expenditure in Saint Lucia. We also saw that annual income for farmers in Saint Lucia was considerably higher at 1.4 times the income of a farmer in Grenada.

For the pillar on food utilisation, the indicators showed Saint Lucia to register higher rates compared to Grenada. On the fourth pillar of stability, Saint Lucia is entirely dependent on overseas imports for cereals. In terms of price inflation, we saw Saint Lucia to experience higher levels of price increase compared to Grenada. For the set of indicators measuring various risks that could impact on food security, Saint Lucia generally had medium to very low risk ratings.

Food staples form the cornerstone of food security. Corn imports by Saint Lucia are almost exclusively from Brazil. Turning to wheat, Brazil is a major supplier to Saint Lucia. For wheat flour, Saint Vincent and the Grenadines is the biggest source of supply to Saint Lucia. The exporter is a member of the CARICOM. Rice is also an important source of food in Saint Lucia. Guyana, who is a member of the CARICOM, is a key supplier of rice to both countries.

Diversification of cereal imports could consider other major exporting countries and regions which include the EU and South America.

For soybeans, diversification of import sources may be difficult as the trade is dominated by Brazil and the US. With the importance of corn, wheat, soybeans and rice, it may also be prudent for the government of Saint Lucia to consider creating stockpiles of these commodities for emergency use.

The fertile soil and climate of Saint Lucia makes the country suitable for growing crops such as yams, plantains, sweet potatoes, cassava, and breadfruit. For Saint Lucia, green bananas can be seen as an important local staple as the country has self-sufficiency on this item. This is followed by plantains.

Demand Driver and Trend Analysis (Chapter 7)

The chapter presents critical demand drivers and emerging trends relevant for the transport and logistics sector in Saint Lucia. This addresses the fourth objective of the study. Performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions are also proposed.

The chapter gave a recap of challenges faced by the transport and logistics sector in the country. These were organised into those pertaining to shipping and port operations, flight network and airport operations, and land transportation. In addition to the issues mentioned, there were other concerns gathered from stakeholders. Firstly, there is the issue with port labour. Secondly, there are calls to improve conduct of businesses with the port through electronic means. Thirdly, there is a need to have a fundamental review of current port capacity in relation to the medium to long term needs in the country. The fourth issue relates to having a national single window system that allows for full electronic transactions. The fifth issue relates to training and education in logistics and supply chain management. The sixth issue relates to export promotion. Last but not least, stakeholders mentioned the importance of an unbroken cold chain for products.

For stakeholders in both the private and public sectors, there are two major sets of drivers and trends of concern. The first set of developments concern the macroeconomic environment which businesses operate within. Demand for

logistics services is driven largely by the external sector with high dependence of the country on international trade. As such, economic performances of key trade partners become important. This will be other countries in the OECS, CARICOM and major economies in North America, South America and Europe.

The second set of developments relate to operational parameters which span the dimensions of market demand, technologies, work conditions, sustainability, environmental protection, and sourcing among other perspectives. Based on the Logistics Trend Radar 6.0 developed by DHL, developments likely to have a high impact on logistics within five years are digital marketplaces, omnichannel, stationary robotics, and indoor mobile robots. For trends or drivers that will take 5-10 years to reach realisation, they include supply chain diversification, circularity, decarbonisation, alternative energy solutions, and outdoor autonomous vehicles.

Trends and drivers seen to have a moderate impact on the logistics industry include cybersecurity 2.0, smartification, big data analytics, smart labels, next-generation packaging, edge computing, blockchains, drones, computer vision, physical internet, and environmental stewardship. For the list of drivers and trends that are expected to have a mild impact on the logistics industry, it may be the case that they are already in advanced stages of development and/or beginning to see widespread adoption across the industry.

Notwithstanding the aforementioned drivers and trends, there are five important developments to watch in the near term. Firstly, inflation and tight budgets will impact logistics demand significantly. Secondly, personalisation is going to become the biggest logistics trend. Thirdly, use of AI logistics and supply chain management is expected to grow. Fourthly, IoT will see greater proliferation and adoption in supply chain management. Fifthly, data analytics is expected to further transform the logistics business.

The demand drivers and trends cover a wide spectrum of dimensions and issues. This is inevitable with the all-encompassing and cross-cutting nature of the logistics industry which transcend many aspects of society at the government, business, and individual levels.

Proposed logistics performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions makes reference to the LPI from The World Bank. The LPI framework was used to analyse logistics performance for Saint Lucia. In addition to the attributes analysed, the community was asked to rate the attributes in terms of their importance to the organisation or company, followed by their views on their performance for the country.

For Saint Lucia, respondents view the supply chain attributes to be "very important" to their companies or organisations. However, scores received for logistics performances were mostly in the rating of "poor". The lowest scores were received for infrastructure and international shipments. Results for the country also revealed the biggest gap in terms of importance to the company or organisation and performance for the country was seen for the attribute of infrastructure.

The logistics community in Saint Lucia was also asked to rate the quality of service for the main seaport and airport of the country. For respondents of Saint Lucia, areas found lacking were reliability of service by port operator, information technology capability, and quality of cargo-handling service. The results also showed the Port of Vieux Fort to be rated higher than the Port of Castries.

For Saint Lucia, George F. L. Charles Airport received higher scores compared to Hewanorra International Airport. The only area where many respondents rated as "inadequate" for SLU was transport capacity by airline flights. UVF was found to receive better scores than SLU for the areas of transport capacity by airline flights, and frequency and reliability of service by airline flights.

Analysis of Strengths, Weaknesses, Opportunities and Threats (Chapter 8)

SWOT analysis is conducted to assess prospects and potential transport and logistics development strategies. Intention is to outline core competitive advantages and strengths that are possessed in serving as attractive logistics centres for international trade and market access.

Workshops held in the country were used to validate key observations regarding the transport and logistics sectors. Groups of interest are manufacturers, importers and exporters, logistics service providers, and government entities. The participants were asked to assess a set of aspects pertaining to strengths, weaknesses, opportunities, and threats facing the logistics sector in the country.

Key strengths identified by workshop participants that could benefit the logistics and transport sector are stable currency, business environment and tax regime. This was followed by competitive tourism cluster and exports of beverages that benefited logistics activities. Having a stable political environment was also cited as an important strength.

For weaknesses, participants in Saint Lucia highlighted the poor road network and ageing port infrastructure as top concerns. Other weaknesses which received high scores were limited cargo volumes, truck traffic congestion at the port, and unreliable port equipment.

Regarding threats facing the logistics and transport sector in Saint Lucia, the top concern was failure to develop an export-oriented economy. This will contribute partly to the second major threat to the logistics sector in Saint Lucia which is insufficient cargo volumes to grow transport connectivity to overseas markets. Participants also highlighted failure to coordinate, manage and bring much needed changes to the logistics sector, heavy reliance on the US market, and climate change impacting on the growing season as major threats.

Consolidated views from participants at the Saint Lucia workshops ranked developing and growing the e-commerce sector as the top opportunity to work on. This was followed by training and education to develop logistics and supply chain management skills, developing a National Single Window for customs and border processes, adopting technology such as use of IoT devices for tracking and tracing shipments, positioning Saint Lucia as the container transhipment hub for the Caribbean, and improving logistics performance in the area of cost for greater competitiveness.

Participants at focus group workshops were also asked to discuss possible actions or initiatives required to improve logistics chain efficiency as well as positioning strategies for the sector. Topics discussed include the areas of promoting

and developing data processing and management, growing cargo volume, attracting investments, addressing customs and border processes, developing and growing e-commerce, training and education, improving transport infrastructure, promoting and growing research and development, promoting automation, facilitating financial transactions, and export promotion.

Recommendations for the Logistics Sector (Chapter 9)

Concrete initiatives and policy and institutional measures are proposed in this chapter. This forms the last component of the study and addressed the fifth objective. Implementation timeline of the proposed recommendations are provided and the strategic road map makes reference to implementation over the short term (1 to 2 years), medium term (3 to 5 years), and longer term (6 to 10 years).

Recommendation #1 calls for strengthening the consensus building mechanism between public and private sectors for trade facilitation reform. Areas of attention for the reform include legal, organisation, technology, processes and people. Time frame: 1 to 2 years.

Recommendation #2 calls for establishing a national logistics skills curriculum for the country. Time frame: 1 to 2 years.

Recommendation #3 calls for a thorough review of work processes involved in collecting cargo and customs inspection and clearance at the port. Areas of attention are yard operations, gate operations and customs processes. Time frame: 1 to 2 years.

Recommendation #4 calls for implementing 24 hours, 7 days a week work system for the port. The work system may exclude public holidays for the moment, until deemed necessary at a later time. Time frame: 1 to 2 years.

Recommendation #5 calls for a national single window system to facilitate trade and logistics processes. Time frame: 1 to 5 years. A case study of Singapore's National Single Window System was given.

Recommendation #6 calls for efforts to go fully paperless with customs declaration, payments and inspections. This will accelerate digitisation and digitalisation of customs processes and facilitate trade. Time frame: 1 to 2 years.

Recommendation #7 calls for installation of a terminal operating system (TOS) to enhance port productivity and efficiency in the seaports of Saint Lucia. Time frame: 1 to 2 years.

Recommendation #8 calls for setting up a port community system (PCS) to further enhance efficiency and productivity of port operations. The PCS is an extension of the TOS by incorporating other port service providers in the logistics and supply chain. Time frame: 1 to 2 years. A case study of the PCS in Singapore was given.

Recommendation #9 calls for a review of existing port tariff system. Time frame: 1 to 2 years. A case study comparing terminal handling charges for the Caribbean region was provided.

Recommendation #10 calls for a review of the import tariff system. Time frame: 1 to 2 years.

Recommendation #11 calls for technical assistance to be provided for equipment repair, maintenance and where necessary, replacement at mainports in Saint Lucia. It may also be necessary to acquire additional new equipment to address deficiencies seen in port productivity levels. Time frame: 1 to 5 years.

Recommendation #12 calls for locating and setting aside land to establish a container depot to provide value added services for cargo operations. Time frame: 1 to 5 years.

Recommendation #13 calls for a review of the current location of the ferry terminal at the Port of Castries and its relocation to another site. Time frame: 1 to 5 years.

Recommendation #14 calls for a review of courses pertaining to training and education for the logistics sector. Time frame: 1 to 5 years. A case study on logistics training and education in Singapore was given.

Recommendation #15 calls for fundamental review of current port capacity and its capability of meeting the needs over the long term in the country. This may see a new port developed at Cul De Sac. Time frame: 6 to 10 years. A case of developing the Port of Kaohsiung in Taiwan China was given.

Recommendation #16 calls for attracting and growing transhipment traffic with the purpose of transforming the port to become a major maritime hub in the Caribbean region. Time frame: 6 to 10 years. A case of development of Tanjung Pelepas in Malaysia as a transhipment hub.

Recommendation #17 calls for providing cold storage facilities at the Hewanorra International Airport in Saint Lucia. Time frame: 1 to 5 years.

Recommendation #18 calls for developing and growing the e-commerce sector in the country. Time frame: 3 to 10 years.

Recommendation #19 calls for addressing logistics inefficiencies associated with land transport in the country. Time frame: 1 to 2 years.

Recommendation #20 calls for developing and growing the export sector in the country. Time frame: 3 to 10 years.

Recommendation #21 calls for designating a lead agency who will be given the authority and responsibility to drive development initiatives for the logistics sector. The initiatives can take the form of public-private partnership projects. Time frame: 1 to 2 years.

Recommendation #22 calls for separation of regulatory and commercial responsibilities for the seaport in the country. Time frame: 3 to 10 years.

Recommendation #23 calls for creation of strategic stockpile for essential food and food items to address concerns over food security. Time frame: 1 to 5 years.

Conclusion (Chapter 10)

Key actions or aspects and the implementation timeline for the list of recommendations are as shown:

Recommendation	Timeframe
Strengthen the consensus building mechanisms between public and private sectors for trade facilitation reform: • Identify lead agency to drive trade facilitation reform. • Determine the scope of reform, focusing on priority areas. • Engage relevant stakeholders from across key public and private sector organisations depending on specific area of reform. • Determine the desired outcomes and targets to be achieved. • Hold regular dialogues between the public and private sectors. • Conduct periodic reviews on the scope of reform.	**1-2 years**
Establish national logistics skills curricula: • Establish a working committee to develop a national logistics skills curriculum. • Identify specific skill sets required for the logistics industry. • Consultation with stakeholders in the logistics community. • Determine the desired outcomes and targets to be achieved. • Identify partners from the public and private sectors for collaboration. • Design and offer courses with certification to address skill sets demanded.	**1-2 years**
Review work processes for cargo collection and clearance at the port: • Clarity on cargo collection, inspection and clearance processes (to be made public). • Follow through on status given by risk assessment system. • Award green lane status, to be renewed annually. • Impose severe penalties for erroneous reporting. • Institute pre-clearance for cargo. • Set up one-stop location to handle all payments for port and trade matters. • Use electronic system to track and trace cargo (updated continuously). • Container assigned green lane status should be made ready for pick up at scheduled time. • Establish KPIs to port and customs processes with aim for progressive improvements to time and cost.	**1-2 years**
Review implementing 24/7 work system at the port: • Project cargo and vessel traffic for medium term. • Review benefits and costs to convert to 24/7 work system. • Work out implementation plan and timeline. • Secure buy in from stevedores, customs, regulatory authorities and other port service providers.	**1-2 years**
Accelerate efforts to go fully paperless with customs declaration, payments and inspections: • Identify lead agency to drive implementation. • Identify outstanding bottlenecks and concerns (e.g., network stability). • Determine specific action plans with implementation timelines and responsible agencies. • Provide regular updates on progress. • Redeploy staff made redundant to other roles. • Review customs procedures to identify other areas to go paperless.	**1-2 years**
Install TOS to enhance productivity and efficiency of seaport terminal operations: • Determine user requirements and KPIs to achieve. • Evaluate TOS available in the market. • Decide on the TOS based on suitability to local operations. • Follow through with implementation, training and post-implementation follow-up. • Conduct periodic reviews and benchmark performance with other ports in the region.	**1-2 years**
Designate lead agency to drive development initiatives of logistics sector: • Designated lead agency to drive logistics matters and development initiatives. • Initiatives can take the form of public-private partnership projects • Identify key private sector organisations to work with. • Identify supporting agencies to deliver the Whole-of-Government approach. • Leverage on public-private partnerships structures where applicable. • Regularly review composition of WOG team to ensure alignment to contemporary developments. • Initiate regular dialogues between stakeholders in the logistics community.	**1-2 years**
Review import tariffs to address high cost of imports: • Assess impact of high import tariffs on the country. • Review scheme of trade tariffs for opportunities to reduce the rates. • Initiate legislative process and consultation sessions. • Simplify tariff structure and make it easy to understand. • Make the tariff structure transparent. • Conduct benchmarking with other countries in the region to monitor competitiveness. • Conduct periodic reviews to ensure consistency with country's economic growth and development objectives	**1-2 years**

Recommendation	Timeframe
Address concerns raised towards state of land transport: • Consider widening the Castries-Gros Islet Highway to a 2 x 2 carriageway. • Expedite completion of roadworks on the Millennium Highway for the Castries-Cul De Sac stretch. • Complete works on the bridge at Cul De Sac by linking it to the main road network. • Install traffic lights at the road junction at Cul De Sac next to the KFC restaurant to work during certain times of the day. • Restore road markings for the Micoud Highway that connects Cul De Sac to Vieux Fort and install warning signs for dangerous sections. • Consider using Gate #2 of the Port of Castries when there is traffic congestion.	**1-2 years**
Review system of port tariffs: • Review intended purpose of port tariff system. • Modernise the tariff structure by aligning to container shipping era. • Communicate and engage relevant stakeholders for political support. • Initiate legislative procedures. • Simplify tariff structure and make it easy to understand. • Make the tariff transparent. • Benchmark with other ports. • Conduct periodic reviews to ensure competitiveness and consistency with country's development aims.	**1-2 years**
Review system of port tariffs: • Review intended purpose of port tariff system. • Modernise the tariff structure by aligning to container shipping era. • Communicate and engage relevant stakeholders for political support. • Initiate legislative procedures. • Simplify tariff structure and make it easy to understand. • Make the tariff transparent. • Benchmark with other ports. • Conduct periodic reviews to ensure competitiveness and consistency with country's development aims.	**1-2 years**
Implement NSW system for trade and logistics facilitation: • Identify sponsor and project lead. • Pay attention to technical and operational aspects for implementation. • Identify project risks and mitigation plan. • Training for all stakeholders. • User support essential. • Evaluation, user acceptance testing and handover. • System maintenance.	**1-5 years**

Recommendation	Timeframe
Set up the PCS: • Identify lead agency. • Determine objectives, scope of services and entities to include. • Consider legal frameworks to address. • Identify stakeholders for participation and consultation. • Use RFP to refine objectives and scope of PCS. • Follow through with implementation, training, and post-implementation follow-up. • Conduct periodic reviews to determine adequacy.	**1-5 years**
Provide technical assistance for equipment, repair, maintenance and replacement: *Short term* • Carry out technical assessment to determine repairs and replacements needed. • Deploy technical team to make quick repairs or replacement. • Determine schedule of replacement for port equipment where repairs are not possible. *Short to medium term* • Project port traffic volume for next decade. • Determine KPIs based on desired operation and asset utilisation levels. • Assess current level of equipment readiness and availability. • Identify infrastructure works required. • Work out schedule for repairs and replacements. • Train team of technicians.	**1-5 years**
Allocate land to be designated as container depot: *Short term* • Determine cargo traffic container depot should handle. • Identify suitable land area. • Develop arguments to support notion. • Engage stakeholders through consultations. • Establish schedule of implementation. *Medium term* • Forecast port traffic volume. • Develop port masterplan. • Determine operational, economic, environmental, social and traffic impact. • Engage stakeholders through consultations. • Establish schedule of implementation.	**1-5 years**
Training and education for logistics sector: • Identify training needs for the logistics sector. • Identify partner tertiary institution for collaboration. • Design and offer courses with flexible delivery modes. • Identify persons to be sent for training, with financial support provided. • Promote awareness, attractions and career opportunities in the logistics industry.	**1-5 years**

Recommendation	Timeframe
Explore relocation of the ferry terminal (for Port Castries): • Develop forecasts for ferry vessel, passenger and road traffic for the next decade. • Determine the required capacity in terms of land area and built-up area. • Identify potential locations in proximity to Castries. • Conduct assessments on the operational, economic, environmental, social and traffic impact. • Engage stakeholders through consultations. • Establish schedule of implementation.	**1-5 years**
Construct cold storage facilities at the airport: • Assess the volume of cargo that requires cold storage at the airport. • Ascertain user requirements with respect to specific products anticipated to be handled. • Identify potential site to locate the building and conduct site assessment. • Engage stakeholders through consultations. • Establish schedule of implementation. • Explore interim solutions if the situation is deemed to be urgent	**1-5 years**
Create strategic stockpile for essential food and food items to bolster food security: • Identify lead agency. • Determine basket of essential items for food security. • Establish duration which stockpile is meant to last. • Determine the quantities required. • Decide on location and facilities required. • Decide on the administrative model.	**1-5 years**
Develop and growth the e-commerce sector: • Initiate discussions with prospective air cargo carriers or other airlines. • Determine the required capacity. • Identify potential sites to locate e-commerce hub. • Assess the benefits and costs of accommodating the airline's requirements. • Engage stakeholders through consultations. • Establish schedule of implementation.	**3-10 years**

Recommendation	Timeframe
Develop and grow the export sector: • Set up cooperatives for targeted commodities. • Assess possibilities of subsidising agricultural and primary industry sectors in their research and development efforts. • For strategic commodities, establish national research and development institutes to drive R&D efforts. • Continuous engagement with investors, especially for export sector. • Initiate discussions with prospective key logistics companies for interest in using the country as a major logistics hub.	**3-10 years**
Separation of regulatory and commercial functions of the seaport: • Examine costs and benefits of current operating model. • Examine merits for combining regulatory work for aviation and maritime sector in a single entity. • Decide on governance model. • Identify functions to be commercialised. • Determine implementation timeline and milestones. • Engage relevant stakeholders. • Initiate legislative procedures.	**3-10 years**
Explore development of a new port at Cul De Sac: • Economic and social impact. • Environmental impact. • Site assessment. • Technological impact. • Legal and regulatory impact. • Financial impact. • Industry impact. • Traffic impact.	**6-10 years**
Attract and grow transhipment traffic: • Initiate discussions with prospective shipping lines or other entities. • Determine required capacity. • Identify potential sites. • Assess benefits and costs to accommodate requirements of prospect. • Engage stakeholders through consultations. • Establish schedule of implementation.	**6-10 years**

CHAPT 02 OBJECTIVES OF THE STUDY AND APPROACH

2.1 Background

The International Trade Centre (ITC) is in collaboration with the Caribbean Development Bank (CDB) to carry out a Logistics Chain Study for Grenada and Saint Lucia. The study is intended to identify challenges and analyse possible solutions to obtain logistics efficiency gains and elaborate a roadmap for each of the two countries. This report is focused on the country of Saint Lucia.

The ITC is the joint agency of the World Trade Organisation (WTO) and the United Nations (UN). It is the only multilateral agency fully dedicated to supporting the internationalization of SMEs (Small and Medium-sized Economies). ITC's mission is to foster inclusive and sustainable growth and development through trade and international business development. ITC Headquarters is located in Geneva, Switzerland. ITC projects and programmes contribute to the global efforts to achieve UN Global Goals for Sustainable Development and the Aid for Trade agenda.

The report was prepared using information and data obtained from desktop research, returned survey forms, face-to-face interviews and workshops conducted on-site in the country of Saint Lucia

2.2 Objectives of the study

The objectives of this study are to:

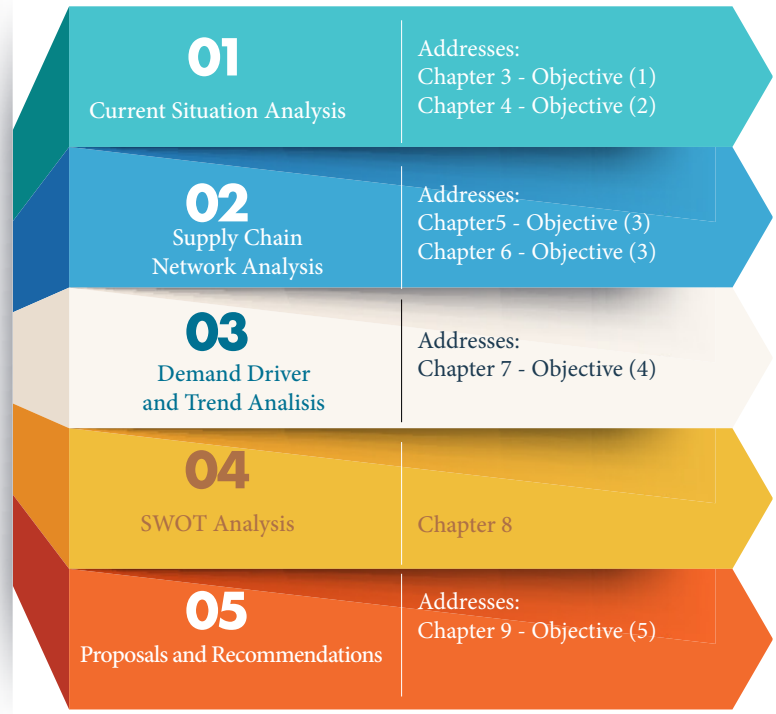
i. Review the policy and regulatory framework in the transport and logistics sector;
ii. Identify ongoing initiatives aimed at improving logistics performance and their impact on trade and economic development in the region;
iii. Quantify and qualify transport costs in the three modes of transport (i.e., sea, air, road) for imports and exports, and establish the duration and costs involved for importing and exporting through the main port;
iv. Identify emerging trends and propose performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions; and
v. Propose and recommend concrete policy and institutional measures aimed at reducing costs and improve competitiveness in the transport and logistics sector, along with identifying the main cost drivers of the proposed measures (e.g., infrastructure, human resources, training, etc.)

2.3 Methodology and Approach

The delivery of the logistic chain study will be completed in the following the steps:

- Desk research and data collection conducted from February to May 2023;
- Survey exercise conducted from March to April 2023 (see section 2.5);
- First mission to Saint Lucia with site visit and interviews conducted in April 2023 (see section 2.6);
- Draft report circulated to stakeholders and CDB for comments in June 2023;
- Presentation and validation workshops in June 2023; and
- Submit final revised report in July 2023.

Figure 2: Framework for Proposed Approach to the Study



Source: International Consultant.

There are five points to address in relation to the objectives of the study. The proposed approach for the study is presented by the framework shown in **Figure 2**. Details pertaining to each part of the study are described in the following paragraphs of this section.

Based on the above figure, the current situation analysis (i.e., **Point 1**), aims to assess the state of the transport and logistics sector in the country. This component of the study aims to review the current performance of the transport and logistics sector and its impact on trade and economic development in Saint Lucia. This aspect of the study shall also investigate related developments pertaining to government policies, regulatory framework, customs procedures, tariff measures, security measures, and ongoing initiatives to improve logistics performance. Infrastructure plays a critical role in determining the efficiency and potential growth of the transport and logistics sector. As such, emphasis shall be on the connectivity and capacity perspectives of key highways, airports, ports, warehousing facilities, and distribution centres, and their integration with various transport modes. The current situation analysis shall address the first two objectives of the study. The aim is to take stock of the transport and logistics sector where the findings will serve as a basis and provide the context for subsequent investigations in the study. This component shall address the **first and second objectives of the study**.

For **Point (2)**, the aim is to establish the supply chain network for key products in the agriculture and manufacturing sectors. The analysis to be carried out will be a result of examination of ITC data. This will include identifying key customers, stakeholders and key cargo consolidation and distribution nodes in the logistics and supply chain as well as user requirements. The study will also identify areas to address regarding supply chain inefficiencies, across different levels and sectors. Product-specific challenges may arise but is not the main scope of the study. Focus is to quantify and qualify transport and various logistics costs incurred for imports and exports in relation to the three modes of transport. The component shall also establish the duration and costs involved for trade activities using the main port. Through the analysis, we aim to identify key concerns and priorities faced in providing for transport and logistics services for the selected products and commodities. The study will also ascertain user requirements in relation to the development of international trade logistics for the country. This component shall address the **third objective of the study.**

The third step is to determine critical demand drivers and emerging trends relevant for the transport and logistics sector in Saint Lucia (i.e., **Point 3**). Similar to the previous point, the analysis will be carried out as a result of analysis of ITC data. Product-specific challenges may arise but is not the main scope of the study. The analysis will also address pertinent issues from other perspectives including economic, trade, technological and other relevant developments. Increasing penetration of digitisation and digitalisation reinforces the impetus to develop integrated logistics systems and trade platforms that can facilitate information flows, track and trace capabilities, materials handling, and financial services especially in international trade. This is an important area to be investigated. The component shall also propose performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions. While no new index will be created, a set of indicators will be proposed for consideration when assessing the sector. Intention is to provide a comprehensive overview of major challenges and opportunities likely to be faced by the transport and logistics sector. This component shall address the **fourth objective of the study**.

In the fourth step, we shall perform SWOT analysis to assess prospects and potential transport and logistics development strategies for this component of the study (i.e., **Point 4**). The analysis shall draw on findings from points (1), (2) and (3) of the study. Through this exercise, intention is to outline core competitive advantages and strengths that are possessed in serving as attractive logistics centres for international trade and market access. The analysis will also propose logistics positioning strategy based on the attributes of key transport and logistics infrastructures. The analysis will consider the perspectives of manufacturers, traders, freight forwarders and policy makers.

In the fifth and final step, we shall propose concrete policy and institutional measures in this component of the study (i.e., **Point 5**). The aim is to reduce costs and improve competitiveness of the transport and logistics sector in Saint Lucia. The recommendations shall draw on findings from points (1), (2), (3) and (4) of the study. Implementation timeline and main cost drivers of the proposed measures shall be provided. The strategic road map for implementation will include recommendations to be implemented over the short term (1 to 2 years), medium term (3 to 5 years), and longer term (6 to 10 years). This component shall address the **fifth objective of the study.**

The study will employ relevant cases and examples of logistics development in emerging countries to illustrate and reinforce key messages, considering relevant sea transport routes for the analysis.

2.4 Deliverables

The deliverables of the study are aligned to the five points proposed in **Figure 1**. Specifically, the deliverables of the study are:

- State of the transport and logistics sector, taking into account policy and regulatory frameworks and ongoing initiatives aimed at improving logistics performance (with reference to Point 1 presented in the framework for proposed approach to the study);
- Supply chain networks for key products with emphasis on the agriculture and manufacturing sectors, including quantifying and qualifying transport costs for imports and exports (with reference to Point 2 presented in the framework for proposed approach to the study);
- Critical demand drivers and emerging trends along with proposed performance indicators (with reference to Point 3 presented in the framework for proposed approach to the study);
- Core competitive advantages and strengths required to serve as logistics centres for international trade and market access. Analysis will include food security aspects (with reference to Point 4 presented in the framework for proposed approach to the study); and
- Proposals and recommendations along with main cost drivers. Also to include considerations and recommendations to strengthen food security and intra-regional trade (with reference to Point 5 presented in the framework for proposed approach to the study).

2.5 Note on Survey Exercise Conducted in Saint Lucia

For the purpose of the logistics chain study for Saint Lucia, survey exercises were conducted over the period of 14 March to 19 April. The surveys were conducted using both emails and through face-to-face interviews.

The survey exercise sought to obtain views from stakeholders of the logistics community with respect to the state of logistics performance, transport infrastructure, critical demand drivers, and emerging trends relevant for the transport and logistics communities in the region. The survey also aims to identify likely strengths, weaknesses, threats and opportunities that are faced by the transport and logistics sectors in Saint Lucia. Survey forms were sent out to 155 companies/organisations. Responses were received from 32 entities which yielded a response rate of 20.6% (see Table 1).

Table 1: Responses to Survey Exercise by Stakeholders in Saint Lucia

Logistics-related segment	No. of entities surveyed	No. of responses received	Response rate
Manufacturers	30	4	13.3%
Importers/exporters	49	9	18.4%
Freight forwarders	48	6	12.5%
Shipping lines	6	4	66.7%
Air cargo sector	5	2	40.0%
Trucking companies	9	3	33.3%
Government sector	7	3	42.9%
Seaport/airport authority	1	1	100.0%
Total	**155**	**32**	**20.6%**

Source: International Consultant.

Responses obtained from the survey were used to develop and prepare for the series of workshops that were held in April 2023.

2.6 Note on Field Trip and Accompanying Workshops Conducted in Saint Lucia

The field trip and accompanying workshops were conducted for Saint Lucia to obtain a good sensing of the challenges and opportunities facing the logistics and supply chain community in the country.

Interviews and site visits with stakeholders of the logistics community in Saint Lucia lasted from 17-19 April 2023. The consultants met with 18 companies and organisations. In addition to the interviews and visitations, route assessments for cargo transport and traffic conditions between the Port of Vieux Fort and Port of Castries (which is the main port-of-call for cargo in Saint Lucia) were conducted on 15 and 19 April. Route assessment for cargo transport and traffic conditions using the backroads was conducted on 22 April.

Focus group workshops were held from 20-21 April. The workshops were attended by 32 participants. The workshops lasted for 1.5 days and were held on-site at The Harbour Club Hotel in Gros Islet. Purpose is to validate key observations made during the interviews and information obtained through background research.

Observations and findings from the field trip and workshops were reviewed and used to prepare the final report.

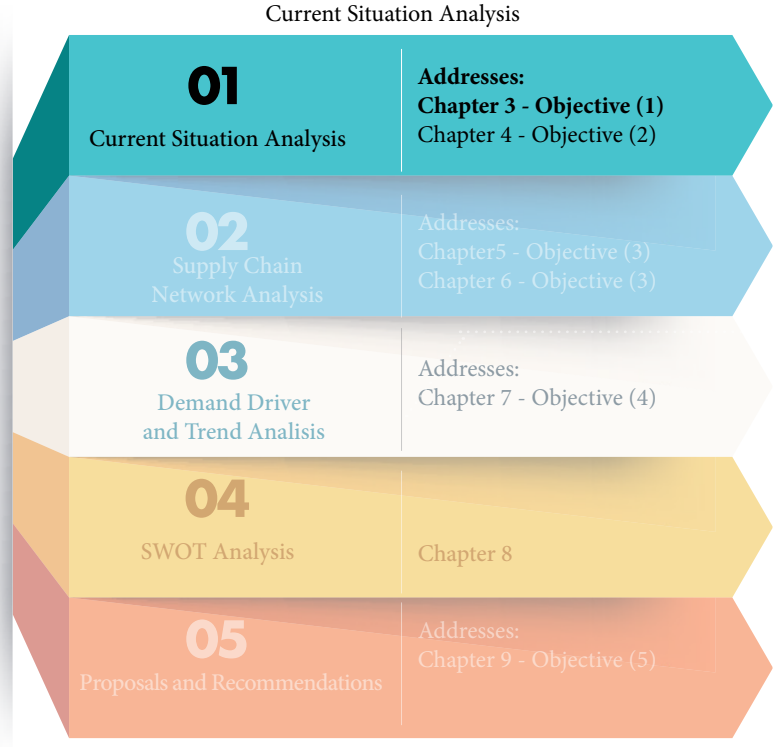
2.7 Note on Validation Workshop Conducted in Saint Lucia

The draft final report was circulated to stakeholders of the logistics community in Saint Lucia in June 2023. Findings and recommendations of the study were subsequently validated through the validation workshop held at the Finance Administrative Centre in the country on 27 June 2023.

CHAPT 03 CURRENT SITUATION ANALYSIS

The current situation analysis sets the context for the study by providing the background for developments that affect the transport and logistics sector of Saint Lucia. For this purpose, discussion of the current situation analysis will be presented over two chapters. **Chapter 3** of the report presents developments concerning the state of trade and economic affairs in Saint Lucia. The chapter shall also investigate related developments pertaining to government policies, regulatory framework, customs procedures, tariff measures and security measures. Specifically, this chapter of the report shall address the first objective which is to review the policy and regulatory framework in the transport and logistics sector (see **Figure 3**). By extension, the chapter shall also address general economic and social conditions, as well as developments in trade performance for the country. Matters and issues concerning the performance of the transport and logistics sector including ongoing initiatives to improve logistics performance shall be presented in the next chapter.

Figure 3: Framework for Proposed Approach to the Study-– Current Situation Analysis

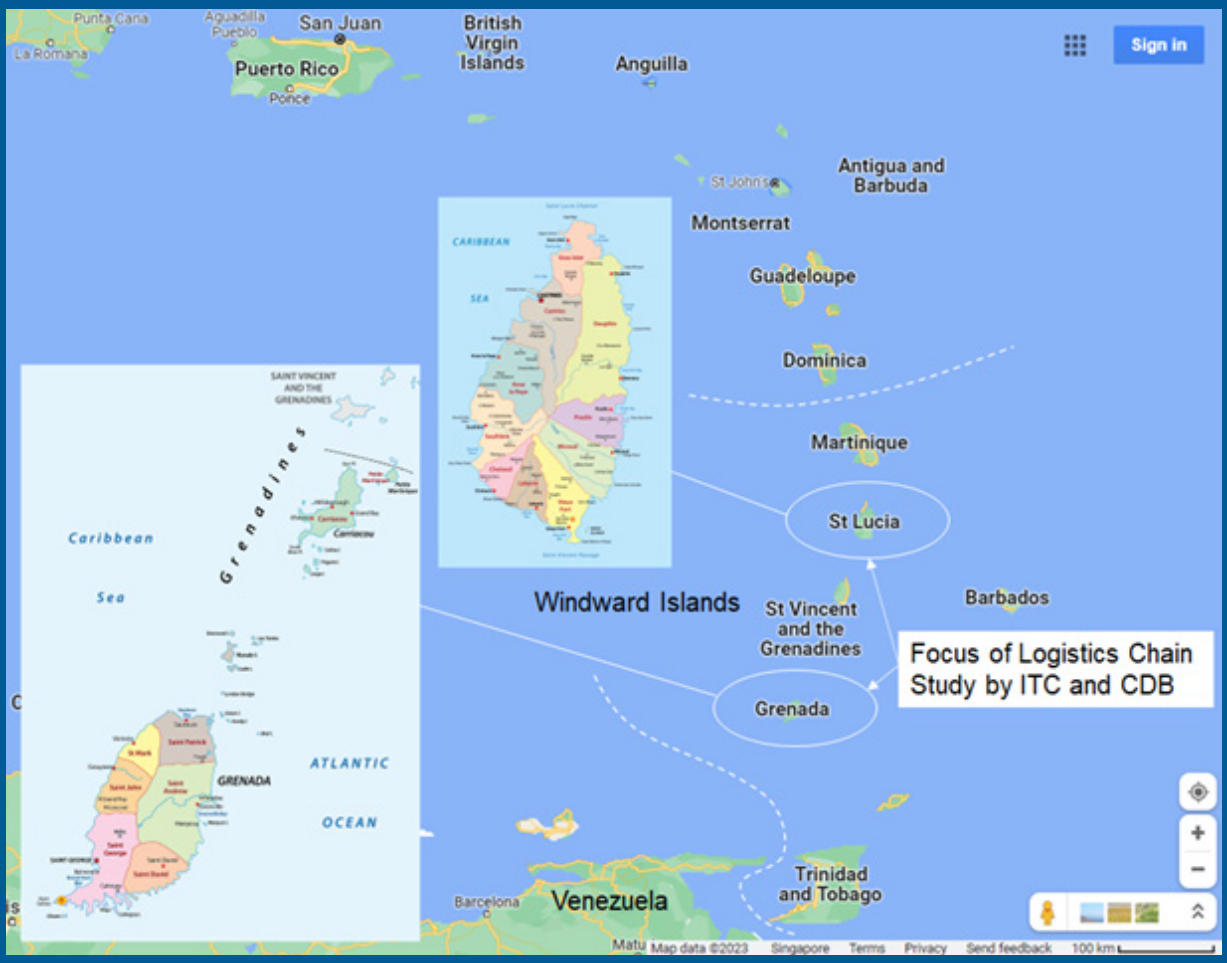


Source: International Consultant.

3.1 General Economic and Social Conditions

With reference to **Figure 4**, Saint Lucia is part of the group of Windward Islands and located in the eastern Caribbean region. The country is a member of the Caribbean Community (CARICOM) which comprises developing countries that are relatively small in terms of land size and population[1]. Saint Lucia is also a founding member of the Organisation of Eastern Caribbean States (OECS)[2]. The OECS was formed in 1981 and is dedicated to regional integration in the region of the eastern Caribbean. As a full member of the OECS, Saint Lucia can enjoy free movement of people and goods within the Economic Union, including use of the common currency "Eastern Caribbean Dollar" (XCD).

Figure 4: Geographical Location of Grenada and Saint Lucia



Source: International Consultant, including using map data from Google Maps.

Saint Lucia comprises of a single island with a land area of 606 sqkm[3]. It is located about 30 km to the south of Martinique and approximately 40 km north of St Vincent and the Grenadines. As with Grenada, the climate is tropical. The climate consists of a dry season lasting from January to April, and a wet season lasting from May to August. Saint Lucia has an estimated population of 167,591 as of 2023 with 85.3% being of Black or African descent. 18.9% of the population resides in urban areas where the largest is the capital city of Castries. Approximately 77% of the land is forested and 17.4% used for agricultural purposes.

[1]Caribbean Community Secretariat (2023) Member States and Associate Members [Online]. Available at: https://caricom.org/member-states-and-associate-members/ (Accessed 4 May 2023).
[2]The Organisation of Eastern Caribbean States (2023) Member States [Online]. Available at: https://www.oecs.org/en/who-we-are/member-states (Accessed 13 April 2023).
[3]The World Factbook (2023a) 'Saint Lucia' US Central Intelligence Agency [Online]. Available at: https://www.cia.gov/the-world-factbook/countries/saint-lucia/ (Accessed 18 April 2023).

Key macroeconomic and social indicators of Saint Lucia are presented in **Table 2**. We would like to highlight the key indicators of GDP growth and GDP per capita are presented. These are core indicators of economic performance and commonly used for comparison across countries. According to data from the International Monetary Fund (IMF), Saint Lucia has a GDP reaching USD1.69 billion in 2021 when measured at current prices.

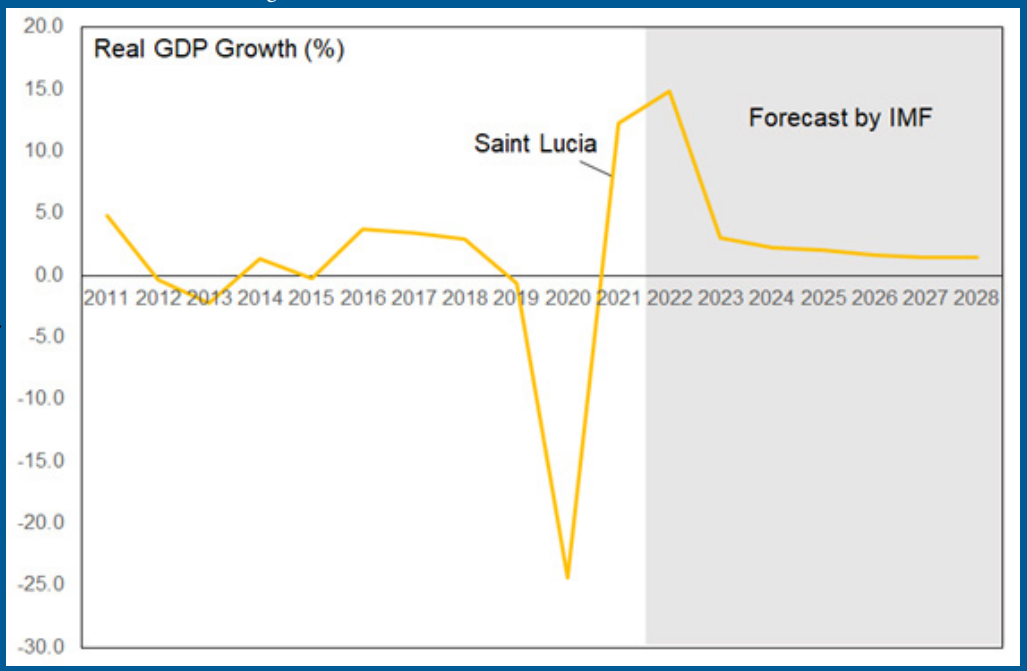
Table 2: Key Macroeconomic and Social Indicators of Saint Lucia

Saint Lucia	2017	2018	2019	2020	2021
GDP (current prices, USD billion)	2.00	2.06	2.09	1.52	1.69
Real GDP growth (%)	3.39	2.88	-0.65	-24.37	12.2
GDP per capita (current prices, XCD)	30,407	31,081	31,444	22,620	25,077
Inflation (%)	0.10	2.56	0.54	-1.76	2.38
Population (million)	0.177	0.179	0.180	0.181	0.182
Urban population (% of total pop)	18.6	18.7	18.8	18.8	18.9
Government budget balance (% GDP)	-2.21	-1.04	-3.53	-11.67	-5.32
Government gross debt (% of GDP)	60.0	60.4	62.1	96.9	90.7
Current account balance (% of GDP)	-2.0	1.4	5.7	-15.7	-11.0
Merchandise exports (USD million)	127.0	62.0	82.0	55.0	59.0
Merchandise imports (USD million)	655.0	659.0	598.0	504.0	601.0
FDI (net inflows, % of GDP)	4.5	2.2	3.5	2.3	2.8
Unemployment (%)	18.9	19.1	15.3	20.4	19.5

Sources: International Consultant, using data from International Monetary Fund (2023)[4] and The World Bank (2023a)[5].

Figure 5 shows the economic performance for GDP of Saint Lucia measured in constant prices. The economy of Saint Lucia saw positive GDP growth for only half of the time in the period from 2011 to 2020. The COVID-19 pandemic severely affected growth in the country with Saint Lucia's GDP contracting by 24.4% in 2020. Going forward, Saint Lucia is forecasted to see its economy grow at 1.5% to 3.0% from 2023 to 2028. In terms of the GDP per capita, the number for Saint Lucia for 2011 was USD9,371 (see **Figure 6**). GDP per capita is a proxy to gauge the level of economic development as well as economic well-being. GDP per capita fell briefly in 2020-2021 due to the effects of the global pandemic. The drastic fall in GDP per capita was also the first decline experienced by the country in twenty years. The previous decline seen in GDP per capita for Saint Lucia was in 2001. Given the rate of GDP growth forecasted by the IMF, GDP per capita of Saint Lucia is expected to reach USD14,686 by 2028.

Figure 5: Economic Performance for Saint Lucia



Source: International Consultant, using data from International Monetary Fund (2023)[6] .

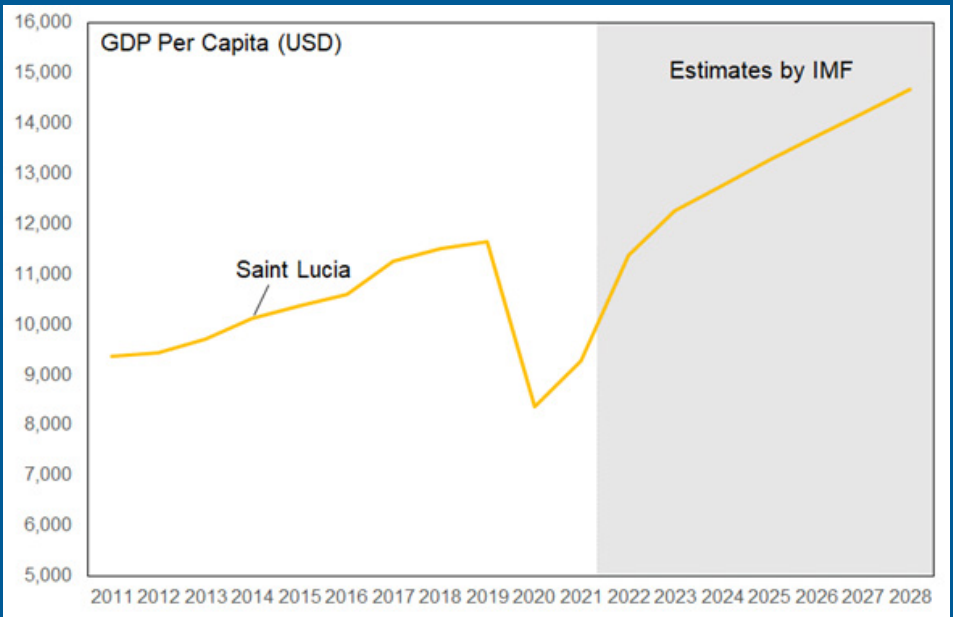
[4]International Monetary Fund (2023) World Economic Outlook Database [Online]. Available at: https://www.imf.org/en/Publications/WEO/weo-database/2023/April (Accessed 2 May 2023).

[5]The World Bank (2023a) World Development Indicators [Online]. Available at: https://data-topics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).

[6] International Monetary Fund (2023) World Economic Outlook Database [Online]. Available at: https://www.imf.org/en/Publications/WEO/weo-database/2023/April (Accessed 2 May 2023).

Composition of Saint Lucia's economy is shown by **Figure 7**. Contribution to GDP is also calculated taking reference to annual GDP at current prices. The economy of Saint Lucia is dominated by accommodation and food services activities which are related to the tourism sector. These activities accounted for almost one-fifth of the economy in the period of 2014 to 2019. Although the COVID-19 pandemic saw contribution from the sector fell to 8.1% in 2020, a sharp rebound saw the sector recovering to account for 15.4% of GDP by 2021. Continue recovery of the tourism trade is projected to see economic contribution by the sector remaining substantial in Saint Lucia. We note that economic contribution from travel agents and tour operators are reported separately where these activities accounted for about 1.0-2.0% of GDP. If we include the contribution from travel agents and tour operators with those of accommodation and food services, given that both sectors are highly related to the tourism trade, their combined GDP will reach almost 25.0% of the economy. Real estate activities made up the second largest source of economic activities in the country, accounting for 12.4% of GDP in 2021. Ranked in the third and fourth positions are wholesale and retail trade (10.3% of GDP in 2021) and financial services (7.2% of GDP) respectively.

Figure 6: GDP Per Capita for Saint Lucia



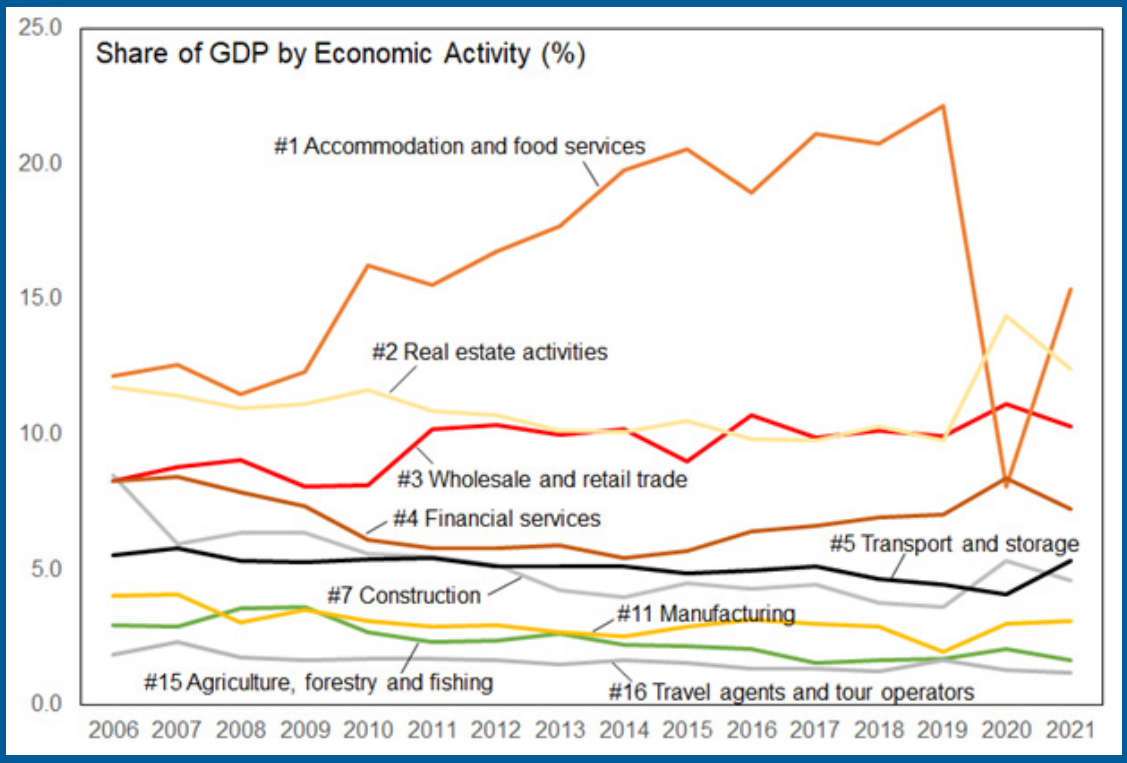
Source: International Consultant, using data from International Monetary Fund (2023)[7] .

Transport and storage activities are ranked in the fifth position, contributing to 5.3% of GDP in 2021. Economic contribution from this logistics-related sector has been relatively stable, fluctuating between 5.0-6.0% in the period of observation covering the years of 2006 to 2021. Looking within the transport and storage sector, road transport took up almost two-thirds of the GDP share with sea transport activities accounting for another one-tenth of economic contribution coming from the sector. The balance of economic contribution came mainly from supporting and auxiliary transport activities which includes storage and warehousing. Economic contribution from air transport activities remain small, mostly at less than 5.0% of GDP accounted by transport and storage.

Other major economic sectors in Saint Lucia are construction activities (4.6% of GDP in 2021), education (3.7% of GDP), and manufacturing (3.1% of GDP). These sectors are ranked respectively in the seventh, ninth and eleventh positions in terms of their contribution to the economy of Saint Lucia in 2021. Saint Lucia also has a sizeable agriculture, forestry and fishing sector which accounted for 1.6% of GDP in 2021. However, we note that contribution coming from the sector appears to be on a declining trend with its GDP share having fallen from a peak of 3.6% in 2008-2009 in our period of observation

[7]IBID

Figure 7: Composition of GDP by Economic Activity for Saint Lucia

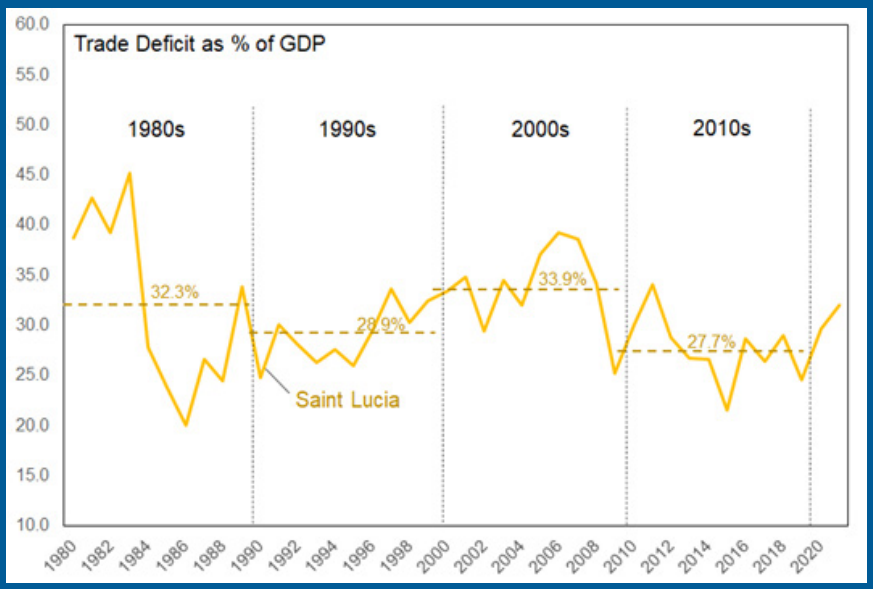


Source: International Consultant, using data from Central Statistical Office Saint Lucia (2023)[8] .

3.2 Trade Performance

In terms of trade performance, **Figure 8** shows a worrying trend of persistent trade deficits incurred by Saint Lucia. The figures present the deficit in merchandise trade as a percentage of GDP. Merchandise imports exceeded those of exports at an average 30.7% of GDP over the period of 1980 to 2021. There are three developments to be concerned with. Firstly, persistent trade deficits of such magnitudes inadvertently put significant pressure on the country's balance of payments and causes outflow of currency. This development may also point to underlying issues plaguing the competitiveness of the export sector.

Figure 8: Trade Deficit for Saint Lucia



Source: International Consultant, using data from The World Bank (2023a)[9].

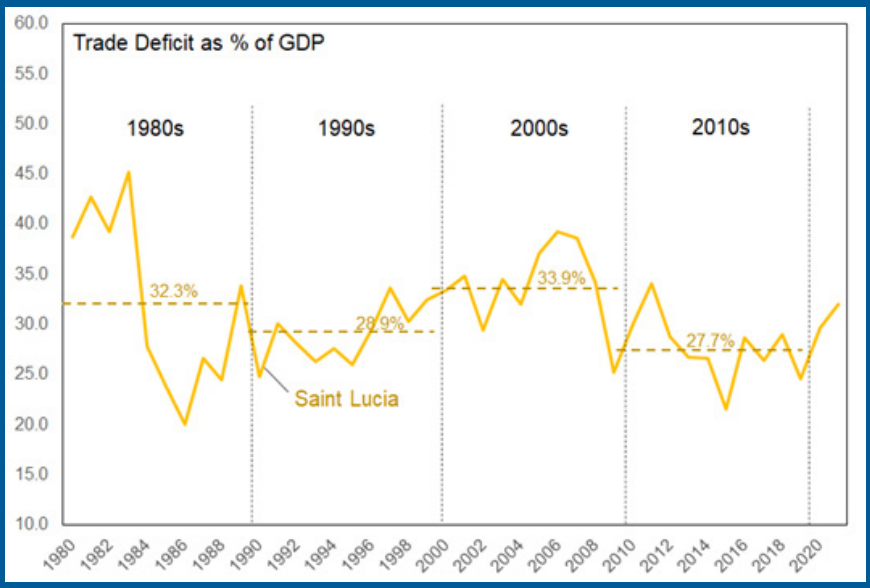
[8]Central Statistical Office of Saint Lucia (2023) Data [Online]. Available at: https://stats.gov.lc/data/data-tables/ (Accessed 4 May 2023).

[9]The World Bank (2023a) World Development Indicators [Online]. Available at: https://datatopics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).

For the second concern, we note that trade deficit appears to be worsening as we progress into the 2020s. The year 2021 saw the country experiencing a trade deficit of USD542 million based on merchandise imports of USD601 million over exports of USD59 million. This resulted in trade deficit for Saint Lucia in 2021 being 32.0% of GDP. The figure is significantly higher than the average level of trade deficits experienced for the country. For the third concern, trade deficit appears to be on a rising trend for Saint Lucia. The higher levels of trade deficits for Saint Lucia were reflected by worsening current account balance for the country as shown by **Figure 9**. A new record deficit of 15.7% of GDP registered by the country in 2020 could be a cause for concern.

Analysis of key commodities and products traded for Saint Lucia showed the largest export is beer made from malt which accounted for 16.3% of total exports in 2021 (see **Table 3**). If we include alcoholic drinks classified under the HS Code 2008, exports of alcoholic products would increase to 21.3% or more than a fifth of total exports. Ranked in the second position for exports was petroleum oils and oils obtained from bituminous minerals (excluding crude) which took a sizeable 14.0% share. Pebbles and gravel stones (9.7%) came in the third position. Bananas and plantains took the sixth position with a share of 4.6%. Other key exports include yachts and other pleasure craft, paints and varnishes, and cartons and boxes. As for imports, petroleum oils including crude took up the lion's share of 70.1% of total imports. The rest of key imports consisted of motor vehicles (1.5%), meat and edible offal of fowls (1.0%), medicaments (0.6%), bread and pastry items (0.5%), sawn wood (0.4%), telephone sets (0.4%) and yachts and other pleasure craft (0.4%).

Figure 9: Current Account Balance for Saint Lucia



Source: International Consultant, using data from the International Monetary Fund (2023) [10].

[10]International Monetary Fund (2023) World Economic Outlook Database [Online]. Available at: https://www.imf.org/en/Publications/WEO/weo-database/2023/April (Accessed 2 May 2023).

Table 3: Key Exports and Imports for Saint Lucia (2021)

Key Exports	HS Code	Description	Value (USD '000)	% Share
1	2203	Beer made from malt	9,877	16.3
2	2710	Petroleum oils and oils obtained from bituminous minerals (excluding crude)	8,530	14.0
3	2517	Pebbles, gravel, broken or crushed stone, for concrete aggregates	5,902	9.7
4	9999	Commodities not elsewhere specified	3,240	5.3
5	2208	Undenatured ethyl alcohol of an alcoholic strength of <80%	3,047	5.0
6	0803	Bananas, including plantains	2,768	4.6
7	8903	Yachts and other vessels for pleasure or sports	2,265	3.7
8	3210	Paints and varnishes	2,190	3.6
9	4819	Cartons, boxes, cases, bags and other packing containers	2,182	3.6
10	8529	Parts suitable for use solely or principally with transmission and reception apparatus	2,037	3.4
		Total	**60,765**	**100.0**

Key Exports	HS Code	Description	Value (USD '000)	% Share
1	2709	Petroleum oils and oils obtained from bituminous minerals, crude	702,075	46.4
2	2710	Petroleum oils and oils obtained from bituminous minerals (excluding crude)	359,280	23.7
3	9999	Commodities not elsewhere specified	77,339	5.1
4	8703	Motor cars and other motor vehicles designed for the transport of persons	15,921	1.1
5	0207	Meat and edible offal of fowls	14,544	1.0
6	3004	Medicaments consisting of mixed or unmixed products for therapeutic uses	9,153	0.6
7	1905	Bread, pastry, cakes, biscuits and other bakers' wares	7,127	0.5
8	4407	Wood sawn or chipped lengthwise, sliced or peeled	6,557	0.4
9	8517	Telephone sets	5,817	0.4
10	8903	Yachts and other vessels for pleasure or sports	5,694	0.4
		Total	**1,514,217**	**100.0**

Source: International Consultant, using data from International Trade Centre (2023)[11].

In terms of trading partners, the largest trading partner of the country is the US (see **Table 4**). The US accounted for almost 40% of Saint Lucia's imports and 16.8% of its exports. Trinidad and Tobago came in the second position by accounting for 14.1% of imports into Saint Lucia and 9.8% of exports. Other major trading partners of Saint Lucia include the UK, China, Barbados, France and Japan. While the US accounted for the largest share of imports, Saint Lucia has a relatively diversified portfolio with imports coming from the Caribbean region, Europe and Asia. By comparison, exports of the country are mostly concentrated in the Caribbean region. Apart from the US, which is the largest export destination for Saint Lucia, key export destinations for the country count many Caribbean and South American economies and included Guyana (12.5% share of exports), Suriname (10.4%), Barbados (9.8%), Trinidad and Tobago (9.8%), Dominica (7.9%), Saint Vincent and the Grenadines (4.1%), Antigua and Barbuda (3.6%), and Jamaica (1.2%). As a whole, we saw that the top fifteen destinations made up 95.5% share of total exports from Saint Lucia. For imports, the top fifteen sources made up 83.7% of total imports.

[11]International Trade Centre (2023) Trade Map [Online]. Available at: https://www.trademap.org/Index.aspx (Accessed 3 May 2023).

Table 4: Major Trading Partners of Saint Lucia

No.	Exports			Imports		
	Country	Value (2021, USD '000)	% Share	Country	Value (2020, USD '000)	% Share
1	USA	11,285	16.8	USA	211,875	39.8
2	Guyana	8,395	12.5	Trinidad & Tobago	75,140	14.1
3	Suriname	6,962	10.4	UK	33,938	6.4
4	Barbados	6,590	9.8	China	31,991	6.0
5	Trinidad & Tobago	6,565	9.8	Japan	15,162	2.8
6	Dominica	5,270	7.9	Barbados	11,661	2.2
7	France	4,432	6.6	France	11,243	2.1
8	UK	3,210	4.8	Canada	11,072	2.1
9	St. Vincent & the Grenadines	2,757	4.1	Mexico	7,906	1.5
10	Grenada	2,666	4.0	Netherlands	7,285	1.4
11	Antigua & Barbuda	2,425	3.6	Dominican Republic	6,807	1.3
12	Belize	1,573	2.3	Thailand	6,219	1.2
13	Jamaica	773	1.2	Jamaica	6,048	1.1
14	Canada	744	1.1	St. Vincent & the Grenadines	5,046	0.9
15	Angola	409	0.6	Malaysia	4,766	0.9
	Top 15	**64,056**	**95.5**	**Top 15**	**446,159**	**83.7**

Source: International Consultant, using data from International Trade Centre (2023)[12] .

3.3 Policy and Regulatory Framework

This section analyses developments pertaining to the policy and regulatory framework in the transport and logistics sector in Saint Lucia. The country adopts a parliamentary democracy modelled closely on the Westminster system. The British monarch is the head of state and is represented in Saint Lucia by the Governor General. Executive authority is vested in the Prime Minister of the country and the Cabinet. The Prime Minister commands the majority of support from the House of Representatives. The legislative branch comprises the Senate and House of Assembly. Members of parliament are elected or appointed to a five-year term. As for the judicial system, it is independent from other branches of government.

The main agencies dealing with transport and logistics activities are summarised in **Table 5**. Worth noting is the Saint Lucia Air and Sea Ports Authority (SLASPA) which saw regulatory and commercial functions of the sea and airports coming under a single entity. Apart from SLASPA, we also saw several other statutory bodies being involved in matters concerning the transport and logistics sector. They include Invest Saint Lucia, Free Zone Management Authority, Saint Lucia Marketing Board and Export Saint Lucia.

Table 5: Main Agencies Dealing with Transport and Logistics Activities in Saint Lucia

Government and Related Agency	Mandate
Ministry of Finance, Economic Development and the Youth Economy	Fiscal policy formulation and implementation, economic planning, tax administration, customs and excise revenue, financial sector supervision, central statistics office
Ministry of Tourism, Investment, Creative Industries, Culture and Information	Tourism-related logistics demand and supply chain activities
Ministry of Education, Sustainable Development, Innovation, Science, Technology and Vocational Training	Training and education of logistics and supply chain management professionals

[12] International Trade Centre (2023) Trade Map [Online]. Available at: https://www.trademap.org/Index.aspx (Accessed 3 May 2023).

Government and Related Agency	Mandate
Ministry of External Affairs, International Trade, Civil Aviation and Diaspora Affairs	Trade policy formulation and implementation, trade advisory services, trade negotiations
Ministry of Agriculture, Fisheries, Food Security and Rural Development	Rural development, food security, agriculture and fishery sector
Ministry of Infrastructure, Ports, Transport, Physical Development and Urban Renewal	Vieux Fort licensing department, utilities
Ministry of Commerce, Manufacturing, Business Development, Cooperatives and Consumer Affairs	Industry development, industry competitiveness, investment attraction
Ministry of Public Service, Home Affairs, Labour and Gender Affair	Employment, public service training, public service modernisation
Ministry of Home Affairs, Justice and National Security	Public order and security, national security
Ministry of Physical Development	Urban renewal, land registry, civil aviation
Saint Lucia Air and Sea Ports Authority	Trade facilitation, gateway connecting Saint Lucia to the world, sea and airport authority
Customs and Excise Department	Trade facilitation, border management, revenue collection
Government Information Technology Services Limited	National information communications and technology office
Invest Saint Lucia	Investment attraction, business support
Free Zone Management Authority	Foster trade, commerce and investment, promote economic growth and development
Saint Lucia Marketing Board	**Stimulate, facilitate and improve fresh agricultural produce's production, marketing and processing, promote local produce to local and export markets**
Export Saint Lucia	**Export promotion**

Source: International Consultant, using data from the Government of Saint Lucia (2023)[13].

3.4 Customs Procedures, Tariff and Security Measures

For Saint Lucia, the Customs and Excise Department comes under the Ministry of Finance. Customs procedures will see cargo being processed using four types of lanes. These are[14]:

- Green lane: no checks required;
- Yellow lane: document checks are conducted;
- Blue lane: post-verification checks for documents are conducted; or
- Red lane: complete check is done; both physical and document checks.

In terms of logistics activities, the Department saw itself playing a pivotal role in adding value to the supply chain with trade facilitation as a core principle for the entity. In terms of customs procedures. For penalties, evaluation must go through the court system where investigation will be conducted. An alternative is to pay a restoration fee where settlement out of court can be made at about 10% of the value of the goods involved. The Saint Lucia Customs and Excise Department shared that initiatives are being taken to go fully electronic which includes developing a system for risk management. It is possible for customs officers to conduct inspection at the premise of the importer. Otherwise, inspections are conducted at the port.

[13] Government of Saint Lucia (2023) Our Government [Online]. Available at: https://www.govt.lc/ (Accessed 5 May 2023).
[14] Information provided by Saint Lucia Customs and Excise Department during face-to-face meeting held on 18 April 2023 at the organisation's office at Jeremie Street in Castries.

For tariff measures, Saint Lucia is a member of CARICOM which adheres to the Common External Tariff (CET). The CET is a common tariff applied to goods imported into the CARICOM region from outside. The CET is designed to promote regional integration and provide a level playing field for member states. Examples of other trade agreements where the CARICOM members are signatories include:

- CARICOM-Venezuela Agreement on Trade and Investment (entry into force: 1993)
- CARICOM-Colombia Trade, Economic and Technical Co-operation Agreement (1995)
- CARICOM-Dominican Republic Free Trade Agreement (2001)
- CARICOM-Costa Rica Free Trade Agreement (2006)
- EU-CARIFORUM Economic Partnership Agreement (2008)
- CARICOM-US Trade and Investment Framework Agreement (2013)
- CARIFORUM-UK Economic Partnership Agreement (2021)

On the aspect of security, poor security to cargo was not highlighted as a major weakness or threat during the face-to-face interviews and workshops conducted in Saint Lucia. Nonetheless, participants at the workshops mentioned concerns regarding cybersecurity especially on training and awareness for fraud detection and prevention.

3.5 Chapter Summary

Saint Lucia is a member of the CARICOM which comprises developing countries that are relatively small in terms of land size and population. The country is a founding member of the OECS.

Saint Lucia has GDP reaching USD1.69 billion in 2021 measured at current prices. The economy of Saint Lucia is dominated by accommodation and food services activities which are related to the tourism sector. Transport and storage activities are ranked in the fifth position, contributing to 5.3% of GDP in 2021.

In terms of trade performance, there is a worrying trend of persistent trade deficits incurred. Persistent trade deficits put significant pressure on balance of payments and causes outflow of currency. This development may also point to underlying issues plaguing the competitiveness of the export sector.

The largest export is beer made from malt. If we include other alcoholic drinks, exports of such products would increase to 21.3% or more than a fifth of total exports. The largest trading partner of the country is also the US, followed by Trinidad and Tobago.

Turning to the policy and regulatory framework, we note that the country adopts a parliamentary democracy model, where the British monarch is head of state. Executive authority is vested in the Prime Minister and the Cabinet. As for the judicial system, it is independent from other branches of government.

Customs and excise functions come under the Ministry of Finance. Customs procedures will see cargo being processed using four types of lanes. These are the green, yellow, blue and red lanes. For tariff measures, Saint Lucia is a member of CARICOM which adheres to the CET regime.

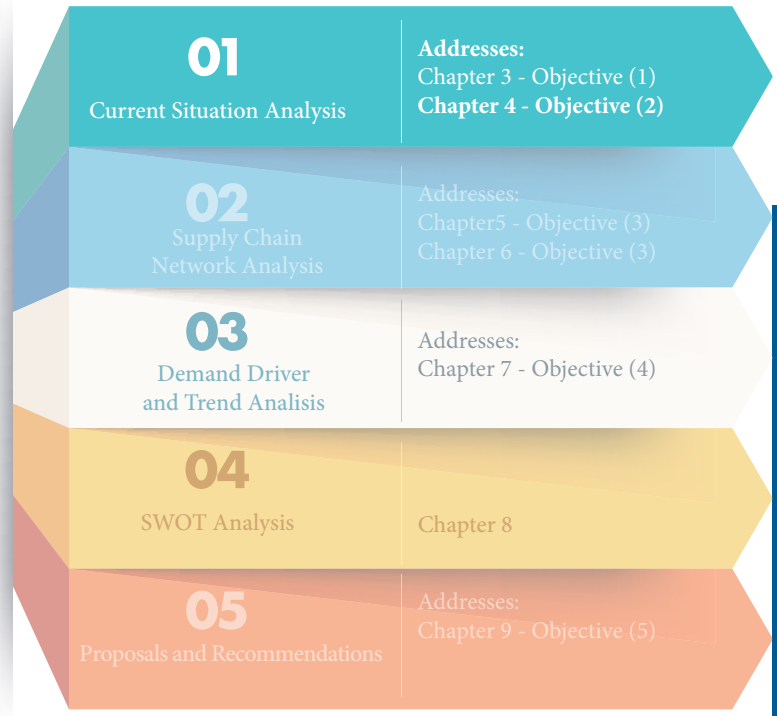
On the aspect of security, poor security to cargo was not highlighted as a major weakness or threat during the face-to-face interviews and workshops conducted in Saint Lucia. Nonetheless, participants at the workshops mentioned concerns regarding cybersecurity especially on training and awareness for fraud detection and prevention.

CHAPT 04 STATE AND PERFORMANCE OF THE TRANSPORT AND LOGISTICS SECTOR

The chapter reviews the current state and performance of the transport and logistics sectors in Saint Lucia. The chapter also identifies ongoing initiatives aimed at improving logistics performance and their impact on trade and economic development in the region. Hence, the chapter deals specifically with the second objective of the study (see **Figure 10**).

Infrastructure has an important impact on the efficiency of the transport and logistics sector and its potential growth. As such, emphasis shall also be given to the state of connectivity and capacity perspectives for key highways, airports, ports, warehousing facilities, and distribution centres, and their integration with various transport modes. Findings from chapters three and four will therefore serve as a basis and provide the context for subsequent analyses in the study.

Figure 10: Framework for Proposed Approach to the Study – Transport and Logistics Sector Performance

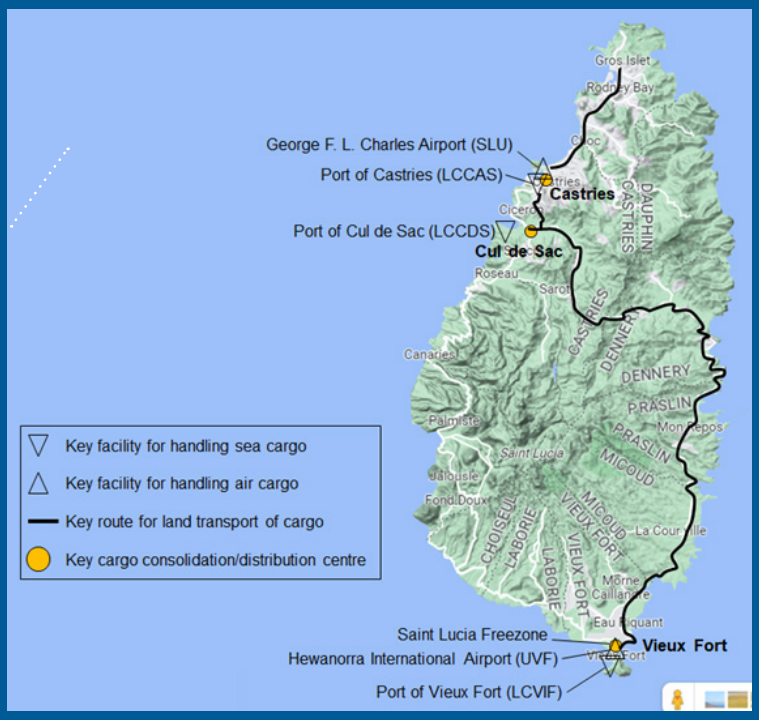


Source: International Consultant.

4.1 Key Transport and Logistics Infrastructure in Saint Lucia

The major cargo gateways for Saint Lucia are the seaports of Castries, Vieux Fort and Cul de Sac, and the airports of Hewanorra International Airport at Vieux Fort and George F.L. Charles Airport at Castries (see **Figure 11**).

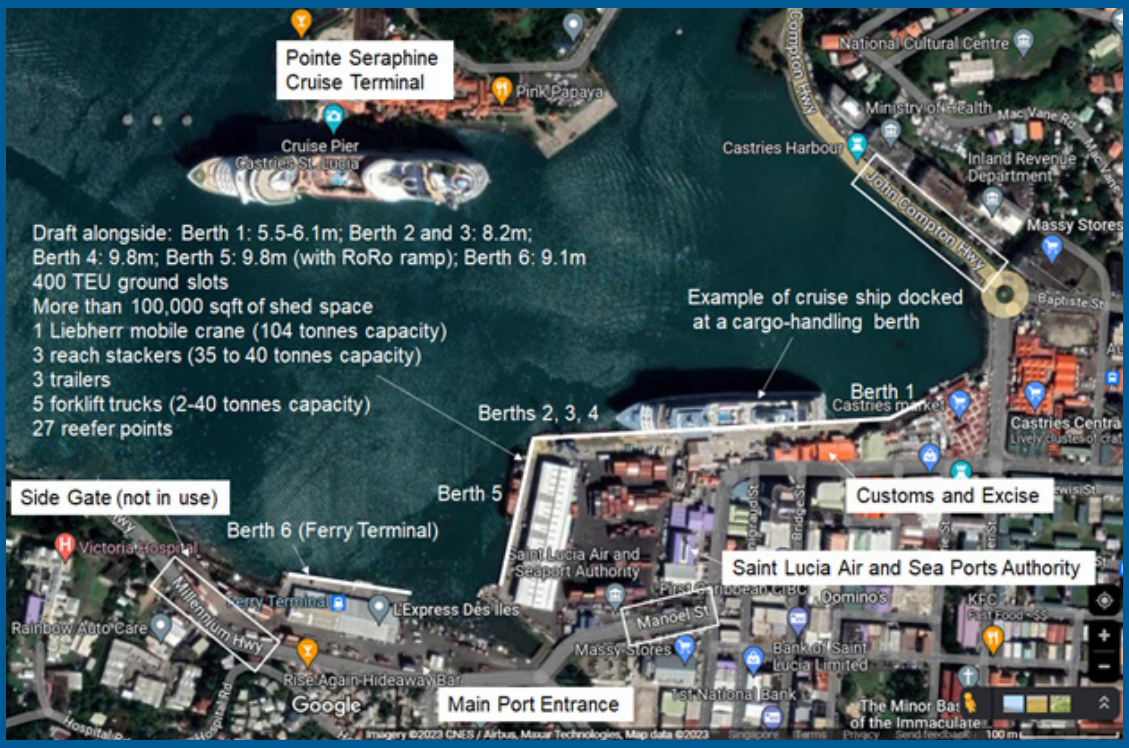
Figure 11: Key Transport and Logistics Infrastructure in Saint Lucia



Source: International Consultant, using map data from Google Maps.

For the port sector, the ports of Castries and Vieux Fort are managed by SLASPA while the Buckeye Saint Lucia Terminal at Cul de Sac is managed by Buckeye Global Marine Terminals. The main seaport of the country is the Port of Castries which is located in the capital city. With reference to **Figure 12**, cargo-handling facilities are located on the south shore with six berths totalling 727m in length. Depth alongside the berths ranges up to 9.75m. The port is equipped with a mobile harbour crane for berth operations. Yard operations are performed using various equipment including two reachstackers and five forklift trucks. There are 400 TEU ground slots and 27 reefer points in the port. Storage capacity also includes more than 100,000 sqft of covered shed space.

Figure 12: Main Cargo-Handling Facilities at Port of Castries



Source: International Consultant, using information from SLASPA (2023)[15] ; map data from Google Maps.

The Port of Castries is a multipurpose terminal. As such, the port is capable of handling a variety of cargo including containers, breakbulk and RoRo cargo. Berth productivity is currently at 7-8 boxes an hour as an accident in December 2022 caused part of the berth to collapse. Berth productivity used to be at 15-20 boxes an hour. Pilotage is compulsory for vessels exceeding 100 GRT. There are two tugs available to serve the needs of the port. Stevedoring services are performed by SLASPA where labour is recruited from the Seamens' Union. The cargo-handling facility faces the cruise terminal which is located on the north-shore at Pointe Seraphine. During the peak cruise season, it is common to see cruise vessels docked at the cargo berths as can be seen in the figure. Under normal circumstances, we will see the cruise ship and cargo vessel berthed at their respective terminals as shown by Figure 13.

Figure 13: Nomadic Hjellestad and Rhapsody of the Seas Berthed at Castries Port

Source: International Consultant.

[15]Saint Lucia Air and Sea Ports Authority (2023) Seaport Facilities [Online]. Available at: https://storage.slaspa.com/contentPages/view/seaport-facilities (Accessed 6 May 2023).

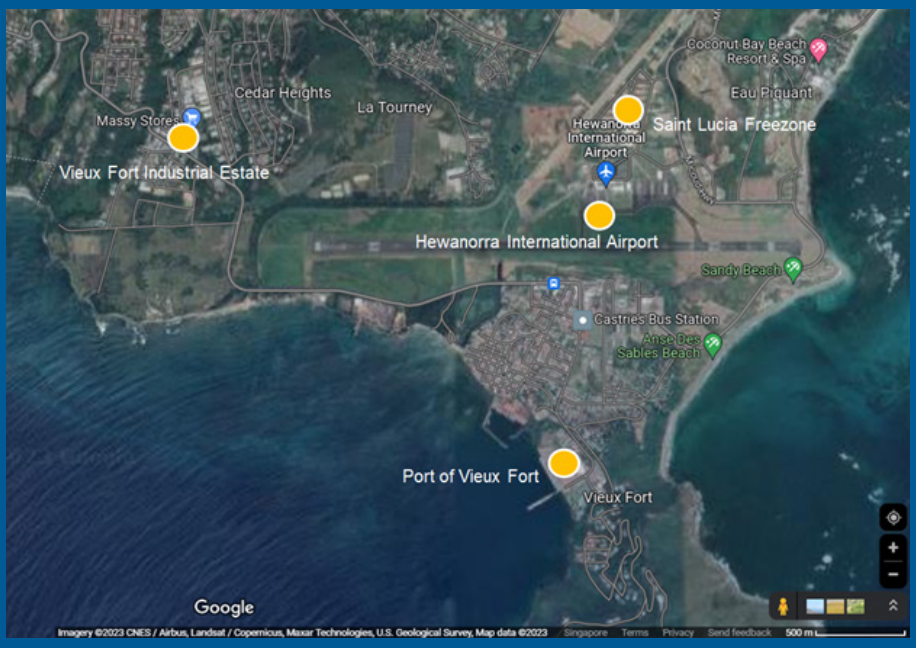
The other key cargo-handling port facility managed and regulated by SLASPA is the Port of Vieux Fort. The port is located at the southern tip of the country in the city of Vieux Fort (see **Figure 14)**. The port is equipped with 633 TEU ground slots and 40 reefer points. Yard operations are enabled by two straddle carriers and four forklift trucks. The main berth has a length 190m with maximum draft of 10.7m alongside. The largest vessel to have berthed at the port has an LOA of 174m with draft of 7.7m. Apart from the main berth, there is a 163m-long single finger pier capable to handling vessels on both sides.

The Port of Vieux Fort is in proximity to the Saint Lucia Free Zone, Vieux Fort Industrial Estate and Hewanorra International Airport (see **Figure 15**). Driving time between these facilities take less than 10 minutes with little traffic. In the case for the Saint Lucia Freezone, it offers 9,140 sqm of space for offices, warehouses, and showrooms[17] . There are eleven warehouses and offices situated on 11.5 acres of land. The freezone also houses the Free Zone Management Authority (FZMA). The freezone is currently fully occupied. The Vieux Fort Industrial Estate is situated to the west of the freezone and counts among its tenants, companies such as Baron Foods Limited, Saint Lu Metal and Plastics Manufacturing, Camel's Auto Centre, Massy Stores, Chemical Manufacturing and Investment and Francis Fish and Sea Foods Limited among many other companies. There is another industrial estate which is located approximately 1km to the north which houses facilities occupied by companies such as Heineken Saint Lucia, Brice and Company and Southern Distributors.

Figure 14: Main Cargo-Handling Facilities at Port of Vieux Fort

Source: International Consultant, using various information including from SLASPA (2023)[16] ; map data from Google Maps.

Figure 15: Location of Major Logistics Facilities in the Vieux Fort Area



Source: International Consultant, using map data from Google Maps.

[16] Saint Lucia Air and Sea Ports Authority (2023) Seaport Facilities [Online]. Available at: https://storage.slaspa.com/contentPages/view/faqs-1 (Accessed 6 May 2023)

[17]The Saint Lucia Freezone (2023) Introduction [Online]. Available at: https://stluciafreezone.com/facilities/index.php (Accessed 6 May 2023).

Another major sea cargo-handling facility is the Buckeye Saint Lucia Terminal at Cul de Sac (see **Figure 16**). The terminal was purchased from Hess in 2013. Buckeye Global Marine Terminals uses the facility for crude oil storage and transhipment in the southern Caribbean region. The facility offers 10.3 million barrels of storage capacity spread across 35 tanks ranging from 5,000 to 750,000 barrels. This includes storage capacity for about 1.0 million barrels of refined products consisting mostly of distillate fuels. In addition, the terminal is capable of handling tankers ranging up to the size of VLCCs with 443,000 DWT and LOA of 396m and draft of 25m[18]. The facility can also host gas carriers ranging up to 64,000 DWT with LOA of 198m and draft of 11.4m. As such, the Buckeye Saint Lucia Terminal has the potential to become a consolidation and distribution centre for liquid bulk cargo and staging location for supply of refined products to the region.

Figure 16: Buckeye Saint Lucia Terminal at Cul de Sac

Source: International Consultant, using various information including from Buckeye Global Marine Terminals (2023)[19] ; map data from Google Maps.

For the air cargo sector, the main aviation gateway for Saint Lucia is the Hewanorra International Airport. It is owned and operated by SLASPA. With reference to **Figure 17**, the airport is equipped with a dedicated cargo building with direct access to the airside. Customs clearance is provided on-site and there are security officers stationed at the cargo bay. The airport is capable of handling a B747-400F aircraft. In fact, the airport used to handle the B747 operated by British Airways. However, the aircraft has stopped flying to Hewanorra International Airport from 2010. We note that there is no cold storage facility at the airport. As such, fresh produce cargo arriving at the airport are loaded immediately onto the aircraft after clearing the procedures. A major cargo handler is the Hewanorra Air Cargo Services (HACS). The company handles cargo for Virgin Atlantic, IAG Cargo (British Airways), Air Canada, Delta, Westjet, Caribbean Airlines, TUI and Sunwing. The company is a subsidiary of Phoenix Services Ltd. HACS runs on five-year leases to operate the cargo terminal at the airport.

[19]Buckeye Global Marine Terminals (2023) St. Lucia [Online]. Available at: https://buckeyeglobalmarine.com/project-view/st-lucia/ (Accessed 6 May 2023).

Figure 17: Cargo-Handling Facility at Hewanorra International Airport

Source: International Consultant, using map data from Google Maps.

Air cargo is also handled at the George F.L. Charles Airport which is located in Castries city (see **Figure 18**). As with Hewanorra International Airport, the facility is managed and operated by SLAPSA. The airport serves exclusively regional flights to destinations such as Saint Vincent, Bridgetown, Port of Spain, Dominica and Fort-de-France. The Leeward Islands Air Transport Services (LIAT) operates a cargo shed at the airport. LIAT was founded in 1956 and is currently in administration as the government of Antigua and Barbuda seeks to take over and restructure the airline. The airline remains in operation and is majority owned by a number of Caribbean governments. The largest shareholders are the governments of Barbados, Antigua and Barbuda and St. Vincent and the Grenadines. LIAT shared that the company used to operate nine flights daily at the airport in 2019. With COVID, the number of flights is down to four per week.

Figure 18: Cargo-Handling Facility at George F. L. Charles Airport

Source: International Consultant, using map data from Google Maps.

The geographical disposition of cargo gateways of the country and key consumption and production activities results in the main cargo consolidation and distribution centres being located at the Parish of Castries, which includes Cul de Sac, followed by the Parish of Vieux Fort. With the main seaport at Castries, land transportation of cargo using trucks are observed to take two routes. For cargo leaving the port in Castries to go to Gros Islet, the driving route will take to Manoel Street after leaving the main gate and join the John Compton Highway followed by the Castries-Gros Islet Highway. It will take about 30 minutes to travel the 13km distance to reach Pigeon Point Industrial Estate during non-peak hours. At peak hours, the time taken can increase significantly to 1-2 hours depending on severity of the congestion. An example of traffic congestion on the Castries-Gros Islet Highway is shown by **Figure 19.**

For cargo leaving the port in Castries to go to Vieux Fort, the driving route will take to the Millennium Highway (with option to go via La Toc Road), followed by the road that joins to Micoud Highway. The distance of about 55km takes approximately 1.5 hours to complete. Although congestion can occur at certain stretches of the route as shown by Figure 20, the time taken is largely not affected as drivers may speed up to make up for lost time.

4.3 Performance of Seaport and Air Cargo Sectors

Having presented the state of transport and logistics infrastructure, we shall analyse the performance of this sector. Our focus shall be on the seaport and airport given that these facilities are the primary gateways to international trade for both island economies.

According to data from The World Bank, volume of containers handled by Saint reached 35,361 TEUs in 2021 (see **Figure 21**). However, the figure also showed that container traffic appears to be on a declining trend. It is also worth noting for container traffic handled which reached a peak of 74,831 TEUs in 2012. Container volumes in Saint Lucia has since declined significantly, reducing by almost half of what the country used to handle at its peak.

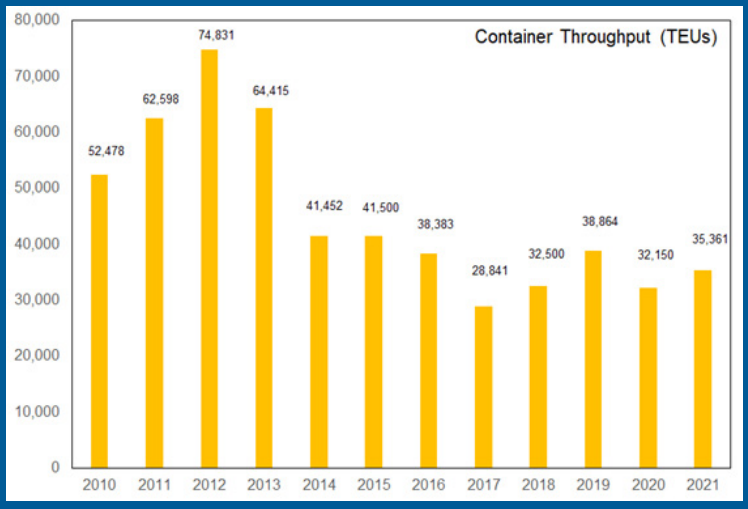
Figure 19: Traffic Congestion on the Castries-Gros Islet Highway

Source: International Consultant.

Figure 20: Traffic Congestion on Highway at Most Pure Heart of Mary Bexon Parish

Source: International Consultant.

Figure 21: Container Traffic for Saint Lucia

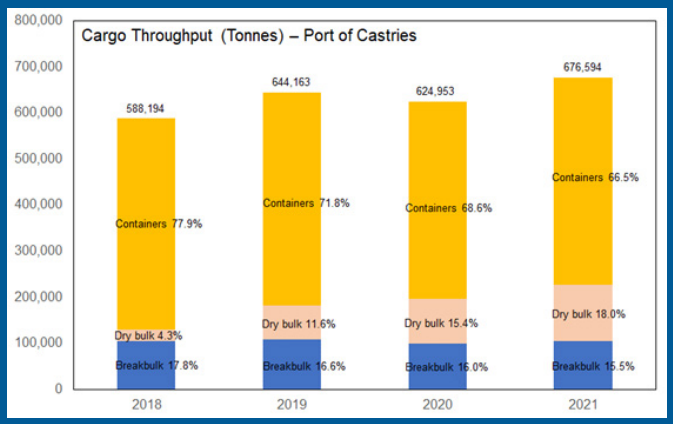


Source: International Consultant, using data including from The World Bank (2023a)[20].

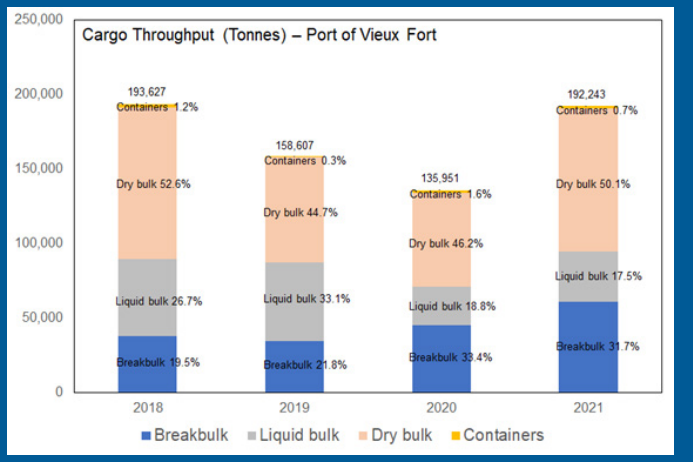
[20]The World Bank (2023a) World Development Indicators [Online]. Available at: https://datatopics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).

Figure 22: Cargo Throughput for Port of Castries and Vieux Fort

(a)



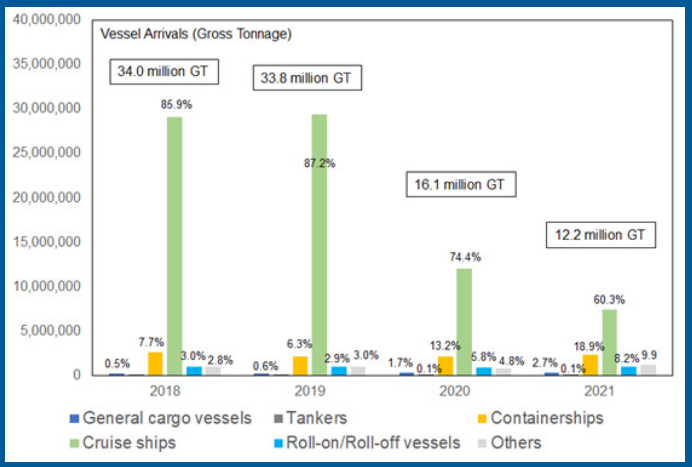
(b)



Source: International Consultant, using data from Saint Lucia Air and Sea Ports Authority (2023)[21].

Figure 23: Vessel arrivals for Port of Castries and Vieux Fort

(a)



Looking at the composition of cargo traffic, we saw majority of cargo handled in the Port of Castries to consist of containerised cargo (see **Figure 22 panel (a)**). Such cargo accounted for 66.5% share of total cargo throughput in 2021. Before the pandemic, the share accounted by such cargo was 77.9% and 71.8% respectively in 2018 and 2019. Containerised cargo volume handled in the port fell by 7.2% in 2020 although it subsequently recovered by 4.9% in 2021. This resulted in an overall marginal decline of 2.7% due to disruptions to global trade caused by the pandemic. For breakbulk traffic, cargo volumes also saw a contraction by 7.0% in 2020. However, the trade quickly recovered by 5.2% in the following year of 2021. This resulted in breakbulk volumes remaining at about 105,000 tonnes or 15.5% of total cargo handled. For the dry bulk trade, cargo volumes rose by almost five times between 2018 and 2021, reaching 122,000 tonnes in 2021 and account for 18.0% of total cargo handled by the Port of Castries. Strong performance for dry bulk cargo resulted in an overall positive growth of 15.0% in total cargo throughput processed at Castries for the period 2018 to 2021.

Turning to the Port of Vieux Fort, we saw that the dry bulk trade was also instrumental in driving performance for cargo handled at the port. With reference to **Figure 22 panel (b)**, dry bulk cargo accounted for the bulk of traffic handled in the Port of Vieux Fort, reaching 50.1% share of total volumes in 2021. However, development of the trade was rather volatile, falling by 30.3% and 11.6% respectively in 2019 and 2020, before recovering sharply by 53.4% in 2021. Performance of the dry bulk sector drove overall performance of port cargo throughput which also saw decline in traffic by 18.1% and 14.3% respectively in 2019 and 2020, before recovering by 41.4% in 2021. The strong recovery in total cargo was also made possible by the sharp increase in breakbulk volumes handled at the port. In 2021, breakbulk cargo grew by 34.1% to reach 61,000 tonnes, almost doubling the volumes handled by the port for such cargo in 2019. Breakbulk cargo accounted for 31.7% share of throughput by the Port of Vieux Fort. Expansion of breakbulk traffic lay in contrast to the decline in share of volume accounted by liquid bulk cargo. Traffic volume for the liquid bulk trade fell from 51,627 tonnes in 2018 to 33,562 tonnes in 2021, resulting in the share of the cargo contracting by 9.2 percentage points to 17.5% in 2021. The port also handled some containers although volumes are small.

In terms of vessel traffic performance, the Port of Castries saw vessel arrivals falling continuously over the period of 2018 to 2021. By comparison, cargo throughput handled by the Port of Castries rose by 15.0% over the same period. With reference to **Figure 23 panel (a)**, vessel arrivals at the port experienced sharp declines especially in 2020 and 2021 where traffic measured in terms of GT fell by 52.2% and 24.2% respectively.

[21] Information provided by Saint Lucia Air and Sea Ports Authority through survey exercise conducted in March 2023.

This resulted in overall vessel arrivals by GT falling 64.0% over 2018 to 2021. The substantial drop in vessel arrivals was a result of performance for the cruise sector which was badly affected by the COVID-19 pandemic. Cruise ship arrivals at the Port of Castries fell by 59.2% from 29.4 million GT in 2019 to 12.0 million GT in 2020, followed by another decline of 38.6% to 7.4 million GT in 2021. Even so, cruise ships continue to account for majority of vessel arrivals with a share of 60.3%. In the pre-COVID period, the share of cruise ships by GT ranged over 85.0%. The second biggest group of vessel arrivals was contributed by containerships. This category of vessels also experienced a decline by 12.2% between 2018 and 2021.

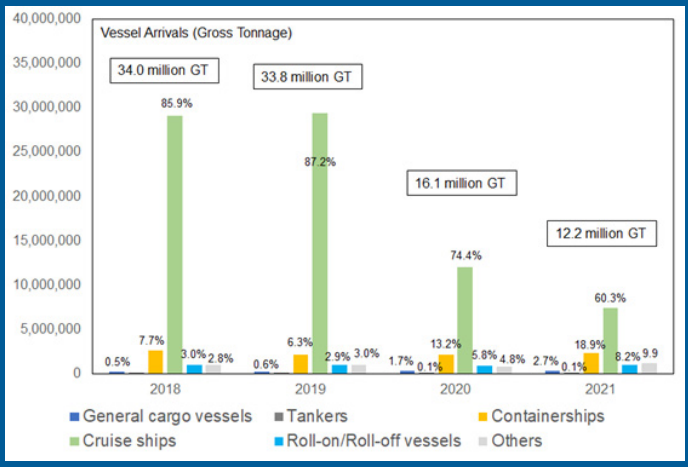
With reference to **Figure 23 panel (b)**, vessel arrivals fluctuated between 610,000 and 725,000 GT from 2018 to 2021 for the Port of Vieux Fort. Vessel arrivals consist mainly of general cargo vessels and tankers. The period saw the share of general cargo vessels rose from 364,766 GT or 51.3% in 2018 to reach 454,594 GT or 74.3% in 2021. However, the scenario was reversed for tankers which saw their share of total vessel traffic fall from 44.8% or 318,498 GT in 2018 to 25.7% or 157,405 GT in 2021. Nonetheless, vessel traffic performance for Saint Lucia is dominated by the Port of Castries which received 50 times as many vessels compared to the Port of Vieux Fort during the pre-COVID period. Although the pandemic saw the lead by Castries decline to 20 times in 2021, we expect the lead by Castries Port to increase significantly with recovery of cruise traffic.

Analysis of the air cargo sector revealed Hewanorra International Airport to be handling 1.6 times as much cargo as George F. L. Charles Airport in 2021. The comparative figure in 2019 during pre-COVID days was 2.4 times. With reference to **Figure 24**, cargo volumes at Hewanorra International Airport fell from 2,348 tonnes in 2019 to 1,812 tonnes in 2021. The comparative figures for George F. L. Charles Airport were 989 tonnes and 1,124 tonnes over the same period.

In terms traffic composition, we saw both airports handling a higher proportion of export cargo compared to imports. For Hewanorra International Airport, the ratio of export cargo to import cargo is approximately 1.4 to 1.5 times. For George F. L. Charles Airport, the ratio of export to import cargo rose from 1.6 times in 2019 to 1.9 times in 2021. Although cargo volumes have not recovered to pre-COVID levels, the throughput for Hewanorra International Airport is expected to exceed 2,000 tonnes in 2023. HACS shared that the company used to handle 3,000 tonnes of cargo for the airport during 2010 to 2015. For George F. L. Charles Airport, the situation will depend on developments in regional trade for air cargo. This is given the bulk of flights handled by the airport are regional in nature.

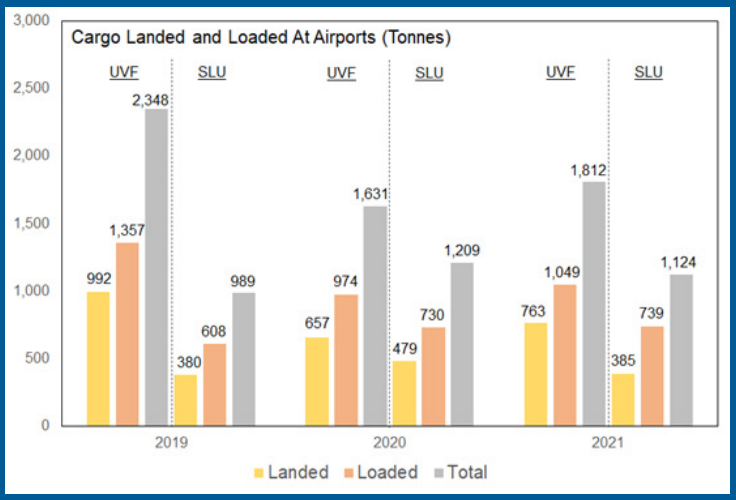
Figure 23: Vessel arrivals for Port of Castries and Vieux Fort

(b)



Source: International Consultant, using data from Saint Lucia Air and Sea Ports Authority (2023)[22] .

Figure 24: Air Cargo Handled in Saint Lucia



Source: International Consultant, using data from Central Statistical Office Saint Lucia (2023)[23] .

[22] Information provided by Saint Lucia Air and Sea Ports Authority through survey exercise conducted in March 2023

[23] Central Statistical Office of Saint Lucia (2023) Data [Online]. Available at: https://stats.gov.lc/data/data-tables/ (Accessed 4 May 2023).

4.4 Initiatives Implemented or Planned to Improve Logistics Performance

This section discusses the list of initiatives implemented or are planned to improve logistics performance in Saint Lucia. A list of major initiatives implemented for the transport and logistics sector is summarised in **Table 6**. The list of projects covers a wide range of aspects including issues pertaining to intra-region trade, customs clearance, road transport infrastructure, food security, and airport and seaport infrastructure and operations. We note that funding from international sources and foreign governments play a significant role in many projects.

Table 6: Examples of Major Initiatives to Improve Logistics Performance in Saint Lucia

Initiative	Description
1. Hewanorra International Airport Redevelopment Project (2019 supposedly implemented)[24]	The USD175 million project broke ground in 2019. It is expected to see completion of a brand new 337,000 sqft terminal building, a 100-foot air traffic control tower, five passenger loading bridges, and a new road traffic management system. The project began with hoarding of 55 acres of land and relocation of several airport services. The project was supposed to be completed in 2021. However, delays to construction work for the new terminal building saw the project pushed back to 2023.
2. Terminal Operating System (2019 implemented)[25]	The Unitrack TOS allows cargo operations to be digitalised. The system integrates information about cargo, vessels and cargo handling and allows tracking of cargo. Focus is on transparency, accessibility, and ease doing business for shipping lines and agents. The system is also integrated with Customs to allow smooth flow through the terminal. SLASPA aims to develop an online vehicle booking system for trucks to allow containers to be located and automatically made ready for collection in advance.
3. Millennium Highway and West Coast Road Upgrading Project (2019 implemented)[26]	The project aims to upgrade the key road infrastructure that links Castries to Soufriere and improve travel time and safety. The project also aims to improve climate resilience of the roads. Funding of GBP41.6 million was allocated for this project.
4. Caribbean Regional Air Transport Connectivity Project (2020 implemented)[27]	The World Bank approved US$45 million in 2020 to fund the project with the objectives of (1) improving operational safety and navigation efficiency of air transportation; and enhance resilience of Saint Lucia's airport infrastructure to natural disasters. The implementing agency is SLASPA. The project is slated to end by 30 June 2027.
5. ASYCUDA World System Upgrade (2021 implemented)[28]	The ASYCUDA World System was upgraded in 2021. The aim was to enhance the Customs and Excise Department's ability to deliver modern customs services to the trade community.
6. Time Release Study (2022 implemented)[29]	A Time Release Study (TRS) was undertaken in 2022 as part of the country's efforts to improve its trading environment as well as meet the obligations under the WTO Agreement on Trade Facilitation. The request for support was made by the Ministry of Commerce, Manufacturing, Business Development, Cooperatives and Consumer Affairs of Saint Lucia. The TRS provided the local and international trade community with information on average clearance times at the Port of Castries and also enabled the country to begin initial process mapping of customs and port clearance.
7. Redevelopment of Castries Harbour (2022 implemented)[30]	Global Port Holdings is in discussion with the Saint Lucia Government to transform the Castries and Soufriere waterfronts to elevate cruise passenger arrivals for the country. An MOU was signed in October 2022 to pave way for construction of improved berthing facilities to accommodate larger cruise liners, upgrade duty-free shopping zones, a new ferry facility in Banannes Bay, a new dock in Soufriere, and a mile-long boardwalk along the Castries waterfront from La Place Carenage to Pointe Seraphine.

[24]ICR Facility (2022) 'Update on HIA Redevelopment Project', Government of Saint Lucia, 12th December [Online]. Available at: https://www.govt.lc/news/update-on-hia-redevelopment-project (Accessed 6 May 2023).
[25]Saint Lucia Air and Sea Ports Authority (2020) 'Smooth sailing – Saint Lucia Ports Handbook and Directory, Saint Lucia Air and Sea Ports Authority, 21st January [Online]. Available at: https://stluciaports.directory/portfolio-items/smooth-sailing/ (Accessed 6 May 2023).
[26]Caribbean Development Bank (n.d.) 'Saint Lucia Project Profile: Millennium Highway and West Coast Road Upgrading Project', Resource Library [Online]. Available at: https://www.caribank.org/publications-and-resources/resource-library/booklets-brochures/saint-lucia-project-profile-millennium-highway-and-west-coast-road-upgrading-project (Accessed 6 May 2023).
[27]The World Bank (2023c) 'Saint Lucia – Caribbean Regional Air Transport Connectivity', What We Do, 26th January [Online]. Available at: https://projects.worldbank.org/en/projects-operations/project-detail/P170860 (Accessed 6 May 2023).
[28]SLASPA (2021) 'Customs upgrades Asycuda World System', Government of Saint Lucia, 4th June [Online]. Available at: https://www.govt.lc/news/customs-upgrades-asycuda-world-system (Accessed 6 May 2023).
[29]ICR Facility (2022) Interventions [Online]. Available at: https://www.icr-facility.eu/supporting-trade-facilitation-in-saint-lucia#:~:text=Saint%20Lucia%20embarked%20on%20the,Trade%20Facilitation%20(WTO%20TFA). (Accessed 6 May 2023).
[30]Isidore, R. (2022) 'Development proposal for Castries, Soufriere waterfronts', Government of Saint Lucia, 31st October [Online]. Available at: https://www.govt.lc/news/development-proposal-for-castries-soufriere-waterfronts (Accessed 6 May 2023).

Initiative	Description
8. Port Community System (2023 implemented)[31]	SLASPA is looking to set up a Port Community System (PCS) in the current financial year ending March 2024. The PCS aims to provide a single electronic platform for the seaport community. With the PCS, it is hoped that logistics processes connecting transport and logistics chains can be made more efficient.
9. National Single Window System (to be implemented)[32]	The initiative is at the RFP stage. Intention is to develop a system that is fit for purpose. The system aims to improve ease of doing business by streamlining procedures and reduce the costs of engaging in international trade. Specifically, the platform will allow modernisation of import and export processed and simplification of customs procedures through the adoption of a single electronic window system.
10. Vieux Fort Port Redevelopment (to be implemented)[33]	A main shed was created at the port where previously there were two sheds in use. This helped to streamline the delivery of cargo process by combining different agencies and processes in one physical area. There are plans to further develop the port by making use of an empty plot of land located to the south and adjacent to the current terminal.
11. New Cargo Terminal at Cul De Sac (in discussion)[34]	A pre-feasibility study to consider relocating container and general cargo to Cul De Sac was completed. SLASPA is working on the Terms of Reference for a feasibility study for the new port.
12. Intra-regional Ferry Service (in discussion)[35]	Establish a regional (CARICOM) or sub-regional (OECS) ferry service to allow for efficient and free movement of goods, particularly agricultural goods throughout the CSME and OECS. The aim is to increase intra-regional trade and meet CARICOM's objective of reducing the region's food import bill by 25% by 2025.
13. Risk Assessment and Management (in discussion)[36]	Implement a risk management system to include all key border control management agencies such as Environment Health Department, Bureau of Standards, Ministry of Agriculture and Customs and Excise Department.
14. Sanitary and Phyto-Sanitary Regime (in discussion)[37]	Implement of a Sanitary and Phyto-Sanitary (SPS) regime in Saint Lucia to allow for the safe importation and exportation of food items and to be in-compliance with the health and safety regulations, or market access requirements of trading partners such as CARICOM Member States, the US, EU and UK. The aim is to increase intra and extra-regional trade. This will call for enactment of the relevant legislation that include the Plant Protection Bill, Animal Health Bill and Food Safety Bill.

Source: compiled by National Consultant of Saint Lucia and International Consultant.

4.5 Chapter Summary

The chapter reviews the current state and performance of the transport and logistics sectors in Saint Lucia. The chapter also identifies ongoing initiatives aimed at improving logistics performance and their impact on trade and economic development in the region. The chapter deals specifically with the second objective of the study.

The major cargo gateways are the seaports of Castries, Vieux Fort and Cul de Sac, and the airports of Hewanorra International Airport at Vieux Fort and George F.L. Charles Airport at Castries. The ports of Castries and Vieux Fort are managed by SLASPA while the Buckeye Saint Lucia Terminal at Cul de Sac is managed by Buckeye Global Marine Terminals. SLASPA also manages and operates both of the aforementioned airports.

The main seaport of the country is the Port of Castries. The Port of Vieux Fort located at the southern tip of the country is in proximity to the Saint Lucia Free Zone, Vieux Fort Industrial Estate and Hewanorra International Airport. For the Buckeye Saint Lucia Terminal at Cul de Sac, the facility is capable of handling tankers ranging up to the size of VLCCs.

For the air cargo sector, Hewanorra International Airport has a dedicated cargo building with direct access to the airside. Customs clearance is provided on-site and there are security officers stationed at the cargo bay. The George F.L. Charles Airport serves exclusively flights to the region.

[31]Information provided by Saint Lucia Air and Sea Ports Authority during a face-to-face meeting held on 17 April 2023 at the organisation's office at Manoel Street in Castries.
[32]Information provided by Saint Lucia Ministry of Foreign Affairs, International Trade, Civil Aviation and Diaspora Affairs during a face-to-face meeting held on 17 April 2023 at the organisation's office at The Baywalk Rodney Bay in Gros Islet.
[33]Information provided by Saint Lucia Air and Sea Ports Authority through survey exercise conducted in March 2023.
[34]Information provided by Saint Lucia Air and Sea Ports Authority during a face-to-face meeting held on 17 April 2023 at the organisation's office at Manoel Street in Castries.
[35]Information provided by Saint Lucia Air and Sea Ports Authority through survey exercise conducted in March 2023.
[36]Ibid.
[37]Ibid.

Geographical disposition of cargo gateways of the country and key consumption and production activities results in the main cargo consolidation and distribution centres being located at the Parish of Castries, which includes Cul de Sac.

According to data from The World Bank, volume of containers handled by Saint reached 35,361 TEUs in 2021. However, the figure also showed that container traffic appears to be on a declining trend.

Looking at Castries Port, majority of cargo handled consists of containers. Nonetheless, strong performance for dry bulk cargo resulted in overall growth in total cargo throughput. For vessel arrivals, the port saw vessel traffic falling continuously over the period of 2018 to 2021 because of performance for the cruise sector which was badly affected by the COVID-19 pandemic. Even so, cruise ships continue to account for majority of vessel arrivals with a share of 60.3%.

Turning to the Port of Vieux Fort, the dry bulk trade was also instrumental in driving performance for cargo handled. Dry bulk cargo accounted for the bulk of traffic handled, reaching 50.1% share of total volumes in 2021. Vessel traffic consists mainly of general cargo vessels and tankers with the respective shares at 74.3% and 25.7% of vessel arrivals in 2021.

Analysis of the air cargo sector revealed Hewanorra International Airport to be handling 1.6 times as much cargo as George F. L. Charles Airport in 2021. Although cargo volumes have not recovered to pre-COVID levels, throughput for Hewanorra International Airport is expected to exceed 2,000 tonnes in 2023.

Analysis of the list of initiatives implemented or are planned to improve logistics performance in Saint Lucia saw projects covering a wide spectrum of aspects including issues pertaining to intra-region trade, customs clearance, road transport, food security, and airport and seaport infrastructure and operations. We note that funding from international sources and foreign governments play a significant role in many projects.

CHAPT 05 SUPPLY CHAIN NETWORK ANALYSIS

The third objective of the study shall be addressed in two chapters. With reference to **Figure 25, Chapter 5** of the report analyses supply chain networks from the perspectives of shipping and air connectivities. The chapter will also identify areas to address regarding supply chain inefficiencies across the different levels and sectors. Specifically, we aim to identify key concerns and priorities faced in providing for transport and logistics services for products and commodities in international trade. User requirements will be determined in relation to developments for international trade logistics for Saint Lucia.

Chapter 6 of the report shall quantify and qualify transport and various logistics costs incurred for imports and exports in relation to the three modes of transport. The chapter shall establish the duration and costs involved for trade activities using the main port. Supply chain networks for key products in the agriculture and manufacturing sectors are presented by taking reference to data from ITC. Examining supply chain networks includes identifying key customers, stakeholders and key cargo consolidation and distribution nodes, as well as user requirements.

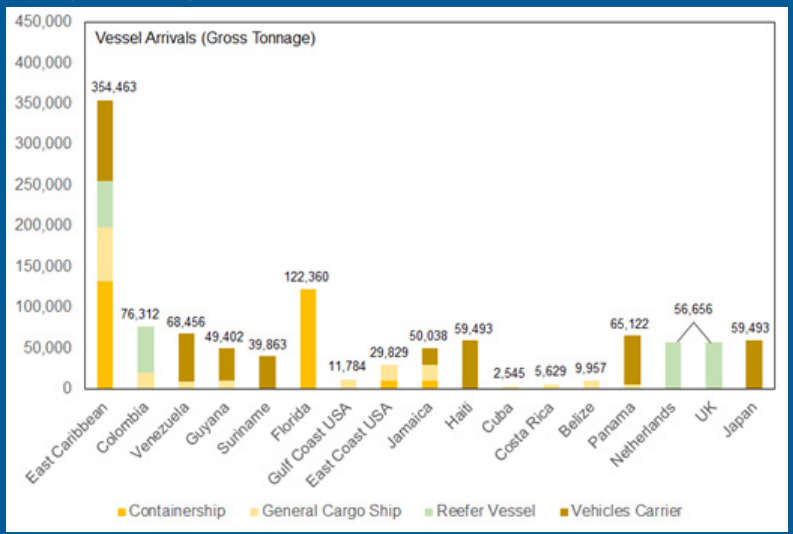
Figure 25: Framework for Proposed Approach to the Study – Supply Chain Network Analysis

Source: International Consultant.

5.1 Shipping Network and Connectivity

Analysis of supply chains requires knowledge of international networks to which associated logistics activities are connected to. The primary source of international connectivity is shipping networks that connect the island nation of Saint Lucia to overseas exports markets and import sources. This is because information from the previous chapters showed the bulk of international trade to take place through main ports of the country. For Saint Lucia, the Ports of Castries and Vieux Fort handled respectively almost 680,000 tonnes and 195,000 tonnes of cargo in 2021. By comparison, the combined cargo throughput of Hewanorra International Airport and George F. L. Charles Airport amounted to less than 3,000 tonnes in the same year. As such, we begin the supply chain network analysis by presenting shipping networks and their connectivity to the country. The analysis will be made using data collected daily for cargo vessel arrivals over the month of April 2023 at the respective main cargo ports of Saint Lucia.

Figure 26: Cargo Vessel Arrivals at the Port of Castries for April 2023



Source: International Consultant, using data from MarineTraffic (2023)[38]. See Table A1 in Annex 1 for details for each vessel call made.

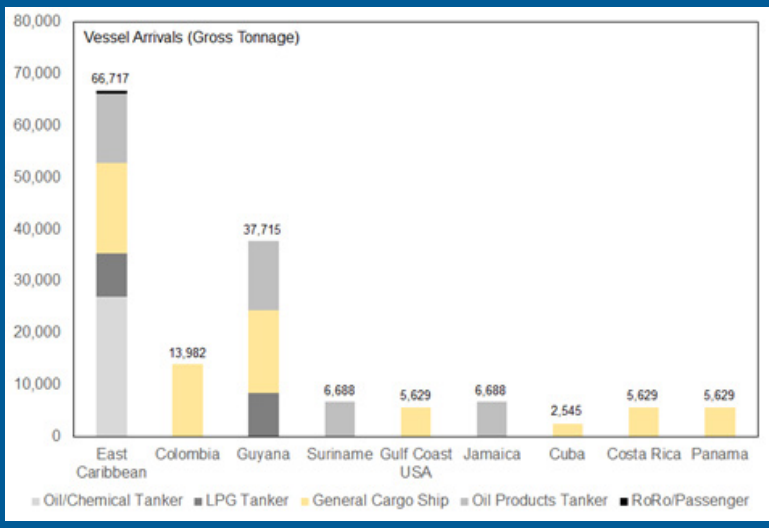
[38]MarineTraffic (2023) Castries Port [Online]. Available at: https://www.marinetraffic.com/en/ais/details/ports/2388?name=CASTRIES&country=St-Lucia (Accessed 30 March to 2 May 2023).

For the Port of Castries, we saw 27 vessels totalling 354,463 GT calling at the port in April 2023. With reference to Figure 26, vessel arrivals were spread across containerships (37.3%), vehicles carriers (28.0%), general cargo ships (18.7%) and reefer vessels (16.0%). For containerships, the Port of Castries received five of such vessels which included fortnightly calls by the four vessels of Tropic Jewel, Tropic Island, Fouma and AS Fabrizia. The fifth vessel was the Tampa Trader (9,932 GT) which provided monthly shipping connectivity between Savannah in the US to Jamaica, Bahamas, Sint Maarten, Barbados, and the Port of Castries in Saint Lucia. The vessel is operated by CMA CGM and hubs at Jamaica.

Vehicle carriers made up the second largest group of vessel arrivals for April. The vessels Viking Princess and Hoegh Caribia largely provided shipping connectivity between the East Caribbean islands to Guyana and Suriname while the 59,493 GT Florida Highway connected the region to countries such as Venezuela, Haiti, Panama and Japan. Proximity of Saint Lucia to Grenada saw many general cargo ships active in the East Caribbean making calls at two or more ports in both countries. For example, the vessels Oslo Bulk 5 and Fast Wil called at Castries, Vieux Fort and St. George's, while Nomadic Hjellestad, Industrial Royal, and BBC Gdansk called at both Castries and St. George's. The vessels Carmita and Potosi were also seen calling at both Castries and Vieux Fort. As a whole, general cargo ships helped to connect the Port of Castries to countries such as Colombia, Guyana, Venezuela, Jamaica, Cuba, Costa Rica, Belize, Panama and the Gulf coast and east coast of the US. We also note the relatively higher levels of shipping connectivity to Colombia and Guyana with five general cargo ships active in this trade. Note that the vessels Nomadic Hjellestad and Industrial Royal are operated by CMA CGM. The fourth category of vessel arrivals in the Port of Castries are reefer ships. Apart from receiving calls by the Baltic Klipper and Duncan Island who also called at the Port of St. George's, the Port of Castries also received calls from the Atlantic Klipper and Lombok Strait. This resulted in twice the amount of capacity received by Castries for reefer vessels compared to St. George's. Both reefer vessels are also operated by Geest Line.

Vessel arrivals at the Port of Vieux Fort was considerably fewer than the mainports of Castries and St. George's. We saw 17 vessel calls totalling 68,389 GT made in April 2023. Oil and chemical tankers accounted for 39.4% or 26,937 GT of vessel arrivals, followed by general cargo ships (27.9%), oil products tankers (19.6%) and LPG tankers (12,4%). With reference to Figure 27, oil and chemical tankers Tasing Swan and Cosima PG which traded exclusively in the East Caribbean contributed to the high share of shipping connectivity to the region. As for general cargo ships, shipping connectivity was provided mainly between East Caribbean islands with Guyana. Shipping connectivity to Colombia also received considerable capacity with four out of seven vessels (i.e., Oslo Bulk 5, Carmita, ICS Oceanus and Potosi) being active in this trade. For the LPG tanker trade, shipping connectivity was provided by the 4,224 GT tanker Daniel B which plied between Guyana and ports in St. Kitts and Nevis, Dominica, Antigua and Barbuda, Barbados, Trinidad and Tobago, and Vieux Fort in Saint Lucia.

Figure 27: Cargo Vessel Arrivals at the Port of Vieux Fort for April 2023



Source: International Consultant, using data from MarineTraffic (2023)[39]. See Table A2 in Annex 1 for details for each vessel call made.

Looking at vessel arrivals at Cul de Sac in Saint Lucia, we saw traffic exclusively made by tankers transporting liquid bulk cargo. The month of April in 2023 saw 24 vessel calls totalling 224,644 GT made at the port. With reference to **Figure 28**, 64.4% or 144,715 GT of vessel arrivals was made by oil and chemical tankers. Vessel calls made by vessels in the crude oil, oil products and LPG trade constitute the remaining 35.6% share of traffic. Oil and chemical tankers calling at Cul de Sac were largely active in the East Caribbean region. The Pelican Fisher and Wisby Barbados (both 6,952 GT) also provided connectivity to Suriname and Guyana. In the case for the 29,737 GT Ardmore Seawolf, shipping connectivity was provided through the Panama Canal to as far as Ecuador in South America. For the oil products trade, we saw shipping connectivity provided by tankers Henrietta PG, Evie PG, Kestrel Fisher, and King Fisher mainly between various islands in the East Caribbean with Guyana. In addition to these vessels, the data showed a crude oil tanker calling at Cul de Sac in the month. The 41,589 GT Chemtrans Taurus was on its way from the east coast of the US to Jamaica and Mexico. Last but not least, Cul de Sac had three LPG tankers calling at the port in the same month. These vessels helped to connect islands in the East Caribbean to countries such as Suriname, Guyana and Jamaica.

[39]MarineTraffic (2023) Vieux Fort Port [Online]. Available at: https://www.marinetraffic.com/en/ais/details/ports/2390?name=VIEUX-FORT&country=St-Lucia (Accessed 30 March to 2 May 2023).

A proxy for developments in shipping connectivity for Saint Lucia can inferred by analysing the Liner Shipping Connecitivty Index (LSCI) of the country. With reference to Figure 29, we saw LSCI for Saint Lucia taking a significant dip during the period of the Global Financial Crisis before recovering to pre-crisis levels in 2013. Nonetheless, that was the peak and LSCI for the country has been trending down ever since. In 2021, Saint Lucia registered a score of 5.61 for its LSCI. For comparison, the LSCI for Jamaica was six times as much at 33.8 for 2021. The LSCI for neighbouring country of Trinidad and Tobago was 15.1 for the same year.

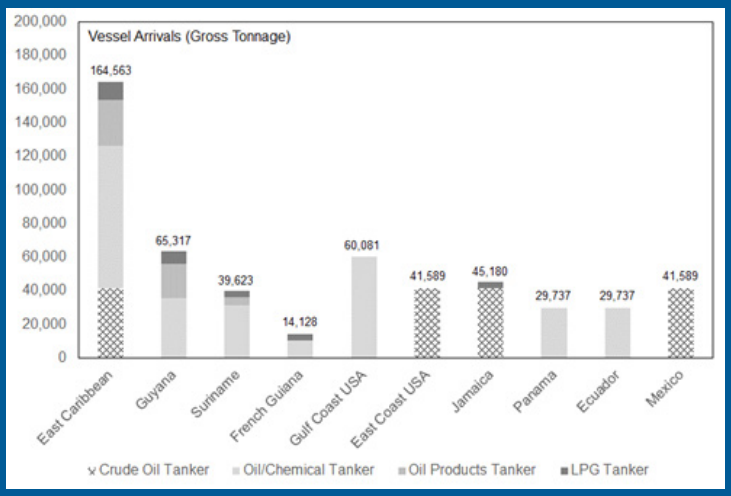
If we examine liner shipping connectivity at the port level, **Figure 30** shows that Port Liner Shipping Connectivity Index (PLSCI) for the Port of Castries has fluctuated generally between the scores of 4.0 and 6.0. In contrast, the PLSCI for Port of Vieux Fort started to decline from 2014. The declining trend seemed to continue unabated even though the port had used to track performances seen for Castries.

5.2 Issues and Concerns Relating to Shipping Connectivity and Port Operations

Having presented the shipping connectivity, this section discusses supply chain inefficiencies across the different levels and sectors in Saint Lucia pertaining to the seaport and shipping aspects. The first issue concerns the limited shipping connectivity faced by Saint Lucia. This issue gives rise to a series of issues and concerns for supply chain networks in the country. These challenges are exacerbated by inefficiencies in cargo operations at the port and customs processes. We shall discuss these issues and concerns in this section.

For Saint Lucia, container shipping routes connected to the Port of Castries are primarily serviced by four feeder containerships that make fortnightly calls at the port. These are the 1,148-TEU ***Tropic Jewel*** and ***Tropic Island***, and the 1,284-TEU ***Fouma*** and ***AS Fabrizia***. The four vessels provide feeder services connecting between ports in Florida in the US and island destinations in the East Caribbean. Container throughput is also contributed by the reefer ships 434-TEU ***Duncan Island*** and 552-TEU ***Baltic Klipper*** which ply between Europe and Colombia, making stops at selected ports in the East Caribbean. However, contribution from the reefer vessels is limited given their once-a-month port visit and small carrying capacity. They are joined by the 1,103-TEU containership Tampa Trader, and 440-TEU ***Lombok Strait*** and 552-TEU ***Atlantic Klipper*** reefer vessels. For Fouma, AS Fabrizia, Duncan Island and Baltic Klipper, a key port-of-call in

Figure 28: Cargo Vessel Arrivals at Cul de Sac for April 2023

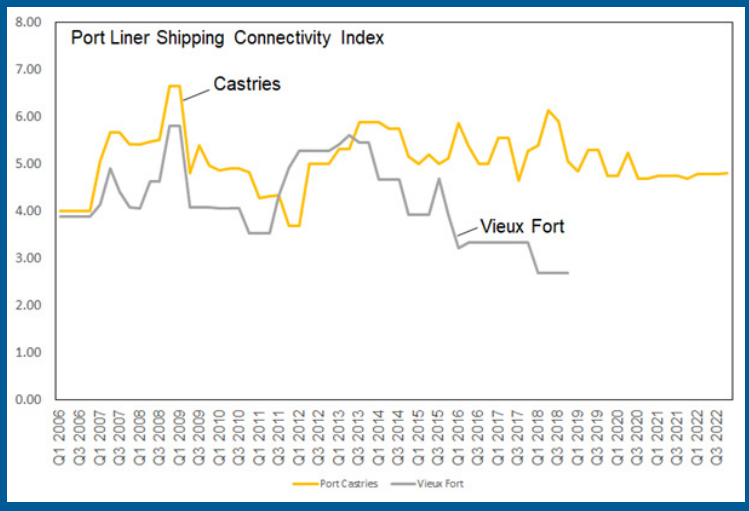


Source: International Consultant, using data from MarineTraffic (2023)[40]. See Table A3 in Annex 1 for details for each vessel call made.

Figure 29: Liner Shipping Connectivity Index for Saint Lucia

Source: International Consultant, using data from The World Bank (2023a)[41] .

Figure 30: Port Liner Shipping Connectivity Index for the Ports of Castries and Vieux Fort



Source: International Consultant, using data from UNCTAD (2023)[42].

[40]MarineTraffic (2023) Cul de Sac Port [Online]. Available at: https://www.marinetraffic.com/en/ais/details/ports/2389?name=CUL-DE-SAC&country=St-Lucia (Accessed 30 March to 2 May 2023).
[41]The World Bank (2023a) World Development Indicators [Online]. Available at: https://data-topics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).
[42]UNCTAD (2023) Port Liner Shipping Connectivity Index, Quarterly [Online]. Available at: https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=170026 (Accessed 3 May 2023).

the region is the Port of Roseau in the Dominican Republic. The port serves as a major maritime transport for container shipping routes that connect to Europe. In 2021, container throughput for the Dominican Republic reached 2.2 million TEUs[43].

Total shipping capacity available for containerships and reefer vessels at the Port of Castries reaches 153,708 TEUs. However, do note that this shipping capacity has to be shared with other ports in the region as it is unlikely for the vessels to be carrying an entire shipload of containers that are destined only for the Port of Castries. If we assume that 20% of the shipping capacity is allocated for the port, this means the Port of Castries will only handle a maximum of 30,742 TEUs if this capacity was fully utilised. For general cargo ships that called at Castries, we note that these vessels are smaller in size with most making once-a-month calls at the port. Hence their contribution to shipping capacity is likely to be correspondingly much lower especially when compared to the containerships. We note that no containerships or reefer vessels call at the Port of Vieux Fort or Cul de Sac. While the Port of Vieux Fort receives calls by some general cargo ships, limited shipping capacity offered by these vessels with their small ship size and infrequent calls restrict the amount of container throughput and shipping connectivity for the port.

The issue of limited shipping connectivity and shipping capacity available at ports in Saint Lucia is partly attributed to inadequate capabilities of the mainports in handling large containerships as well as inefficiencies in port operations. This is the second area of concern. While the Port of Castries can handle vessels above 2,000-TEUs in size, cargo vessels have to compete for berthing space with cruise ships especially during the peak cruise season which lasts from December until April. There are many occasions where cruise ships are given priority to use cargo berths at Castries as shown by **Figure 31**. The figure shows the two cruise berths occupied with the third cruise ship having to use the cargo berth at the port. Not to mention, the port has only one quay crane installed.

Inefficiencies with operations at the port can result in shipping lines skipping the port-call. Discussions with stakeholders in Saint Lucia indicated that cargo owners may encounter situations where their containers are unable to be loaded at the port of origin during the high season[45] . Priority is given by shipping lines to refrigerated cargo, followed by food, and lastly non-food items.

Figure 31: Cruise Ships Using Cargo Berth at Port of Castries

Source: International Consultant, using data from MarineTraffic (2023)[44] .

The third area of concern is expensive shipping and port charges facing the trade community in the country. Limited shipping connectivity has seen the trade community having to bear higher shipping freight rates. Landing charges in the Port of Castries are approximately USD480 per TEU. The country used to be a transhipment hub for the region where the main facility for such operations is at the Port of Vieux Fort. Vieux Fort was built to handle up to 70,000 TEUs of container traffic[46]. Currently, cargo is feedered through mainports located in countries such as Dominican Republic, Jamaica and Trinidad and Tobago. The company Massy Stores (SLU) performs some level of transhipment in Saint Lucia. Goods meant for Saint Vincent and the Grenadines are transhipped from a bonded warehouse in Saint Lucia as the former does not have the critical mass or space for handling large volume of items[47]. Hence, Saint Lucia serves as a consolidation centre for the neighbouring country.

[43]The World Bank (2023a) World Development Indicators [Online]. Available at: https://datatopics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).
[44]MarineTraffic (2023) Live Map [Online]. Available at: https://www.marinetraffic.com/en/ais/home/centerx:-60.998/centery:14.012/zoom:15 (Accessed 6 April 2023).
[45]Information obtained through face-to-face interviews and survey exercises conducted in March and April 2023 for Grenada and Saint Lucia.
[46]Information provided by Port of Vieux Fort during site visit made on 19 April 2023 at the port
[47]Information provided by Massy Stores (SLU) during a face-to-face meeting held on 18 April 2023 at the company's office at Cul De Sac in Saint Lucia.

The fourth concern is the seemingly archaic system of port tariffs currently in place. There are calls by the logistics and trade communities in Saint Lucia to review the system of port tariffs which have not been changed since the 1960s. They are designed for the era of breakbulk cargo. Communities in the country also suggested that labour arrangements are a key contributing factor for the current situation and developments. As such, amending labour arrangements can be key to addressing inefficiencies at the port. However, making changes can be a major exercise. Making such changes will require approval from the parliament.

Inefficiencies in port operations can be seen for activities that occur at the berth and in the yard. This is the fifth area of concern regarding impact on the logistics and supply chain network. For the Port of Castries, there is one quay crane with handling capacity of 104 tonnes in operation (see **Figure 32**). There are two tugs available to assist with vessel operations. These are named Steady (registered in Martinique) and Hercules (registered in Dominican Republic)[48]. Berth productivity is at 7-8 containers an hour. This was due to an accident in December 2022 which caused part of the berth at the port to collapse. Before the accident, berth productivity at the port was at 15-20 containers an hour. While there are calls to

For yard operations, equipment malfunction is a major concern among port users. The situation of unreliable port equipment is not helped by cargo activities having to contend with accommodating cruise passengers (especially during the high cruise season). With reference to **Figure 33**, the Port of Castries can be divided into two parts. The eastern part of the port is where the main berths for cargo vessels are located, as well as the largest shed and main container yard. The western part of the port is where the main gate of the port and ferry terminal are located. The area adjacent to the ferry terminal is also used to store containers as well as having reefer points. Both parts of the port are linked by a bridge with a width of 6.5m passable to vehicles. As such, the current outlay of the port can present significant efficiency and productivity challenges. This is especially when location of the ferry terminal within the port amidst the container yard and close to the main gate can cause major disruptions to container-handling operations. Not to mention, queues formed by ferry passengers often "spill over" into the container yard and interfere with normal movements of container trailer traffic. Apart from preventing maximum utilisation of container yard capacity, this situation also poses a danger to both ferry passengers and cargo traffic. SLASPA shared that yard operations are often interrupted to allow for safe movements of ferry passengers. This development poses further constraints to storage space for containers.

Figure 32: Mobile Harbour Crane at Port of Castries

Source: Saint Lucia Air and Sea Ports Authority[49] .

Figure 33: Location of Berths for Cargo Vessels, Container Storage Areas, and Ferry

Source: International Consultant, using map data from Google Maps.

[48]MarineTraffic (2023) Live Map [Online]. Available at: https://www.marinetraffic.com/en/ais/home/centerx:-61.071/centery:14.016/zoom:12 (Accessed 10 April 2023).

[49]Photo of mobile harbour crane at the Port of Castries taken on 18 April during a visit to the port.

Locating containers present further challenges to supply chain operations. Many stakeholders interviewed and surveyed highlighted the time-consuming process to locate containers at the Port of Castries. Runners can be engaged to located containers. The runner will interact with the equipment operator to retrieve the container. As such, the runner often needs to tap on relationships with port stevedores to expedite the process or get the job underway. Locating and getting the containers out of the port can take 4-5 hours. Due to the congested nature of port operations in Castries, many cargo owners and logistics companies have expressed concerns to use LCL in their shipments. Shipping in breakbulk form is usually avoided as cargo may be lost in the port. The state of operations may also necessitate having to conduct physical checks every week on containers. If there are reefers, the checks can be conducted twice a day. These activities pose as additional costs.

Destuffing containers are performed in the shed for customs inspection. It may also be the situation where normal containers are destuffed at the own premises of companies. For such cases, the customs officer will come after 4pm and they are paid for overtime. Companies may need to pay for their meals and provide transport as well. During the meeting with Customs and Excise Department of Saint Lucia, the officers shared that exports are not checked[50] . This is even though shippers can claim VAT refund for their exports. The meeting further note that the Export Verification Unit currently has only one staff.

There are calls by the logistics and trade communities in Saint Lucia for the ports to be operational 24 hours a day, seven days a week. Regular operating hours for cargo terminals are from 8:00am to 4:00pm during weekdays with an hour for lunch in between. Operating hours may be extended during peak seasons or upon request. Nonetheless, there remain issues which the local community would like to see addressed. For example, vessels are unlikely to disrupt their sailing schedules by having to wait over the weekend. The situation is made worse in the Port of Castries where road access to/from the port blocked for hours due to events such as the Ubersoca Cruise which took place on 12 April 2023. The same challenge can arise when cruise vessels are docked at the port. A possible solution is to implement a shift system for port workers. However, this will likely have implications tor corresponding adjustments needed to the working hours of customs offices.

The sixth area of concern is also related to customs operations where stakeholders in the country are calling for a fully electronic and paperless system to be implemented. The ASYCUDA system is supposed to bring about a paperless process. However, customs in Saint Lucia still require documents to be printed and submitted manually. The Customs and Excise Department also shared that they are trying to go fully electronic although physical documents are still required. Customs further shared that they are in the process or considering developing a system for risk management. Intention is to facilitate customs inspection particularly for import cargoes. The Customs and Excise Department shared that no cargo goes through the green lane.

The seventh concern relates to availability of empty containers and such equipment being in good shipping condition. There were several mentions of the shortage of empty twenty-foot containers available for use. For example, a company needing ten empty containers may take a few days to get them and on occasions, being unable to obtain all of them. There is also the issue of empty containers obtained being damaged. A common practice is to inspect the container at the port, followed by a secondary inspection at the company's premise. In Saint Lucia, empty containers are often obtained from the Port of Castries. For a shipper located at Vieux Fort, replacing the damaged container can be time-consuming as the container has to be brought from Vieux Fort back to the port in Castries. As a whole, Inefficiencies associated with the shipping and port aspects of the supply chain can see USD120 added to the landing charge of USD480 per TEU.

5.3 Flight Network and Air Connectivity

This section discusses the flight network and air connectivity available to Saint Lucia from the supply chain perspective. Our discussion in Section 4.3 showed that Hewanorra International Airport (UVF) in Saint Lucia handled 1,812 tonnes of cargo, while George F. L. Charles Airport (SLU) handled 1,124 tonnes. As such, the main airport for air cargo is Hewanorra International Airport. With reference to Table 7, the network of direct flight connections showed the airport to be connected to many cities in the US and Canada, as well as London across the Atlantic Ocean. The main cargo route connects Miami in the US to the airport at Vieux Fort. The route saw regular Monday flights by Amerijet International's flight M6810 which flies from Port of Spain in Trinidad and Tobago to Miami using a B767-300 aircraft. The flight involves a brief 2-hour stop at UVF before continuing its journey to Miami (see Table 8). Flight data also shows a return flight on Wednesdays involving a B757-200F aircraft operated by Amerijet International flying solely between Miami and UVF. However, the flight does not operate on a regular basis. The other airline which offers connections between UVF and Miami is American Airlines. Daily return flights operated by the airline mainly uses a B737-800 passenger aircraft.

[50]Information provided by Saint Lucia Customs and Excise Department during face-to-face meeting held on 18 April 2023 at the organisation's office at Jeremie Street in Castries.

Table 7: Network of Direct Flights Connected to Hewanorra International Airport (UVF)

Airport	To UVF	From UVF
Miami, MIA	American Airlines Amerijet International	American Airlines Amerijet International
New York, EWR	United Airlines	United Airlines
New York, JFK	JetBlue Airways	JetBlue Airways
Charlotte, CLT	American Airlines	American Airlines
Atlanta, ATL	Delta Air Lines	Delta Air Lines
Toronto, YYZ	Air Canada Westjet	Air Canada Westjet
London, LGW	British Airways TUI Airways	British Airways TUI Airways
Grenada, GND	British Airways	British Airways
Port of Spain, POS	Amerijet International	-
Georgetown, GEO	British Airways	British Airways
Scarborough, TAB	British Airways	British Airways

Source: International Consultant, using data from Flightradar24 (2023)[51]. See Table A4 in Annex 2 for details on airline operators, flight frequency and type of aircraft deployed on each route.

Table 8: Flight History for Amerijet International Flight M6810 from Port of Spain to Vieux Fort and on to Miami

Date	From	To	Aircraft	Flight Time	STD	ATD	STA	Status
22 May 2023	Vieux Fort (UVF)	Miami (MIA)	76Y	-	11:15AM	-	2:45AM	Scheduled
22 May 2023	Port of Spain (POS)	Vieux Fort (UVF)	76Y	-	8:45AM	-	9:45AM	Scheduled
15 May 2023	Vieux Fort (UVF)	Miami (MIA)	B763(N396CM)	3:20	11:15AM	11:01AM	11:01AM	Landed 2:21PM
15 May 2023	Port of Spain (POS)	Vieux Fort (UVF)	B763(N396CM)	0:36	8:45AM	8:30AM	8:30AM	Landed 9:06AM

Source: Flightradar24 (2023)[52] .

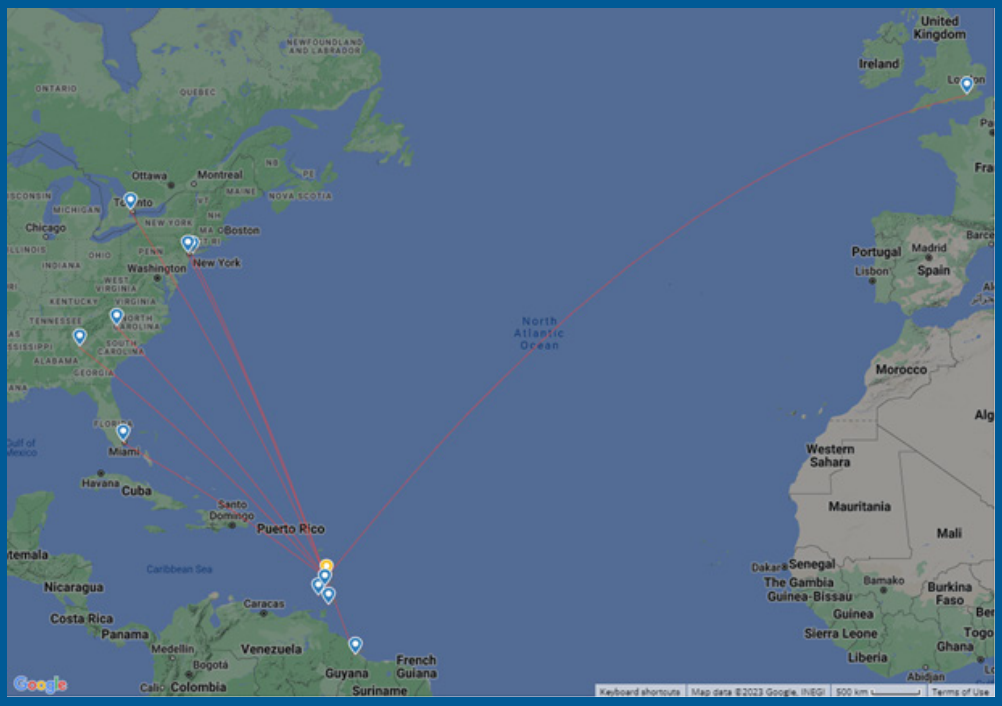
Table 9: Flight History for British Airways Flight BA2159 from London Gatwick to Vieux Fort and on to Other Airports in the East Caribbean Region

Date	From	To	Aircraft	Flight Time	STD	ATD	STA	Status
17 May 2023	Vieux Fort (UVF)	Point Salines (GND)	B772 (G-VIIR)	0:29	4:25PM	4:23PM	5:15PM	Landed 4:53PM
17 May 2023	London (LGW)	Vieux Fort (UVF)	B772 (G-VIIR)	8:15	11:35AM	11:46AM	3:25PM	Landed 3:00PM
16 May 2023	Vieux Fort (UVF)	Scarborough (TAB)	B772 (G-VIIU)	0:40	4:25PM	4:27PM	5:10PM	Landed 5:07PM
16 May 2023	London (LGW)	Vieux Fort (UVF)	B772 (G-VIIU)	8:04	11:35AM	11:50AM	3:25PM	Landed 2:54PM
15 May 2023	Vieux Fort (UVF)	Georgetown (GEO)	B772 (G-VIIO)	1:16	4:25PM	4:35PM	6:05PM	Landed 5:51PM
15 May 2023	London (LGW)	Vieux Fort (UVF)	B772 (G-VIIO)	8:16	11:35AM	12:03PM	3:25PM	Landed 3:19PM
14 May 2023	Vieux Fort (UVF)	Point Salines (GND)	B772 (G-YMMB)	0:30	4:25PM	4:27PM	5:15PM	Landed 4:57PM
14 May 2023	London (LGW)	Vieux Fort (UVF)	B772 (G-YMMB)	8:37	11:35AM	11:41AM	3:25PM	Landed 3:18PM
13 May 2023	Vieux Fort (UVF)	Point Salines (GND)	B772 (G-VIIO)	0:31	4:25PM	4:30PM	5:15PM	Landed 5:00PM
13 May 2023	London (LGW)	Vieux Fort (UVF)	B772 (G-VIIO)	8:22	11:35AM	11:59AM	3:25PM	Landed 3:21PM
12 May 2023	Vieux Fort (UVF)	Scarborough (TAB)	B772 (G-VIIU)	0:38	4:25PM	4:35PM	5:10PM	Landed 5:13PM
12 May 2023	London (LGW)	Vieux Fort (UVF)	B772 (G-VIIU)	8:18	11:35AM	11:53AM	3:25PM	Landed 3:11PM
11 May 2023	Vieux Fort (UVF)	Georgetown (GEO)	B772 (G-VIIX)	1:16	4:25PM	7:09PM	6:10PM	Landed 8:25PM
11 May 2023	London (LGW)	Vieux Fort (UVF)	B772 (G-VIIX)	8:07	11:35AM	2:05PM	3:25PM	Landed 5:12PM

Source: Flightradar24 (2023)[53].

[52]Flightradar24 (2023) Flight history for Amerijet International flight M6810 [Online]. Available at: https://www.flightradar24.com/data/flights/m6810 (Accessed 17 May 2023).
[53]Flightradar24 (2023) Flight history for British Airways flight BA2159 [Online]. Available at: https://www.flightradar24.com/data/flights/ba2159 (Accessed 17 May 2023).

Figure 34: Map of Flight Connections to Hewanorra International Airport (UVF)



Source: Flightradar24 (2023)[54].

The table above also shows British Airways to be a key user of the airport. Flights operated by the airline which connects UVF to London Gatwick Airport are likely to involve sizeable cargo loads. British Airways operates daily flights between LGW and UVF using a B777-200 aircraft. The flight is also the main source of connections between Vieux Fort and other airports in the East Caribbean region. With reference to **Table 9**, the flight turns around in Grenada for Wednesdays, Saturdays and Sundays and returns to the UK. For Mondays and Thursdays, the flight turns around in Georgetown in Guyana. For Tuesdays and Fridays, the flight turns around at Scarborough International Airport in Tobago.

For connections to New York city, there are two airlines which operate flights on this route. For connection to New York John F. Kennedy International Airport, there are daily flights by JetBlue Airways using mostly the A320 aircraft. We understand the flight to be carrying little cargo given the small size of the plane being used. UVF also has a direct connection to Newark Liberty International Airport with flights on Saturdays operated by United Airlines which also uses a B737-800 passenger plane. Direct connections between Atlanta in the US and UVF similarly uses the B737-800 passenger aircraft. The daily flight is operated by Delta Air Lines. Cargo transported on these, and the remaining flights connected to UVF is likely to be little as the aircraft used are either limited in payload or less frequent in terms of flight frequency. A visual depiction of direct flight connections for UVF Airport is shown by **Figure 34**. To add, Hewanorra Air Cargo Services (HACS) is a major cargo handler at the airport. The company was established in 1995 and runs on five-year leases to operate the cargo terminal at UVF. Key customers of the company are Virgin Atlantic, British Airways, Air Canada, Delta Air Lines, Westjet, TUI Airways and Caribbean Airlines.

The other airport in Saint Lucia is the George F. L. Charles Airport (SLU) which is in the capital city of Castries. Unlike UVF, the airport operates entirely regional flights as shown by **Table 10**. Direct flight connections are visually depicted in **Figure 35**. Sizes of aircrafts using the airport are considerably smaller. They include the Cessna 208 Caravan used by Mountain Air Cargo and Kingfisher Air, the ATR-42-500 aircraft which is used by InterCaribbean Airways, Air Antilles, LIAT and Caribbean Airlines, the ATR-72-600 aircraft which is used by InterCaribbean Airways, Caribbean Airlines and Mountain Air Cargo, and the Embraer EMB 120 Brasilia which is used by InterCaribbean Airways. Ameriflight uses the Swearingen Metroliner SW4 in the airline's flight A86915 which flies from Aguadilla in Puerto Rico to Port of Spain in Trinidad and Tobago with stopovers in Castries and Bridgetown.

[54]Flightradar24 (2023) Vieux Fort Hewanorra International Airport [Online]. Available at: https://www.flightradar24.com/data/airports/uvf/routes (Accessed 16 May 2023).

Table 10: Network of Direct Flights Connected to George F. L. Charles Airport (SLU)

Airport	To SLU	From SLU
Bridgetown, BGI	InterCaribbean Airways Air Antilles	InterCaribbean Airways Air Antilles LIAT
Fort-de-France, FDF	Air Antilles Mountain Air Cargo (FedEx Feeder)	Air Antilles Mountain Air Cargo (FedEx Feeder) Kingfisher Air (DHL)
Kingstown, SVD	InterCaribbean Airways LIAT	InterCaribbean Airways LIAT Mountain Air Cargo (FedEx Feeder)
Grenada, GND	Mountain Air Cargo (FedEx Feeder)	Mountain Air Cargo (FedEx Feeder) Ameriflight
Port of Spain, POS	Caribbean Airlines	Caribbean Airlines
Antigua, ANU	LIAT	LIAT
Dominica, DOM	InterCaribbean Airways Air Antilles	InterCaribbean Airways Air Antilles
Aguadilla, BQN; or San Juan, SJU	Ameriflight	Mountain Air Cargo (FedEx Feeder) Ameriflight

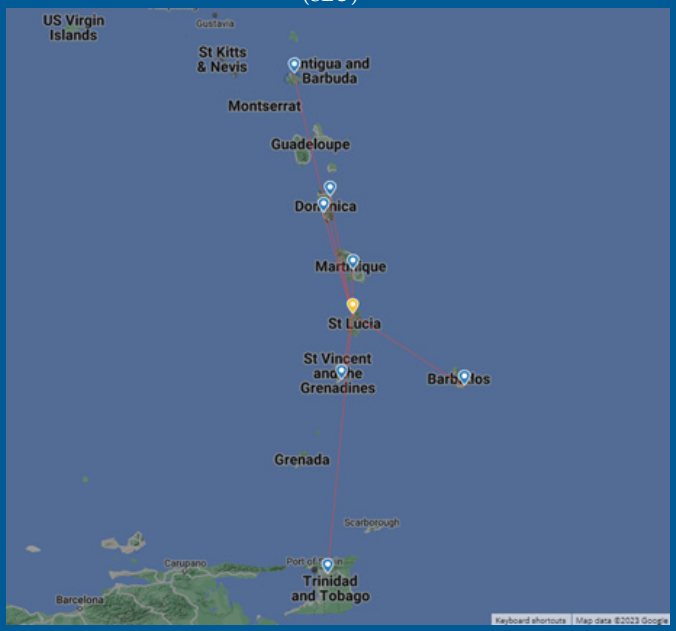
Source: International Consultant, using data from Flightradar24 (2023)[55]. See Table A5 in Annex 2 for details on airline operators, flight frequency and type of aircraft deployed on each route.

Table 11: Flight History for Ameriflight Flight A88118 from Castries to Grenada

Date	From	To	Aircraft	Flight Time	STD	ATD	STA	Status
17 May 2023	Aguadilla (BQN)	Castries (SLU)	SW4	-	10:45AM	-	12:44PM	Canceled
15 May 2023	Aguadilla (BQN)	Castries (SLU)	SW4	-	10:55AM	-	12:47PM	Canceled
15 May 2023	Castries (SLU)	Point Saline (GND)	SW4	-	10:45AM	-	11:29AM	Canceled
12 May 2023	Castries (SLU)	Point Saline (GND)	SW4	-	10:55AM	-	11:30AM	Canceled
12 May 2023	Aguadilla (BQN)	Castries (SLU)	SW4	-	10:45AM	-	-	Canceled

Source: Flightradar24 (2023)[57] .

Figure 35: Map of Flight Connections to George F. L. Charles Airport (SLU)



Source: Flightradar24 (2023)[56].

Despite limited payload of such aircraft, the airport is able to handle sizeable cargo volumes. This is due to the higher frequency of flights operating at the airport. For example, a typical Monday can see 27 flights arriving or departing from the airport. This is followed by Thursdays which can see 26 flights arriving or departing from the airport. The least number of flights was seen for Saturdays with only nine departing or arriving at the airport. We note from discussions with LIAT that the airline used to operate nine flights daily at SLU in 2019. With Covid, the number of flights is down to four per week, operating on Monday, Thursday, Friday and Saturday. However, we also note that flights operated by Ameriflight from SLU to Puerto Rico and Grenada can be subjected to cancellations (see **Table 11**).

[55]Flightradar24 (2023) Castries George F. L. Charles Airport [Online]. Available at: https://www.flightradar24.com/data/airports/slu/routes (Accessed 16 May 2023).
[56]Ibid
[57]Flightradar24 (2023) Flight history for Ameriflight flight A88118 [Online]. Available at: https://www.flightradar24.com/data/flights/a88118 (Accessed 17 May 2023).

Table 12: Flight History for Air Antilles Flight 3S157

Date	From	To	Aircraft	Flight Time	STD	ATD	STA	Status
13 May 2023	Castries (SLU)	Bridgetown (BGI)	AT45(F-OIXD)	0:32	7:00PM	6:45PM	7:45PM	Landed 7:16PM
13 May 2023	Dominica (DOM)	Castries (SLU)	AT45(F-OIXD)	0:29	5:45PM	5:45PM	6:30PM	Landed 6:14PM
13 May 2023	Point-a-Pitre (PTP)	Dominica (DOM)	AT45(F-OIXD)	0:22	4:45PM	4:52PM	5:15PM	Landed 5:14PM
11 May 2023	Castries (SLU)	Bridgetown (BGI)	AT45(F-OIXE)	0:32	7:00PM	7:02PM	7:45PM	Landed 7:34PM
11 May 2023	Dominica (DOM)	Castries (SLU)	AT45(F-OIXE)	0:34	5:45PM	6:00PM	6:30PM	Landed 6:34PM
11 May 2023	Point-a-Pitre (PTP)	Dominica (DOM)	AT45(F-OIXE)	0:20	4:45PM	5:08PM	5:15PM	Landed 5:29PM

Source: Flightradar24 (2023)[58] .

Table 13: Flight History for LIAT Flight LI332

Date	From	To	Aircraft	Flight Time	STD	ATD	STA	Status
15 May 2023	Sint Maarten (SXM)	Beef Island (EIS)	AT46(V2-LIG)	0:25	5:25PM	5:24PM	6:00PM	Landed 5:48PM
15 May 2023	Basseterre (SKB)	Beef Island (EIS)	AT46(V2-LIG)	-	4:55PM	-	5:45PM	Unknown
15 May 2023	Antigua (ANU)	Sint Maarten (SXM)	AT46(V2-LIG)	0:27	4:00PM	4:10PM	4:30PM	Landed 4:37PM
15 May 2023	Castries (SLU)	Antigua (ANU)	AT46(V2-LIG)	0:56	1:55PM	2:18PM	3:00PM	Landed 3:14PM
15 May 2023	Kingstown (SVD)	Castries (SLU)	AT46(V2-LIG)	0:27	12:50PM	1:07PM	1:25PM	Landed 1:34PM
15 May 2023	Point Salines (GND)	Kingstown (SVD)	AT46(V2-LIG)	0:24	11:45AM	12:02PM	12:20PM	Landed 12:26PM

Source: Flightradar24 (2023)[59] .

It is common to see a single flight involving several stops where one of which includes SLU. An example being flight 3S157 which is operated by Air Antilles that flies from Pointe-a-Pitre in Guadeloupe to Bridgetown in Barbados (see **Table 12**). The flight makes quick stopovers in Dominica and Castries lasting only 30 minutes. Another example is shown by flight LI332 which is operated by LIAT that flies from Grenada to Beef Island (now known as Terrance B. Lettsome International Airport) in the British Virgin Islands. With reference to **Table 13**, the Monday-only flight has stopovers in Kingstown of Saint Vincent and the Grenadines, SLU in Saint Lucia, V. C. Bird International Airport in Antigua, Princess Juliana International Airport in Sint Maarten, before reaching the British Virgin Islands. Each stopover lasted between 40 to 50 minutes. We also note from the table that there was a supposed scheduled stopover in Basseterre in Saint Kitts and Nevis. However, the airport was probably bypassed due to time constraints.

5.4 Issues and Concerns Relating to Flight Connectivity and Airport Operations

Having presented the flight connectivity, we shall discuss supply chain inefficiencies across the different levels and sectors in Saint Lucia for aspects pertaining to air cargo. In view of the regional impact of flights operated in the region, the section may cite flights connecting to Grenada as examples. The first challenge deals with the issue of flight delays which can cascade through the network.

Table 14: Flight History for Kingfisher Air Flight BEZ415

Date	From	To	Aircraft	Flight Time	STD	ATD	STA	Status
15 May 2023	Point Salines (GND)	Port of Spain (POS)	C208(N963HL)	0:42	6:15PM	6:57PM	6:00PM	Landed 7:39PM
15 May 2023	Dominica (DOM)	Kingstown (SVD)	C208(N963HL)	0:58	4:00PM	4:52PM	5:45PM	Landed 5:49PM
15 May 2023	Kingstown (SVD)	Point Salines (GND)	C208(N963HL)	0:31	3:50PM	5:56PM	4:30PM	Landed 6:27PM
12 May 2023	Point Salines (GND)	Port of Spain (POS)	C208(N963HL)	0:39	5:00PM	5:34PM	3:00PM	Landed 6:13PM
12 May 2023	Kingstown (SVD)	Point Salines (GND)	C208(N963HL)	0:35	3:50PM	4:29PM	1:25PM	Landed 5:05PM
12 May 2023	Dominica (DOM)	Kingstown (SVD)	C208(N963HL)	1:05	2:05PM,	3:07PM	12:20PM	Landed 4:11PM
11 May 2023	Point Salines (GND)	Port of Spain (POS)	C208(N963HL)	0:40	5:00PM	4:37PM	3:00PM	Landed5:18PM
11 May 2023	Kingstown (SVD)	Point Salines (GND)	C208(N963HL)	0:34	3:00PM	1:07PM	3:49PM	Landed 4:23PM
11 May 2023	Dominica (DOM)	Kingstown (SVD)	C208(N963HL)	1:03	2:05PM	1:53PM	1:53PM	Landed 2:56PM

Source: Flightradar24 (2023)[60] .

[58]Flightradar24 (2023) Flight history for Air Antilles flight 3S157 [Online]. Available at: https://www.flightradar24.com/data/flights/3s157 (Accessed 17 May 2023).
[59]Flightradar24 (2023) Flight history for LIAT flight LI332 [Online]. Available at: https://www.flightradar24.com/data/flights/li332 (Accessed 17 May 2023)\
[59] Flightradar24 (2023) Flight history for Kingfisher Air flight BEZ415 [Online]. Available at: https://www.flightradar24.com/data/flights/bez415 (Accessed 18 May 2023).

Using the example of Kingfisher Air Services, which is the contract cargo carrier for DHL in the Caribbean, we saw a late departure on 12 May 2023 from the originating airport in Dominica causing delays in subsequent stopovers enroute (see Table 14). The flight had departed late by about an hour from Dominica which caused the plane to arrive late in Kingstown by almost an hour. The stopover in Kingstown which was scheduled for 38 minutes was reduced by half to just 17 minutes. Even so, the same aircraft landed only at 5:05pm in Grenada where the scheduled departure time from the airport was 5:00pm. With reference to the same table, delays were also seen for the same flight on 15 May 2023 where the plane departed by almost two hours late from Kingstown. As a result, the aircraft arrived in Grenada at 6:27pm instead of the scheduled 4:31pm.

We may also see flights diverted which is the second issue. This occurred for the case of flight MTN7113 on 16 May 2023 (see **Table 15**). The flight which was supposed to go from Grenada to Castries was instead diverted to Kingstown in St. Vincent and the Grenadines. Industry players know there are risks associated with making unscheduled stops enroute as such events have the potential to cause further delays for the flight. Not to mention, logistics companies and cargo owners may also have to deal with flight cancellations which can occur from time to time such as flights A87118 and A88118 which are operated by Ameriflight.

Table 15: Flight History for Mountain Air Cargo Flight MTN7113

Date	From	To	Aircraft	Flight Time	STD	ATD	STA	Status
18 May 2023	Point Salines (GND)	Castries (SLU)	C208 (N851FE)	0:55	4:00PM	3:43pm	4:44PM	Landed 4:38PM
17 May 2023	Point Salines (GND)	Castries (SLU)	C208 (N851FE)	0:54	4:00PM	3:33PM	5:00PM	Landed 4:27PM
16 May 2023	Kingstown (SVD)	Castries (SLU)	C208 (N851FE)	0:22	4:40PM	4:40PM	5:06PM	Landed 5:02PM
16 May 2023	Point Salines (GND)	Castries (SLU)	C208 (N851FE)	-	4:00PM	3:36PM	5:03PM	Diverted to SVD
12 May 2023	Point Salines (GND)	Castries (SLU)	C208 (N851FE)	0:54	4:00PM	3:26PM	4:59PM	Landed 4:20PM
12 May 2023	Point Salines (GND)	Castries (SLU)	C208 (N851FE)	0:50	4:00PM	4:59PM	4:59PM	Landed 5:50PM

Source: Flightradar24 (2023)[61].

The third concern relates to improvements needed for cargo-handling facilities at UVF. Cargo is typically handled on a JIT basis, arriving at the airport ready to be loaded onto the aircraft. The logistics community has expressed the need for UVF airport to have cold storage facilities. The current mode of operation sees producers bringing their cargo to the airport just before the flight. There is also the impression by logistics companies that attention by SLASPA is on the cruise and seaport businesses. Attention on the airport sector also appears to be focused on the passenger segment. The view is that SLASPA has generally neglected the air freight business. For the case of George F. L. Charles Airport, cold storage facilities may not be needed as the airport is located in the city of Castries within short driving distances to the warehouses of major importers of fresh produce in the country.

The fourth issue relates to customs operations pertaining to air cargo. There example is given for Grenada which may apply to Saint Lucia where there are separate rates for engaging services for customs inspection at the company's premise. The rates are different depending on whether the person is a senior or junior officer. There are also occasions where there are no customs officers available. To address these issues, companies may opt to have a customs officer stationed at the premise. The time taken for inspection will depend on the competency of the customs officer. Ideally, customs officers should be well trained on the aspects of tariff description, classification knowledge and standard operating procedures pertaining to different types of air cargo. Regarding clearance for air shipments, it is common to have a single shipment comprising of several individual packages in the air cargo business. The current process requires clearance for every individual package with accompanying documentation. As such, the process should allow for consolidated clearance by the whole shipment. The process should also be paperless and allow for electronic payments.

As a whole, many companies interviewed felt that there is potential to do more air cargo. Air cargo volumes have yet to recover from pre-COVID levels. However, the outlook is optimistic as demand returns and as flights resume to operating at pre-COVID levels. Today, a regional hub would be at Barbados. The airport serves as a hub for flowers going from South America to the UK[62]. Barbados was also viewed as an established hub for pharmaceuticals and serves to distribute to various places in the region[63]. The airline LIAT also noted that flights from Barbados to Castries saw the main cargo being shipments of pharmaceuticals[64].

61Flightradar24 (2023) Flight history for Mountain Air Cargo flight MTN7113 [Online]. Available at: https://www.flightradar24.com/data/flights/mtn7113 (Accessed 18 May 2023).
Information provided by George F. Huggins Company during face-to-face meeting held on 25 April 2023 at the company's office at GCNA Complex in St. George's.
Information provided by Massy Stores (SLU) during face-to-face meeting held on 18 April 2023 at the company's office at Cul De Sac in Saint Lucia.
Information provided by Leeward Islands Air Transport Services (LIAT) during face-to-face meeting held on 17 April 2023 at the company's office at George F. L. Charles Airport in Castries.

5.5 Chapter Summary

This chapter analyses supply chain networks from the perspectives of shipping and air connectivities. The chapter further identifies areas to address regarding supply chain inefficiencies across the different levels and sectors. User requirements are determined in relation to developments for international trade logistics for Saint Lucia.

The primary source of international connectivity is shipping networks that connect the island nation of Saint Lucia to overseas exports markets and import sources. The analyses were made using data collected daily for cargo vessel arrivals over the month of April 2023 at the respective main cargo ports of Saint Lucia.

For the Port of Castries, vessel arrivals were spread across containerships (37.3%), vehicles carriers (28.0%), general cargo ships (18.7%) and reefer vessels (16.0%). Vessel arrivals at the Port of Vieux Fort was considerably fewer than the mainports of Castries and St. George's. Oil and chemical tankers accounted for 39.4% or 26,937 GT of vessel arrivals, followed by general cargo ships (27.9%), oil products tankers (19.6%) and LPG tankers (12,4%). Vessel arrivals at Cul de Sac is exclusively made by tankers transporting liquid bulk cargo.

We saw the Liner Shipping Connecitivty Index (LSCI) for Saint Lucia taking a significant dip during the period of the Global Financial Crisis before recovering to pre-crisis levels in 2013. Nonetheless, that was the peak and LSCI for the country has been trending down ever since. The Port Liner Shipping Connectivity Index (PLSCI) for the Port of Castries has fluctuated generally between the scores of 4.0 and 6.0. In contrast, the PLSCI for Port of Vieux Fort started to decline from 2014. The declining trend seemed to continue unabated even though the port had used to track performances seen for Castries.

For issues concerning shipping connectivity and port operations, the first challenge is the limited shipping connectivity faced by Saint Lucia. The issue is partly attributed to inadequate capabilities of the mainports in handling large containerships as well as inefficiencies in port operations. This is the second area of concern. Inefficiencies with operations at the port can result in shipping lines skipping the port-call.

The third area of concern is expensive shipping and port charges facing the trade community. Landing charges in the Port of Castries are approximately USD480 per TEU.

The fourth concern is the seemingly archaic system of port tariffs currently in place. There are calls by the logistics and trade communities in Saint Lucia to review the system of port tariffs. The fifth area of concern pertains to inefficiencies in port operations that occur at the berth and in the yard. There are calls by the logistics and trade communities in Saint Lucia for the ports to be operational 24 hours a day, seven days a week.

The sixth area of concern is related to customs operations where stakeholders are calling for a fully electronic and paperless system to be implemented. The seventh concern relates to availability of empty containers and such equipment being in good shipping condition.

Regarding flight networks and air connectivity, the network of direct flight connections showed the Hewanorra International Airport in Saint Lucia to be connected to many cities in the US and Canada, as well as London across the Atlantic Ocean. The main cargo route connects Miami in the US to the airport which is operated by Amerijet International. Hewanorra Air Cargo Services (HACS) is a major cargo handler at the airport. Key customers of the company are Virgin Atlantic, British Airways, Air Canada, Delta Air Lines, Westjet, TUI Airways and Caribbean Airlines.

The other airport in Saint Lucia is the George F. L. Charles Airport (SLU) which is in the capital city of Castries. Unlike UVF, the airport operates entirely regional flights. Despite limited payload of such aircraft, the airport handled sizeable cargo volumes. This is due to the higher frequency of flights operating at the airport.

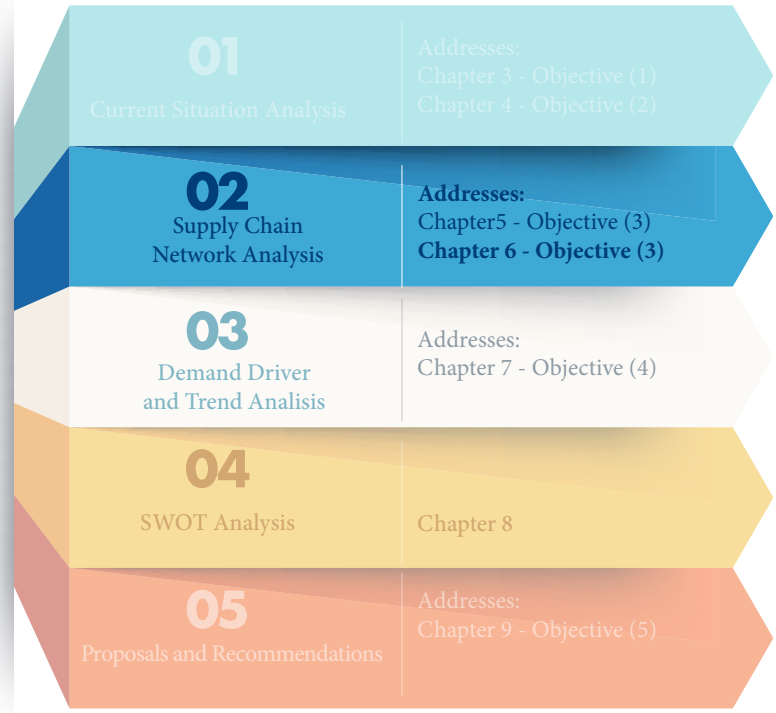
For issues concerning flight connectivity and airport operations, the first challenge is the issue of flight delays which can cascade through the network. We may also see flights diverted which is the second issue. The third issue is the concern raised by the logistics communities on the need to have a dedicated facility with cold storage capabilities at UVF. The fourth issue relates to customs operations pertaining to air cargo. The time taken for inspection will depend on the competency of the customs officer.

As a whole, many companies interviewed in Saint Lucia felt that there is potential to do more air cargo. Air cargo volumes have yet to recover from pre-COVID levels. However, the outlook is optimistic as demand returns and as flights resume to operating at pre-COVID levels.

CHAPT 06 SUPPLY CHAIN COSTS FOR SELECTED PRODUCTS AND NOTE ON FOOD SECURITY

The chapter presents the duration and costs involved for logistics activities through supply chain networks for selected key products in the agriculture and manufacturing sectors of Saint Lucia. The chapter aims to quantify and qualify transport and various logistics costs incurred for imports and exports in relation to the three modes of transport. Reference is made using data from ITC. Examining supply chain networks includes identifying key customers, stakeholders and key cargo consolidation and distribution nodes as well as user requirements. The chapter also discusses the aspect of food security. Analysis of performance for the country is made with reference to the four pillars which are physical availability of food, economic and physical access to food, food utilisation, and stability over time of the aforementioned dimensions. Developments in food staples and considerations for alternative import sources are also addressed. With reference to Figure 36, chapters 5 and 6 of the report fulfils the requirements of objective (3) of the study.

Figure 36: Framework for Proposed Approach to the Study – Supply Chain Network Costs and Note on Food Security



Source: International Consultant.

6.1 Supply Chain Costs for Selected Products

This section discusses the costs and duration of transport using cases from selected products and commodities in the agriculture and manufacturing sectors from Saint Lucia. Respective selected products are:

Saint Lucia	HS Code	Export/import value (USD mil)	Rank	Share
Bananas	0803	2.77	#6 Export	4.6%
Cartons and boxes	4819	2.18	#9 Export	3.6%
Meat and edible offal	0207	14.54	#5 Import	1.0%

The products and commodities of interest are bananas (HS Code 0803), cartons and boxes (HS Code 4819), and meat and edible offal (HS Code 0207). Bananas formed the sixth largest export for Saint Lucia in 2021, reaching USD2.77 million with share of 4.6%. By quantity, exports of bananas totalled 8,394 tonnes with value of XCD13.7 million (or USD5.1 million). This translates to XCD1.63 per kilogram of bananas exported.

Table 16: Examples of Supply Chain Costs for Exporting Bananas from Saint Lucia*

Supply Chain Segment	Supply Chain Cost for 1 FEU	Cost in XCD per kg
Packaging material	XCD7,240	About 0.36
Container stuffing at Dennery	XCD250	About 0.01
Transport from Dennery to Port of Castries	XCD709	About 0.04
Container lifting charge at the port	USD960	XCD0.13 or USD0.05
Ocean transportation to the UK (FOB)**	USD8,200	XCD1.11 or USD0.41

*Source: National Consultant and International Consultant. * For a consignment of 20,000 kg of bananas packed into 1,000 boxes. ** Assuming shipping freight rate of USD8,200 for one FEU reefer container[65].*

[65]Loop News (2023) 'St Lucia shipping bananas to T&T following UK trade suspension', Loop News, 15 November [Online]. Available at: https://caribbean.loopnews.com/content/st-lucia-shipping-bananas-tt-following-uk-trade-suspension (Accessed 15 May 2023). We note that although there was a trade suspension, Geest Line continues to operate the weekly service which comprises four reefer vessels that call at the Port of Castries.

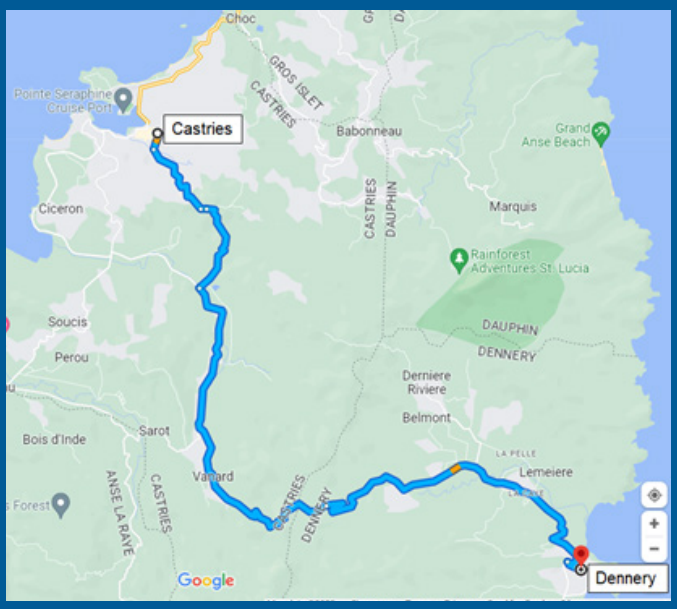
Table 16 presents supply chain costs associated with exporting bananas from Saint Lucia. The table considers a consignment of 20 metric tonnes of bananas packed into 1,000 carton boxes. The table further assumes the shipment to be made to the UK which was the largest importer of bananas in 2021[66] . The UK accounted for 69.6% share of bananas exported from Saint Lucia. With reference to the table, the biggest supply chain cost component is the ocean transportation from Saint Lucia to the UK. Each kilogram of the product shipped cost XCD1.11 or US 41 cents. Addressing this segment of the supply chain will require improving shipping connectivity through an expanded number of shipping service options that connect between the two countries. The second largest supply chain cost component is the packaging materials used which cost XCD0.36 per kilogram of bananas.

Table 17: Ports-of-Call for Vessel Lombok Strait from 26 March to 29 April 2023

Port-of-Call	ATA	ATD	Port Stay
Portsmouth, UK	25 March	26 March	1day 11h
Kingstown, St. Vincent and the Grenadines	4 April	4 April	7h 22min
Castries, Saint Lucia	5 April	5 April	12h 33min
St. John's, Antigua and Barbuda	6 April	6 April	7h 16min
Basseterre, St. Kitts and Nevis	6 April	7 April	7h 16min
Willemstad, Curacao	9 April	9 April	13h 40min
Santa Marta, Colombia	14 April	14 April	6h 27min
Salcedo, Dominican Republic	15 April	17 April	1day 8h
Vlissingen, The Netherlands	26 April	28 April	2days 8h
Portsmouth, UK	29 April	30 April	1day 4h

Source: International Consultant, using data from MarineTraffic (2023)[67] .

Figure 37: Land Transport Route for Banana Exports from Dennery in Saint Lucia



Source: International Consultant, using map data from Google Maps.

In the third position is container lifting charges at the Port of Castries which amounted to XCD0.13 or US 5 cents for each kilogram of bananas. Given the relatively high share of this supply chain cost component, there may be scope to address container lifting charges at the port. Using the example of making the shipment by using the 14,413 GT reefer vessel Lombok Strait, the consignment will take 24 days to reach Portsmouth in the UK from the Port of Castries in Saint Lucia (see **Table 17**). Using other reefer vessels such as the ***Duncan Island, Atlantic Klipper or Baltic Klipper*** will also take approximately 23-24 days to reach Portsmouth. In fact, the four vessels are operated by Geest Line to offer weekly calls at the Port of Castries. Land transport costs are estimated at XCD0.04 per kilogram of bananas transported. For this example, the bananas are consolidated in Dennery where container stuffing operations are performed. Having packed the bananas into a forty-foot reefer container, the consignment is shipped to the Port of Castries using the Micoud Highway (see **Figure 37**). The 25 km journey takes about 40 minutes to an hour to complete, depending on traffic conditions.

[66]The Observatory of Economic Complexity (2023) Bananas in Saint Lucia [Online].
Available at: https://oec.world/en/profile/bilateral-product/bananas/reporter/lca (Accessed 15 May 2023).

[67]MarineTraffic (2023) Castries Port [Online]. Available at:
https://www.marinetraffic.com/en/ais/details/ports/2388?name=CASTRIES&country=St-Lucia
(Accessed 30 March to 2 May 2023).

Table 18: Examples of Supply Chain Costs for Exporting Cardboard Boxes from Saint Lucia

Supply Chain Segment	Supply Chain Cost for 1 FEU	Cost in XCD per kg
Insurance	XCD800	About 0.09
Container stuffing at Vieux Fort	XCD500	About 0.06
Transport from Vieux Fort to Port of Castries	XCD1,200	About 0.13
Container lifting charge at the port	USD960	XCD0.29 or USD0.11
Ocean transportation to Trinidad and Tobago (FOB)*	USD2,500	XCD0.75 or USD0.28

*Source: National Consultant and International Consultant. * Assuming shipping freight rate of USD2,500 for one FEU container.*

For the example of cardboard boxes, we consider a company located in Vieux Fort that manufactures the product which are exported from Saint Lucia using the Port of Castries. Exports of cardboard boxes comes under HS Code 4819 which form the ninth largest export by Saint Lucia. In 2020, exports reached USD2.18 million with a share of 3.6%. Key export destinations are Trinidad and Tobago (45.9% share), Barbados (26.9%), France (8.5%), Jamaica (5.7%) and Grenada (5.2%)[68]. With Trinidad and Tobago as the main export destination, we have assumed shipping one FEU container from the Port of Castries to Trinidad and Tobago to cost USD2,500. With reference to **Table 18**, the consignment considers a shipment of 9,000 kg of cardboard boxes. We note that ocean transportation costs accounted for the biggest component despite the relatively short sailing distance involving only 270 nautical miles or about 500km. Container lifting charges at the port are ranked in the second position at XCD0.29 or USD0.11 per kilogram of the product handled. As mentioned for the case of exporting bananas, there may be scope to address this segment of the supply chain cost. Land transportation costs account for the third biggest component of supply chain costs, estimated at XCD0.13 per kilogram of product transported. For cargo leaving Vieux Fort to go to the Port of Castries, the driving route will go through Micoud Highway followed by Millennium Highway. The distance of about 55km takes approximately 1.5 hours to complete. Many companies in Saint Lucia outsource their trucking needs to third party transport service providers. However, a major concern is the lack of empty containers as well as such containers being damaged. While the company can reject damaged empty containers, they will need to be sent from Vieux Fort back to Castries and replaced by another empty container. This process will incur time cost and additional transportation expense.

Table 19: Examples of Supply Chain Costs for Importing Meat and Edible Offal to Saint Lucia

Supply Chain Segment	Supply Chain Cost for 1 FEU	Cost in XCD per kg
Ocean transportation from the US (CIF)*	USD10,000	XCD1.35 or USD0.50
Container lifting charge at the port	USD960	XCD0.13 or USD0.05
Electrical charge	XCD150	About 0.01
Transport from Port of Castries to Masade	XCD650	About 0.03
Customs brokerage	XCD1,200	About 0.06
Container destuffing	XCD400	About 0.02

*Source: National Consultant and International Consultant. * Assuming shipping freight rate of USD10,000 for one FEU reefer container.*

Table 20: Ports-of-Call for Vessel Tropic Jewel from 12 April to 28 April 2023

Port-of-Call	ATA	ATD	Port Stay
Palm Beach, USA	12 April	14 April	1day 17h
Limetree Bay, US Virgin Islands	16 April	16 April	8h 15min
Castries, Saint Lucia	18 April	19 April	12h 8min
Point Lisas, Trinidad and Tobago	19 April	20 April	14h 3min
St. George's, Grenada	20 April	21 April	15h 21min
Limetree Bay, US Virgin Islands	22 April	22 April	9h 46min
Philipsburg, Sint Maarten	23 April	23 April	12h 20min
Palm Beach, USA	26 April	27 April	1day 16h

Source: International Consultant, using data from MarineTraffic (2023)[69] .

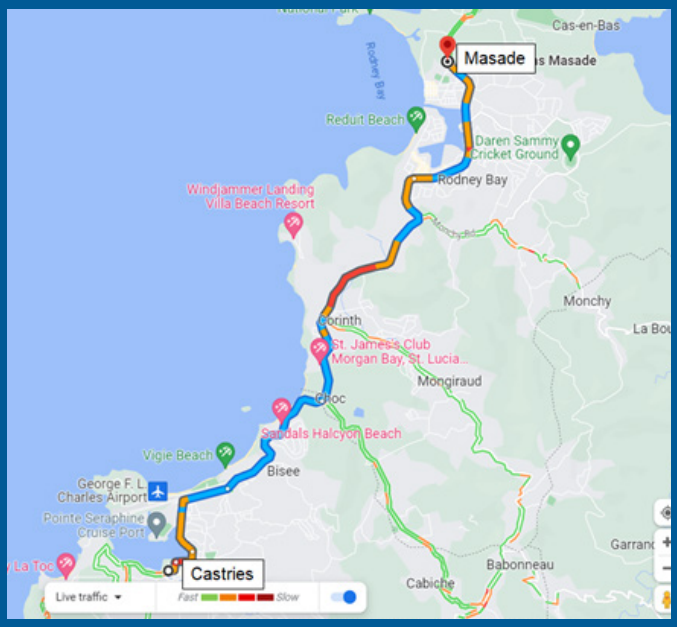
[68]The Observatory of Economic Complexity (2023) Paper Containers in Saint Lucia [Online].
Available at: https://oec.world/en/profile/bilateral-product/paper-containers/reporter/lca (Accessed 15 May 2023).

[69]MarineTraffic (2023) Castries Port [Online].
Available at: https://www.marinetraffic.com/en/ais/details/ports/2388?name=CASTRIES&country=St-Lucia
(Accessed 30 March to 2 May 2023).

The third product we considered is imports of meat and edible offal to Saint Lucia. Classified under HS Code 0207, these products form the fifth biggest source of imports at USD14.5 million and share of 1.0% in 2021[70] . The US is a key supplying market. We have assumed the imports from Palm Beach USA to be handled at USD8,000 for one FEU reefer container. With reference to **Table 19**, ocean transportation charges account for the largest supply chain cost component at XCD1.35 or US 50 cents for each kilogram of the product shipped. Referring to the sailing schedule of the 1,148-TEU vessel Tropic Jewel, the consignment of 20 metric tonnes will take approximately 4 days to reach Castries (see **Table 20**). As mentioned for the other products and commodities, addressing the high shipping charges will require expanding shipping connectivity to Castries.

Container lifting charges at the port account for the second largest supply chain cost component at XCD0.13 or US 5 cents per kilogram of the product handled. By comparison, land transport costs about XCD0.03 for each kilogram of the product transported. The 13km route from Castries to Masade takes about 30 minutes to complete (see **Figure 38)**. However, traffic congestion can cause the time taken to be significantly longer. This is even with certain stretches of the road between Castries and Gros Islet widened to accommodate dual carriageway. Using the backroads is not an option for truck traffic given that many sections of the route involve tight turns and hilly terrain. In some sections of the road, portions on the side were even missing due to landslides. To avoid delays in truck deliveries, Massy Stores in the country chose to perform deliveries to sores early in the morning (i.e., 6-7am) or in the evening (i.e., 8-9pm).

Figure 38: Land Transport Route for Meat and Edible Offal Imports from Port of Castries to Masade in Saint Lucia



Source: International Consultant, using map data from Google Maps.

Table 21: State of Food Insecurity

	Chronic Food Insecurity	Transitory Food Insecurity
is...	long-term or persistent	short-term and temporary
occurs when...	people are unable to meet their minimum food requirements over a sustained period of time.	there is a sudden drop in the ability to produce or access enough food to maintain a good nutritional status.
results from...	extended periods of poverty, lack of assets and inadequate access to productive or financial resources	short-term shocks and fluctuations in food availability and food access, including year-to-year varioations in domestic food production, food prices and household incomes.
can be overcome with...	typical long term development measures also used to address poverty, such as education or access to productive resources, such as credit. The may also need more direct access to food to enable them to raise their productive capacity.	transitory food insecurity is relatively undpredictable and can emerge suddenly. This makes planning and programming more difficult and requires different capacities and types of intervention, including early warning capacity and saget net programmes (see Box1).

Source: Food and Agriculture Organisation (2008)[72] .

6.2 Analysis of Performance in Food Security

The analysis is conducted with reference to Saint Lucia and Grenada. It takes reference to the interpretation of food security based on the 1996 World Food Summit which was held at the headquarters of the Food and Agriculture Organisation of the United Nations in Rome Italy[71] . Following from the Summit, food security is defined to exist "***when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.***" There are four key dimensions or pillars of food security. These are (a) Physical availability of food; (b) Economic and physical access to food; (c) Food utilisation; and (d) Stability over time of the above three dimensions.

[70]International Trade Centre (2023) Trade Map [Online]. Available at: https://www.trademap.org/Index.aspx (Accessed 3 May 2023).
[71] Food and Agriculture Organisation (1996) 'Report of the World Food Summit', World Food Summit, 13-17 November [Online]. Available at: https://www.fao.org/3/al936e/al936e00.pdf (Accessed 18 May 2023).
[72]Food and Agriculture Organisation (2008) 'Introduction to the Basic Concepts of Food Security', FAO Food Security Programme [Online]. Available at: https://www.fao.org/3/al936e/al936e00.pdf (Accessed 18 May 2023).

The state of food insecurity can be further distinguished by "chronic food insecurity" and "transitory food security" (see **Table 21**). Between the two states of food insecurity, chronic food security follows a sequence of known events and is usually predictable. By comparison, transitory food insecurity can be associated with cropping patterns, disease, seasonal fluctuations in the climate, and work environments. Although transitory food insecurity is of limited duration, it can also be cyclical as there can be a recurrent pattern of inadequate access to food and its availability.

We shall consider a selection of performance indicators that pertain to each of the four pillars for Saint Lucia with comparison to Grenada. The pillars are chosen based on availability and relevance of data for both countries. The first pillar considers physical availability of food. Specifically, the pillar addresses food security from the supply aspects. Physical availability of food is determined by food production levels, stock levels and net trade. Performance of selected indicators for the pillar of physical availability of food for Saint Lucia and Grenada is presented in **Table 22**.

Table 22: Performance for Selected Indicators to Physical Availability of Food

Indicator	Saint Lucia	Grenada
Local production and landings of seafood (2021, tonnes)	*1,386*	*2,700*
Percentage of seafood imported (2021, %)	62.7	20.6
Percentage of fruits and vegetables imported (2021, %)	*>80.0*	*>70.0*
Percentage of eggs imported (2021, %)	*<1.0*	2.1
Percentage of food imported (2020, %)	*>90.0*	*70.0*
Food imports as % of merchandise imports (2021, %)	*10.4*	24.0
Number of countries and territories from which food is imported (2019)	>82	>50
Total arable land (2020, hectares)	*17,360*	3,000
Arable land in hectares per person (2020)	*0.45*	0.02
Arable land as percentage of total land area (2020, %)	*8.2*	8.8
Employment in agriculture as % of total employment (2021, %)	*16.9*	11.5

Source: National Consultants and International Consultant, using information from various sources including The World Bank (2023)[73] , Central Statistical Office Grenada (2023)[74] , Central Statistical Office Saint Lucia (2023)[75], and Food and Agriculture Organisation (2023)[76] . Figures in italics depict estimates.

The table shows dependence on imports for various food items which include seafood, fruits and vegetables, eggs, and food. Of these food items, both countries are largely self-sufficient on eggs with very little amounts imported. In contrast, dependence on vegetable imports is relatively high for both countries at more than 70%. Grenada has a lower dependency on seafood and in particular for fish compared to Saint Lucia. As a whole, Saint Lucia has a higher dependency on imported food compared to Grenada. Nonetheless, Grenada saw food imports forming 24.0% of merchandise imports whereas the comparative figure is significantly lower at 10.4% for Saint Lucia. For Saint Lucia, food imports came from more than 82 countries whereas the comparative number for Grenada is more than 50.

Data from The Observatory of Economic Complexity showed that the largest food import item for Saint Lucia in 2021 was poultry[77]. The country imported USD667 million worth of poultry which accounted for 19.0% of total imports. 97.8% of poultry imported came from Brazil. Bovine meat (i.e., beef) frozen or otherwise formed the second largest food import totalling USD185 million or 5.3% share. 98.3% of the product was imported from Brazil. The third largest food-related import was soybeans at USD172 million or 4.9% of imports which came entirely from Brazil. If we look at other major food-related imports by Saint Lucia which are corn and wheat (2.6% and 2.3% of total imports respectively), more than 98% of these products are imported from Brazil. The evidence from imports of major food items for Saint Lucia thus reveals a high dependence on Brazil, reaching more than 98% in many cases.

[73]The World Bank (2023a) World Development Indicators [Online].
Available at: https://datatopics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).
[74]Central Statistical Office Grenada (2023) Subjects [Online]. Available at: https://stats.gov.gd/ (Accessed 4 May 2023).
[75]Central Statistical Office of Saint Lucia (2023) Data [Online]. Available at: https://stats.gov.lc/data/data-tables/ (Accessed 4 May 2023).
[76]Food and Agriculture Organisation (2023) FAOSTAT [Online]. Available at: https://www.fao.org/faostat/en/#data/FS (Accessed 18 May 2023).
[77]The Observatory of Economic Complexity (2023) Saint Lucia [Online].
Available at: https://oec.world/en/profile/country/lca?yearlyTradeFlowSelector=flow1 (Accessed 15 May 2023).

The other indicators relating to physical availability of food, the table show Saint Lucia to have more than five times the amount of arable land at 17,360 hectares compared to 3,000 hectares in Grenada. Measured on per capita basis, this translated to Saint Lucia having 22.5 times more arable land per person than Grenada. Arable land made up 8.2% and 8.8% of total land area in Saint Lucia and Grenada respectively. As for employment numbers, Saint Lucia saw employment in agriculture reaching 16.9% of total employment. The comparative figure for Grenada was lower at 11.5%.

The second pillar considers economic and physical access to food. The pillar recognises having adequate supply of food at both the national and international levels does not guarantee food security at the household level. Awareness of insufficient food access saw greater policy attention on the aspects of income, expenditure, prices and markets in achieving food security objectives. Performance of selected indicators for the pillar of economic and physical access to food is presented in **Table 23**. The table showed that prevalence of moderate or severe food insecurity in the total population was almost the same at about 22% for Saint Lucia and Grenada over the period 2019 to 2021. Nonetheless, prevalence of severe food insecurity was significantly higher in Grenada at 7.5% of the total population relative to 4.5% for Saint Lucia. Absolute poverty rate for Saint Lucia was estimated at 18.7% while Grenada's number stood at 11.0%. However, including housing costs for Grenada would raise the country's poverty rate to 33.0% of the population compared to 22.5% for Saint Lucia.

Table 23: Performance for Selected Indicators to Economic and Physical Access to Food

Indicator	Saint Lucia	Grenada
Prevalence of moderate or severe food insecurity in the total population (%, 3-year average for 2019-2021)	*22.2*	22.3
Prevalence of severe food insecurity in the total population (%, 3-year average for 2019-2021)	*4.5*	7.5
Absolute poverty rate (2021, %)	*18.7*	11.0
Relative poverty rate (including housing costs) (2021, %)	*22.5*	33.0
Meal at an inexpensive restaurant (2022, XCD)	20.00	22.50
Meal at KFC (or equivalent fast-food combo meal) (2022, XCD)	21.60	17.50
Water (0.33 litre bottle) (2022, XCD)	2.37	2.00
Milk (regular 1 litre) (2022, XCD)	6.12	6.00
Loaf of fresh white bread (500g) (2022, XCD)	2.62	5.00
Rice (white, 1 kg) (2022, XCD)	4.98	4.50
Eggs (regular, 12) (2022, XCD)	8.60	12.00
Chicken fillets (1 kg) (2022, XCD)	29.14	23.21
Banana (1 kg) (2022, XCD)	4.99	6.64
Potato (1 kg) (2022, XCD)	11.55	4.50
Average monthly household expenditure on food (2021, XCD)	*867.2*	800.0
Percentage of monthly household expenditure on food (2021, %)	*30.3*	60.0
Consumer Price Index for food (2022, %)	7.8%	6.5%
GDP per capita (current local currency) (2021, XCD)	25,418	24,329
GDP per capita (PPP, current international dollar) (2021)	14,332	15,038
Human Development Index (2021)	0.747	0.739
Farmer annual income (2021, XCD)	*33,600*	*23,600*

Source: National Consultants and International Consultant, using information from various sources including Food and Agriculture Organisation (2023)[78], United Nations (2023)[79], and Numbeo (2023a[80]; 2023b[81]). Figures in italics depict estimates.

[78]Food and Agriculture Organisation (2023) FAOSTAT [Online]. Available at: https://www.fao.org/faostat/en/#data/FS (Accessed 18 May 2023).
[79]United Nations (2023) Human Development Index (HDI) [Online].
Available at: https://hdr.undp.org/data-center/human-development-index#/indicies/HDI (Accessed 18 May 2023).
[80]Numbeo (2023a) Cost of Living in Castries [Online]. Available at: https://www.numbeo.com/cost-of-living/in/Castries-Saint-Lucia (Accessed 3 May 2023).
[81]Numbeo (2023b) Cost of Living in St. George's [Online]. Available at: https://www.numbeo.com/cost-of-living/in/St-George%27s (Accessed 3 May 2023).

Analysis of cost of common food items in both countries revealed a mixed scene. While the cost of a meal at an inexpensive restaurant was higher in Grenada, the cost of a fast-food meal was comparatively cheaper in the country relative to Saint Lucia. We noted water, rice, chicken fillets and potato to be more expensive in Saint Lucia compared to Grenada. On the other hand, a loaf of fresh white bread, eggs and bananas was cheaper in Saint Lucia. The price of milk was found to be almost the same in both countries. In any case, the pressure on food security at the household level is likely to be much higher in Grenada with 60% of monthly household expenditure spent on food. By comparison, monthly spending on food accounted for 30.3% of household expenditure in Saint Lucia. We also noted both countries to have approximately the same levels of GDP per capita (measured at current prices or PPP using international dollars) and human development although food price inflation was slightly higher in Saint Lucia at 7.8% relative to 6.5% seen for Grenada in 2021. We also saw that annual income for farmers in Saint Lucia was considerably higher at XCD33,600. On average, a farmer in Saint Lucia would be earning 1.4 times the income of a farmer in Grenada.

The third pillar considers the aspect of food utilisation. Utilisation is understood as the manner where the body makes the most of different nutrients contained in the food. Adequate nutrient and energy intake by the individual are the result of good food preparation, care and feeding practices, intra-household distribution of food, and diversity of the diet. When we consider the good biological utilisation of food consumed, the nutritional status of individuals can be determined. Performance of selected indicators for the pillar of food utilisation is presented in **Table 24**.

Table 24: Performance for Selected Indicators to Food Utilisation

Indicator	Saint Lucia	Grenada
People using at least basic drinking water services (2019, % of population)	*96.9*	*95.6*
Vitamin and mineral deficiencies: Anaemia in children <5 years (Hb<110 g/L) (2019, %)	*22.5*	*34.0*
Vitamin and mineral deficiencies: Anaemia in non-pregnant women (Hb<120 g/L) (2019, %)	*14.2*	*23.3*
Vitamin and mineral deficiencies: Anaemia in pregnant women (Hb<110 g/L) (2019, %)	*19.1*	*27.5*
Vitamin and mineral deficiencies: Anaemia in women of reproductive age (2019, %)	14.3	*23.5*
Vitamin and mineral deficiencies: Anaemia in women aged 15 to 49 (2019, %)	14.3	19.2
Adult nutrition status and disease: prevalence of underweight in adults aged 18 years and over (2019, %)	*Female: 3.8* *Male: 5.2*	Female: 9.1 Male: 8.1
Child and adolescent nutrition status: prevalence of thinness in children and adolescents aged 5-19 years (2019, %)	*Girls: 9.2* *Boys: 8.6*	Girls: 8.1 Boys: 11.6
Infant mortality rate (per 1,000 live births) (2021)	22.4	*16.0*
Neonatal mortality rate (per 1,000 live births) (2021)	13.0	*10.0*

Source: National Consultants and International Consultant, using information from various sources including World Health Organisation (2023)[82], Global Nutrition Report (2023)[83], Food and Agriculture Organisation (2023)[84]. Figures in italics depict estimates.

Looking at the selected indicators for food utilisation, Saint Lucia and Grenada had roughly the same percentage of people using at least basic drinking water services. The figures were 95.6% and 96.9% for Grenada and Saint Lucia respectively. However, the table showed that Grenada has significantly higher levels of anaemia in children aged below five years, and women. For example, anaemia in children was 1.5 times higher in Grenada compared to Saint Lucia. Anaemia in non-pregnant women and women of reproductive age was 1.6 times higher in Grenada as well when compared to Saint Lucia. The table also showed prevalence of underweight in adults aged 18 years and over to be 2.4 times higher for females in Grenada compared to Saint Lucia. The same metric measured for adult males was 1.6 times higher in Grenada than Saint Lucia.

For prevalence of thinness in children and adolescents aged 5-19 years, Saint Lucia saw 9.2% of its girl population affected while the comparative figure for Grenada is slightly lower at 8.1%. For boys however, Grenada had a higher figure with 11.6% of its boy population affected. The figure for Saint Lucia was 8.6%. As for infant and neonatal mortality rate, the indicators showed Saint Lucia to register higher rates compared to Grenada. Using the example for 2021, infant mortality rate in Saint Lucia was 22.4 per 1,000 live births while the same metric for Grenada was 16.0 per 1,000 live births. Similarly for neonatal mortality rate, Saint Lucia saw 13.0 cases per 1,000 live births while Grenada's figure stood at 10.0 cases per 1,000 live births.

[82]World Health Organisation (2023) Nutrition Landscape Information System (NLiS) [Online].
Available at: https://apps.who.int/nutrition/landscape/nlis (Accessed 18 May 2023).
[83]Global Nutrition Report (2023) Country Nutrition Profiles [Online].
Available at: https://globalnutritionreport.org/resources/nutrition-profiles/ (Accessed 18 May 2023).
[84]Food and Agriculture Organisation (2023) FAOSTAT [Online]. Available at: https://www.fao.org/faostat/en/#data/FS (Accessed 18 May 2023).

The fourth pillar analyses stability of the aforementioned three dimensions over time. The pillar highlights the fact that even if food intake by the individual is adequate today, the person can still be considered as food insecure if there is insufficient access to food on a periodic basis. Thus, there is risk of deterioration of the person's nutritional status. Political instability, adverse weather conditions, or economic factors such as rising food prices and unemployment, may impact on food security status. Performance of selected indicators for the pillar of stability to the other three dimensions over time is presented in **Table 25**.

The table revealed both Saint Lucia and Grenada to be entirely dependent on overseas imports for cereals. We also saw from earlier analysis that cereal imports for Saint Lucia came largely from Brazil while those for Grenada were mainly from the US. The exception was imports of rice for Grenada where 83.8% of the product was imported from Guyana. Grenada was seen to have food imports accounting for a larger share of the country's merchandise imports compared to Saint Lucia. For 2021, food imports as a share of merchandise imports for Grenada stood at 24.0%, more than double the figure of 10.4% for Saint Lucia.

In terms of price inflation, we saw Saint Lucia to experience higher levels of price increase with 7.8% registered for food and 6.4% for overall CPI. The figures for Grenada in the same year were 6.5% and 4.5% respectively. The table also showed that Saint Lucia had all of its arable land that equipped for irrigation while Grenada only had two-thirds of its arable land equipped. The rate of unemployment was also relatively higher in Grenada at 21.0% in 2021 compared to 15.1% in Saint Lucia. Even so, unemployment rate in Saint Lucia is considered to be high when compared to the world average figure of 6.2%.

Table 25: Performance for Selected Indicators to Stability of Other Three Dimensions Over Time

Indicator	Saint Lucia	Grenada
Cereal import dependency ratio (%, 3-year average for 2017-2019)	100.0	100.0
Food imports as % of merchandise imports (2021, %)	*10.4*	24.0
Consumer price inflation (2022, %)	6.4	4.5
Consumer Price Index for food (2022, %)	7.8	6.5
Percent of arable land equipped for irrigation %, 3-year average for 2017-2019)	100.0	66.7
Unemployment rate (2021, %)	15.1	21.0
Risk of strikes, riots and civil commotion (2021)	3.2 (low risk)	3.7 (low risk)
Risk of terrorism (2021)	1.5 (very low risk)	1.6 (very low risk)
Risk of war and civil war (2021)	1.8 (very low risk)	1.7 (very low risk)
Country economic risk (2021)	5.1 (medium risk)	5.2 (medium risk)
Currency inconvertibility and transfer risk (2021)	3.4 (low risk)	3.7 (low risk)
Sovereign credit risk (2021)	6.0 (medium risk)	7.2 (high risk)
Lack of adaptive capacities – related to future natural events and climate change (2021)	40.0 (medium risk)	*38.1 (medium risk)*
Exposure of population to natural hazards (earthquakes, hurricanes, floods, droughts, sea-level rise) (2021)	9.8 (low risk)	*0.3 (very low risk)*

Source: National Consultants and International Consultant, using information from various sources including The World Bank (2023)[85], Marsh (2023)[86], and United Nations Office for the Coordination of Humanitarian Affairs (OCHA) (2023)[87]. Figures in italics depict estimates.

If we consider the set of indicators measuring various risks that could impact on food security, both countries generally had risk ratings ranging from medium to very low levels. For example, risks of terrorism, war, civil war, strikes, riots and civil commotion was given the rating of low or very low for Saint Lucia and Grenada. Both countries received a medium risk rating for country economic risk. The risk of lacking in adaptive capacities relating to future natural events and climate change was also given a medium risk rating for both countries. The risk of currency inconvertibility and transfer risk was seen to be low, as with the risk of the population being exposed to natural hazards such as earthquakes and hurricanes. The only exception would be sovereign credit risk for Grenada which was given a high risk rating whereas Saint Lucia received a medium risk rating. Sovereign credit risk is the risk where the government becomes unable or unwilling to meet its loan obligations.

[85]The World Bank (2023a) World Development Indicators [Online].
Available at: https://datatopics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).
[86]Marsh (2023) Political Risk Map 2021 [Online].
Available at: https://www.marsh.com/sg/services/political-risk/insights/political-risk-map-2021.html (Accessed 18 May 2023).
[87]United Nations Office for the Coordination of Humanitarian Affairs (2023) World Risk Report 2021 [Online].
Available at: https://reliefweb.int/report/world/worldriskreport-2021-focus-social-protection (Accessed 18 May 2023).

6.3 Developments in Food Staples and Considerations for Alternative Import Sources

Food staples form the cornerstone of food security. Food staples constitute the dominant part of the diet of the population. They are consumed regularly, usually daily, and provide the major proportion of an individual's nutritional and energy needs. Food staples can vary from place to place. For most communities and places, food staples are likely to comprise one or more of the following food crops which are cassava, corn (maize), rice, plantains, potatoes, millet, sorghum, soybeans, sweet potatoes, yams and taro[88]. Of these food items, corn, wheat and rice provide 60% of global food energy intake.

With reference to **Table 26**, exports of coarse grains formed the biggest segment of the global grain trade. 237 million tonnes of coarse grains were exported in the period October 2021 to September 2022. Looking within the trade, corn took up a share of 81.7% at 193 million tonnes. The largest exporting countries were the US (63 million tonnes or 32.5% share), followed by Argentina (39 million tonnes or 20.1%) and Brazil (32 million tonnes or 16.5%). The top three countries active in the trade are located in the Americas where they accounted for almost 70% of total corn exports in the world. We saw from the previous section that corn imports by Saint Lucia are almost entirely from Brazil. If we consider the aspect of import diversification for corn, other major sources of import which could be explored will be Argentina in South America and countries in Europe. Other types of coarse grains exported include Barley and Sorghum. Argentina is a major exporter of these commodities while the US was the top exported of Sorghum.

Turning to wheat, the table shows 205 million tonnes of the commodity and its products exported between July 2021 and June 2022. Major exporting countries were Russia (33 million tonnes or share of 16.1%), the EU (32 million tonnes or 15.6%), Australia (26 million tonnes or 12.6%), the US (21.5 million tonnes or 10.5%), and Argentina (19 million tonnes or 9.2%). For wheat imports by Saint Lucia, Brazil is the main source of supply by accounting for 98.1% of imports by the country. This is even though wheat exports by Brazil are significantly lower with the country ranked 10th in the world with 3.1 million tonnes of such exports in 2021. For wheat flour, Saint Vincent and the Grenadines is the biggest source of supply, accounting for 86.4% of imports by the country[89] . Note that Saint Vincent and the Grenadines is a member of CARICOM which means the commodity is imported duty free. As Saint Lucia is entirely dependent on overseas imports of wheat and its products, diversification of wheat imports could consider other major exporting countries and regions which include the EU (second-biggest exporter), Argentina (ranked 5th), and Canada (7th).

Table 26: Global Grain Trade

Commodity	Exports	Million Metric Tonnes	Global Share
Coarse Grains	Total	236.77	100.0%
Corn	**Total for Corn**	**193.49**	**100.0%**
(Oct 2021-Sep 2022)	1. USA	62.98	32.5%
	2. Argentina	38.85	20.1%
	3. Brazil	31.92	16.5%
	4. Ukraine	26.98	13.9%
	5. EU	6.03	3.1%
	Others	32.76	16.9%
Barley	**Total for Barley**	**28.50**	**100.0%**
(Oct 2021-Sep 2022)	1. Australia	8.23	28.9%
	2. EU	6.36	22.3%
	3. Argentina	3.77	13.2%
	4. Russia	3.10	10.9%
	5. Ukraine	2.71	9.5%
	Others	4.33	15.2%
Sorghum	**Total for Sorghum**	**11.78**	**100.0%**
(Oct 2021-Sep 2022)	1. USA	7.35	62.4%
	2. Australia	2.27	19.3%
	3. Argentina	1.80	15.3%
	Others	3.6	3.0%

[88]Food and Agriculture Organisation (2023) Staple foods: What do people eat? [Online].
Available at: https://www.fao.org/3/u8480e/u8480e07.htm (Accessed 18 May 2023).
[89]The Observatory of Economic Complexity (2023) Saint Lucia [Online].
Available at: https://oec.world/en/profile/country/lca?yearlyTradeFlowSelector=flow1 (Accessed 15 May 2023).

Table 26: Global Grain Trade(cont'd)

Commodity	Exports	Million Metric Tonnes	Global Share
Wheat, Flour and Products	Total	205.42	100.0%
(Jul 2021-Jun 2022)	1. Russia	33.00	16.1%
	2. EU	32.00	15.6%
	3. Australia	25.96	12.6%
	4. USA	21.50	10.5%
	5. Argentina	18.84	9.2%
	Others	74.11	36.1%
Rice	Total	56.11	100.0%
(Jan 2022-Dec 2022)	1. India	22.12	39.4%
	2. Thailand	7.68	13.7%
	3. Vietnam	7.05	12.6%
	4. Pakistan	4.53	8.1%
	5. Myanmar	2.34	4.2%
	6. USA	2.18	3.9%
	Others	10.22	18.2%

Source: International Consultant, using information from US Department of Agriculture Foreign Agricultural Service (2023)[90].

Rice is also an important source of food in Saint Lucia. Global trade in rice totalled 56 million tonnes in 2021 with the biggest exporters mainly coming from South and Southeast Asia. India was the biggest exporter with 22 million tonnes or global share of 39.4%. This was followed by Thailand (7,7 million tonnes or 13.7%), Vietnam (7.1 million tonnes or 12.6%), Pakistan (4.5 million tonnes or 8.1%) and Myanmar (2.3 million tonnes or 4.2%). The US was ranked in the sixth position with 2.2 million tonnes exported i 2021. Other major rice exporters in the Americas were Brazil (ranked 9th with 1.4 million tonnes or global share of 2.6%), Uruguay (#10 with 982,000 tonnes or 1.8%), Paraguay (#11 with 752,000 tonnes or 1.3%), Argentina (#12 with 402,000 tonnes or 0.7%), and Guyana (#14 with 358,000 tonnes or 0.6%). We note that Brazil is the largest source of rice imports with the country accounting for import share of 63.2% for Saint Lucia in 2021. Guyana is also a key supplier of rice to Saint Lucia, accounting for 32.2% of rice import by the country. Guyana is a member of the CARICOM which means that the commodity is imported duty free for Saint Lucia. We also note that flour, rice and sugar are heavily subsidised and controlled by the government. Given the importance of rice in the local diet, considerations for import diversification could evaluate alternative sources of supply which may include major exporting countries in the region such as the US, Uruguay, Paraguay, and Argentina. Alternative import sources may also consider countries in South or Southeast Asia.

Table 27: Global Soybeans Trade

Commodity	Exports	Million Metric Tonnes	Global Share
Soybeans	Total	154.02	100.0%
(2021/2022)	1. Brazil	79.06	51.3%
	2. USA	58.72	38.1%
	3. Canada	4.28	2.8%
	4. Argentina	2.86	1.9%
	5. Paraguay	2.27	1.5%
	Others	6.81	4.4%
Soybean Meal	Total	68.75	100.0%
(2021/2022)	1. Argentina	26.59	38.7%
	2. Brazil	20.21	29.4%
	3. USA	12.27	17.8%
	4. Paraguay	2.08	3.0%
	5. Bolivia	1.27	1.8%
	Others	6.34	9.2%

[90]US Department of Agriculture Foreign Agricultural Service (2023) Grain: World Markets and Trade, May [Online]. Available at: https://www.fas.usda.gov/data/grain-world-markets-and-trade (Accessed 18 May 2023).

Table 27: Global Soybeans Trade (cont'd)

Commodity	Exports	Million Metric Tonnes	Global Share
Soybean Oil	Total	12.24	100.0%
(2021/2022)	1. Argentina	4.87	39.8%
	2. Brazil	2.41	19.7%
	3. EU	0.97	7.9%
	4. Bolivia	0.51	4.2%
	5. Russia	0.48	3.9%
	Others	3.00	24.5%

Source: International Consultant, using information from US Department of Agriculture Foreign Agricultural Service (2023)[91].

The commodity of soybeans also constitutes a major source of food supply. With reference to **Table 27**, the world saw 154 million tonnes of soybeans exported in 2021/2022. If we include soybean meal and soybean oil, total volume of exports increases to 235 million tonnes. Major exporting countries for these products are Brazil, the US and Argentina. For the soybean trade, Brazil and the US dominated the global market by accounting for 89.4% of total exports. In the case for soybean meal, the top three exporting countries of Argentina, Brazil and the US made up 67.4% share of the export trade. For soybean oil, Argentina and Brazil made up 59.5% of total exports with the EU taking the third position with 7.9% of global exports.

Imports of soybeans for Saint Lucia are entirely sourced from Brazil, while imports of the same commodity for Grenada coming from the US. Diversification of import sources may prove challenging for the soybean trade given the dominant position held by Brazil and the US in the trade. Nonetheless, it may be prudent to consider other alternative supplying sources where key exporting countries are also located in the Americas. They include Canada, Argentina, and Paraguay. With the importance of corn, wheat, soybeans and rice, it may also be prudent for the government of Saint Lucia to consider creating stockpiles of these commodities for emergency use.

The fertile soil and climate of Saint Lucia makes the country suitable for growing crops such as yams, plantains, sweet potatoes, cassava, and breadfruit. Discussions with the Ministry of Foreign Affairs, International Trade, Civil Aviation and Diaspora Affairs suggest that green bananas can be seen as an important local staple as the country has self-sufficiency on this item[92]. This is followed by plantains. Green bananas have very quick snap back period to allow for regrowth after a major storm or hurricane. More importantly, green bananas can be grown year-round. For sweet potato, dasheen, and yam, these are root crops that offer a good source of complex carbohydrates, fibre, and vitamins. They are often boiled, mashed, or roasted and served as a side dish or in stews. The region's vulnerability to storms and hurricanes presents theses crops as viable options for food security purposes[93].

For meat products, poultry form the biggest segment of meat imports by Saint Lucia. With reference to **Table 28** above, the volume of trade in chicken meat is also the largest compared to the global trade in pork, beef and veal. Exports of chicken meat reached 13.5 million tonnes in 2022 with the biggest exporters being Brazil (4.5 million tonnes or global share of 32.9%), the US (3.3 million tonnes or 24.5%), the EU (1.7 million tonnes or 12.8%) and Thailand (1.0 million tonnes or 7.5%). For Saint Lucia, we saw 97.8% of poultry imported from Brazil in 2021[94] . Imports of pork are mainly from the US with share of 91.1%. For the case of beef, Saint Lucia's imports are almost entirely dominated by Brazil. As such, considerations for diversification of import sources may see Saint Lucia looking at countries such as those in the EU as alternative supply sources.

[91]US Department of Agriculture FAS (2023) Oilseeds: World Markets and Trade, May [Online].
Available at: https://apps.fas.usda.gov/psdonline/circulars/oilseeds.pdf (Accessed 18 May 2023).
[92]Information provided by Saint Lucia Ministry of Foreign Affairs, International Trade, Civil Aviation and Diaspora Affairs during a face-to-face meeting held on 17 April 2023 at the organisation's office at The Baywalk Rodney Bay in Gros Islet.
[93]Mc Dowell, C.E. (2019) 'Cathy Advises from Taiwan on St Lucia's Food Security', The Star, 16 June [Online].
Available at: https://stluciastar.com/cathy-advises-from-taiwan-on-st-lucias-food-security/ (Accessed 10 May 2023).
[94]The Observatory of Economic Complexity (2023) Saint Lucia [Online]. Available at: https://oec.world/en/profile/country/lca?yearlyTradeFlowSelector=flow1 (Accessed 15 May 2023).

Table 28: Global Trade in Chicken Meat, Pork, and Beef and Veal

Commodity	Exports	Million Metric Tonnes	Global Share
Chicken Meat	Total	13.54	100.0%
(2022, ready to cook equivalent)	1. Brazil	4.45	32.9%
	2. USA	3.32	24.5%
	3. EU	1.74	12.8%
	4. Thailand	1.02	7.5%
	5. Turkey	0.58	4.3%
	Others	2.44	18.0%
Beef and Veal	Total	12.04	100.0%
(2022, carcass weight equivalent)	1. Brazil	2.89	24.1%
	2. USA	1.60	13.3%
	3. India	1.44	12.0%
	4. Australia	1.24	10.3%
	5. Argentina	0.82	6.8%
	Others	4.03	33.5%
Pork	Total	10.95	100.0%
(2022, carcass weight equivalent)	1. EU	4.18	38.2%
	2. USA	2.88	26.3%
	3. Canada	1.41	12.9%
	4. Brazil	1.32	12.0%
	5. Mexico	0.28	2.6%
	Others	0.88	8.1%

Source: International Consultant, using information from US Department of Agriculture Foreign Agricultural Service (2023)[95].

6.4 Chapter Summary

The chapter presents the duration and costs involved for logistics activities through supply chain networks. The chapter makes reference to selected key products in the agriculture and manufacturing sectors. The chapter also discusses the aspect of food security in relation to its four pillars which are physical availability of food, economic and physical access to food, food utilisation, and stability over time of the aforementioned dimensions.

For Saint Lucia, bananas formed the sixth largest export in 2021. The biggest supply chain cost component is ocean transportation, followed by packaging materials. For cardboard boxes, the key export destination is Trinidad and Tobago. Ocean transportation costs accounted for the biggest share despite the relatively short sailing distance. Container lifting charges at the port are ranked second.

The third product considered for Saint Lucia is import of meat and edible offal, which form the fifth biggest source of imports. The US is a key supplying market. Ocean transportation charges account for the largest supply chain cost component. Container lifting charges at the port account for the second largest supply chain cost component.

On the state of food security for Saint Lucia, the country seemed to have a higher dependency on imported food compared to Grenada. Nonetheless, Grenada saw food imports forming 24.0% of merchandise imports whereas the comparative figure is significantly lower at 10.4% for Saint Lucia. Saint Lucia also have more than five times in arable land compared to 3,000 hectares in Grenada.

For the pillar of economic and physical access to food, prevalence of moderate or severe food insecurity in the total population was almost the same at about 22% for Grenada and Saint Lucia. However, the pressure on food security is likely to be much higher in Grenada with 60% of monthly household expenditure spent on food. By comparison, monthly spending on food accounted for 30.3% of household expenditure in Saint Lucia. We also saw that annual income for farmers in Saint Lucia was considerably higher at 1.4 times the income of a farmer in Grenada.

[95]US Department of Agriculture Foreign Agricultural Service (2023) Livestock and Poultry: World Markets and Trade, April [Online]. Available at: http://www.fas.usda.gov/psdonline/circulars/livestock_poultry.pdf (Accessed 18 May 2023).

For the pillar on food utilisation, Grenada has significantly higher levels of anaemia in children aged below five years, and women. Prevalence of underweight in adults aged 18 years and over was 2.4 times higher for females in Grenada compared to Saint Lucia. For infant and neonatal mortality rate, the indicators showed Saint Lucia to register higher rates compared to Grenada.

On the fourth pillar of stability, both Grenada and Saint Lucia are entirely dependent on overseas imports for cereals. In terms of price inflation, we saw Saint Lucia to experience higher levels of price increase compared to Grenada. For the set of indicators measuring various risks that could impact on food security, both countries generally had medium to very low risk ratings. The only exception would be sovereign credit risk for Grenada which was given a high risk rating.

Food staples form the cornerstone of food security. Corn imports by Saint Lucia are almost exclusively from Brazil. Turning to wheat, Brazil is a major supplier to Saint Lucia. For wheat flour, Saint Vincent and the Grenadines is the biggest source of supply to Saint Lucia. The exporter is a member of the CARICOM. Rice is also an important source of food in Saint Lucia. Guyana, who is a member of the CARICOM, is a key supplier of rice to the country. Diversification of cereal imports could consider other major exporting countries and regions which include the EU and South America.

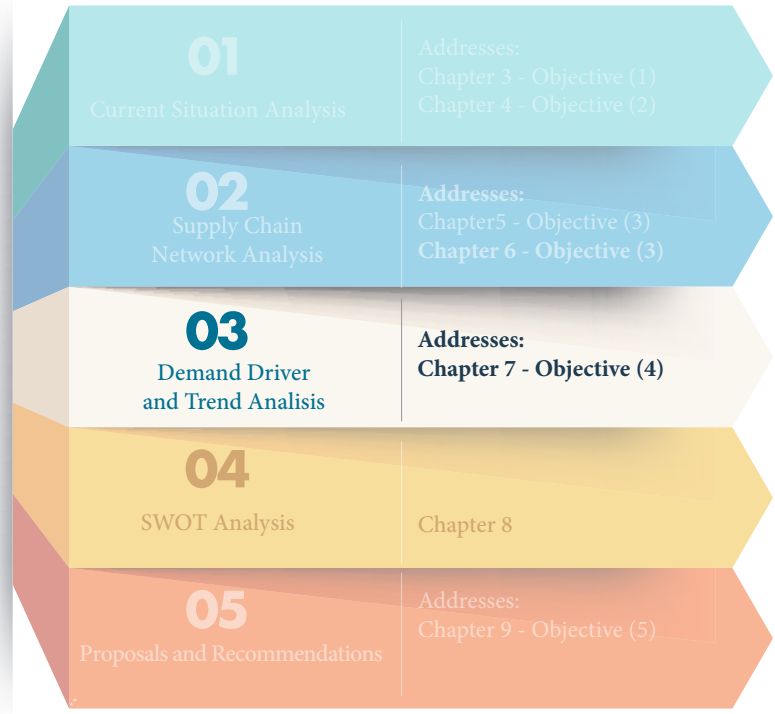
For soybeans, diversification of import sources may be difficult as the trade is dominated by Brazil and the US. With the importance of corn, wheat, soybeans and rice, it may also be prudent for the government to consider creating stockpiles of these commodities for emergency use.

The fertile soil and climate of Saint Lucia makes the country suitable for growing crops such as yams, plantains, sweet potatoes, cassava, and breadfruit. Green bananas can be seen as an important local staple as the country has self-sufficiency on this item. This is followed by plantains.

CHAPT 07 DEMAND DRIVER AND TREND ANALYSIS

The next step is to determine critical demand drivers and emerging trends relevant for the transport and logistics sector in Saint Lucia. With reference to **Figure 39**, this is addressed under **Point (3)** of the proposed approach and the fourth objective of the study. Increasing penetration of digitisation and digitalisation reinforces the impetus to develop integrated logistics systems and trade platforms that can facilitate information flows, track and trace capabilities, materials handling, and financial services especially in international trade. Performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions shall be proposed. While no new index will be created, a set of indicators will be suggested for consideration when assessing the sector. Intention is to provide the context for a comprehensive overview of major challenges and opportunities likely to be faced by the transport and logistics sector.

Figure 39: Framework for Proposed Approach to the Study – Demand Driver and Trend Analysis



Source: International Consultant.

7.1 Concerns Arising from Inefficiencies in the Logistics Sector

Analysis of demand drivers and emerging trends requires appreciation of the challenges faced by the transport and logistics sector in Saint Lucia. We have discussed many of these challenges and concerns in the previous chapters and they are recapped by **Table 29**. Pertinent issues reflect a combination of perspectives that could include economic, trade, technological and other relevant developments.

Table 29: Recap of Challenges Facing Logistics Sector in Saint Lucia

Logistics Aspect	Issue Affecting Logistics Operations
Shipping and port operations	
Limited shipping connectivity	• Freight rates are expensive • Containers not loaded at the port of origin during the high season; shipping lines put priority on refrigerated cargo, followed by food, and lastly non-food
Priority given to cruise operations	• Cruise ships are given priority over cargo vessels and may use cargo berths especially during the cruise ship season • Cruise events can see access to/from the port affected
Inadequate capability of port to handle mainline containerships	• Limited by port draft and berth capacity • Lack of cargo-handling equipment (e.g., only one quay crane at Port of Castries) • Unreliable port equipment
Expensive shipping and port charges	• Expensive landing charges
Archaic port tariffs	• Tariffs were developed during the pre-container era
Berth and yard operation inefficiencies	• Shipping using LCL is difficult and expensive with issues of damaged or missing cargo • Companies have to use runners to locate containers, which also depends on personal relations with the stevedore • Insufficient space to store containers at the port • Lack of space for container stripping and stuffing at the port • Port does not operate 24/7, and is closed on public holidays • Making multiple queues to collect cargo from the port • Should have holding area for trucks • Yard operations are frequently interrupted to allow passenger movements at the ferry terminal (Port of Castries)

Table 29: Recap of Challenges Facing Logistics Sector in Saint Lucia (cont'd)

Logistics Aspect	Issue Affecting Logistics Operations
Shipping and port operations	
Damaged containers and lack of empty containers	• Lack of empty containers and especially 20-foot containers • Lack of container repair service
Inefficient customs operations and processes	• Inspections can be conducted in the open area, however work has to stop when there is heavy rain • Containers being stripped at the premise need to wait for the customs officers who will come after 4pm • Officers are provided with breakfast, lunch or dinner if they have to work outside of normal working hours • Customs is trying to go fully electronic although they are still asking for physical documents • Exports are not checked and the Export Verification Unit currently has only one staff
Flight network and airport operations	
Flight connectivity	• Flights have not returned to pre-COVID levels
Flights delays and cancellations	• Can cascade through the network • Fresh produce cargo exposed to the elements can see 50-70% of the shipment lost
Lack of cold storage facilities	• Dedicated cold storage facility should have bays where trucks can back up and offload their cargo • Each bay should be equipped to weigh and screen cargo • SLASPA has generally neglected the air freight business with attention mostly on the cruise sector
Inefficient cargo operations	• Delays in the loading may result in missing the flight schedule as flight crew have limitations on number of hours worked
Inefficient customs operations and processes	• Time taken for inspection depends on competency of the customs officer • Customs officers should be trained on tariff description, classification knowledge and standard operating procedures
Land transportation	
Road connectivity	• Heavy traffic can be seen especially on the road from Castries to Gros Islet which can be exacerbated when there is cruise traffic • Backroads may not be suitable for truck traffic given that many sections of the route involve tight turns and hilly terrain; portions for some sections were even missing due to landslides

Source: International Consultant.

Note that the above information presented is gathered from a comprehensive review of the transport, logistics and relevant activities across different stakeholders, transport modes, and product types in the country. In addition to the issues mentioned above, there were further concerns which were gathered from stakeholders of the transport and logistics community in Saint Lucia.

Firstly, there is the issue with port labour. In Saint Lucia, there are about 200 stevedores who are employed by the union. Discussions with various stakeholders in both countries indicate there is significant scope for improvements to the efficiency and productivity of stevedoring services. For example, unreliable port labour may require a company having to conduct physical checks on their containers regularly. If there are reefers involved, the checks are conducted twice a day. These checks constitute additional costs for the company. Discussions with the community also indicated that the port authority can become a political tool which is called upon to support election efforts by political parties. A plausible approach is to separate the commercial and regulatory functions of the port authority. The current organisation sees the port authority being both a regulator and operator. This could present a situation where there is conflict of interest. In the case for Sant Lucia, airport and seaport regulatory and commercial operations come under a single entity. However, taking this approach will require political will and relevant Acts of Parliament to be amended. Any reforms will also need to be done by working through the port labour unions. With the split, the port authority can focus on regulatory work while the commercial entity can operate on concessions awarded by the port authority.

Secondly, there are calls to improve conduct of businesses with the port through electronic means. The port terminal operating system should be complemented by a port community system. The concerns are with cost, remote connection, and service support. With the port community system, speed of receiving invoices can be accelerated with the process made electronic. It will also be unnecessary to pick up invoices at the port. SLASPA is looking to set up a port community system in the current financial year.

Thirdly, there is a need to have a fundamental review of current port capacity and its capability of meeting the needs over the medium to long term in the country. A pre-feasibility study was commissioned by SLASPA and funded by the Caribbean Development Bank to evaluate relocating container and general cargo operations to Cul De Sac (see **Figure 40**). The study for SLASPA was recently completed. It

Figure 40: Potential Location of New Cargo Terminal Cul De Sac, Saint Lucia

Source: International Consultant, using map data from Google Maps.

appears the pre-feasibility study may not have taken full consideration of potential issue of siltation with proximity to the mouth of Cul De Sac River. Other aspects which the pre-feasibility study would need to consider are the impact of vessel operations including potential turning radius required for ship traffic using the existing Buckeye St Lucia Terminal and the new cargo terminal. Considerations should also be given to hinterland connectivity and potential impact on road traffic.

Cul De Sac was also mentioned by several stakeholders to be a suitable location to serve as a logistics hub due to its proximity to the main consumption centre of Castries, as well as the flat terrain. The new terminal will be located approximately 11km from the current commercial port at Castries. Suggestion is to have further investigation before construction works begin. In the discussion on terms of reference which a following feasibility study should contain, suggestions will be to include traffic forecasts for container and breakbulk cargo, projections for vessel traffic, port design and layout, berth design and layout, approach planning for vessel traffic, efficiency and productivity indicators linked to terminal operations, terminal operating system and port community system operating considerations, and ancillary services for logistics activity taking place in the port among other aspects. The feasibility study should also include economic impact analysis, traffic impact analysis, and environment impact analysis. Social impact of the port would be included in the economic impact analysis.

The fourth issue relates to having a national single window system. Stakeholders in the trade, transport and logistics community of the country recognise the importance and necessity of having such a system. Discussion with stakeholders in highlighted the need to go fully electronic. Even with ASYCUDA, the work is still done manually. This is despite the information being entered electronically into the system. In addition, it was highlighted during meetings that the ASYCUDA system appears to be unstable as it may not work for once or twice a day, with each downtime lasting for 1-2 hours. As the name suggest, a national single window will provide a single platform for all relevant parties involved in international trade. It will coordinate and process documents for a suite of government agencies without having to submit documents manually to each department for processing and clearance.

On the fifth issue which relates to training and education, stakeholders in the country highlighted the need for better access to education in the area of logistics and supply chain management courses. Attention should be given to vocational training and higher education opportunities. For higher education, options are the University of West Indies with campuses in Barbados, Jamaica and Trinidad and Tobago. Other options are the US and UK. There is also the possibility of attracting the Caribbean Maritime University based in Jamaica to open divisions in Saint Lucia. The course on shipping and logistics management which was offered by the University of West Indies used to be conducted on-site in Grenada for a few years before being stopped due to COVID. The course has not resumed since then. Based on information available from the University of West Indies, there is a MSc degree programme in Logistics and Supply Chain Management

offered at the university's Cave Hill Campus in Barbados (see **Table 30)**. The postgraduate programme requires a duration of 15-18 months for full time students, or 24-30 months for part time students. Modules included in the programme cover subjects such as logistics and supply chain management, strategic marketing, transportation administration, operations research, logistics and information systems, strategic supply chain management, production management, international trade, and pricing and revenue management. For vocational training, discussions with the community highlighted such training is currently done on an informal basis, relying largely on learning on-the-job. As such, there should be avenues where formal training can be provided.

Table 30: Modules Covered by MSc Programme in Logistics and Supply Chain Management by The University of the West Indies

Course Code	Course Title
LGSC 6000	Logistics and Supply Chain Management I
LGSC 6001	Strategic Marketing
LGSC 6002	Transportation Administration
LGSC 6003	Operations Research I
LGSC 6004	Logistics and Information Systems
LGSC 6005	Strategic Supply Chain Management
LGSC 6006	Operations Research II
LGSC 6007	Production Management
LGSC 6008	International Trade and Exchange
LGSC 6011	Pricing and Revenue Management
LGSC 6014	Logistics and Supply Chain Management II
	LGSC 6010 / BUSA 6001 Computer Simulation Or PTMT 6001 Project Analysis and Appraisal Or PTMT 6023 Project Management Concepts, Frameworks and Processes
	LGSC 6999 Research Paper Or Three electives from the Faculty of Social Sciences

Source: The University of the West Indies (2023) .

For the sixth issue, the concern relates to export promotion. Stakeholders interviewed and surveyed highlighted that using LCL cargo in the region is expensive and difficult. This includes possibilities where the cargo is damaged or goes missing. However, filling a container may pose challenges as there are exporters who may not want to work together. This issue is exacerbated by the lack of 20-foot containers. For the commodity export sector, there are mentions on the need to improve on the quality of the product, packaging and labelling. There could also be similar organisations established on the model of the Grenada Cooperative Nutmeg Association or the Grenada Cocoa Association who performs buying, consolidation, marketing and exporting functions on behalf of farmers in the country.

Last but not least, stakeholders mentioned the importance of having an unbroken cold chain for products. The lack of cold storage facilities and sufficient equipment to handle temperature-controlled products can impede efforts to achieve this. Ideally, temperature should be monitored remotely and throughout the transportation process.

7.2 Key Demand Drivers and Emerging Trends

Having presented the main issues and concerns regarding the transport and logistics sector in Saint Lucia, we shall discuss key demand drivers and emerging trends affecting the industry. These developments can exacerbate weaknesses that are experienced in the supply chain networks or become opportunities that can be capitalised on.

From the perspective of stakeholders in both the private and public sectors, there are two major sets of drivers and trends which operators will be most concerned about. The first set of developments concern the macroeconomic environment which businesses operate within. The second set of developments are related to operational parameters which span the dimensions of market demand, technologies, work conditions, sustainability, environmental protection, and sourcing among other perspectives.

[96] The University of the West Indies (2023) Faculty of Social Sciences – Department of Economics [Online]. Available at: https://www.cavehill.uwi.edu/fss/econ/programmes/postgraduate/msc-logistics-supply-chain-management.aspx (Accessed 19 May 2023).

From the macroeconomic perspective, demand for logistics services is driven largely by the external sector in view of high dependence of the country on international trade in goods and services. As such, economic performances of key trade partners to Saint Lucia become important. Sustained economic growth in trade partners is likely to drive continued demand for exports and thus, logistics activities that support the export sector. On the other hand, strong economic growth in important tourism source markets will lend boost to tourism arrivals and drive tourism-related logistics services. The economy of Saint Lucia is dominated by accommodation and food services activities which are related to the tourism sector. These activities accounted for almost one-fifth of the economy. If we include the contribution from travel agents and tour operators with those of accommodation and food services, given that both sectors are highly related to the tourism trade, their combined GDP will reach almost 25.0% of the economy. For the case of exports, countries in the CARICOM, OECS and major economies in North America, South America and Europe will be of concern to the logistics sector.

Table 31: GDP Growth of Key Trade Partners of Saint Lucia (%)

Country/Economy	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Real GDP Growth					Forecast by IMF			
Organisation of Eastern Caribbean States									
Antigua & Barbuda	3.1	6.9	4.9	-20.2	5.3	6.4	5.5	5.4	4.1
Dominica	-6.6	3.5	5.5	-16.6	6.7	6.0	4.9	4.7	4.3
Grenada	4.4	4.4	0.7	-13.8	4.7	6.0	3.7	4.1	3.6
Montserrat	-3.8	16.5	7.4	-4.0	5.5	-	-	-	-
Saint Kitts and Nevis	0.0	2.1	4.0	-14.5	-0.9	9.0	4.5	3.8	3.0
Saint Lucia	3.4	2.9	-0.7	-24.4	12.2	14.9	3.0	2.2	2.0
Saint Vincent & Grenadines	1.7	3.1	0.4	-5.3	1.4	5.3	6.0	5.0	3.9
Caribbean Community (CARICOM)									
Bahamas	3.1	1.8	1.9	-23.8	13.7	11.0	4.3	1.8	1.6
Barbados	0.5	-1.0	-0.1	-13.3	-0.2	10.0	4.9	3.9	2.8
Belize	-1.7	1.1	4.5	-13.4	15.2	11.4	3.0	2.0	2.0
Bermuda*	3.6	-0.4	0.3	-6.8	5.4	-	-	-	-
Cayman Islands'	3.2	4.3	3.9	-5.7	1.8	-	-	-	-
Guyana	3.7	4.4	5.4	-43.5	20.1	62.3	37.2	45.3	3.4
Haiti	2.5	1.7	-1.7	-3.3	-1.8	-1.7	0.3	1.2	1.5
Jamaica	1.0	1.9	0.9	-10.0	4.6	4.0	2.2	2.0	1.7
Suriname	1.6	4.9	1.2	-16.0	-2.7	1.3	2.3	3.0	3.0
Trinidad and Tobago	-4.7	-0.9	0.1	-7.7	-1.0	2.5	3.2	2.3	2.7
Turks and Caicos Islands	-2.5	5.6	5.3	-26.8	2.1	-	-	-	-
North and South America									
Argentina	2.8	-2.6	-2.0	-9.9	10.4	5.2	0.2	2.0	2.0
Brazil	1.3	1.8	1.2	-3.9	4.6	2.9	0.9	1.5	1.9
Canada	3.0	2.8	1.9	-5.2	4.5	3.4	1.5	1.5	2.2
United States	2.2	2.9	2.3	-2.8	5.9	2.1	1.6	1.1	1.8
Europe									
France	2.3	1.9	1.8	-7.8	6.8	2.6	0.7	1.3	1.9
Germany	2.7	1.0	1.1	-3.7	2.6	1.8	-0.1	1.1	2.0
Netherlands	2.9	2.4	2.0	-3.9	4.9	4.5	1.0	1.2	1.5
United Kingdom	2.4	1.7	1.6	-11.0	7.5	4.0	-0.3	1.0	2.2

*Source: International Consultant, using data from International Monetary Fund (2023) and The World Bank (2023) . * Associate member.*

[97]International Monetary Fund (2023) World Economic Outlook Database [Online].
Available at: https://www.imf.org/en/Publications/WEO/weo-database/2023/April (Accessed 2 May 2023).
[98]The World Bank (2023a) World Development Indicators [Online].
Available at: https://datatopics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).

With reference to **Table 31**, GDP growth of key trade partners in goods and services to the country are listed. The closest region will be other economies in the OECS. Data from The World Bank and IMF showed that while sharp declines in economic growth was seen for several states in 2020, many of them saw positive growth in 2021. For example, Antigua and Barbuda which saw major contraction in its economy by 20.2% in 2020 subsequently recovered by 5.3% in 2021. The exception was Saint Kitts and Nevis which continued to experience negative growth of 0.9% in 2021. Going forward, the IMF projected GDP growth to range mostly from 2.0% to 6.0% for the period 2022 to 2025. Countries in the OECS are expected to see continued expansion of their respective economies and contribute to intra-regional trade.

Looking at the CARICOM countries, the most dramatic performance would be Guyana which saw its economy contract by 43.5% in 2020, followed by recovery of 20.1% in 2021. The country is an important trade partner to Saint Lucia. The IMF expects oil to be a main driver with Guyana projected to see continued strong growth going forward. Other countries with important implications to the logistics sector in Saint Lucia through activities such as imports, exports, and international transport connectivity include Barbados, Jamaica, Suriname and Trinidad and Tobago. For Jamaica, the decline in GDP by 10.0% in 2020 was met with a positive growth of 4.6% in 2021. For Suriname and Trinidad and Tobago however, negative growth continued in 2021 although the rate of decline has softened significantly. A similar observation was made for Barbados where the country has been experiencing negative GDP growth since 2018. The IMF is projecting 2022 to see positive economic performances for these countries with GDP growth ranging largely from 2.0% to 5.0% for the period 2023-2025.

Turning to the region of the Americas, the previous sections have identified the US, Brazil and Argentina to be major trade partners of Saint Lucia. For Argentina, the country had been experiencing negative GDP growth even before the pandemic. However, the effects of COVID-19 led to a massive contraction of 9.9% for the economy in 2020. Nonetheless, the decline was short lived and strong growth was registered in 2021 at 10.4%. The country is projected to see continued strong performance in 2022 with GDP projected to grow by 5.2%. For the remaining three countries, the negative impact of the pandemic on GDP performance in 2020 was reversed as recovery took place in the subsequent year. Recovery in the US was particularly strong at 5.9% for 2021. For the period 2023 to 2025, the IMF projects GDP to grow mostly ranging from 1.0% to 2.0% for these economies.

Moving to Europe, the major trade partners and source of tourism arrivals are the UK, France, Germany and The Netherlands. Of these countries, the UK saw the biggest contraction in its economy by 11.0% in 2020. However, the country also experienced the strongest recovery at 7.5% in 2021. This was followed by France with the second sharpest contraction as well as recovery for the same period. GDP for the country fell by 7.8% in 2020 and recovered by 6.8% in 2021. Economic performances for Germany and the Netherlands were less dramatic with both countries experiencing the same pattern of GDP contraction in 2020 followed by recovery in 2021 as seen for many other economies in the world. However, it is worth noting that the IMF is projecting for Germany and the UK to see negative GDP growth in 2023. For the remaining period to 2025, the IMF is projecting for these economies to grow at 1.0% to 2.2%.

For the second set of drivers and trends that the logistics industry will be most concerned about, they span many dimensions although these are ultimately related to operational issues. Key trends and drivers for this second set of drivers and trends are presented in **Figure 41**. The Logistics Trend Radar 6.0 was developed by DHL and depicts major developments that will impact on the logistics industry. The trend radar was recently updated to reflect insights and perspectives from stakeholders that the company interacts with. Apart from customers and employees of the company, insights were also sought from key opinion leaders from influential think tanks, academics and renowned consultancy firms. Impact on the logistics industry has been classified into those which are high impact and low impact. High impact developments are expected to be revolutionary and potentially disruptive. Low impact developments are seen as evolutionary changes with incremental improvements. The trend radar further identifies the developments by timeline of realisation, distinguished by two time periods, which are those which are likely to occur in 'less than five years' and those that are likely to see maturity or widespread adoption in 5-10 years.

Table 32 shows the list of trends or drivers that are likely to have a high impact on the logistics industry. Those expected to take place within five years are digital marketplaces, omnichannels, stationary robotics, and indoor mobile robots. As mentioned, these developments are expected to be revolutionary and potentially disruptive for the industry. In the case for digital marketplaces, DHL reports seeing B2B players planning to acquire them, and some suppliers have either built or are planning to develop their own platforms. For omnichannels systems, they can empower customers to browse in all channels and choose any channel for to make the product purchase, receive the product, and return the product. For stationary robotics, more logistics companies are realising the benefits of leveraging on such systems for repetitive processes as well as address labour shortages. For indoor mobile robots, the key is to have them deployed at scale to reap the benefits of reduced cost and increase efficiency.

Figure 41: Key Trends in the Logistics Business

Source: Deutsche Post DHL Group (2023)[99].

Table 32: Major Drivers and Trends with High Impact on the Logistics Industry

Driver or Trend	Important Aspects
Impact: High; Realisation: <5 years	
Digital Marketplaces	• Offer suppliers and customers access to larger markets while providing transparency. • Incorporates digital brokerage platforms which match customer demand for products and services with available supply. • Ease of comparing shipping options and pricing. • B2B players are planning to acquire digital marketplaces; some suppliers have built or are planning to build their own platforms.
Omnichannel	• Omnichannel systems empower customers to browse in all channels and choose any channel for product purchase, product receipt, and return. • Requires seamless integration of offline and online channels with clear focus on the end customer. • Important components are a fully integrated fulfilment centre, order management system, transport management system, and inventory management system. • Ideal omnichannel logistics network needs active communication, visibility, and coordination among many players and engagement point with customers.
Stationary Robotics	• Comprises all robots that undertake value-added tasks from a fixed location. • Logistics companies are recognising the benefits of having stationary robots for repetitive processes, especially in view of warehouse labour shortages which is exacerbated by volatility in demand. • Market for robotic arms projected to grow from USD26.2 billion in 2021 to USD74.4 billion by 2029.
Indoor Mobile Robots	• Includes various types of portable robots which fulfil tasks mainly inside facilities without the need for direct input from human operators. • Automated guided vehicles (AGVs) follow predetermined invisible or visible paths while the next-generation successors autonomous mobile robots (AMRs) use real-time path planning and thus can move freely around obstacles. • Have enormous potential to reduce cost and increase efficiency when deployed at scale.

[99]Deutsche Post DHL Group (2023) 'The Logistics Trend Radar', Insights & Innovation [Online].
Available at: https://www.dhl.com/global-en/home/insights-and-innovation/insights/logistics-trend-radar.html (Accessed 18 May 2023).

Table 32: Major Drivers and Trends with High Impact on the Logistics Industry (cont'd)

Driver or Trend	Important Aspects
Impact: High; Realisation: 5-10 years	
Supply Chain Diversification	• Reconfigure supply chain to broaden supplier ecosystem and increase manufacturing and distribution networks. • Aim to improve resilience, responsiveness, agility and competitiveness. • Product of geopolitical tensions.
Circularity	• Aims to eliminate pollution and waste by considering the full product life cycle and seeking to reuse, repair, recycle and remanufacture products as much as possible. • Logistics is an essential partner and backbone of circularity.
Decarbonisation	• Movement to reduce amount of CO2 and equivalents in the atmosphere. • Will have high impact on supply chains as many segments have to be adjusted to eliminate CO2 emissions from operations. • Pressure to decarbonise is also coming from B2B and B2C customers.
Alternative Energy Solutions	• Includes technologies and related infrastructure that harness, store, and use energy from inexhaustible and/or renewable sources. • Trend is seeing conventional fossil energy systems being replaced by those which rely on wind, water, sunlight, geothermal and other sources. • UN roadmap for clean energy aims to reduce share of fossil fuels in global energy mix to 30% by 2030.
Outdoor Autonomous Vehicles	• Includes self-driving robots operating mainly outside on land or water. • Focus is on vehicles that are highly automated with occasional control by the human driver, or completely driverless. • Requires societal confidence and will take some time before regulations permit unhindered application on a global scale.

Source: International Consultant, using information from Deutsche Post DHL Group (2023)[100] .

The next set of trends and drivers are seen to have a moderate impact on the logistics industry (see **Table 33**). For developments that are likely to see realisation within five years, they include the need to have a new generation of technologies that focus on proactive cyber defence (i.e., Cybersecurity 2.0), 'smartification' of assets, harnessing large quantities of structured and unstructured data for big data analytics, use of smart labels, use of next-generation packaging, and adoption and proliferation of edge computing to aid logistics solutioning. For developments likely to see realisation in 5-10 years, they include widespread adoption of blockchain technology in logistics transactions, use of drones, use of computer visioning, use of a physical internet where logistics processes can be further integrated and synchronised, and widespread embrace of environmental stewardship.

Table 33: Major Drivers and Trends with Moderate Impact on the Logistics Industry

Driver or Trend	Important Aspects
Impact: Moderate; Realisation: <5 years	
Cybersecurity 2.0	• Next generation of processes, solutions and operating rules that leverage on AI and other advanced technologies to protect critical systems, devices and sensitive information against cyberthreats. • Trend of rising spate of incidents require new levels of resilience and focus on proactive defence as the digital backbone of the organisation.
Smartification	• Process of having previously disconnected analog assets retrofitted with wireless technologies and sensors to make them 'smart' and connected. • Drives visibility and transparency to allow data-driven decision making. • Number of connected devices in the world is anticipated to grow exponentially.
Big Data Analytics	• Analysis of large quantities of data that encompasses descriptive, diagnostic, predictive and prescriptive big data analytics. • Leverages on structured and unstructured data. • Logistics companies are harnessing big data to drive strategic decisions.
Smart Labels	• Use of labels with special intelligent inlay technology which can communicate more information than conventional printed physical labels. • Technologies integrated in such labels include radio frequency identification (RFID), time-temperature indicators (TTIs), near-field communication (NFC), and quick response (QR) codes. • Value of smart labels expected to grow from USD9.5 billion in 2022 to reach USD24.8 billion by 2030.

[100]Ibid.

Table 33: Major Drivers and Trends with Moderate Impact on the Logistics Industry (cont'd)

Driver or Trend	Important Aspects
Next-Generation Packaging	• Refers to evolving changes in materials that are used for packaging and technology that is added to the packaging. • Trend will incorporate aspects of sustainability and using materials that are more bio-based, reusable, recyclable and biodegradable. • Next-generation packaging solutions allow cargo owners to track shipment locations, monitor package condition, and receive notifications if the package is being tampered with.
Edge Computing	• Decentralisation of IT architecture, which allows computer processing to be brought closer to sensors and other sources of data (i.e., at the edge of a network), away from remote data centres and cloud servers. • Volume of data generated by IoT devices is growing too quickly for traditional data centre infrastructures to cope. • Platooning of trucks is likely to be the first use cases.
Impact: Moderate; Realisation: 5-10 years	
Blockchains	• Development, implementation and management of decentralised and digitally recorded ledgers which are distributed across networks. • Blockchain technology can become a single source of truth for the user. • Challenge is to coordinate and collaborate among many players in a typically disjointed logistics ecosystem.
Drones	• Also known as 'unmanned aerial vehicles or UAVs'. • UAVs can be embedded with sensors and transceivers for navigation and control, which advanced versions capable of operating autonomously beyond visual line of sight. • Companies ranked 'saving time' and 'improving work safety' as the top two reasons for using drones.
Computer Vision	• Using cameras to capture videos or photos and apply AI algorithms to analyse data extracted from the digital imagery. • Rudimentary visual AI systems can be trained to differentiate objects while more advanced versions are being developed to track objects across viewpoints and learn on their own.
Physical Internet	• Logistics in the physical world is fragmented. • Some standardisation exists such as the 20-foot container. • Industry leaders imagine a world where logistics processes can be further integrated and synchronised. • Need to shift from closed to open networks.
Environmental Stewardship	• Major behavioural changes across industries, societies and governments to maximise environmental protection and minimise degradation. • Many players are just beginning to embrace environmental stewardship.

Source: International Consultant, using information from Deutsche Post DHL Group (2023)[101].

Last but not least, we present the list of drivers and trends that are expected to have a mild impact on the logistics industry (see **Table 34**). Low impact developments are seen as evolutionary changes with incremental improvements. It may also be the case that they are already in advanced stages of development and/or beginning to see widespread adoption across the industry. Hence the anticipated impact is likely to be mild. For trends and drivers that are expected to see realisation within five years, we have quick commerce which saw particularly strong growth in urban areas during the pandemic, prospects offered by specialised needs of the silver economy, mass personalisation of shipping experiences, remote work and teleoperation, wearable sensors, integration of cloud computing and web-based services, proliferation of extended reality, adoption of next generation wireless technology, interactive AI, exoskeletons, and greater inclusivity of women in logistics roles. For developments that are expected to see realisation beyond five years, they include sharing economy, digital twins, 3D printing, bio-based materials, tube systems, quantum computing, space economy, metaverses, and everything as a service. See the table for details on each driver and trend.

Table 34: Major Drivers and Trends with Mild Impact on the Logistics Industry

Driver or Trend	Important Aspects
Impact: Mild; Realisation <5 years	
Quick Commerce	• Also referred to 'on-demand delivery', is e-commerce with convenience in online ordering, accuracy of order fulfilment, and speedy delivery. • Particularly strong growth in urban areas during the pandemic. • Applied mainly to B2C fulfilment and last-mile segments of the supply chain.
Silver Economy	• Specialised needs and demands of growing elderly population around the world. • Involves redesigning work practices and processes to cater to an ageing workforce.

[101] Ibid.

Table 34: Major Drivers and Trends with Mild Impact on the Logistics Industry (cont'd)

Driver or Trend	Important Aspects
Impact: Mild; Realisation <5 years	
Mass personalisation	• Creation of highly personalised experiences which can be applied on a mass scale. • Personalised shopping can create significant impacts on consumer behaviour. • Limited application in B2B logistics settings.
Remote Work and Teleoperation	• Refers to notion that employees can work from their homes and different workplaces to get the tasks completed. • Companies are increasingly using devices that can be operate remotely, and adopting use of autonomous moving vehicles, robotic technologies, and digital twins.
Wearable Sensors	• Includes sensors that are worn on or being close to the human body for purpose of tracking vital functions or body movement. • Valuable data can be obtained from employees to make work environments more efficient and safer.
Cloud and APIs (Application Programming Interfaces)	• Growing integration of cloud computing and using web-based services to exchange and store data online instead of on-premise solutions. • Examples include third-party payment processing (e.g., PayPal), and location services (e.g., routing option via Google Maps). • E-commerce is an area with good prospects for implementation with benefits including lower administrative costs.
Extended Reality	• Also known as 'XR', encompasses different experiential technologies such as augmented reality (AR) and virtual reality (VR). • Through AR, the environment around us can be enhanced by overlaying our physical world with digital content. Consumers can use AR to view products in 3D or try on virtual clothes before making a purchase. • Through VR, the digital environment can simulate real-life experiences such as trying on products or visiting a store from consumer's home.
Next Generation Wireless	• Develop and implement evolutionary wireless communication technologies and the supporting infrastructure. • Expected to be close to realisation as they already exist. • Adoption is beginning to accelerate across supply chains around the world
Interactive AI	• Involves AI algorithms which can process human user input such as speech and text and offer a reasonable response. • Chatbots are becoming useful tools to engage with customers.
Exoskeletons	• Involves wearable devices developed to support and enhance human physical capabilities. • Preventing workplace injuries while increasing worker health and happiness.
Diversity, Equity, Inclusion, Belonging	• Also known as 'DEIB', refers to working jointly to improve social responsibility within organisations. • Realms which were previously predominantly male are seeing greater inclusivity of women in various roles.
Impact: Mild; Realisation 5-10 years	
Sharing Economy	• An ecosystem where businesses and consumers temporarily share, borrow or rent assets or services rather than buy and own them. • Typically facilitated by digital platforms to connect demand and supply. • Yet to see revolutionary industry-changing solutions for the logistics industry.
Digital Twins	• Encompasses virtual models which mirror the real-time behaviours and conditions of physical objects and processes. • Will take some time for digital twins to move from individual applications to whole ecosystems. • Ultimate digital twin for logistics would be real-time replica of the entire supply chain network.
3D Printing	• Also known as 'additive manufacturing', where a 3D object is fabricated using physical materials from a digital model file. • World of widespread 3D printing being still in the early stages.
Bio-Based Materials	• Encompasses materials produced exclusively using substances derived from modern bio-synthetic processes as well as traditional sustainable biomass. • Logistics companies are seeking to eliminate materials seen as unsustainable from daily operations to reduce waste.
Tube Systems	• Major behavioural changes across industries, societies and governments to maximise environmental protection and minimise degradation. • Many players are just beginning to embrace environmental stewardship.
Quantum Computing	• Next-generation transport networks that offer unimpeded transit from one location to another using tubes or tube-like systems. • Hyperloops can provide quick delivery opportunities especially when urban road traffic continues to worsen.
Space Economy	• Encompasses all activities of exploring, utilising and administrating space. • Space economy projected to become the next USD1 trillion market. • Space logistics projected to generate more than 20% of total revenue from the space economy.

Table 34: Major Drivers and Trends with Mild Impact on the Logistics Industry (cont'd)

Driver or Trend	Important Aspects
Metaverses	• Encompasses virtual worlds which exist in parallel with physical reality. • Users adopt avatars to live and experience their digital lives. • Relatively distant in terms of realisation, being in a nascent stage.
Everything as a Service (or Anything as a Service)	• Known as 'XaaS' or 'servitisation', is the shift to vending of services where the customer pay on per-unit basis such as amount of time utilised. • XaaS business models will redefine asset management to provide a more flexible customer experience

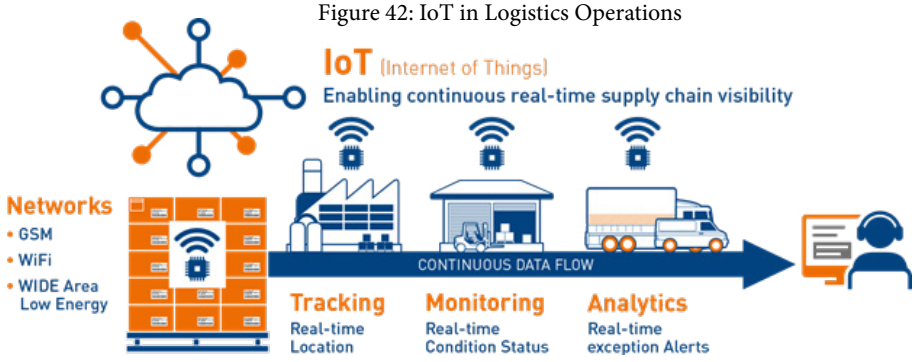
Source: International Consultant, using information from Deutsche Post DHL Group (2023)[102].

Notwithstanding the aforementioned drivers and trends, there are five important developments to watch in the near term. Firstly, inflation and tight budgets will impact logistics demand significantly as prices for goods rise. This could see fewer purchases and therefore lower revenue for the supply chain. Customers across the value chain are likely to look for discounts, deals and various ways to save money. Secondly, personalisation is going to become the biggest logistics trend. Through personalisation of logistics services, customers can be given tailored experiences based on their needs. At the individual level, we are already experiencing some degree of this by the YouTube Channels that pop up in our digital devices. Evolvement of technology in this aspect should see greater targeted approach in reaching customers by using data to create unique selling propositions and develop customer loyalty. This is especially critical in view of intensifying competition with impending global economic downturn.

Thirdly, use of AI logistics and supply chain management is expected to grow with manual processes increasingly replaced by automated systems which have started to incorporate AI. As mentioned, the supply chain itself is a goldmine of structured and unstructured data. AI can be defined as simulating human intelligence processes through machines such as computer systems[103] . Applied to logistics, AI can be applied to enhance logistics experience by lowering costs of transportation, enable faster processing, increase reliability, and decide optimal routes for last-mile deliveries. In the near future, humans and robots will work together where robots take care of repetitive data-related tasks while humans are involved in more complex tasks that include interpretation and decision making. This will also shift logistics workforces to higher value-added and more meaningful work. Given the intense competition prevailing in the logistics industry, satisfaction of customers and employees becomes a key battleground for business success.

Fourthly, Internet of Things (IoT) will see greater proliferation and adoption in supply chain management. With reference to **Figure 42**, IoT allows assets to be tracked between premises of the vendor from the manufacturing facility. Analysing data created by tracing and tracking assets allows companies to identify patterns, make predictions for consumer preferences, and determine potential breakdowns in advance in the supply chain. Location-based data captured by IoT in logistics technologies enables companies to ensure quality of goods right from the manufacturing facility to the time it arrives at the destination. This information will be extremely important for perishable goods and temperature sensitive shipments. For example, location-based data can help companies determine the exact point where quality of the product may have deteriorated. Ability to monitor temperature throughout the shipment process allows companies to maintain quality of the goods involved. A system can notify respective personnel should there be a fluctuation in the temperature. IoT-based technologies also allow capturing of data related to environmental factors such as pressure, humidity, and light exposure. Real-time location data thus provides a more insightful understanding of every link in the supply chain network.

Figure 42: IoT in Logistics Operations



Source: Barun (2018)[104] .

[102]Ibid.
[103]The European Business Review (2021) 'AI in Logistics: How artificial Intelligence is Transforming the Logistics Industry', The European Business Review, 4 October [Online]. Available at: https://www.europeanbusinessreview.com/ai-in-logistics-how-artificial-intelligence-is-transforming-the-logistics-industry/ (Accessed 18 May 2023).
[104]Barun, S. (2018) 'The Internet of Things (IoT) and its impact on Supply Chain Visibility', LinkedIn, 7 December [Online]. Available at: https://www.linkedin.com/pulse/internet-things-iot-its-impact-supply-chain-barun-sarkar (Accessed 18 May 2023).

Meeting demand is an important efficiency metric for the supply chain sector. However, application of IoT technologies for logistics and supply chain management is not limited to technical aspects. The same technologies can offer insights that improve ability of forecasting demand. Data captured through IoT can provide better understanding of customer needs, customer behaviour, product usage, and product demand. IoT devices can offer data which is much more than the simple Point-of-Sales data. Hence, IoT can make it easier for businesses to interpret customer perspectives.

Fifthly, data analytics is expected to further transform the logistics business. Valuable insights gained will enable industry players to optimise routing, streamline factory functions and obtain transparency to the entire supply chain for benefit of cargo owners and logistics companies. For data analytics to be optimised, the company will need to digitalise critical operations. The logistics industry is undergoing many developments. Adapting to challenges and opportunities brought about by the new digital environment allow companies to access better and new data and employ them for more robust applications. This is likely to lead to more efficient supply chain operations.

The demand drivers and trends presented cover a wide spectrum of dimensions and issues. This is inevitable with the all-encompassing and cross-cutting nature of the logistics industry which transcend many aspects of society at the government, business, and individual levels. It is worth remembering from the previous analyses that the logistics sector is an important anchor on which competitiveness of several industries and societies depends upon.

7.3 Indicators to Assess Logistics Performance

Having analysed the challenges and issues concerning the logistics sectors in Saint Lucia, and key demand drivers and emerging trends, this section of the chapter shall discuss logistics performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions. The discussion makes reference to the framework of the Logistics Performance Index (LPI) from The World Bank[105]. The LPI for 2023 comprises six dimensions of trade. These are:

- Customs: efficiency of customs and border management clearance;
- Infrastructure: quality of trade and transport infrastructure;
- Arranging shipments: ease of arranging competitively priced shipments;
- Logistics services: competence and quality of logistics services (trucking, forwarding and customs brokerage);
- Track and trace: ability to track and trace consignments; and
- Timeliness: frequency with which shipments reach consignees within scheduled or expected delivery times.

To measure logistics performance for Saint Lucia, the study leveraged on the dimensions considered in the 2023 LPI study by the World Bank and included three other dimensions based on information gathered from desktop research. These are:

- Security: security of shipments handled;
- Tariffs: tariffs which are transparent and consistently applied; and
- Regulatory framework: fair and clear regulatory framework that provides a level playing field.

While no new index was created, the study rode on the LPI framework which was developed by the World Bank and included three additional dimensions to assess logistics performance for Saint Lucia. Furthermore, the focus of the study is to identify gaps that are seen to require urgent attention by the logistics and transport communities in the country. For this purpose, survey exercises were conducted over the period of March and April 2023. The surveys were conducted using both emails and through face-to-face interviews. Survey forms were sent out to 155 companies/organisations. Responses were received from 32 entities which yielded a response rate of 20.6%.

The logistics communities were asked to rate a list of logistics performance attributes in terms of their importance to the organisation or company, followed by their views on its performance for that country. The scores for Saint Lucia are shown in **Table 35**. Respondents from Saint Lucia rated supply chain attributes to be "very important". Highest scores were seen for the aspects of efficiency of customs and border management clearance, and having a fair and clear regulatory framework that provides a level playing field. Scores given for the two attributes were close to the rating of "extremely important". In fact, many respondents in Saint Lucia gave this rating to the attributes. Competence and quality of logistics services also received high scores, ranging it close to the rating of "extremely important". However, scores received for views on their performance were generally much lower. Only the attributes of customs, competence and quality of logistics services, security, tariffs and regulatory framework received ratings which classified them as being "adequate".

[105]Ibid.

Table 35: Logistics Performance for Saint Lucia Based on Survey Results Conducted as Part of Logistics Chain Study

Supply Chain Attributes*	(A) Importance to Company/ Organisation**	(B) Performance for Saint Lucia***	(B) – (A)
Components of Logistics Performance Index by The World Bank			
Efficiency of customs and border management clearance ("customs")	4.81	3.12	-1.69
Quality of trade and transport infrastructure ("infrastructure")	4.69	2.62	-2.08
Ease of arranging competitively priced shipments ("international shipments")	4.08	2.54	-1.54
Competence and quality of logistics services (inclusive of trucking, forwarding and customs brokerage) ("logistics competence and quality")	4.77	3.15	-1.62
Ability to track and trace consignments ("tracking and tracing")	4.65	2.88	-1.77
Frequency with which shipments reach consignees within scheduled or expected delivery times ("timeliness")	4.69	2.92	-1.77
Additional Components Proposed Based on Desktop Research			
Security of shipments handled ("security")	4.65	3.19	-1.46
Tariffs which are transparent and consistently applied ("tariffs")	4.69	3.23	-1.46
Fair and clear regulatory framework that provides a level playing field ("regulatory framework")	4.81	3.00	-1.81

*Source: International Consultant and National Consultant, based on results of survey conducted from 14 March to 19 April. * Based on 21 responses. ** 1 – not important; 5 – extremely important. *** 1 – very poor; 5 – very good.*

The attributes of international shipments and infrastructure received the lowest scores at 2.54 and 2.62 respectively. When comparing ratings on the importance of the attribute to the company or organisation versus their performance for Saint Lucia, we found the largest gap to be quality of trade and transport infrastructure at 2.08 points difference. This was followed by having a fair and clear regulatory framework that provides a level playing field (1.81s point difference). Considerable differences between level of importance and views on actual performance were also observed for the attributes of ability to track and trace consignments and frequency with which shipments reach consignees within scheduled or expected delivery times.

We proposed for regular assessments using this approach to ascertain the effectiveness of policy and practical responses to improve the state of transport and logistics performance in the country. The usefulness of the approach is that it draws on the methodology of the LPI study by the World Bank and is further tailored to identify priority areas of concern by stakeholders in the country.

The logistics community in Saint Lucia was also asked to rate the quality of service for the main seaport and airport of the country. Focus was on performance for the ports of Castries and Vieux Fort, and the Hewanorra International Airport (UVF) and George F. L. Charles Airport (SLU). The overall score given to the Port of Vieux Fort was higher than the score for the Port of Castries (see Table 36). Respondents generally viewed performance of the Port of Castries to be inadequate. Nonetheless, the Port of Castries was found to have higher scores than Vieux Fort for the areas of transport capacity by vessels, frequency of service by vessels, reliability of service by vessels, and ability to track and trace cargo.

Table 36: Performance for Ports of Castries and Vieux Fort in Saint Lucia

Attribute	Score for Port of Castries*	Score for Port of Vieux Fort*
Quality of cargo-handling service	2.89	4.14
Security provided to cargo	3.16	4.14
Transport capacity by vessels	3.84	3.43
Frequency of service by vessels	3.32	3.00
Reliability of service by vessels	3.16	3.00
Reliability of service by port operator	2.63	4.00
Ability to track and trace cargo	3.00	2.86
Information technology capability	2.63	3.14
Overall service quality by the port	**2.68**	**3.57**

*Source: International Consultant and National Consultant, collated from results of survey conducted from 14 March to 19 April. * Based on 19 responses for Port of Castries and seven responses from Port of Vieux Fort (1 – very poor; 3 – adequate; 5 – very good).*

For the Port of Castries, respondents highlighted the need to have reliable port equipment, remaining open during lunch, having additional berths, and having adequate space to store containers. This is attributed largely to priority given to cruise traffic which exacerbated berth congestion and heavy land traffic especially during the cruise season. Delays to vessel operations often result, although these can also occur due to industrial action too. For the Port of Vieux Fort, respondents generally felt the port to have smoother operations compared to the facility at Castries. Nonetheless, vessel delays can also occur due to bad weather and delays occurring from previous port-calls.

Table 37: Performance for Airports in Saint Lucia

Attribute	Score for UVF*	Score for SLU*
Quality of cargo-handling service	3.86	4.33
Security provided to cargo	4.00	4.33
Transport capacity by airline flights	3.43	2.67
Frequency of service by airline flights	3.86	3.00
Reliability of service by airlines	3.57	3.33
Reliability of service by airport operator	3.57	4.00
Ability to track and trace cargo	3.14	4.00
Information technology capability	3.29	4.00
Overall service quality by the airport	**3.43**	**4.67**

*Source: International Consultant and National Consultant, collated from results of survey conducted from 14 March to 19 April. * Based on seven responses for UVF and three responses for SLU Fort (1 – very poor; 3 – adequate; 5 – very good).*

Turning to the airport sector in Saint Lucia, the George F. L. Charles Airport received higher scores compared to Hewanorra International Airport. As a whole, performances in the airport sector were relatively better with scores ranging from "adequate" for UVF to "good" for SLU. The only area where many respondents rated as "inadequate" for SLU was transport capacity by airline flights. UVF was found to receive better scores than SLU for the areas of transport capacity by airline flights, and frequency and reliability of service by airline flights. Scores for various attributes of airport performance are shown in Table 37. Respondents noted that both airports have generally performed well for cargo operations. However, respondents named lack of cold storage space and high freight charges as areas that need improvement. For reasons that led to delays in flight operations, these were attributed to bad weather and technical issues. Responses obtained from the survey were used to develop and prepare for workshops that were held in both countries in April 2023. Results of the workshops are presented in the next chapter.

7.4 Chapter Summary

The chapter presents critical demand drivers and emerging trends relevant for the transport and logistics sector in Saint Lucia. This addresses the fourth objective of the study. Performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions are also proposed.

The chapter gave a recap of challenges faced by the transport and logistics sector in the country. For shipping and operations, concerns are with limited shipping connectivity, priority given to cruise operations, inadequate capability of the port to handle mainline containerships, expensive shipping and port charges, archaic port tariffs, inefficiencies with berthing and yard operations, damaged containers, lack of empty containers, and inefficient customs operations and processes. For flight network and airport operations, concerns are with limited flight connectivity, flight delays and cancellations, lack of cold storage facilities, and inefficient customs operations and processes. For land transportation, concerns are with traffic congestion, poor condition of roads, and road infrastructure as a whole.

In addition to these issues, there were other concerns gathered from stakeholders. Firstly, there is the issue with port labour. Discussions with various stakeholders in the country indicate there is significant scope for improvements for stevedoring services. Secondly, there are calls to improve conduct of businesses with the port through electronic means. Thirdly, there is a need to have a fundamental review of current port capacity and its capability of meeting the needs over the medium to long term in both countries. The fourth issue relates to having a national single window system that allows for full electronic transactions. The fifth issue relates to training and education in the area of logistics and supply chain management. The sixth issue relates to export promotion. Last but not least, stakeholders mentioned the importance of an unbroken cold chain for products.

For stakeholders in both the private and public sectors, there are two major sets of drivers and trends of concern. The first set of developments concern the macroeconomic environment which businesses operate within. Demand for logistics services is driven largely by the external sector with high dependence of the country on international trade. As such, economic performances of key trade partners are important concerns. This will be other countries in the OECS, CARICOM and major economies in North America, South America and Europe.

The second set of developments relate to operational parameters which span the dimensions of market demand, technologies, work conditions, sustainability, environmental protection, and sourcing among other perspectives. Based on the Logistics Trend Radar 6.0 developed by DHL, the list of trends or drivers that are likely to have a high impact on the logistics industry especially within five years are digital marketplaces, omnichannel, stationary robotics, and indoor mobile robots. For trends or drivers that will take 5-10 years to reach realisation, they include supply chain diversification, circularity, decarbonisation, alternative energy solutions, and outdoor autonomous vehicles.

Trends and drivers seen to have a moderate impact on the logistics industry include cybersecurity 2.0, smartification, big data analytics, smart labels, next-generation packaging, edge computing, blockchains, drones, computer vision, physical internet, and environmental stewardship. For the list of drivers and trends that are expected to have a mild impact on the logistics industry, it may be the case that they are already in advanced stages of development and/or beginning to see widespread adoption across the industry.

Notwithstanding the aforementioned drivers and trends, there are five important developments to watch in the near term. Firstly, inflation and tight budgets will impact logistics demand significantly. Secondly, personalisation is going to become the biggest logistics trend. Thirdly, use of AI logistics and supply chain management is expected to grow. Fourthly, IoT will see greater proliferation and adoption in supply chain management. Fifthly, data analytics is expected to further transform the logistics business.

The demand drivers and trends cover a wide spectrum of dimensions and issues. This is inevitable with the all-encompassing and cross-cutting nature of the logistics industry which transcend many aspects of society at the government, business, and individual levels.

Proposed logistics performance indicators that are aligned to the aspects of time, cost and complexity of trade transactions makes reference to the LPI from The World Bank. The community was asked to rate the attributes in terms of their importance to the organisation or company, followed by their views on their performance for that country.

Respondents view the supply chain attributes to be “very important” to their companies or organisations. However, scores received for logistics performances were mostly in the rating of “poor”. The lowest scores were received for infrastructure and international shipments. Results also revealed the biggest gap was seen for the attribute of infrastructure in terms of its importance to the company or organisation and performance for the country.

The logistics community in Saint Lucia was also asked to rate the quality of service for the main seaport and airport of the country. Areas found lacking were reliability of service by port operator, information technology capability, and quality of cargo-handling service. The results also showed the Port of Vieux Fort to be rated higher than the Port of Castries. George F. L. Charles Airport received higher scores compared to Hewanorra International Airport. The only area where many respondents rated as “inadequate” for SLU was transport capacity by airline flights. UVF was found to receive better scores than SLU for the areas of transport capacity by airline flights, and frequency and reliability of service by airline flights.

CHAPT 08 ANALYSIS OF STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT)

SWOT analysis is conducted to assess prospects and potential transport and logistics development strategies for the fourth component of the study (see **Figure 43**). The analysis draws on findings from points (1), (2) and (3) of the study. Intention is to outline core competitive advantages and strengths that are possessed in serving as attractive logistics centres for international trade and market access. The analysis will also propose logistics positioning strategy based on attributes of key transport and logistics infrastructures. The analysis considers the perspectives of manufacturers, traders, freight forwarders and policy makers.

The SWOT analysis draws on findings from desktop research, surveys and field trips made in Saint Lucia. Interviews with stakeholders of the logistics community and site visits lasted from 17-19 April 2023. The site visits and interviews were followed by focus group workshops which were held on 20-21 April at The Harbour Club Hotel.

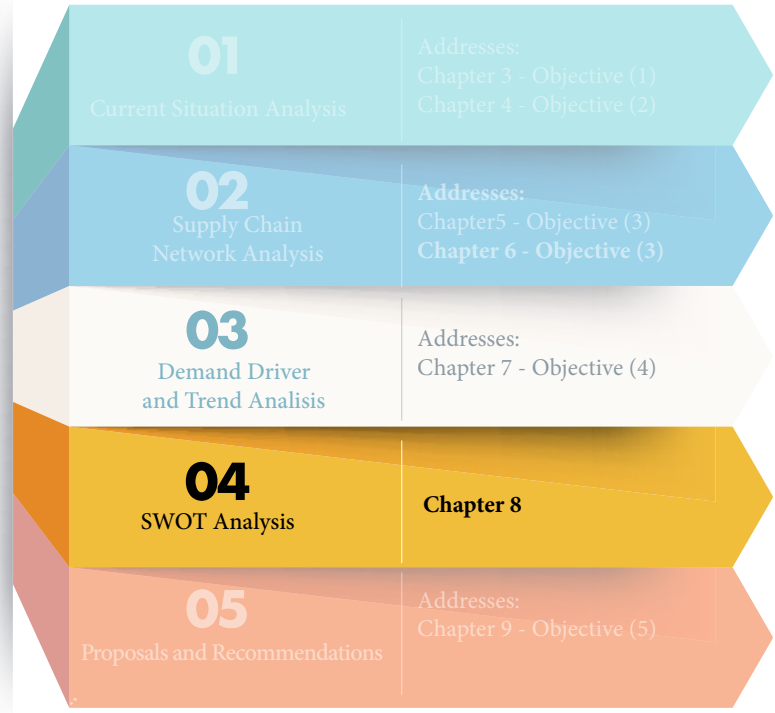
Workshops held were used to validate key observations regarding the transport and logistics sectors. Purpose is to validate key observations made during the interviews and information obtained through background research. There are three groups of entities of interest. The first group consists of manufacturers, importers and exporters where their focus is on specific commodities or products of interest. They are the cargo owners who require logistics services to be performed. Their emphasis will be on expedient, reliable, cost-efficient, and secure handling of their cargo. The second group consists of logistics service providers who include customs brokers, shipping lines and trucking companies among others. Their business stems from demand for logistics services by the cargo owners. The third group consists of government entities. They are supposed to drive the policy and regulatory aspects of the logistics sector.

The participants were asked to assess a set of aspects pertaining to strengths, weaknesses, opportunities, and threats (SWOT) facing the logistics sector in the country. The list of aspects presented in worksheets disseminated during the workshops were obtained from desktop research conducted before the field trip and responses from surveys submitted by various stakeholders of the logistics sector. Worksheets used for workshops in Grenada can be found in **Annex 3.**

8.2 SWOT Analysis for Saint Lucia

Views gathered from workshop participants in Saint Lucia with the top aspects from each SWOT dimension is shown in Table 38. Stable currency, business environment and tax regime received the highest scores from participants at the workshops from the perspective of **strengths**. This was followed by competitive tourism cluster and

Figure 43: Framework for Proposed Approach to the Study – SWOT Analysis



Source: International Consultant.

exports of beverages that benefited logistics activities. Having a stable political environment was also cited as an important strength. For **weaknesses**, participants highlighted poor road network and conditions and ageing port infrastructure as top concerns. Other weaknesses which received high scores were limited cargo volumes, truck traffic congestion at the port, and unreliable port equipment.

Regarding **threats**, the top concern was failure to develop an export-oriented economy. This will contribute partly to the second major threat to the logistics sector in Saint Lucia which is insufficient cargo volumes to grow transport connectivity to overseas markets. Participants also highlighted failure to coordinate, manage and bring much needed changes to the logistics sector, heavy reliance on the US market, and climate change impacting on growing season as major threats. Consolidated views from participants at the workshops ranked developing and growing the e-commerce sector as the top **opportunity** to work on. This was followed by training and education to develop logistics and supply chain management skills, developing a National Single Window for customs and border processes, adopting technology such as use of IoT devices for tracking and tracing shipments, positioning Saint Lucia as the container transhipment hub for the Caribbean, and improving logistics performance in the area of cost for greater competitiveness.

Table 38: Consolidated Views from Workshop Participants in Saint Lucia for Key SWOT Aspects

Strengths	Weaknesses	Threats	Opportunities
#1 Stable currency	#1 Inadequate road network and poor road conditions	#1 Failure to develop an export-oriented economy	#1 Develop and grow the e-commerce sector
#2 Stable business environment and tax regime	#2 Ageing port infrastructure	#2 Insufficient cargo volumes to grow transport connectivity to overseas markets	#2 Training and education to develop logistics and supply chain management skills
#3 Competitive tourism cluster generating demand for logistics services	#3 Limited cargo volumes	#3 Failure to coordinate, manage and bring much needed changes to the logistics sector	#3 Develop National Single Window for customs and border processes
#4 Competitive exports of beverages (beer, spirits, liqueurs, alcoholic beverages)	#4 Truck traffic congestion at the port	#4 Heavy reliance on the US market	#4 Adopt technology such as use of IoT devices for tracking and tracing shipments
#5 Stable political environment	#5 Unreliable port equipment	#5 Climate change impacting on growing season	#5 Positioning as the container transhipment hub for the Caribbean #5 Improve logistics performance in the area of cost for greater competitiveness

Source: International Consultant and National Consultant, collated from results of workshops conducted from 20 to 21 April.

Details of scores obtained for views on strengths, weaknesses, threats and opportunities for the logistics sector in Saint Lucia are shown in **Annex 4**. As with the analysis made in the previous section, the scores are tabulated for responses given for aspects that require immediate attention or action to be taken within five years. Having presented the consolidated views from stakeholders of the logistics community in the country, the following paragraphs shall discuss perspectives gathered from each group of participants who are differentiated by their interests and roles in the logistics and supply chain sector.

Analysis by individual groups of participants revealed a general consensus for major **strengths** possessed by Saint Lucia which can benefit the logistics sector. The three participant groups rated highly stable currency, business environment and tax regime, and possessing a competitive tourism cluster and exports of beverages as key contributors to facilitating the logistics trade (see Table 39). However, the view on stable political environment was seen as a major strength by manufacturers, importers and exporters and the government sector whereas logistics service providers rated highly having a competitive and high-quality land transport sector and services as a key strength.

Table 39: Top Five Scoring Aspects for Strengths of Saint Lucia's Logistics Sector

Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
#1 Stable currency	#1 Competitive exports of beverages (beer, spirits, liqueurs, alcoholic beverages)	#1 Stable currency
#2 Stable business environment and tax regime	#1 Stable business environment and tax regime	#2 Stable political environment
#3 Stable political environment	#3 Stable currency	#3 Stable business environment and tax regime
#4 Competitive tourism cluster generating demand for logistics services	#4 Competitive tourism cluster generating demand for logistics services	#4 Competitive tourism cluster generating demand for logistics services
#5 Competitive exports of beverages (beer, spirits, liqueurs, alcoholic beverages)	#4 Competitive and high-quality land transport sector and services	#5 Competitive exports of beverages (beer, spirits, liqueurs, alcoholic beverages)

*Source: International Consultant and National Consultant, collated from results of workshops conducted from 20 to 21 April. * Aspects ranked in the top positions which are common across the three groups of participants have been highlighted.*

Table 40: Top Five Scoring Aspects for Weaknesses of Saint Lucia's Logistics Sector

Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
#1 Inadequate road network and poor road conditions	#1 Inadequate road network and poor road conditions	#1 Inadequate road network and poor road conditions
#2 Limited berths for vessels	#2 Truck traffic congestion at the port	#2 Ageing port infrastructure
#3 Ageing port infrastructure	#3 Ageing port infrastructure	#3 Limited investment opportunities with export potential
#4 Limited cargo volumes	#3 Unreliable port equipment	#4 Lack of cold storage facilities
#5 Port prioritising cruise traffic	#5 Port prioritising cruise traffic	#5 Limited cargo volumes
	#5 Limited cargo volumes	#5 Limited coordination and cooperation between private and public sector

*Source: International Consultant and National Consultant, collated from results of workshops conducted from 20 to 21 April. * Aspects ranked in the top positions which are common across the three groups of participants have been highlighted.*

There was less consensus for major **weaknesses** for Saint Lucia in terms of logistics performance. While the three groups of participants ranked inadequate road network and poor road conditions, ageing port infrastructure, and limited cargo volumes to be among the top five weaknesses for Saint Lucia, there was little agreement on the other aspects (see **Table 40**). Manufacturers, importers and exporters shared the view with logistics service providers that prioritising cruise traffic is a major weakness. However, the former also indicated limited berths for vessels as a major issue faced by the port. Logistics service providers rated highly the weaknesses of truck traffic congestion at the port and unreliable port equipment. These aspects received lower scores from participants from the government sector. Instead, the participants rated highly limited investment opportunities with export potential, lack of cold storage facilities, and limited coordination and cooperation between private and public sector as major concerns for Saint Lucia.

Turning to **threats** facing the logistics sector in Saint Lucia, participants shared the view that major concerns are failure to coordinate, manage and bring much needed changes to the logistics sector, failure to develop an export-oriented economy, and insufficient cargo volumes to grow transport connectivity to overseas markets (see **Table 41**). Manufacturers, importers and exporters also share the view with logistics service providers that heavy reliance on the US market is a key threat facing the logistics sector in Saint Lucia, However, the concern of climate change impacting on growing season which was rated highly by manufacturers, importers and exporters received lower scores from participants from the other groups. Instead, logistics service providers ranked gridlock for truck traffic accessing and leaving the port, lack of skilled logistics professionals, and limited or lack of sufficient cargo-handling capacity and facilities for seaport sector as key aspects that could threaten logistics performance for Saint Lucia. For participants from the government sector, stagnating or slow economic growth in key export markets of the Caribbean, US, Canada and Europe was rated highly as key threats. However, these aspects were given lower scores by participants from the private sector.

Looking at **opportunities** that should be capitalised quickly to benefit the logistics sector in Saint Lucia, participants from the three groups agree that developing and growing the e-commerce sector, training and education to develop logistics and supply chain management skills, and developing a National Single Window for customs and border processes should take top priority for action to be taken (see **Table 42**). Manufacturers, importers and exporters also viewed developing the airport to become an e-fulfilment hub for the Caribbean, upgrading and developing cargo-handling capacity and facilities for seaport sector, and improving logistics performance in the area of cost for greater competitiveness should also be given priority. The last aspect was shared by participants from the government sector. This group of participants also rated highly the need to adopt technology such as use of IoT devices for tracking and tracing shipments, and use of data analytics for data processing and management. While the view on adopting technology for tracking and tracing shipments was shared by logistics service providers, the other key opportunities highlighted by this group are positioning Saint Lucia as the container transhipment hub for the Caribbean, and setting up a free trade zone with proximity to the main cargo centre which is at Castries.

Participants in each of the three focus groups were further asked to identify which export industries Saint Lucia should develop competitiveness in. The results were unanimous across the three groups of participants with agro-processing, production and distribution of local produce receiving the most mention. Products mentioned include sea moss, bananas, mangoes, oranges, breadfruit and herbs among others. For the areas of assistance required for SMEs to improve their supply chain performance, financing, marketing and technical know-how received the most mentions in the three focus groups.

Table 41: Top Five Scoring Aspects for Threats to Saint Lucia's Logistics Sector

Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
#1 Failure to coordinate, manage and bring much needed changes to the logistics sector	#1 Heavy reliance on the US market	#1 Failure to develop an export-oriented economy
#2 Failure to develop an export-oriented economy	#2 Insufficient cargo volumes to grow transport connectivity to overseas markets	#2 Insufficient cargo volumes to grow transport connectivity to overseas markets
#3 Climate change impacting on growing season	#2 Gridlock for truck traffic accessing and leaving the port	#3 Stagnating or slow economic growth in key export market of the Caribbean
#4 Heavy reliance on the US market	#4 Failure to coordinate, manage and bring much needed changes to the logistics sector	#4 Failure to coordinate, manage and bring much needed changes to the logistics sector
#5 Insufficient cargo volumes to grow transport connectivity to overseas markets	#4 Failure to develop an export-oriented economy	#4 Stagnating or slow economic growth in key export markets of the US, Canada and Europe
	#4 Lack of skilled logistics professional (e.g., management, supervisory, operational levels)	
	#4 Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector	

*Source: International Consultant and National Consultant, collated from results of workshops conducted from 20 to 21 April. * Aspects ranked in the top positions which are common across the three groups of participants have been highlighted.*

Table 42: Top Five Scoring Aspects for Opportunities for Saint Lucia's Logistics Sector

Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
#1 Develop and grow the e-commerce sector	#1 Develop National Single Window for customs and border processes	#1 Adopt technology such as use of IoT devices for tracking and tracing shipments
#1 Develop the airport to become an e-fulfilment hub for the Caribbean	#1 Training and education to develop logistics and supply chain management skills	#2 Develop and grow the e-commerce sector
#3 Training and education to develop logistics and supply chain management skills	#1 Positioning as the container transhipment hub for the Caribbean	#2 Adopt technology such as use of data analytics for data processing and management
#4 Develop National Single Window for customs and border processes	#4 Develop and grow the e-commerce sector	#2 Improve logistics performance in the area of cost for greater competitiveness
#5 Upgrade and develop cargo-handling capacity and facilities for seaport sector	#4 Set up free trade zone with proximity to the main cargo centre which is Castries	#5 Develop National Single Window for customs and border processes
#5 Improve logistics performance in the area of cost for greater competitiveness	#4 Adopt technology such as use of IoT devices for tracking and tracing shipments	#5 Training and education to develop logistics and supply chain management skills

*Source: International Consultant and National Consultant, collated from results of workshops conducted from 20 to 21 April. * Aspects ranked in the top positions which are common across the three groups of participants have been highlighted.*

8.3 Strategising the Way Forward for Saint Lucia's Logistics Sector

Focus group workshop participants from Saint Lucia were also asked to discuss possible initiatives or actions that are needed to improve logistics chain efficiency and propose positioning strategies for the sector in the country. They were further asked to identify the lead entity to drive developments for each area specified. Areas deliberated and results of the discussions are presented in **Table 43**.

Based on the recommendations provided in the table, we saw the Ministry of Commerce, Manufacturing, Business Development, Cooperatives and Consumer Affairs receiving the most mentions. This was followed by Export Saint Lucia. The organisation's involvement was highlighted for the areas of growing cargo volume, attracting investments, promoting and growing research and development, and export promotion. The Ministry of Finance, Economic Development and the Youth Economy, Ministry of Infrastructure, Ports, Transport, Physical Development and Urban Renewal, Ministry of Agriculture, Fisheries, Food Security and Rural Development, and Saint Lucia Air and Sea Ports Authority also received several mentions. Other public agencies mentioned are the Ministry of External Affairs, International Trade, Civil Aviation and Diaspora Affairs, Saint Lucia Customs and Excise Department, Ministry of Education, Sustainable Development, Innovation, Science, Technology and Vocational Training, Government Information Technology Services Limited, and Invest Saint Lucia.

Suggested entities to lead efforts to drive developments for each of the areas specified can also come from the private sector. The Saint Lucia Chamber of Commerce Industry and Agriculture received the most mentions. Other private sector entities mentioned included the banking sector and ICT network providers.

Table 43: Proposed Actions or Initiatives to Drive Logistics Sector for Saint Lucia

Area of Concern	Recommended Actions or Initiatives	Proposed Entity(ies) to Drive Development
Promote and Develop Data Processing and Management	• Public and private sector should have access to information for informed decision-making. • Improve internet stability, reliability and coverage for the country. • Aided by having a single window for data processing, management of import and export, trucking, cargo clearance, tracking of products. • Need data and privacy legislation and improved data security across Ministries.	Ministry dealing with commerce, chambers, SLASPA, Customs, statistics department
Grow Cargo Volume	• Increase exports of local produce (e.g., bananas) with market penetration for Canada and EU. • Market the port as a transhipment port to shipping lines. Competitive rates can be offered. • Purchase equipment to ensure quick turnover times.	Ministries dealing with finance, infrastructure and agriculture, Export Saint Lucia, SLASPA
Attract Investments	• Attract investments for industries that depend on low-cost labour, review labour laws and tax holidays. • Attract investments in the agro-processing sector by providing support for infrastructure, packhouses, food processing equipment, freezer, chiller, dryer, packaging, labelling etc.	Export Saint Lucia, Invest Saint Lucia, Ministries dealing with commerce and agriculture
Customs and Border Processes	• Develop risk management system and port community system. • Increase functions in ASYCUDA. • Introduce automation such as EDI and online billing and payments, online cargo releases.	Ministries dealing with finance and commerce, Customs and SLASPA

Table 43: Proposed Actions or Initiatives to Drive Logistics Sector for Saint Lucia (cont'd)

Area of Concern	Recommended Actions or Initiatives	Proposed Entity(ies) to Drive Development
Develop and Grow E-Commerce	• Implement an electronic single window platform; accompanied by financing, legislative enactments, and training and capacity building. • Improve internet infrastructure to facilitate e-commerce; upgrade telecommunication infrastructure for cheaper and more reliable connectivity • Reduction in bank charges to encourage e-transactions	Ministry dealing with commerce, banks, telecommunication regulatory authorities
Training and Education	• Training of customs officers and brokers. • Redesign curriculum and education system with option to pursue vocational training. • Training on more specialised areas such as robotics, automation, artificial intelligence, maintenance and repairs. • Provide infrastructure for higher education (i.e., universities, technical schools) with qualified teachers to handle subject areas that specialises in logistics and supply chain, import and export.	Ministry dealing with education with new unit focusing on TVET and innovation. Public service should have a training division involved, Chambers of Commerce.
Improve Transport Infrastructure	• Develop and maintain a proper network to facilitate easy cargo movement from Castries to Vieux Fort. • Widening of roads in certain communities to better accommodate container traffic. • Sea reclamation for additional lane of road on the Millennium Highway. • Provide agriculture feeder roads. • Establish a regional transportation service for the movement of goods among CARICOM Member States. • Policies to deal with traffic congestion. • Improve road surfaces and getting rid of existing potholes.	Ministry dealing with finance, infrastructure, trade and commerce
Develop New Port for Cargo	• New port at Cul De Sac should be considered. The port should accommodate storage of chassis and provide holding area for port users.	Ministry dealing with infrastructure, SLASPA
Promote and Grow Research and Development	• Provide financial and technical assistance to improve agro-processing and meat production, cold chain handling and certification. • Research on regional transportation networks and on shipping logistics improvements in the region. • Encourage research symposiums.	Ministry dealing with agriculture, Export Saint Lucia, Invest Saint Lucia
Promote Automation	• Automation of customs and port services (e.g., payments, single window services). • Areas can also include feed application and technology adoption in the agriculture sector to reduce reliance on manual labour. • Implement the OECS Maritime Single Window.	Individual and company efforts, public sector
Facilitate Financial Transactions	• Simplify procedures and processes. • Functioning networks (wifi) to ensure processes are conducted and the system and network must be up to date. • No way to measure and ensure internet service delivery standards are met. • Financial literacy training. • Approval of the Virtual Business Act.	Ministry dealing with finance, Banking sector, National Telecommunications Regulatory Commission Saint Lucia, network providers
Export Promotion	• Explore overseas markets and possible prices in potential new markets. • Assistance for marketing, branding, networking and trade shows.	Export Saint Lucia, Ministry dealing with commerce, chambers, consulate offices

Source: International Consultant and National Consultant, collated from results of workshops conducted from 20 to 21 April.

8.4 Chapter Summary

SWOT analysis is conducted to assess prospects and potential transport and logistics development strategies. Intention is to outline core competitive advantages and strengths that are possessed in serving as attractive logistics centres for international trade and market access.

Workshops were used to validate key observations regarding the transport and logistics sectors. Groups of interest are manufacturers, importers and exporters, logistics service providers, and government entities. The participants were asked to assess a set of aspects pertaining to strengths, weaknesses, opportunities, and threats (SWOT) facing the logistics sector in the country.

Key strengths identified by workshop participants that could benefit the logistics and transport sector are stable currency, business environment and tax regime. This was followed by competitive tourism cluster and exports of beverages that benefited logistics activities. Having a stable political environment was also cited as an important strength.

For weaknesses, participants in Saint Lucia highlighted poor road network and conditions and ageing port infrastructure as top concerns. Other weaknesses which received high scores were limited cargo volumes, truck traffic congestion at the port, and unreliable port equipment.

Regarding threats facing the logistics and transport sector in Saint Lucia, the top concern was failure to develop an export-oriented economy. This will contribute partly to the second major threat to the logistics sector in Saint Lucia which is insufficient cargo volumes to grow transport connectivity to overseas markets. Participants also highlighted failure to coordinate, manage and bring much needed changes to the logistics sector, heavy reliance on the US market, and climate change impacting on growing season as major threats.

Consolidated views from participants at the Saint Lucia workshops ranked developing and growing the e-commerce sector as the top opportunity to work on. This was followed by training and education to develop logistics and supply chain management skills, developing a National Single Window for customs and border processes, adopting technology such as use of IoT devices for tracking and tracing shipments, positioning Saint Lucia as the container transhipment hub for the Caribbean, and improving logistics performance in the area of cost for greater competitiveness.

Participants at focus group workshops were also asked to discuss possible actions or initiatives required to improve logistics chain efficiency as well as positioning strategies for the sector. Topics discussed include the areas of promoting and developing data processing and management, growing cargo volume, attracting investments, addressing customs and border processes, developing and growing e-commerce, training and education, improving transport infrastructure, promoting and growing research and development, promoting automation, facilitating financial transactions, and export promotion.

CHAPT 09 RECOMMENDATIONS FOR THE LOGISTICS SECTOR

Concrete initiatives and policy and institutional measures are proposed in this chapter. This forms the last component of the study and addressed the fifth objective (see **Figure 44**). The aim of the proposed actions and initiatives is to reduce costs and improve competitiveness of the transport and logistics sector in Saint Lucia. Proposals and recommendations along with main cost drivers will also include considerations and recommendations to strengthen food security and intra-regional trade. The recommendations drew on findings from points (1), (2), (3) and (4) of the study. Implementation timeline of the proposed recommendations are provided and the strategic road map makes reference to implementation over the short term (1 to 2 years), medium term (3 to 5 years), and longer term (6 to 10 years).

The recommendations proposed for Saint Lucia took account of the strengths that favour the logistics sector. These are stable currency and competitive exports and having a competitive tourism sector which generates demand for logistics services. The recommendations are targeted at addressing weaknesses and threats faced by the logistics and transport sectors of the country, and to take advantage of opportunities that could propel the industry forward.

Figure 44: Framework for Proposed Approach to the Study – Proposals and Recommendations

Source: International Consultant.

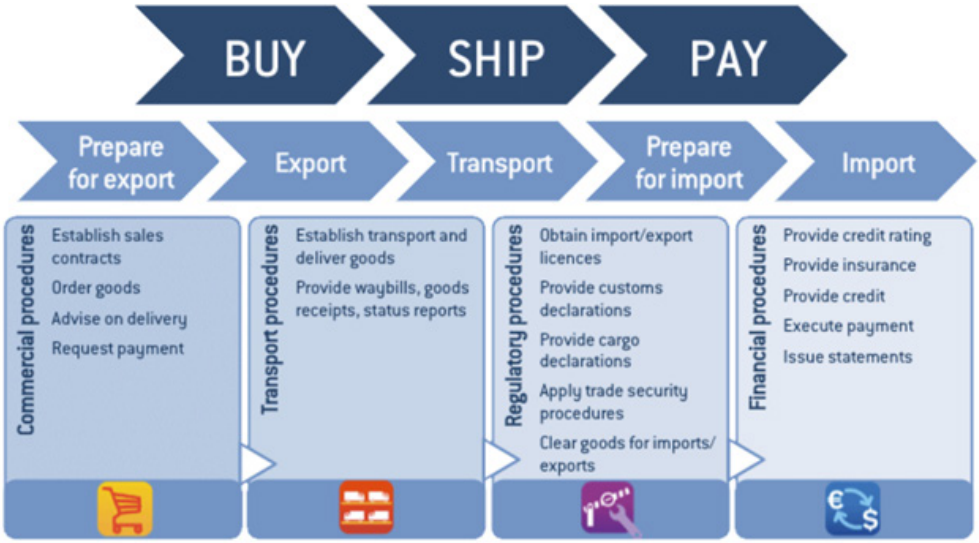
9.1 Recommendation #1: Strengthen the Consensus Building Mechanisms Between Public and Private Sectors for Trade Facilitation Reform

The recommendation calls to strengthen the consensus building mechanism between public and private sectors for trade facilitation reform. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Lack of cold storage facilities • Ageing port infrastructure • Inefficient customs and border processes • Limited coordination and cooperation between private and public sector
	Threat	• Failure to coordinate, manage and bring much needed changes to the logistics sector • Connectivity to overseas markets • Failure to develop an export-oriented economy • Limited or lack of sufficient cold-chain handling capacity and facilities • Uncompetitive seaport sector
	Opportunity	• Develop National Single Window for customs and border processes • Galvanise the logistics community through regular dialogues and sharing sessions • Upgrade and develop cargo-handling capacity and facilities for seaport sector • Whole-of-Government approach to advance competitiveness of the logistics ecosystem • Improve logistics performance in the area of cost for greater competitiveness.

Logistics activities serve as the bedrock which brings about efficient business processes, trade competitiveness, and better quality of life. Through the logistics and supply chain services available, the country's economy can function efficiently where flow of products and commodities are not interrupted by congestion or various forms of disruptions. Transport and trade connectivity offered by the quality of sea, air and land transport infrastructure becomes an important component in trade facilitation. A competitive and competent logistics sector will help to integrate the country into regional and international trade and manufacturing networks. Specifically, export and import processes are realised with an efficient logistics system that connects the country's logistics facilities via seaport and airport facilities to foreign markets. Having an internationally competitive logistics sector will also enhance investment attractiveness of the country.

Figure 45: The United Nations Centre for Trade Facilitation and Electronic Business Buy Ship Pay (BSP) Model



Source: United Nations (2012)[106] .

A critical task of developing and enhancing international trade competitiveness that is enabled by an efficient and productive logistics sector is to secure consensus between the public and private sectors for trade facilitation reform. Trade facilitation refers to efforts and outcome that lead to the simplification, standardisation and harmonisation of procedures as well as associated information flows needed to move goods between buyers and sellers and make payment[107] . Simplification requires eliminating all unnecessary duplications in trade processes, procedures and formalities. Standardisation requires developing formats for procedures, documents and information that are agreed by various parties. Harmonisation requires alignment of national operations, procedures and documents with international standards and conventions. Trade facilitation is also about making the process transparent. Transparency requires governments to promote openness and accountability of its administrative actions. There are several dimensions to transparency for trade facilitation. At the minimum, it entails disclosure of information such that the public can access readily and use it. Hence, the fundamental principles of trade facilitation are simplification, standardisation, harmonisation and transparency. From the supply chain perspective, activities involved in international trade is depicted in **Figure 45**. The BSP model reveals many entities involved. Trade facilitation encompasses all actors and processes for the entire trade environment associated with the international trade transaction. The actors go beyond customs administrations and include traders, service intermediaries, transport providers and other regulatory agencies from the public sector. As such, building and strengthening the consensus for mechanisms involving the public and private sectors that enable trade facilitation reform becomes an important step.

Trade facilitation reform requires taking actions that include the following areas:

- Legal: regulatory reforms to bring about a concise, clear, and transparent legal framework.
- Organisation: private sector consultation, inter-agency cooperation and institutional development.
- Technology: modernisation of trade-related infrastructure for electronic processing of required trade documents and data exchange.
- Processes: changes in business procedures and processes.
- People: capacity building for implementing officers.

[106]United Nations (2012) Trade Facilitation Implementation Guide [Online]. Available at: https://tfig.unece.org/details.html#:~:text=The%20fundamental%20principles%20of%20trade,simplification%2C%20harmonization%2C%20and%20standardization. (Accessed 30 June 2023).
[107]Ibid.

9.2 Recommendation #2: Establish National Logistics Skills Curricula

The recommendation calls for establishing a national logistics skills curriculum for the country. Implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Threat	• Lack of skilled logistics professional (e.g., management, supervisory, operational levels) • Uncompetitive port sector
	Opportunity	• Training and education to develop logistics and supply chain management skills • Improve logistics performance in the area of cost for greater competitiveness.

The national logistics skills curricula focus on desired attributes and essential skills required by the logistics industry. The content draws from findings of a national exercise which was conducted on skills demanded for the logistics sector in Singapore[108]. The nationwide exercise considered feedback from industry leaders, human resource professionals, educators and trainers as well as policy makers. The curriculum also emphasises lifelong engagement and learning for continuous improvements that are aligned to the needs of the industry.

At the core, the logistics work environment aims to bring about greater efficiency and productivity. The discussion further recognises logistics as an essential enabler of economic growth and progress. As an evolving industry, the logistics sector offers challenging and rewarding career opportunities that are grounded in highly transferable skills. Even more, those who work in the industry are placed at the forefront of technology advancements and globalisation that constantly have to keep pace with emerging business trends. Essential skills likely to be in demand for the logistics industry are identified to be:

- Process improvement
  Ability to improve processes that align requirements of the organisation and maximise quality while reducing waste.
- Business innovation management
  Ability to manage decisions, practices, and activities which takes ideas to realisation to create business value.
- Solutioning and program management
  Ability to provide a single touch point between key customers and project managers for executing logistics solutions.
- Technology management
  Ability to obtain productivity savings via technology that includes IoT, big data, robotics and automation.
- Stakeholder and customer management
  Ability to manage contracts to maximise financial and operational performance while minimising risks.

In addition to essential skills, those who are working or aspiring to work in the logistics sector should possess the following desired attributes:

Analytical:	Able to identify interconnectedness of issues and of different services and products, service providers, stakeholders and institutions within the context of the logistic industry.
Eye for detail:	Meticulous and strong multitasking and organisational skills to remain on top of daily challenges.
Resilience:	Persevere in the face of challenges and difficulties.
Teamwork:	Able to work with colleagues and industry partners from various functional areas and bring about success for any project.
Effective communicator:	Effective communication skills to creäte good rapport with colleagues, customers and industry partners.
Adaptability:	Have a positive attitude to take on challenges in a fast-evolving industry landscape and operating environment.
Professionalism:	Poised and confident even when facing a difficult situation, always displaying reliability and accountability.
Passionate:	Strong work ethic and uncompromising integrity, and willingness to take initiative to learn and keep updated with logistics industry knowledge and trends.

[108]SkillsFuture Singapore (2017) Skills Framework for Logistics, September [Online]. Available at: https://www.skillsfuture.gov.sg/skills-framework/logistics (Accessed 20 May 2023).

Customers are expecting to receive their shipments faster, with greater transparency and at lower prices. This imply apart from pressure levied on the top-line, the logistics industry is also under constant pressure to lower costs. Technology becomes a key enabler and logistics talent with skill sets to operate and leverage on new technology applications will be sought after. Looking at the B2B sector, customers will be striving for greater transparency and efficiency. They expect faster time-to-market, customised products and services, and low or zero-defect rates. Industry 4.0 is enabling companies to redefine the approaches in which they interact with customers and how the supply chain is structured. For logistics companies, integrating data analytics for better predictability and traceability with smart warehousing solutions will become necessary.

For the B2C sector, more and more retailers are operating on a "total retail" concept that integrates brick and mortar, online, mobile and other retail channels. They aim to offer a seamless brand experience for the customer across physical stores, personalised marketing, digital experience, and payment options. Logistics companies thus become a critical component in delivering this experience. For end-consumers, they will not care about the entity that delivers their goods as long as they get them quickly, reliably, and cheaply. They are also reluctant to pay premium for additional services. Consumers expect to pay the same price regardless of challenges which the logistics industry will continue to face.

9.3 Recommendation #3: Review Work Processes for Cargo Collection and Clearance at the Port

The recommendation calls for a thorough review of work processes involved in collecting cargo and customs inspection and clearance at the port. Areas of attention are yard operations, gate operations and customs processes. The implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Inefficient labour practices at the port • Inefficient customs and border processes • Long dwell time for containers at the port • Truck traffic congestion at the port
	Threat	• Gridlock for truck traffic accessing and leaving the port • Uncompetitive port sector
	Opportunity	• Improve logistics performance in the area of cost for greater competitiveness.

Key processes of the port can be distinguished by those that are associated with four areas. These are the vessel arrival and departure cycle, apron operations, yard operations and gate operations. The four areas determine the eventual operational capacity of the port. Shortfalls or inefficiencies in work processes experienced in any of the four areas will result in the port being unable to operate at its design capacity. Given the working conditions and feedback received from various stakeholders of the logistics and transport sector in Saint Lucia, the focus of our attention for this recommendation is on yard operations and gate operations that pertain to handling of import cargo for seaports.

Feedback gathered from primary and secondary research indicated preference of companies to handle cargo in full container loads and trying to stay away from breakbulk cargo over concerns of damaged or missing cargo. Furthermore, there is the impression that there is inconsistency in terms of cargo handling and the procedures involved. Relationships are seen to play an important role in expediting the work. The matter is not made easier by those who are collecting their cargo. In the Port of Castries, collection and clearance of the container requires separate trips between the port authority office and security.

Locating the cargo in the port is also a concern. Companies have to engage a runner to locate the cargo or container. The runner often needs to tap on relationships with stevedores to expedite the process. Locating and getting containers out of the port can take hours. The process can be hampered by cargo inspection and clearance by customs. For example, the customs officer has discretion to inspect the cargo even though it has obtained green lane status. Cargo checks can last for minutes to the next day.

9.4 Recommendation #4: Review Implementing 24/7 Work System at the Port

The recommendation calls for implementing 24 hours, 7 days a week work system for the port. The work system may exclude public holidays until deemed necessary later. The implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Inefficient labour practices at the port • Inefficient customs and border processes • Long dwell time for containers at the port • Truck traffic congestion at the port • Port prioritising cruise traffic
	Threat	• Gridlock for truck traffic accessing and leaving the port • Uncompetitive port sector • Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector
	Opportunity	• Improve logistics performance in the area of cost for greater competitiveness.

There are calls for working hours of the port to be made operational 24 hours a day, seven days a week. Discussions with port users revealed there were occasions where vessel loading may not be completed in time before the weekend or public holidays. In the event where the vessel had to wait, this can caused disruption to the sailing schedule and potentially impacting on subsequent port-calls.

Data for vessel arrivals and departures handled by the Port of Castries in April 2023 showed that almost all vessels involved port stays that either included Saturdays, Sundays, after normal working hours, or a combination of these timings (see **Table 44)**. The vessels either had to wait or incur overtime costs or both. For cargo vessels calling at the Port of Castries, they may have to compete with cruise vessels for berth space.

Table 44: Example of Vessel Arrivals in April 2023 at the Port of Castries for containerships, general cargo ships, vehicle carriers and reefer vessels

Name	Type	ATA	Length of Stay	Departure
Nomadic Hjellestad*	General Cargo	1 Apr 1301 hrs Sat	8h 58min	Saturday
Tropic Jewel**	Containership	3 Apr 1411 hrs Mon	1day 3h	Tuesday
Industrial Royal*	General Cargo	4 Apr 0936 hrs Tue	9h 23min	Tuesday
Viking Princess	Vehicles Carrier	4 Apr 1929 hrs Tue	6h 46min	Wednesday
Fouma	Containership	4 Apr 2212 hrs Tue	14h 44min	Wednesday
Lombok Strait#	Reefer Vessel	5 Apr 0236 hrs Wed	12h 33min	Wednesday
Oslo Bulk 5	General Cargo	6 Apr 1230 hrs Thu	7h 49min	Thursday
Tampa Trader*	Containership	8 Apr 1552 hrs Sat	7h 19min	Saturday
Hoegh Caribia	Vehicles Carrier	9 Apr 0651 hrs Sun	10h 35min	Sunday
Tropic Island**	Containership	11 Apr 1830 hrs Tue	10h 37min	Wednesday
Florida Highway	Vehicles Carrier	11 Apr 1947 hrs Tue	9h 45min	Wednesday
AS Fabrizia@	Containership	12 Apr 1015 hrs Wed	14h 51min	Thursday
Baltic Klipper#	Reefer/Container	13 Apr 1842 hrs Thu	7h 57min	Friday
Contship Bee*	General Cargo	16 Apr 1612 hrs Sun	14h 14min	Monday
Carmita	General Cargo	17 Apr 0750 hrs Mon	13h 1min	Monday
Nomadic Hjellestad*	General Cargo	18 Apr 0617 hrs Tue	10h 4min	Tuesday
Tropic Jewel**	Containership	18 Apr 1647 hrs Tue	12h 8min	Wednesday
Fouma	Containership	20 Apr 0042 hrs Thu	7h 13min	Thursday
Atlantic Klipper#	Reefer/Container	20 Apr 0811 hrs Thu	11h 31min	Thursday
Hamburg Trader*	General Cargo	22 Apr 1502 hrs Sat	1day 19h	Monday
BBC Gdansk	General Cargo	24 Apr 0623 hrs Mon	8h 20min	Monday
Tropic Island**	Containership	24 Apr 1517 hrs Mon	23h 50min	Tuesday

Table 44: Example of Vessel Arrivals in April 2023 at the Port of Castries for containerships, general cargo ships, vehicle carriers and reefer vessels

Name	Type	ATA	Length of Stay	Departure
AS Fabrizia@	Containership	25 Apr 2139 hrs Tue	8h 49min	Wednesday
Fast Wil	General Cargo	26 Apr 0711 hrs Wed	2days 7h	Friday
Duncan Island#	Reefer Vessel	27 Apr 1710 hrs Thu	13h 17min	Friday
Potosi	General Cargo	29 Apr 0615 hrs Sat	13h 36min	Saturday
Viking Princess	Vehicles Carrier	29 Apr 1407 hrs Sat	7h 5min	Sunday

*Source: International Consultant, using data from MarineTraffic (2023)[109] . * Operated by CMA CGM. ** Operated by Tropical Shipping. # Operated by Geest Line. @ Operated by Crowley.*

To address these issues, the proposal is to implement a shift system instead of imposing overtime charges. However, buy-in has to be sought from those who are affected by such a change. A compelling argument to support such an action will be growing vessel traffic which the port could potentially handle. Failure to accommodate the traffic could see the port being bypassed and missed revenue earning opportunities for the stevedores and other port service providers as well. The opportunity costs of such losses can be significant. The shift system for port services could potentially affect working hours for customs officers as well. Hence, smooth implementation of the work system will require support and collaboration from other regulatory authorities. Having the port work 24/7 could also help to alleviate truck traffic that could congest the roads during the day. Deliveries to warehouses could be made at night or in the early morning, contributing to alleviating traffic congestion especially on weekday peak hours.

9.5 Recommendation #5: Implement National Single Window (NSW) System for Trade and Logistics Facilitation

The recommendation calls for a national single window system to facilitate trade and logistics processes. The implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Weakness	• Absence of a single window for border procedures • Inefficient customs and border processes
	Threat	• Low rate of technology adoption (e.g., e-invoicing)
	Opportunity	• Develop National Single Window for customs and border processes • Improve logistics performance in the area of cost for greater competitiveness • Adopt technology such as use of data analytics for data processing and management.

The NSW is an electronic platform which enables traders, regulatory agencies and other stakeholders to submit and receive information pertaining to international trade and customs processes. The system facilitates exchange of information various government agencies dealing with regulating trade and simplifies procedures of trade by allowing submission of information and documents electronically via a single-entry point. The NSW aims to promote trade facilitation by reducing time and costs associated with trading across borders. It also helps to improve transparency and coordination among public agencies and private sector by offering a centralised platform for exchange of information.

Through the NSW, cross-border trade can experience:

- Improved efficiency: NSW allows traders to submit information and documents electronically via a single point and interface, lowering the time and cost associated with trade procedures. This leads to faster clearance of goods at borders, minimising delays and improving efficiency.
- Increased transparency: NSW facilitates exchange of information between various government agencies involved in regulating trade. This promotes transparency and reduces likelihood of errors or fraud in the trade process.
- Enhanced coordination: NSW offers a centralised platform for exchange of information between various government agencies involved in regulating trade. This helps to facilitate better coordination among agencies, which leads to a more streamlined trade process.
- Reduced costs: NSW reduces need for physical visits to government agencies and paper-based documentation, thereby reducing the costs of trade procedures.

[109]MarineTraffic (2023) Castries Port [Online]. Available at: https://www.marinetraffic.com/en/ais/details/ports/2388?name=CASTRIES&country=St-Lucia (Accessed 30 March to 2 May 2023).

- Improved compliance: NSW enables government agencies to monitor and regulate trade activities more effectively, allowing improved compliance with trade policies and regulations.
- Facilitation of cross-border trade: NSW facilitates cross-border trade by offering a common platform for traders to submit documents and information to various government agencies involved in regulating trade.

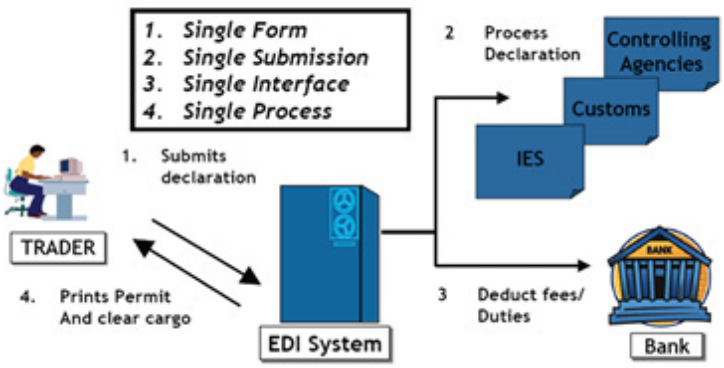
Key systems in the NSW will include customer management system and electronic country of origin certificate (eCO). An example of a customer management system is ASYCUDA World which is used to automate customs administration. The ASYCUDA system can be retained and integrated with the proposed NSW. The certificate of origin can be issued by Chambers of Commerce or Customs. The eCO thus offers a digital and online platform for application and issuance of such certificates and the system should also be integrated with the NSW. The PCS integrates and processes information for the seaport community from other systems deemed essential for the NSW will include those of various government agencies involved in the trade regulatory and monitoring process, and gates of entry or departure by other modes of transport (e.g., air borders). The example of Singapore's experience in developing and implementing an NSW is given.

CASE 1: SINGAPORE'S NATIONAL SINGLE WINDOW SYSTEM

TradeNet is Singapore's National Single Window which provides a single platform for trade declaration[110] . The trade and logistics community of the country can fulfil all export, import and transhipment related regulatory requirements with a single point of entry for submitting a single declaration to multiple regulatory agencies (see **Figure 46**). TradeNet began operations in 1989 as an electronic data interchange (EDI) system which enables computer-to-computer exchange of inter-company business documents using an established format in the Singapore trading community. The system has gone through several iterations and now integrates all the controlling agencies' (including customs) requirements and processing rules and processes all trade declarations including processing export and import permits and certificates of origin (see **Figure 47**). Fees are computed automatically and collected through interbank direct-debit facilities. Impact on business processes and costs after implementation being:

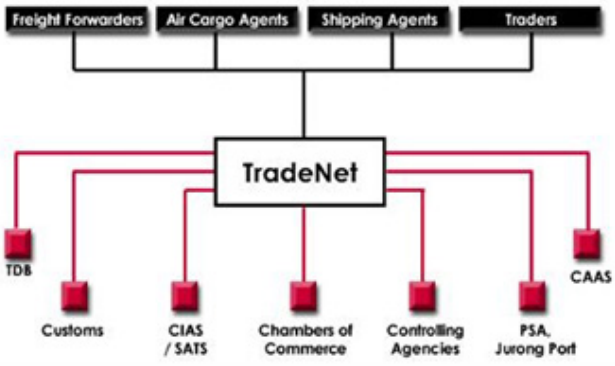
	Before TradeNet	After TradeNet
Processing time for each permit	2 – 7 days	10 minutes
Submission of documents	Multiple submissions	Single document
Number of documents	3 – 35	1 electronic form
Fees charged	US$6.25/document	US$1.80 per application

Figure 46: TradeNet System



Source: United Nations Network of Experts for Paperless Trade in Asia Pacific (2010)[111].

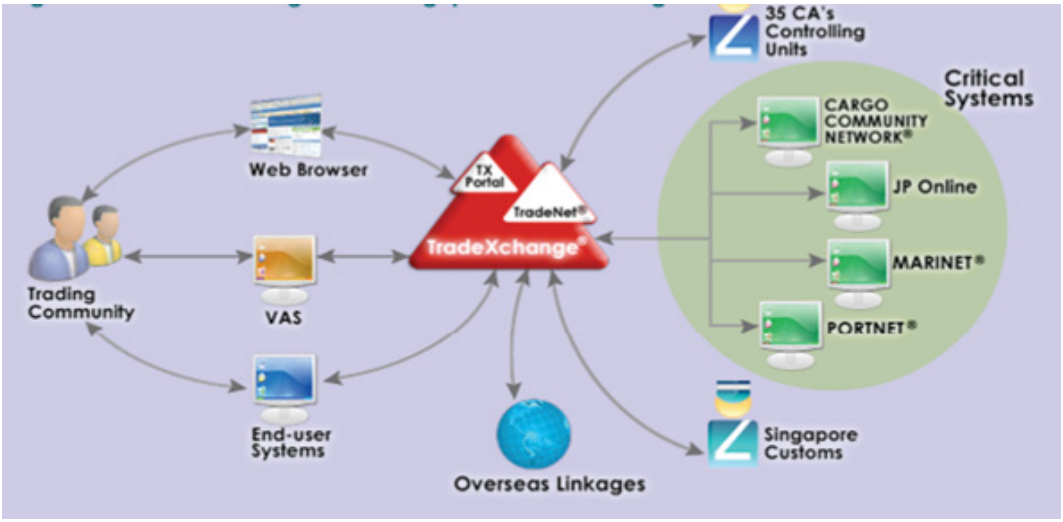
Figure 47: Impact of TradeNet



Source: CrimsonLogic (2008)[112] .

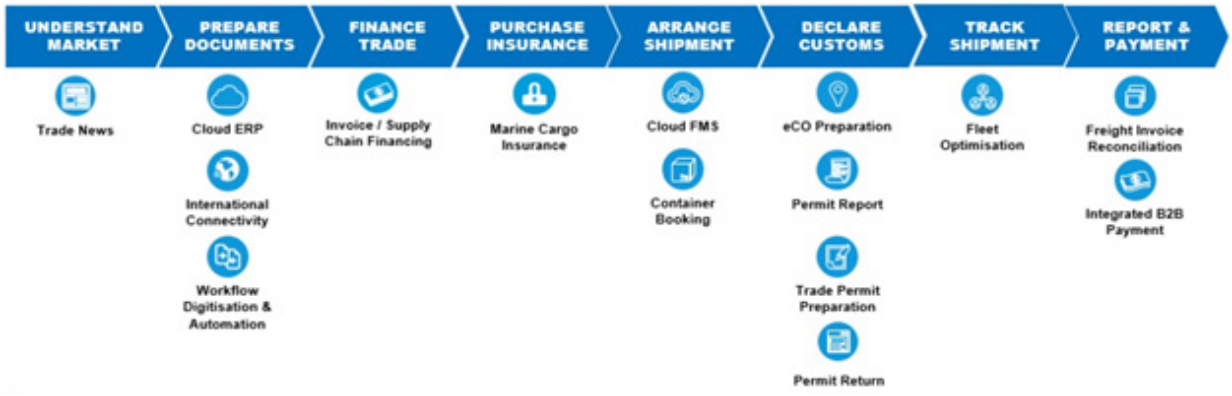
[110]Singapore Customs (2023) Overview [Online]. Available at: https://www.customs.gov.sg/businesses/national-single-window/overview (Accessed 20 May 2023).
[111]United Nations Network of Experts for Paperless Trade in Asia Pacific (2010) 'Towards a Single Window Trading Environment', UNNExT Brief No. 2, March [Online]. Available at: https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.unescap.org%2Fsites%2Fdefault%2Ffiles%2Fbrief2.pdf&psig=AOvVaw0LmLHnGqp0FvcmuDIysqfi&ust=1685236175193000&source=images&cd=vfe&ved=0CBAQjhxqFwoTCLDN6ZaolP8CFQAAAAAdAAAAABAI (Accessed 20 May 2023).
[112]Ibid.

Figure 48: TradeXchange System



Source: United Nations Network of Experts for Paperless Trade in Asia Pacific (2010)[113] .

Figure 49: Networked Trade Platform Value-Added Services Ecosystem



Source: Networked Trade Platform (2019)[114].

From October 2007, TradeNet became a core application within the Singapore TradeXchange platform. The system is an electronic platform that facilitates exchange of information between members of the trade and logistics community (see **Figure 48**). Apart from TradeNet which connects users to Singapore government agencies, TradeXchange offers connectivity to commercial and regulatory systems of other countries. Value added services (VAS) in areas such as trade finance and insurance are offered. In 2017, the Networked Trade Platform (NTP) became operational as an upgraded and expanded version of TradeXchange. While NTP is owned by Singapore Customs, the platform allows third party developers to provide value added services to NTP account holders. Services include trade research and insights, marine cargo insurance, container booking, eCO preparation, and supply chain financing among others (see **Figure 49**). The services available aim to assist companies through various segments of the supply chain. NTP is also a key driver of digitisation and digitalisation efforts for the logistics community in Singapore. Through TradeNet and NTP companies are encouraged to adopt technology such as use of data analytics for data processing and management.

[113]Ibid.

[114]Networked Trade Platform (2019) 'Helping SMEs digitalise trade with the Networked Trade Platform, Networked Trade Platform, 1 August [Online]. Available at: https://www.ntp.gov.sg/public/news/publication/2019/helping-smes-digitalise-trade-with-the-networked-trade-platform (Accessed 20 May 2023).

9.6 Recommendation #6: Accelerate Efforts to Go Fully Paperless with Customs Declaration, Payments and Inspections

The recommendation calls for efforts to go fully paperless with customs declaration, payments and inspections. This will accelerate digitisation and digitalisation of customs processes and facilitate trade. The implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Inefficient customs and border processes • Truck traffic congestion at the port
	Threat	• Low rate of technology adoption (e.g., e-submission, risk assessment and e-stamp) • Gridlock for truck traffic accessing and leaving the port
	Opportunity	• Training and education to develop logistics and supply chain management skills • Improve logistics performance in the area of cost for greater competitiveness • Adopt technology such as use of data analytics for data processing and management.

Discussions with stakeholders of the trade and logistics communities in Saint Lucia indicated that customs still require documents to be printed and submitted manually. Technically, the ASYCUDA system is supposed to enable the process to be paperless. In Saint Lucia, the Customs and Excise Department acknowledged that they are trying to go fully electronic although physical documents are still asked for. The Department is also developing a system for risk management. The Department further shared that exports are not checked. This is even though shippers can claim VAT refund for their exports. They acknowledge that there is a possibility that exports were not made for goods that were declared. The concern is exacerbated with the Export Verification Unit currently having only one staff. Discussions with stakeholders in Saint Lucia also indicated issues with reliability and stability of the internet. For example, the ASYCUDA system may not work for once or twice a day with each downtime lasting for 1-2 hours.

Commitment by customs authorities in Saint Lucia to go paperless is affirmed. However, the private sector has voiced concerns over the state of implementation, in particular, for having to make manual submissions despite the ASYCUDA system being operational. Barriers to a paperless customs regime can include legal and authentication issues, differences in paperwork requirements, and differences in standards. There are also the concerns with risk of smuggling and rampant commercial fraud. Nonetheless, the benefits of going paperless is recognised with considerable savings expected for the international trade and logistics community and to government as well.

The biggest impact is likely to be time savings for cargo clearance. For example, In Japan, average time taken to clear cargo estimated to fall from 400 minutes to 15 minutes[115]. In Mexico, clearance time was reduced from 730 minutes to 65 minutes. For the case of Singapore, submission of cargo manifest of vessels at sea to customs enables cargo to be cleared up to 8 hours before the vessel arrives at the port, allowing the cargo to be sent directly to a truck and released. Pre-clearance of cargo prior to the vessel's arrival thereby allows customs and quarantine departments and agencies to manage their inspection resources with greater efficiency. Faster processing times coupled with more efficient handling procedures imply fewer government resources will be needed to bond, store and inspect import cargo.

Hence, to address concerns by the trade and logistics communities in the country, it may be necessary to be forthcoming and transparent with the status of implementation as well as outstanding issues that needs to be resolved be it from the political, legislative, penal, social, financial, commercial, operational or technical dimensions or a combination of these aspects. For example, evaluation of penalties in Saint Lucia have to go through the court system where investigations will be conducted and fines are determined by the judge. An alternative is to pay a restoration fee where settlement out of court can be made at about 10% of the value of the goods involved. Customs officers can be rewarded with a portion of the penalty if irregularities are indeed found and proven (i.e., moiety). The question is whether this arrangement will lead to entrenched interests to perpetuate the current system and result in 100% checks which may not be required in all cases.

[113]Ibid.

[114]Networked Trade Platform (2019) 'Helping SMEs digitalise trade with the Networked Trade Platform, Networked Trade Platform, 1 August [Online]. Available at: https://www.ntp.gov.sg/public/news/publication/2019/helping-smes-digitalise-trade-with-the-networked-trade-platform (Accessed 20 May 2023).

9.7 Recommendation #7: Install Terminal Operating System to Enhance Productivity and Efficiency of Seaport Terminal Operations

The recommendation calls for installation of a terminal operating system (TOS) to enhance port productivity and efficiency in the seaports of Saint Lucia. The implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Inefficient labour practices at the port • Inefficient customs and border processes • Long dwell time for containers at the port • Truck traffic congestion at the port
	Threat	• Low rate of technology adoption (e.g., e-invoicing) • Gridlock for truck traffic accessing and leaving the port • Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector • Uncompetitive seaport sector
	Opportunity	• Promote digitalisation for integrated supply chain management • Adopt technology such as use of data analytics for data processing and management • Adopt technology such as use of IoT devices for tracking and tracing shipments • Improve logistics performance in the area of cost for greater competitiveness.

We note that although SLASPA uses the Unitrack Port Management System, it appears that there is considerable scope for improvements given the feedback received from port users. This will require a review of the extent to which the current TOS can meet the requirements of SLASPA, catering to the specific ports of Castries and Vieux Fort.

Cargo terminals vary in terms of location, size, configuration, volume of traffic handled, and composition of the traffic. Regardless, all cargo terminals have one primary purpose which is to enable interchange of cargo between water and land in a manner that is secure, safe, efficient and environmentally sustainable[116] . Port operations inevitably revolve around the need to accommodate vessel and cargo traffic. As such, the TOS is designed to handle the following challenges faced in terminal operations:

Berth management	Scheduling berth windows for vessel calls, arrange for loading and unloading equipment according to the schedule, and communicating with shipping lines to synchronise operations in view of disruptions that may be caused by vessel delays or otherwise.
Yard space management	Includes optimal space allocation, equipment and staff coordination, and organising truck movement.
Gate management	Managing incoming and outgoing vehicles, includes granting permission, monitoring, and clearance.
Equipment scheduling	Coordinates multiple operational units with vessel calls and truck visits, handling equipment failures, delays, and maintenance schedules.
Track and trace cargo	Monitoring and managing cargo within the terminal., includes monitoring and tracking of reefer cargo and dangerous goods.
Billing	Accurate capture of charges and correct billing to customers.
Reporting and data analytics	Important KPIs to monitor include berth utilisation, yard utilisation, crane productivity, terminal inventory, gate events, demurrage and others.

[116]Yap, W. Y. (2021) 'Every port is unique'. In: Business and Economics of Port Management: An Insider's Perspective, Routledge, pp. 21. DOI: 10.4324/9780429439926-3

Table 45: Example of TOS Providers

System Provider	Cargo Type	Number of Installations	Hosting	Description
Navis (Octopi, N4, N4 SaaS, Master Terminal)	General cargo and containers	About 300	Cloud and on-premise	World-leading provider with variety of products for different needs
CARGOES (TOS+, GC+, IOT+, AVA+)	General cargo and containers	>70	Cloud and on-premise	Solutions bearing heavy usage of ML techniques and IoT devices
CATOS	Containers	70	On-premise	User-friendly interface with planning, operation and management modules
TBA Group (Autostore, CommTrac)	General cargo and containers	>30	Cloud and on-premise	Full-fledged system with seamless ERP integration
RBS (TOPS Expert, TOPS Expert Cloud)	Containers	About 30	Cloud and on-premise	Comprehensive base solution bearing choice of optional modules

Source: Altexsoft (2022)[117] .

The TOS is a digital platform designed to manage all the logistics and supply chain operations at the seaport terminal. Main functions are to coordinate all the logistics elements in the terminal (e.g., vessels, cranes, trucks, stevedores etc.), optimise asset utilisation, track cargo movement, and analyse data to support decision making. Examples of TOS providers are shown in **Table 45**. The choice TOS will depend on balancing between the budget available, scope of services required, level of functionality, system support and end result. In any case, the chosen TOS should be mobile-friendly where field staff in particular can access the software from any device, capable of supporting different types of cargo especially for general cargo operations, scalable, and customisable. Given increasing concerns for cyberthreats, the data should be securely stored and backed-up. Customer support with implementation, training and post-implementation services will also be important criteria for considerations.

9.8 Recommendation #8: Set Up the Port Community System

The recommendation calls for setting up a port community system (PCS) to further enhance efficiency and productivity of port operations. The PCS is an extension of the TOS by incorporating other port service providers in the logistics and supply chain. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Weakness	• Inefficient labour practices at the port • Inefficient customs and border processes • Long dwell time for containers at the port • Truck traffic congestion at the port
	Threat	• Low rate of technology adoption (e.g., e-invoicing) • Gridlock for truck traffic accessing and leaving the port • Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector • Uncompetitive seaport sector
	Opportunity	• Promote digitalisation for integrated supply chain management • Adopt technology such as use of data analytics for data processing and management • Adopt technology such as use of IoT devices for tracking and tracing shipments • Improve logistics performance in the area of cost for greater competitiveness • Adopt green initiatives for logistics and supply chain management.

[117]Altexsoft (2022) 'Terminal Operating Systems: Main Features, Integration, and Providers Overview', Blog, 22 July [Online]. Available at: https://www.altexsoft.com/blog/terminal-operating-system/ (Accessed 20 May 2023).

A PCS is an electronic platform that connects multiple systems which are operated by various organisations and companies that constitute the seaport community[118] . The system provides secure exchange of information between private and public stakeholders. The PCS is also applicable for the airport community. This is also known as the Airport Community System. Typical services of a PCS are:

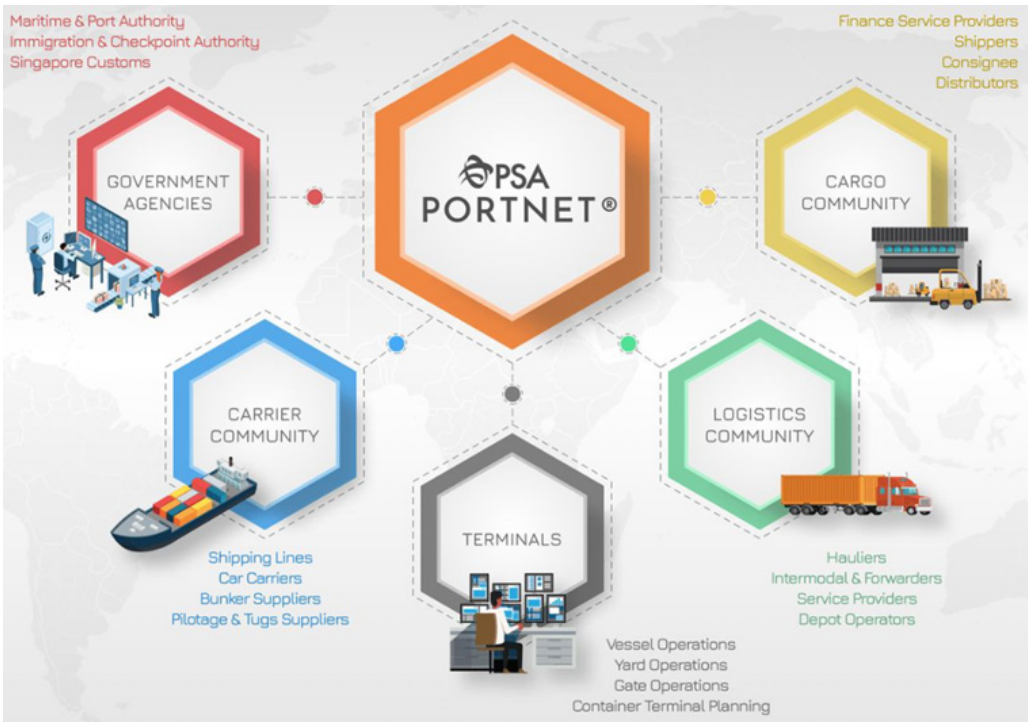
- exchange of information between port users, transport operators such as truck drivers, port operator, customs and other regulatory authorities;
- electronic exchange of customs declarations and cargo releases between customs and companies;
- electronic handling of information concerning different types of cargo for the port community;
- status information with tracking and tracing of cargo through the whole logistics chain; and
- processing declarations of dangerous goods.

SLASPA aims to set up a PCS in the current financial year of 2023/24 (April-March). Essentially, the PCS manages and automates port and logistics processes via a single submission of data and connecting transport and logistics chains.

CASE 2: PORT COMMUNITY SYSTEMS IN SINGAPORE

There are two PCS in Singapore. They are Portnet which is developed and operated by the commercial terminal operator PSA, and digitalPORT@SG which is developed and operated by the port authority. Portnet is a B2B port community system that handles all electronic vessel and container data that passes through the terminals in Singapore. It is an automated PCS that consolidates and synchronises information and transactions for players in the port community. With reference to **Figure 50**, the PCS serves to provide an interactive platform that integrates the carrier community, cargo community, logistics community, terminals, and government agencies. A key feature of the PCS is that it allows online ordering of port services that include berth application, stevedoring services, pilots, tugs, water boat services, reefer monitoring services, on-dock depot facilities, labelling and fumigation.

Figure 50: Key Modules of the PORTNET PCS



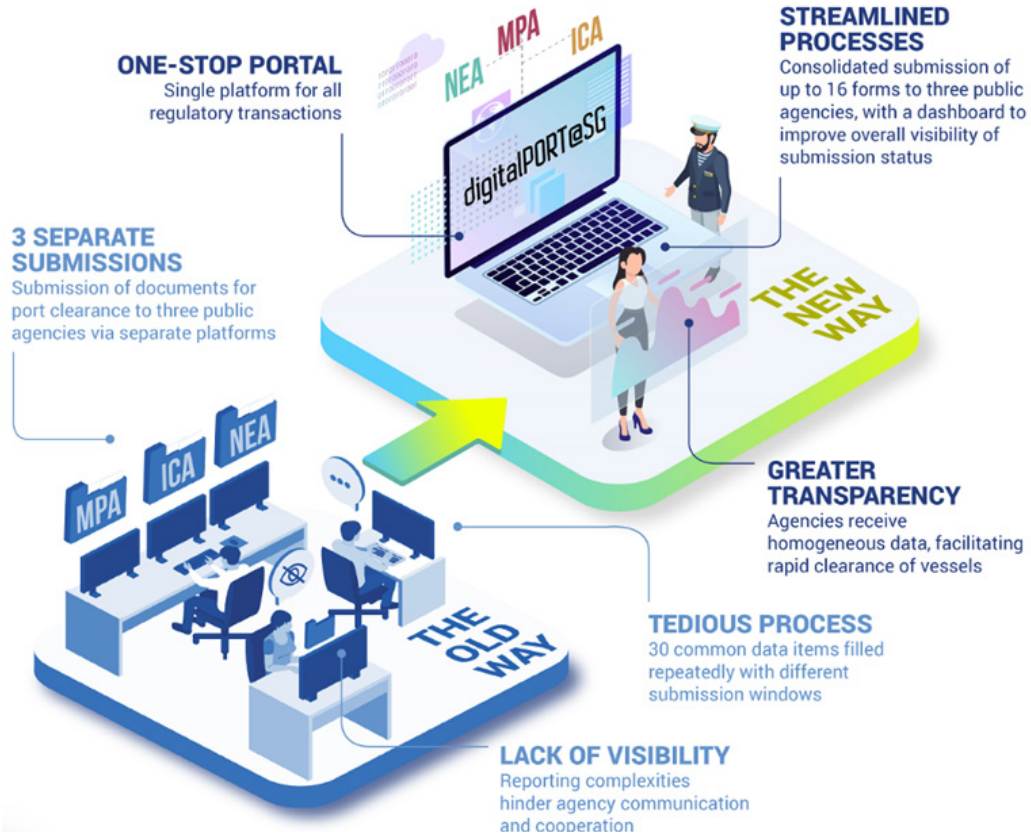
Source: PSA Portnet (2023)[119] .

[118]International Port Community Systems Association (2023) 'Port Community Systems - General', PCS [Online].
Available at: https://ipcsa.international/pcs/pcs-general/ (Accessed 20 May 2023).
[119]PSA Portnet (2023) 'Overview', Products [Online]. Available at: https://www.portnet.com/WWWPublic/products.html (Accessed 20 May 2023).

The PCS offers the benefits of:

- Streamlining documentation and business processes for the port community;
- Providing a single-view consolidate platform that eliminates repetitive data entry, processing and transcription errors;
- Simplifying processes by integrating systems of port users with those of the government and port authority;
- Offering real-time tracking and notification on business exceptions;
- Providing information real time on demand via multiple channels such as SMS and email; and
- Offering simple to use system that provides maximum security.

Figure 51: digitalPORT@SG by the Maritime and Port Authority of Singapore



Source: Maritime and Port Authority of Singapore (2023)[120].

The second PCS is the digitalPORT@SG developed by the Maritime and Port Authority of Singapore (MPA). With reference to **Figure 51**, the system serves as a one-stop port clearance portal for vessels calling at Singapore. It is also a one-stop platform for booking of marine services. It streamlines 16 regulatory applications which were previously submitted separately to the portals of government agencies MPA, Immigration and Checkpoints Authority, and National Environment Agency. The system replaces MPA's Marinet electronic portal in June 2020. In the next phase of digitalPORT@SG, the system will be integrated with PSA's Portnet and Jurong Port's JP Online. PSA and JP (i.e., Jurong Port) are the two main container and general cargo terminal operators in Singapore. The PCS developed by MPA will thus become one single entity which serves all maritime needs for the national and international port and shipping community.

A key driver of PCS is the requirement for collaboration between key regulatory agencies, local trade associations, port service providers. Typically developed for port users, the PCS will encompass imports, exports, transhipment, consolidation, hazardous cargo and maritime statistics reporting. Core benefits of the PCS are higher speed and efficiency regarding port processes, reduction of paperwork, and automation of work processes. PCS can contribute to sustainable transport logistics by optimising resource allocation and usage. As with the TOS, having the PCS can be an important step to boost digitisation and digitalisation of the logistics and supply chain community in Saint Lucia.

[120]Maritime and Port Authority of Singapore (2023) About digitalPORT@SG [Online]. Available at: https://digitalport.mpa.gov.sg/about (Accessed 20 May 2023).

9.9 Recommendation #9: Review System of Port Tariffs

The recommendation calls for a review of existing port tariff system. The implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Inefficient labour practices at the port • Limited cargo volumes • Poor shipping connectivity
	Threat	• Uncompetitive port sector • Insufficient cargo volumes to grow transport connectivity to overseas markets
	Opportunity	• Improve logistics performance in the area of cost for greater competitiveness • Positioning as the container transhipment hub for the Caribbean.

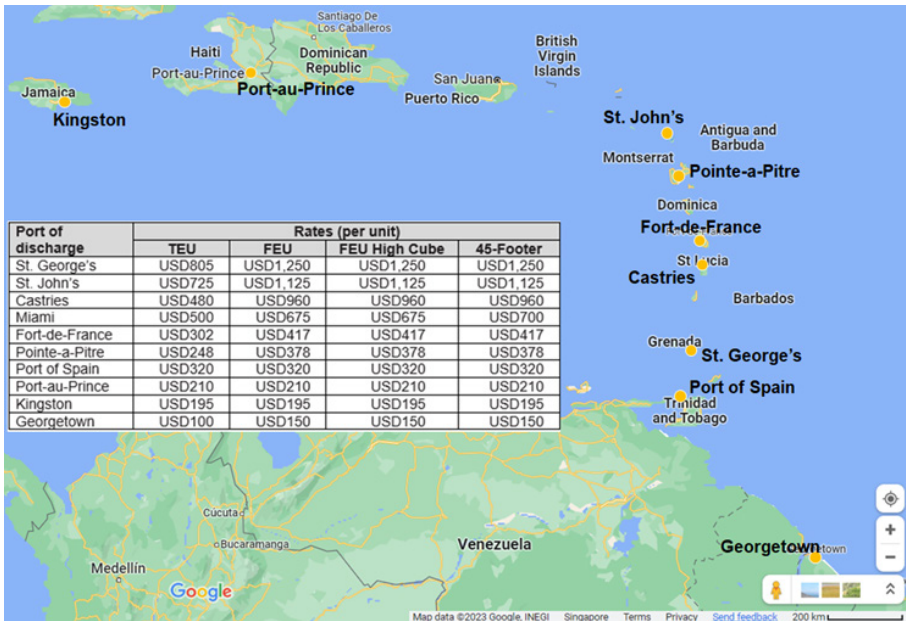
Discussions with stakeholders in the logistics and transport community in Saint Lucia highlighted the concern of expensive port charges. Discussions with the community also indicated that port tariffs were designed for the era of breakbulk cargo and have not been amended to adapt to the era of containerisation. The expensive port charges were seen to be attributed to labour arrangements in a large part. However, making amendments will require going through the parliament.

Port tariffs reflect the diversity of services offered. They typically form an important source of revenue for the port authority. The design of port tariffs can be meant to meet financial objectives of the organisation or even the country at the national level[121] . Financial reserves built up by the port authority can be used to finance redevelopment of facilities or acquire new equipment. In certain cases, they may even be used to contribute to national projects or serve political agendas. From a national perspective, port tariffs have a bearing on national competitiveness. Expensive port charges can undermine attractiveness of the port. In the case where there are practically no alternative seaports to use, high tariffs charged by the port can potentially become detrimental to trade creation by serving as a key source of inefficiency in the supply chain. The port as the primary maritime trade gateway effectively becomes a monopoly to the whole country.

CASE 3: COMPARISON OF TERMINAL HANDLING CHARGE FOR THE CARIBBEAN REGION

Landing charges is Grenada were reported to be among the most expensive in the region. With reference to **Figure 52**, terminal handling charges in the country are USD805 per TEU and USD1,250 per FEU, making it one of the most expensive in relative to other ports in the region. Terminal handling charges in the Port of Castries are also expensive at USD 480 per TEU and USD960 per FEU.

Figure 52: Comparison of Terminal Handling Charge for Selected Ports in the Region



Port of discharge	Rates (per unit)			
	TEU	FEU	FEU High Cube	45-Footer
St. George's	USD805	USD1,250	USD1,250	USD1,250
St. John's	USD725	USD1,125	USD1,125	USD1,125
Castries	USD480	USD960	USD960	USD960
Miami	USD500	USD675	USD675	USD700
Fort-de-France	USD302	USD417	USD417	USD417
Pointe-a-Pitre	USD248	USD378	USD378	USD378
Port of Spain	USD320	USD320	USD320	USD320
Port-au-Prince	USD210	USD210	USD210	USD210
Kingston	USD195	USD195	USD195	USD195
Georgetown	USD100	USD150	USD150	USD150

Source: International Consultant, using information from CMA CGM (2023)[122]; map data from Google Maps.

[121]United Nations Economic and Social Commission for Asia and the Pacific (2023) 'The context of port pricing', Comparative Analysis of Port Tariff Levels in ESCAP Region [Online]. Available at: https://www.unescap.org/sites/default/files/pub_2190_ch2.pdf (Accessed 20 May 2023).
[122]CMA CGM (2023) 'Carrier charge finder'. My CMA CGM, 27 May [Online]. Available at: https://www.cma-cgm.com/ebusiness/tariffs/charge-finder (Accessed 27 May 2023).

By comparison, landing charges for a FEU high cube container are much cheaper in Fort-de-France (Martinique) at USD417, Pointe-a-Pitre (Guadeloupe) at USD378, and Port of Spain (Trinidad and Tobago) at USD320. Port charges are even lower for the same container in Port-au-Prince (Haiti) at USD210, Kingston (Jamaica) at USD195, and Georgetown (Guyana) at USD150. The table also shows port charges for a 20-footer container to be considerably lower in other ports in the region. For example, terminal handling charge for a TEU is only USD320 in neighbouring Port of Spain in Trinidad and Tobago. This is about two-third of the rates charged in the Port of Castries.

Port tariffs reflect the diversity of services offered. They typically form an important source of revenue for the port authority. The design of port tariffs can be meant to meet financial objectives of the organisation or even the country at the national level[123] . Financial reserves built up by the port authority can be used to finance redevelopment of facilities or acquire new equipment. In certain cases, they may even be used to contribute to national projects or serve political agendas. From a national perspective, port tariffs have a bearing on national competitiveness. Expensive port charges can undermine attractiveness of the port. In the case where there are practically no alternative seaports to use, high tariffs charged by the port can potentially become detrimental to trade creation by serving as a key source of inefficiency in the supply chain. The port as the primary maritime trade gateway effectively becomes a monopoly to the whole country.

9.10 Recommendation #10: Review Import Tariffs to Address High Cost of Imports

The recommendation calls for a review of the import tariff system. Implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Limited cargo volumes • Poor shipping connectivity
	Threat	• Uncompetitive port sector
	Opportunity	• Improve logistics performance in the area of cost for greater competitiveness

If duties, customs surcharge, and VAT are included, these additional costs could lend significant boost to the costs of imports for the country. This ultimately makes it expensive for cost of business in Saint Lucia. For example, getting parts for machinery, semi-manufactures for assembly into final products, or importing food items can result in companies having to incur higher costs compared to the region. This can undermine the attraction of doing business and competitiveness in international trade for the country.

With reference to **Table 46**, tariff rates for selected members of OECS and CARICOM are shown. The data reflects tariff rates applied to all products, manufactured products, and primary products. The table shows tariff rates for Saint Lucia to be slightly lower than most of the countries, at 8.93% measured by simple mean for all products, 7.85% for manufactured products, and 15.27% for primary products. Even so, the country could examine opportunities to make the tariffs even more competitive in a bid to boost competitiveness.

Table 46: Tariff Rate for CARICOM and OECS Members (2020, Simple Mean, %)

Countries	All Products	Manufactured Products	Primary Products
Member of OECS and CARICOM			
Antigua and Barbuda	12.39	11.51	16.12
Grenada (2019)	10.55	9.24	16.46
Dominica	10.36	8.66	19.32
Saint Kitts and Nevis	10.03	9.82	10.87
Saint Vincent and the Grenadines	9.23	7.99	15.65
Saint Lucia	8.93	7.85	15.27

[123]United Nations Economic and Social Commission for Asia and the Pacific (2023) 'The context of port pricing', Comparative Analysis of Port Tariff Levels in ESCAP Region [Online]. Available at: https://www.unescap.org/sites/default/files/pub_2190_ch2.pdf (Accessed 20 May 2023).

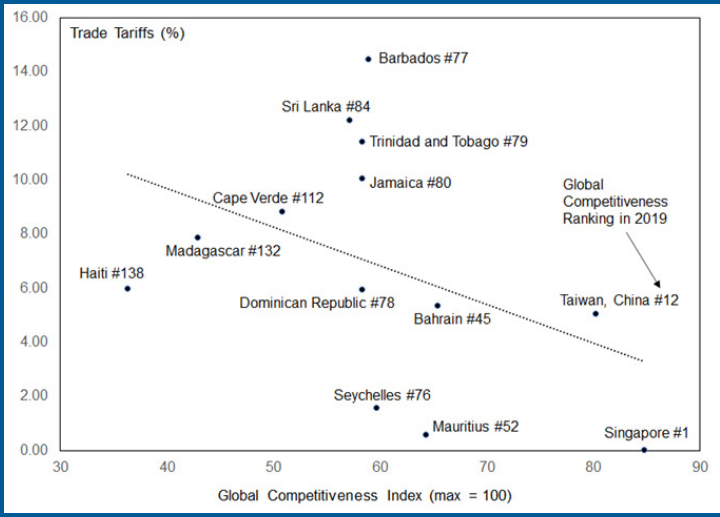
Table 46: Tariff Rate for CARICOM and OECS Members (2020, Simple Mean, %)

Countries	All Products	Manufactured Products	Primary Products
CARICOM Members			
Bahamas (2018)	23.66	25.63	13.98
Belize	11.76	9.99	24.15
Barbados	10.18	8.73	19.21
Guyana	9.40	8.38	16.92
Jamaica	9.00	8.14	15.86
Haiti	6.39	5.68	11.16

Source: International Consultant, using data from The World Bank (2023a)[124].

Tariff applied to all products is measured by the unweighted average of effectively applied rates for all the products that are subjected to tariffs. For tariffs applied to manufactured products, this is calculated by the unweighted average of effectively applied rates for all manufactured products subject to tariffs. Manufactured products being commodities that are classified in SITC revision 3 sections 5 to 8 and excludes division 68 (i.e., non-ferrous metals)[125] . The products comprise chemicals and related products, manufactured goods, machinery and transport equipment, and miscellaneous manufactured articles. For primary products, these are commodities classified in SITC revision 3 sections 0-4 plus division 68. They include food and live animals, beverages and tobacco, crude materials (inedible, except fuels), mineral fuels, lubricants and related materials, and animal and vegetable oils, fats and waxes.

Figure 53: Comparison of Global Competitiveness and Trade Tariffs for Small Island Countries (2019)



Source: International Consultant, using information from World Economic Forum (2019)[126].

Figure 53 further suggests there appears to be a rough relationship between country competitiveness and tariff rates. The figure shows data obtained from the World Economic Forum for global competitiveness for small island countries. While trade tariffs are just one determinant of global competitiveness, small island countries which are ranked among the most competitive have trade tariffs below the 6.00% rate. The figure also showed that countries such as Barbados, Trinidad and Tobago and Jamaica in the Caribbean region have some of the highest trade tariffs at 14.47%, 11.43% and 10.07% respectively.

9.11 Recommendation #11: Provide Technical Assistance for Equipment Repair, Maintenance and Replacement

The recommendation calls for technical assistance to be provided for equipment repair, maintenance and where necessary, replacement at mainports in Saint Lucia. It may also be necessary to acquire additional new equipment to address deficiencies seen in port productivity levels.

The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Weakness	• Long dwell time for containers at the port • Unreliable port equipment • Ageing port infrastructure
	Threat	• Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector • Uncompetitive port sector
	Opportunity	• Improve logistics performance in the area of cost for greater competitiveness • Upgrade and develop cargo-handling capacity and facilities for seaport sector • Training and education to develop logistics and supply chain management skills.

[124]The World Bank (2023a) World Development Indicators [Online]. Available at: https://datatopics.worldbank.org/world-development-indicators/ (Accessed 3 May 2023).
[125]UNCTAD (2023) 'Standard International Trade Classification (SITC) Revision 3', UNCTADSTAT [Online].
Available at: https://unctadstat.unctad.org/en/Classifications/DimSitcRev3Products_Official_Hierarchy.pdf (Accessed 23 May 2023).
[126]World Economic Forum (2019) The Global Competitiveness Report 2019 [Online].
Available at: https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf (Accessed 27 May 2023).

Discussions with port users highlighted the issue of port equipment breaking down as a key factor that could impede efficiency and productivity of port operations. For Saint Lucia, the Port of Castries has only one quay crane in operation. When the crane malfunctions, loading and unloading of cargo from vessels will be severely affected. Current berth productivity is at 7-8 boxes an hour. This is due to an accident which took place in December 2022 that saw part of the berth collapsing. Previously, berth productivity was 15-20 boxes an hour. Equipment malfunction also applies to other port assets such as reachstackers and forklifts. For the Port of Vieux Fort, there are straddle carriers left standing in the yard. There could be opportunities to redeploy such and other equipment should repairs be needed and having them brought back into service. There are also calls for installation of at least one weighbridge which could be located close to the gate.

While an overhaul of port equipment required is underway, a short-term solution is to have a technical team deployed to the port for quick repairs or replacement of spare parts to restore malfunctioning equipment to working conditions where possible. This will require identifying the list of affected port equipment, assess the level and type of repairs required, identing of spare parts, and performing the repair. It may be the case where the port equipment may need to be replaced or is due for replacement. This will be determined in part by condition of the port equipment and in part by the depreciation and asset replacement policy of the port operator. Where replacement is needed, this may include purchase of new or second-hand equipment, or receiving sponsors and development aid in the form of the physical port equipment or in-kind financial assistance.

The objective is to improve overall serviceability of equipment which leads to better asset utilisation as well as reduced dwell time for containers at the port. Not to mention, customer satisfaction and productivity levels are likely to improve as well. Smooth operation of the port requires all segments of the port supply chain to be operating at their optimal capacity. Dislocations occurring in any segment can reverberate through other activities in the port supply chain. For example, a reachstacker breaking down which affects yard productivity will cause productivity levels at the apron and gate operations to be affected. In worst cases, vessel productivity is affected, causing the vessel to either having to wait longer than expected and thereby affecting subsequent port-of-call schedules, or leave without completing cargo operations at the port.

9.12 Recommendation #12: Allocate Land to be Designated as Container Depot

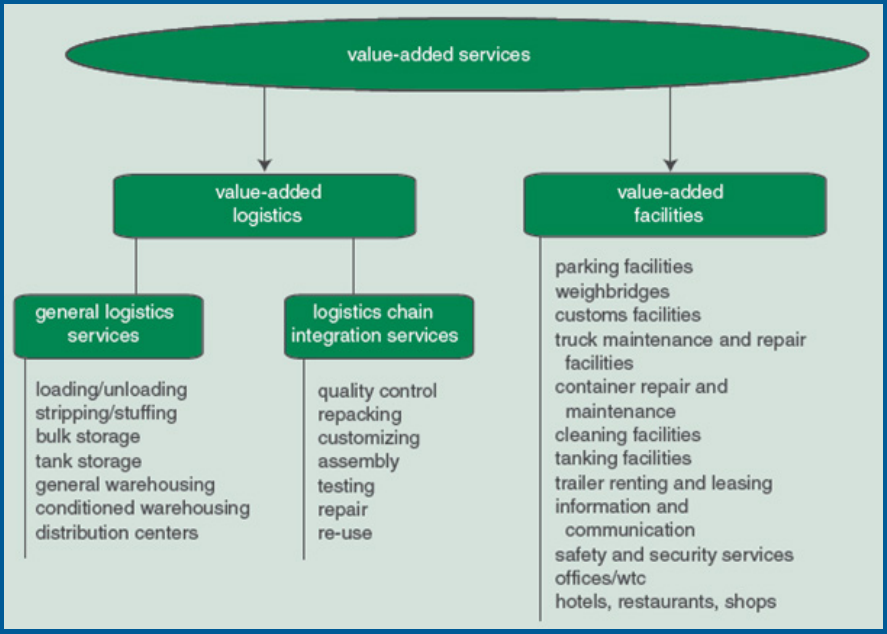
The recommendation calls for locating and setting aside land to establish a container depot to provide value added services for cargo operations. Implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Weakness	• Truck traffic congestion at the port • Long dwell time for containers at the port
	Threat	• Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector • Uncompetitive port sector
	Opportunity	• Upgrade and develop cargo-handling capacity and facilities for seaport sector • Improve logistics performance in the area of cost for greater competitiveness.

The recommendation is also related to port operations. The new container depot is designed to expand the range of value-added services pertaining to cargo operations at the main ports of both countries. With reference to **Figure 54**, the container depot aims to accommodate fully the range of general logistics services such as stripping, stuffing, and general warehousing, as well as logistics chain integration services which include quality control, repacking, customising and other services where required. Given the nature of activities performed in the container depot, the new area could be designated as a free trade zone to encourage and attract co-location of light manufacturing for re-export. The container depot should also contain value-added facilities including weighbridges, container inspection, repair and maintenance, container certification, truck maintenance and repair, and even a truck stop with amenities for truckers.

Discussions held with stakeholders of the logistics and transport communities in Saint Lucia indicated that additional space is required for cargo operations. This includes additional warehouse capacity being made available for container stripping and stuffing operations at the port. The challenge is faced in the Port of Castries where containers may spend days waiting in the port before they can be destuffed should there be inadequate space in the port shed. Container stuffing operations can be performed in the open. Nonetheless, such activities must stop when there is heavy rain. To cater for growing cargo traffic, SLASPA could consider the feasibility of using the area next to the unused gate at the Port of Castries (see **Figure 55**). Furthermore, reclamation works could be performed to expand the container yard into the sea should additional space be required.

Figure 54: Overview of Value-Added Services in Ports



Source: The World Bank (2007)[127].

Figure 55: Potential Location of New Area for Cargo Operations for the Port of Castries

Source: International Consultant, using map data from Google Maps.

[127]The World Bank (2007) 'Module 3: Alternative Port Management Structures and Ownership Models, In: Port Reform Toolkit, The World Bank, pp. 91 [Online]. Available at: https://ppiaf.org/sites/ppiaf.org/files/documents/toolkits/Portoolkit/Toolkit/pdf/modules/03_TOOLKIT_Module3.pdf (Accessed 23 May 2023).

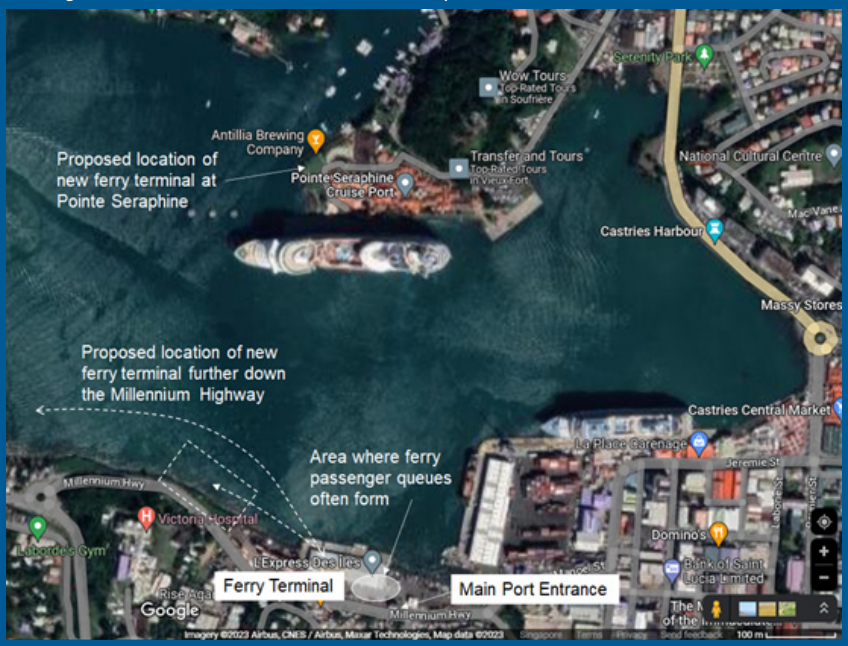
9.13 Recommendation #13: Explore Relocation of the Ferry Terminal (for Port of Castries)

The recommendation calls for a review of the current location of the ferry terminal at the Port of Castries and its relocation to another site. Implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Weakness	• Truck traffic congestion at the port • Long dwell time for containers at the port
	Threat	• Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector • Gridlock for truck traffic accessing and leaving the port • Uncompetitive port sector
	Opportunity	• Upgrade and develop cargo-handling capacity and facilities for seaport sector • Improve logistics performance in the area of cost for greater competitiveness.

The current location of the ferry terminal at the Port of Castries is neither optimal for port operations nor safe for ferry passengers. The situation is made worse by the configuration of the port which effectively "splits" available terminal space into two main areas. In this configuration, the western part of the port can see major disruption to cargo-handling activities should there be ferry operations. This is not helped by ferry passengers and cargo traffic having to share the same port entrance which is also known as "Gate #1". The current layout of the port saw the area adjacent to the ferry terminal used to store containers as well as having reefer points. Location of the ferry terminal within the port amidst the container yard and close to the main gate poses major challenges to container-handling operations. Queues formed by ferry passengers often "spill over" into the container yard and interfere with normal movements of container trailer traffic. Apart from preventing maximum utilisation of container yard capacity, this situation also poses a danger to both ferry passengers and cargo traffic. SLASPA shared that yard operations are often interrupted to allow for safe movements of ferry passengers. This development also serves to limit storage space for containers.

Figure 56: Potential Location of New Ferry Terminal for Port of Castries



Source: International Consultant, using map data from Google Maps.

We note that Global Port Holdings is in discussion with the Saint Lucia Government to transform the Castries and Soufriere waterfronts to elevate cruise passenger arrivals for the country. An MOU was signed in October 2022 to pave way for construction of improved berthing facilities to accommodate larger cruise liners, upgrade duty-free shopping zones, a new ferry facility in Banannes Bay, a new dock in Soufriere, and a mile-long boardwalk along the Castries waterfront from La Place Carenage to Pointe Seraphine[128] . In view of these initiatives, it may still be necessary to have a ferry terminal to serve Castries with the concentration of population, commercial and economic activities taking place in the city. With reference to **Figure 56**, we understand an alternative location for the ferry terminal is at Pointe Seraphine, next to the cruise terminal. Another option proposed is to consider moving the ferry terminal further down the Millennium Highway. An example is the empty plot of land next to the unused gate at the western end of Port Castries.

[128]Isidore, R. (2022) 'Development proposal for Castries, Soufriere waterfronts', Government of Saint Lucia, 31st October [Online]. Available at: https://www.govt.lc/news/development-proposal-for-castries-soufriere-waterfronts (Accessed 6 May 2023).

9.14 Recommendation #14: Training and Education for Logistics Sector

The recommendation calls for reviewing the delivery of training and education for the logistics community. Implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Threat	• Lack of skilled logistics professional (e.g., management, supervisory, operational levels) • Uncompetitive port sector
	Opportunity	• Training and education to develop logistics and supply chain management skills • Improve logistics performance in the area of cost for greater competitiveness.

The current location of the ferry terminal at the Port of Castries is neither optimal for port operations nor safe for ferry passengers. The situation is made worse by the configuration of the port which effectively "splits" available terminal space into two main areas. In this configuration, the western part of the port can see major disruption to cargo-handling activities should there be ferry operations. This is not helped by ferry passengers and cargo traffic having to share the same port entrance which is also known as "Gate #1". The current layout of the port saw the area adjacent to the ferry terminal used to store containers as well as having reefer points. Location of the ferry terminal within the port amidst the container yard and close to the main gate poses major challenges to container-handling operations. Queues formed by ferry passengers often "spill over" into the container yard and interfere with normal movements of container trailer traffic. Apart from preventing maximum utilisation of container yard capacity, this situation also poses a danger to both ferry passengers and cargo traffic. SLASPA shared that yard operations are often interrupted to allow for safe movements of ferry passengers. This development also serves to limit storage space for containers.

Training and education are recognised as a key component and enabler of the logistics sector. Stakeholders in the country highlighted the need for better access to education in the area of logistics and supply chain management courses. Attention should be given to vocational training and higher education opportunities. Courses with certification are especially needed in the areas of warehouse management, customs brokerage, and ordering and receiving goods among others. Much of the training is currently done on an informal basis, relying largely on learning on-the-job. The community called for formal training and education in this regard. Training on specialised areas such as robotics, automation, artificial intelligence, and maintenance and repair of equipment were also proposed. There were suggestions that training should be extended to customs officers and relevant government departments dealing with international trade and logistics matters. Delivery of the courses could be conducted by experts from the local industry and through collaboration with tertiary institutions such as the University of West Indies. The University of West Indies operates campuses in Barbados, Jamaica and Trinidad and Tobago. Other options for higher education are the US and UK. There are thoughts to attract the Caribbean Maritime University based in Jamaica opening a division in Saint Lucia.

At the global level, the logistics industry is being transformed, with data analytics, big data, automation, artificial intelligence and machine learning expected to see greater proliferation and play bigger roles. These applications will be evident in all areas of the logistics value chain including customs broking, freight forwarding, domestic transport, international transport, seaport operations, airport operations, and warehousing, storage and cargo management. In addition to attempting to lower logistics costs, the future logistics worker will have a critical role in enabling their respective logistics clusters to become major domestic and international hubs for value-added logistics services. In this regard, transport connectivity enables an ecosystem of logistics activities to become a logistics cluster by bringing together a comprehensive suite of services and logistics solutions.

Expectations of learners are evolving, and delivery modes and methods must keep pace with these changing expectations to attract and retain talent. Important trends that are changing the training and education landscape include:

- Rise of e-learning:
  Increasing costs of classroom-based and instructor-led training is contributing to greater use of e-learning. Continuous pursuit of life-long learning is also driving growth of e-learning. Certain topics can be effectively and efficiently handled through e-learning. They include awareness training covering data security, inclusiveness, and diversity.

- Microlearning:
  Bite-sized training content is showing popularity with busy employees needing to accommodate learning in their schedules. For example, attention span is typically not more than 20 minutes. Longer time can lead to learning fatigue. Hence, microlearning must be value-centred and human-focused.

- Attract and retain employees through training and development:
  Training is progressively viewed as an employee incentive, along with health and other benefits. Employees recognise training will help them improve current skills and develop new ones, eventually enabling them to be more successful in fulfilling their roles. Training therefore can be used to attract and retain talent.

- Growing skill gap among companies:
  Rapid pace of technology innovation and constantly changing industry landscape made most employees realise the need to be lifelong learners so as to stay competitive. Skills needed to succeed yesterday would not be the same as those required for tomorrow. Skill shortages are also created by digital transformation. Companies may have positions open for months due to lack of qualified candidates. Hence, they can offer employees with training and development opportunities to meet the requirements of future roles.

- Millennials see learning differently from previous generations:
  Millennials see learning and development as high priority. They expect their training to employ mobile devices that have become integral to their lives. They can access training and information when they need it and expect new information can be internalised and translated quickly into action. This is similar to the "just-in-time" model.

- Anywhere and anytime with flexible blended learning:
  Learners are demanding ever more that training is immediately accessible. They expect learning to take place whenever and wherever they happen to have the time. Given that people are frequently connected to a mobile device, they will be close to a point of internet access. This means never having to wait for the training opportunity. While instructor-led classes are not likely to disappear, mobile training options are proliferating.

- Personalised experiences:
  The days of "off-the-shelf" training and education programs are ending. Learners expect their training to be relevant to their own distinctive situations. This will mean adapting content to their work environment, organisational culture, job performance, and company background.

- Distance learning:
  Companies are increasingly encouraging their employees to take charge of their own learning. As such, distance learning is viewed as important for employees. Distance learning becomes an excellent mean to attract and retain talent, keeping employees motivated and productive.

Experiential and immersive learning is growing. The intention is to create authentic learning experiences where learners are put in the context of real-world experiences and challenges. Learners can attain key skills and competencies to proactively handle real-world challenges. This is distinct from learning that relies on textbook or theory-based content. The learning experience can also be applied to collaborative environments. Requirements of the individual learner will take precedence. Using personalised and inclusive learning, the instructional method and pace of learning are adapted to each learner. Traditionally, organisations offer fit-for-all textbooks, lectures, and assignments, with few or no variation between learners. In inclusive and personalised learning, this learner-centric approach enables each employee to have the flexibility of "pulling" content they want instead of being compelled to attend mandatory courses.

CASE 4: LOGISTICS TRAINING AND EDUCATION IN SINGAPORE

Logistics is viewed as an essential enabler of economic growth and development. As an industry that interacts with many facets of the economy and society, the sector offers challenging and yet rewarding careers that are grounded in highly transferable skills. Those who work in logistics are placed at the forefront of globalisation, technology advancements and emerging business trends.

At the tertiary level, there are two polytechnics in Singapore offering full-fledged diplomas in logistics and supply chain management. The Diploma in Supply Chain Management is offered by the Republic Polytechnic. Courses are offered in the areas of logistics, transport, inventory management, facilities planning and warehousing. The diploma aims to equip students with a good understanding of how suppliers, distributors, manufacturers, and retailers come together in international trade. Students are also be exposed to digitalisation and technologies that are transforming supply chain operations. Modules offered in the program are warehousing and storage, lean manufacturing and Six Sigma, supply chain management, facilities planning and design, distribution and transportation, inventory management, IT for supply chain management, procurement and supplier development,

retail logistics, cold chain and pharmaceutical supply chain, programming and data analysis, fundamentals of industrial Internet of Things, and operations plannin[129].

The other full-fledged logistics diploma is offered by Temasek Polytechnic. The Diploma in International Trade and Logistics enables students to acquire current knowledge and skills in international trade and supply chain management. Training in supply chain functions such as freight forwarding operations, supply management and sustainability-driven logistics are taught. Modules offered in the program are supply chain management and technology, procurement and materials management, distribution centre management, logistics analytics, international trade and transport, international trade and digitalisation, international finance, international freight and trade compliance, enterprise resource management, business technology and analytics, business process improvement, and chemical and cold chain logistics[130].

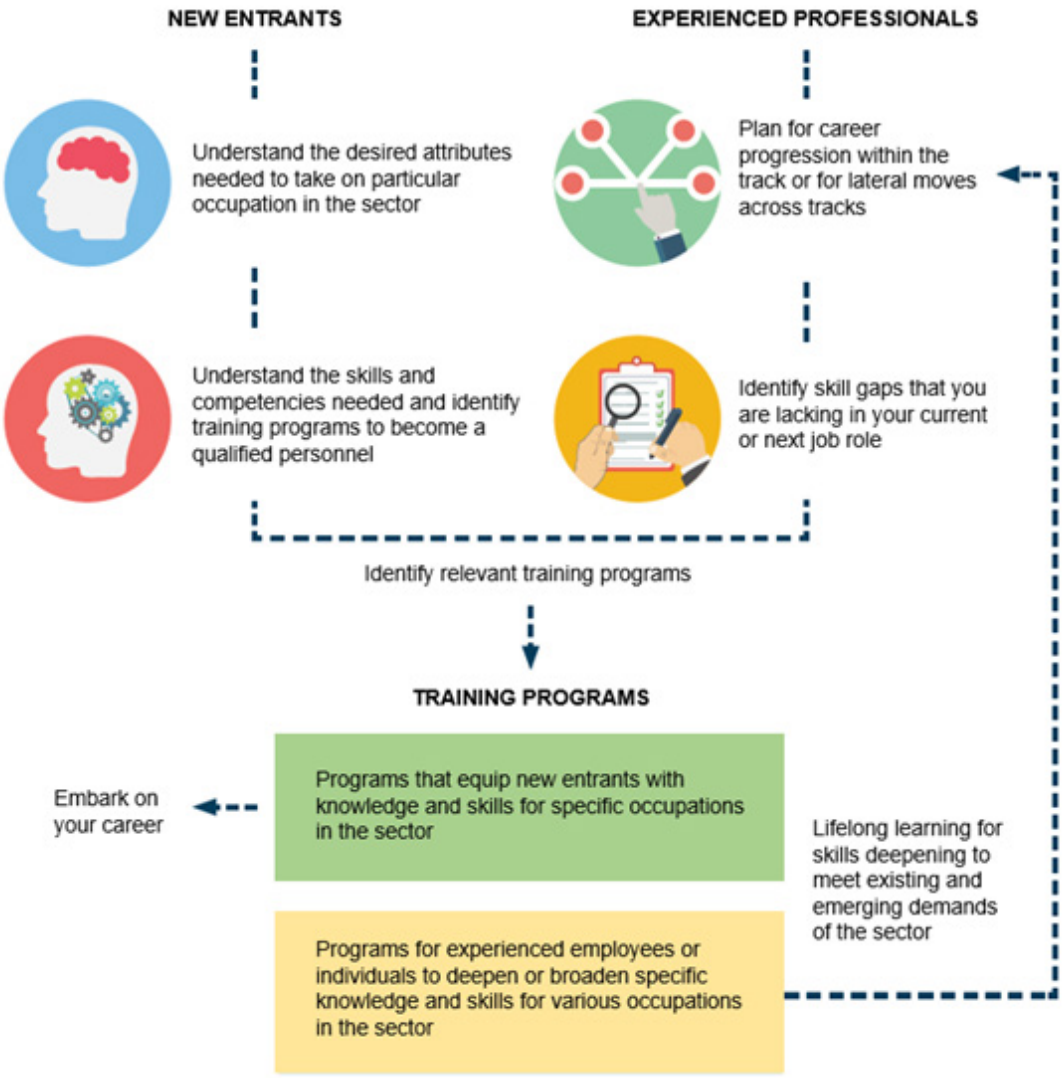
At the university level, the bachelor's degree is offered by the Singapore University of Social Sciences. The Bachelor of Science in Logistics and Supply Chain Management is developed in recognition that logistics is an essential pillar of Singapore's economy. The Singapore Logistics Association is a key partner. The program's curriculum is constructed to blend theory and industry practice to equip learners with problem-solving, decision-making, digital and innovation-thinking skills for managing supply chains. Students can also dwell deeper into specialised topics relating to the aviation, maritime and other supply chain areas. Modules offered include urban logistics, Industry 4.0 logistics applications, optimisation and simulation for decision-making, Python for data analytics, fundamentals of data mining, machine learning, ocean freight management, port management and technology, airport and airline logistics, air freight management, digital twin for supply chains, contract management for supply chains, solutions design for logistics and supply chain management, and geospatial analytics for decision-making among other courses[131].

An important aspect of training and education is progressive upgrading of the logistics workforce. For diploma education, the focus is on certification for specific skill sets to cater to specific job roles in the industry. This is different from university education where a multidisciplinary and more holistic curriculum with depth of learning exposes students and broaden their minds to a fast-evolving industry landscape. The training and education landscape in Singapore encourages the workforce to take up continuous learning to stay abreast of industry developments and be future-ready.

A typical pathway for career development for an individual is presented in **Figure 57**. The framework differentiates between experienced professionals and new entrants. For a new entrant, the person should find out desired attributes required to take on roles needed by the sector, and competencies and skills to become qualified. With this understanding, the individual can identify relevant training programs to equip herself/himself with relevant skills and knowledge prior to embarking on a career in the logistics industry. For an experienced professional or worker, the person may be looking for career progression within the individual's occupational track or lateral moves to another track. The person should also identify gaps in skills required for the next potential job role. The person can then identify suitable training programs to deepen specific skills or broaden knowledge of the industry. The figure emphasises the idea of lifelong learning as the logistics industry is constantly undergoing change to meet emerging demands.

[129]Republic Polytechnic (2023) 'Diploma in Supply Chain Management (R21)', School of Engineering [Online].
Available at: https://www.rp.edu.sg/SEG/full-time-diplomas/Details/diploma-in-supply-chain-management (Accessed 20 May 2023).
[130]Temasek Polytechnic (2023) 'Course Overview', Diploma in International Trade and Logistics (T07), [Online].
Available at: https://www.tp.edu.sg/schools-and-courses/students/schools/bus/international-trade-and-logistics.html (Accessed 20 May 2023).
[131]Singapore University of Social Sciences (2023) 'BSc Logistics and Supply Chain Management', Programme Finder [Online].
Available at: https://www.suss.edu.sg/programmes/detail/bsc-logistics-and-supply-chain-management-blscm (Accessed 20 May 2023).

Figure 57: Pathway for Career Development for New Entrants and Experienced Professionals



Source: SkillsFuture Singapore (2017)[132] .

9.15 Recommendation #15: Explore Development of a New Port at Cul De Sac

The recommendation calls for fundamental review of current port capacity and its capability of meeting the needs over the long term in both countries. This may see a new port developed at Cul De Sac. Implementation timeframe and SWOT aspects addressed are:

Implementation timeframe:	Long term: 6-10 years	
SWOT aspects addressed:	Weakness	• Truck traffic congestion at the port • Long dwell time for containers at the port • Limited berths for vessels • Port prioritising cruise traffic • Unreliable port equipment • Ageing port infrastructure • Inadequate road network and poor road conditions
	Threat	• Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector • Gridlock for truck traffic accessing and leaving the port • Low rate of technology adoption (e.g., e-invoicing) • Uncompetitive port sector

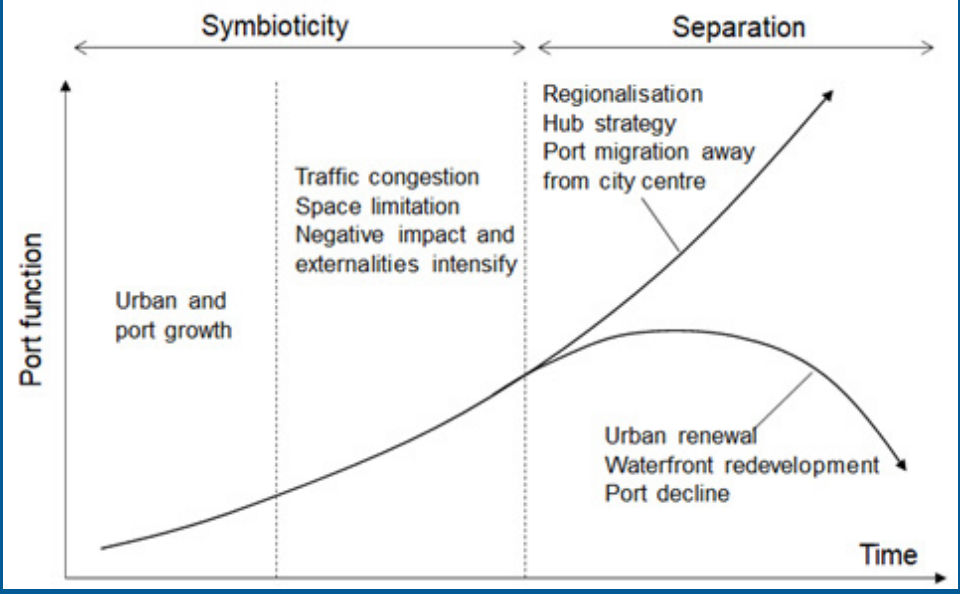
[132]SkillsFuture Singapore (2017) Skills Framework for Logistics, September [Online]. Available at: https://www.skillsfuture.gov.sg/skills-framework/logistics (Accessed 20 May 2023).

Implementation timeframe:	Long term: 6-10 years	
	Opportunity	• Upgrade and develop cargo-handling capacity and facilities for seaport sector • Set up free trade zone with proximity to the main cargo centre which is Castries • Upgrade and develop cold-chain handling capacity and facilities • Adopt green initiatives for logistics and supply chain management • Adopt technology such as use of IoT devices for tracking and tracing shipments • Adopt technology such as use of data analytics for data processing and management • Promote digitalisation for integrated supply chain management (e.g., WMS, TMS, ERP) • Adopt blockchain technology for trade facilitation (e.g., e-bill of lading, smart contracts) • Improve logistics performance in the area of cost for greater competitiveness.

Developing a new port is likely to involve multiple government departments and stakeholders. It will also include several rounds of public consultation before and during the construction process. Primary concerns will be the long-term impact of the project on the country and local community.

A pre-feasibility study to evaluate relocating container and general cargo operations to Cul De Sac was recently completed. Cul De Sac was identified to be a suitable location to serve as a logistics hub due to its proximity to the main consumption centre of Castries, as well as the flat terrain. For subsequent investigation, it will be prudent and necessary to consider investigating and confirming on the traffic forecasts for container and breakbulk cargo, projections for vessel traffic, port design and layout, berth design and layout, approach planning for vessel traffic, efficiency and productivity indicators linked to terminal operations, terminal operating system and port community system operating considerations, ancillary services for logistics activity taking place in the port, hinterland connectivity and potential impact on road traffic, and potential issue of siltation given proximity to the mouth of Cul De Sac River. The investigations should also include economic impact analysis, traffic impact analysis, and environment impact analysis. Social impact of the port would be included in the economic impact analysis.

Figure 58: Spatial and Functional Evolution of the Port and City



Source: Yap (2021)[133] .

Relationship between the city and the port is interactive and dynamic. A typical relationship will go through different phases. With reference to Figure 58, there is strong dependence between the port and city with each fuelling the growth of the other. As traffic of the port grows, traffic congestion and competition for space creates negative impact and externalities from port activities gradually outweigh the benefits generated. This is stage faced by the Port of Castries. Port activities which used to be the raison d'état for existence of the city may be eclipsed by other sectors less reliant on the port (e.g., cruise activities). Limited space for expansion will also restrict capabilities of the port to accommodate growing traffic. As the situation worsens, separation occurs where the port is relocated away from the city. Otherwise, we are likely to see the decline of the port. As the relationship weakens between port and city, and the port being moved away, there is also an opportunity to review the potential of the port in maximising its full competitive potential to become a major maritime hub for the wider region.

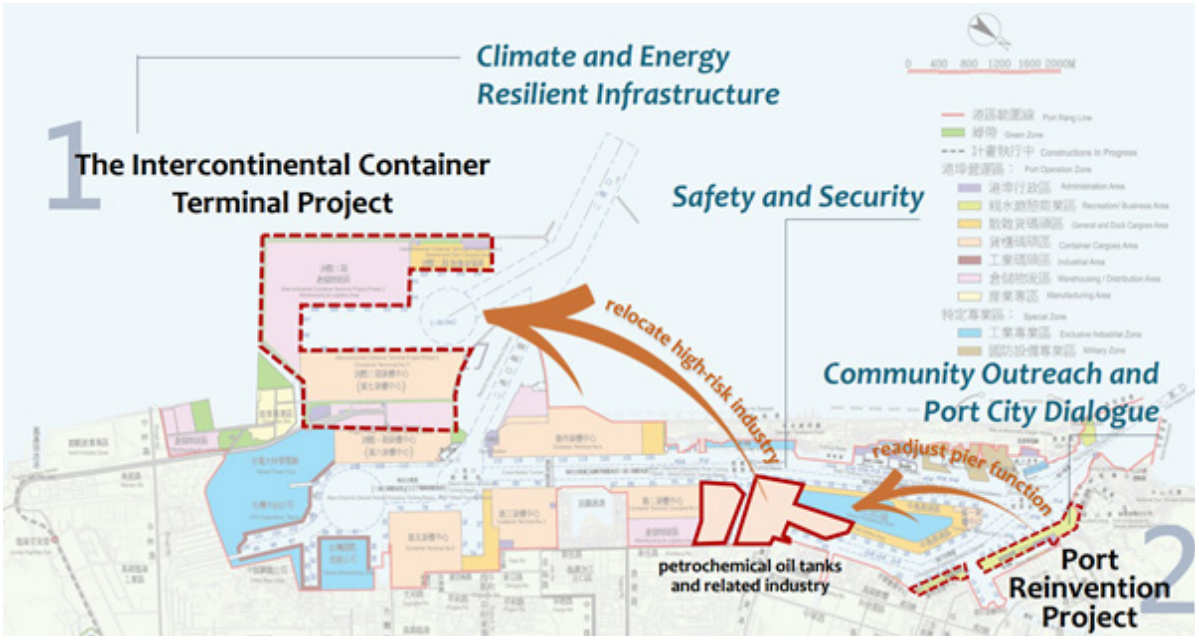
[132]SkillsFuture Singapore (2017) Skills Framework for Logistics, September [Online]. Available at: https://www.skillsfuture.gov.sg/skills-framework/logistics (Accessed 20 May 2023).

CASE 5: DEVELOPING THE PORT OF KAOHSIUNG IN TAIWAN, CHINA

The Port of Kaohsiung handled 9.5 million TEUs of containers in 2022[134] . The Port of Kaohsiung used to be a major container port in the world. It is located in the south of the island and serves as a key container transhipment and major port of bulk cargo import and export for Taiwan. Challenges faced by the port are:

- Lack of shoreline in the port for future development
- Insufficient hinterland connectivity
- Growing vessel and cargo traffic
- High-risk petrochemical oil storage and related facilities in the old port area
- Intense competition with other major maritime centres in East Asia
- Lack of integration in port-city development

Figure 59: Expansion of Kaohsiung Port



Source: World Port Sustainability Program (2021)[135].

To address these challenges, the port underwent an expansion with the creation of the new Intercontinental Container Terminal (see **Figure 59**). The project will be constructed in phases. The first phase involves building four container terminals with length of 1,500 metres and depth of 16.5 metres to accommodate large containerships. The new infrastructure development will see port capacity increase by 3.0 million TEUs in annual container handling capacity. The second phase comprises building of a petrochemical oil storage and transport centre with 19 new piers. Phase 2 of the project will allow berthing of containerships with capacity of 22,000 TEUs.

Meanwhile, the old port area will be developed with recreational, retail, residential and convention facilities to rejuvenate the dynamism of the port area. This includes a 14,215 sqm water garden where more than 50,000 landscaping plants were planted. As a whole, the port development project aims to fulfil the following Sustainable Development Goals which are #3 good health and wellbeing; #6 clean water and sanitation; #7 affordable and clean energy; #8 decent work and economic growth; #9 industry, innovation and infrastructure; #11 sustainable cities and communities; #12 responsible consumption and production; #13 climate action; #14 life below water; #15 life on land; and #17 partnerships for the goals.

[134]Li, M. (2023) 'Evergreen's new terminal Kaohsiung to boost container volumes'. Container News, 8 May [Online]. Available at: https://container-news.com/evergreens-new-terminal-in-kaohsiung-to-boost-container-volumes/ (Accessed 23 May 2023).

[135]World Port Sustainability Program (2021) 'Master Plan 2017-2021 – Detailed Project Presentation'. Port of Kaohsiung – Master Plan 2017-2021 [Online]. Available at: https://sustainableworldports.org/project/port-of-kaohsiung-master-plan-2017-2021/ (Accessed 23 May 2023).

In May 2023, the newly constructed No. 7 terminal began operations by Evergreen Marine Corporation. The terminal is also fully automated, using unmanned vehicles, remote control, IoT network coverage, 5G and artificial intelligence systems. The terminal possesses a berth length of over 2.4 kilometres and depth alongside of 18 metres. The terminal was built at a cost of USD1.33 billion with about USD660 million funded by the Taiwan International Port Corporation. Evergreen contributed the remaining USD670 million.

Nonetheless, it is worth noting that the Port of Kaohsiung was once ranked among the busiest container ports in the world. In 1985, the port was ranked in the fourth position globally, rising to the third position in 1999, after Singapore and Hong Kong. However, lacklustre attitude towards the importance of the port sector, hesitancy to embark on redevelopment of the port contributed to the demise of Kaohsiung as the leading container port in the region.

9.16 Recommendation #16: Attract and Grow Transhipment Traffic

The recommendation calls for attracting and growing transhipment traffic with the purpose of transforming the port to become a major maritime hub in the Caribbean region. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Long term: 6-10 years	
SWOT aspects addressed:	Weakness	• Poor shipping connectivity • Limited cargo volumes
	Threat	• Insufficient cargo volumes to grow transport connectivity to overseas markets
	Opportunity	• Positioning as the container transhipment hub for the Caribbean • Improve logistics performance in the area of cost for greater competitiveness.

Shipping lines are attracted to cargo as bees are attracted to honey. As such, developing the transhipment business can be used to attract shipping lines, which in turn helps to grow shipping connectivity. Transhipment cargo can therefore be used to address the concerns of poor shipping connectivity and limited cargo volumes simultaneously. As mentioned, the attraction of a port to a shipping line lies in the potential amount of cargo which the carrier's vessels will handle at the cargo terminal. Shipping lines are attracted to ports with possess large volume of captive cargo. Without having a major production or consumption centre in Saint Lucia, the alternative would be to market the country to serve particular confluences of trade or shipping routes. This means that cargo can be consolidated and distributed through the port via transhipment. The position of the port in the overall network of the shipping line becomes an important consideration.

Shipping lines will also consider factors such as maritime access, cost incurred to make the port-call, vessel productivity, port safety and reliability, and range of ship and cargo-related services in their vessel route planning and strategy. For maritime access, there must be sufficient capacity and capability for the port to accommodate mainline vessels of the trade. Increasing size of containerships deployed on the primary container trades in the world led to the displacement of mainline vessels previously operating on these trades. The cascading effect which resulted meant that larger vessels are also increasingly deployed in smaller trades. As such, ports which aim to become a transhipment hub must endeavour to meet the strategic, commercial and operational requirements of shipping line customers.

There are three categories of transhipment traffic. They are hub-and-spoke transhipment, relay transhipment and interlining transhipment. For the case of hub-and-spoke transhipment, the current hubs in the Caribbean are commonly viewed to be Freeport in Bahamas (operated by Hutchison Ports), Kingston in Jamaica (operated by CMA CGM), and Caucedo in the Dominican Republic (joint venture between DP World and local interests)[136]. Other significant transhipment hubs in the region include various terminals in Panama and Colombia. Cargo is feedered from these hubs to smaller ports in the Caribbean. The transhipment hubs also service relay and interlining transhipment which consists of transferring containers between mainline and feeder vessels and between mainline vessels. Transhipment operations can take place between two or more vessels at the same time. A key driving force for transhipment is shipping lines aiming to achieve greater scale and network economies through higher vessel utilisation and load factors with fewer port calls.

[136]Miller, G. (2019) 'Inside box shipping's Caribbean 'transshipment triangle". Freight Waves, 11 July [Online]. Available at: https://www.freightwaves.com/news/inside-container-shippings-caribbean-transshipment-triangle (Accessed 23 May 2023).

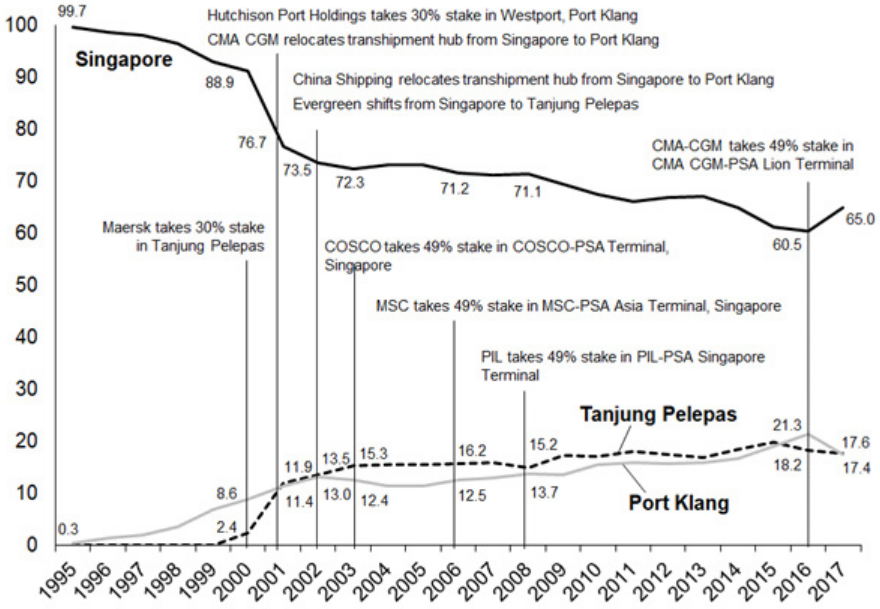
Discussions with stakeholders in Saint Lucia revealed that the country used to be a transhipment hub in the 1990s and even 2000s. For Vieux Fort in particular, the port used to handle 48,000 TEUs in 2009. The facility was planned and built to become a transhipment hub capable of handling up to 70,000 TEUs per annum. However, cargo volumes have declined significantly. We also note that the Caribbean region is the crossroads of intra-America trades and east-west services from the transpacific and transatlantic connections. The potential is offered to consider reviving this option for Saint Lucia and Grenada.

CASE 6: DEVELOPMENT OF TANJUNG PELEPAS AS A TRANSHIPMENT HUB

The Port of Tanjung Pelepas (TPP) in Malaysia offers an interesting case study for developing the transhipment business. In 2022, TPP handled more than 11 million TEUs where transhipment incidence of the port exceeded 95%[137] . Despite starting from zero base, TPP was able to become an important transhipment port in the world in a relatively short time even though the port is located close to two of the world's largest transhipment hubs. The port began operations in 1999 and within a short span of two years, secured a market share of 11.4% (see **Figure 60**). The port continued to expand its market share which grew to reach 17.6% in 2017. The port has been engaged in intense competition with neighbouring Port Klang and Singapore ever since.

Competition for traffic lies in three major areas. Firstly, the ports compete actively to handle import and export containers in the Malayan Peninsular. The second area of competition consists of efforts to bring shipping lines to hub their operations at the port. The third area of competition is to target selected trade routes to develop or strengthen shipping connectivity. Success was made in 1999 when TPP managed to secure Maersk Sealand, which was then the largest container shipping line in the world, to transfer its hub from Singapore to the port. In 2002, a similar move was made by Evergreen, which was then the second largest container line in the world. In 2005, Maersk's acquisition of P&O Nedlloyd saw another 1.5 million TEUs moving from Singapore to TPP. These efforts helped to secure the position of TPP as a key hub for relay transhipment.

Figure 60: Market Share of Transhipment Containers by Major Ports in Southeast Asia



Source: Yap (2021)[138] .

To grow hub-and-spoke and interlining transhipment, subsequent moves were made by Maersk to establish feeder operators targeted at the Vietnamese and Indonesian markets. An important strategy which helped to kick start the transhipment business was to position TPP as a hub for repositioning of empty containers. By 2017, the feeder service network at TPP has grown to cover other countries in Southeast Asia. Mainline carriers calling at TPP has also increased beyond Maersk and Evergreen to include other major shipping lines.

[137]Bernama (2023) 'PTP to invest RM3 bln in next five years for additional 3.5 mln TEUs capacity'. Bernama, 22 March [Online].
Available at: https://bernama.com/en/business/news.php?id=2175486 (Accessed 23 May 2023).
[138]Yap, W. Y. (2021) 'Competition in the port industry'. In: Business and Economics of Port Management: An Insider's Perspective, Routledge, pp. 192. DOI: 10.4324/9780429439926-12

9.17 Recommendation #17: Construct Cold Storage Facilities at the Airport (for UVF at Saint Lucia)

The recommendation calls for providing cold storage facilities particularly at the Hewanorra International Airport in Saint Lucia. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Weakness	• Insufficient capacity at the airport to serve logistics needs of users • Limited cargo volumes • Lack of cold storage facilities
	Threat	• Limited or lack of sufficient cargo-handling capacity and facilities for airport sector • Limited or lack of sufficient cold-chain handling capacity and facilities • Failure to develop an export-oriented economy • Insufficient cargo volumes to grow transport connectivity to overseas markets
	Opportunity	• Upgrade and develop cargo-handling capacity and facilities for airport sector • Upgrade and develop cold-chain handling capacity and facilities • Adopt green initiatives for logistics and supply chain management • Adopt technology such as use of IoT devices for tracking and tracing shipments in the cold chain process • Improve logistics performance in the area of cost for greater competitiveness.

For air cargo, the main aviation gateway for Saint Lucia is the Hewanorra International Airport. Discussions with the logistics community mentioned the lack of cold storage facility at the airport. While the other airport in Saint Lucia (i.e., George F. L. Charles Airport) also do not possess cold storage facility, it is located in the city of Castries in proximity to such facilities that are operated by various companies. For Hewanorra International Airport, fresh produce cargo arriving at the airport are loaded immediately onto the aircraft after clearing the procedures. There is also the issue on who should provide the cold storage facility given that cargo handlers are leasing the land from the airport authority. For example, HACS runs on five-year leases to operate a cargo facility at the Hewanorra International Airport. Discussions with stakeholders in the logistics community indicated that capacity required for cold storage is estimated at 72 to 144 cubic metres.

Cold storage is provided by using cold rooms, which are spaces where the refrigeration system establishes desired climatic conditions to conserve the properties of the products stored[139] . In general, there are four kinds of cold rooms. The first type of cold room is designed to conserve products at between 0°C to 10°C. This type of cold room is mainly used to preserve fresh food, medicines or beverages. The second type of cold room are freezing cold rooms which are designed to store frozen products at between 0°C to -28°C. These facilities are better insulated and have fewer daily openings. Products stored include vaccines and frozen food. The third type of cold room is the deep-freezing tunnel where temperatures reach -30°C to -40°C. This freezing cold room freezes the product individually using cold currents and automatic displacement systems while the product moves around inside the chamber. The facility is mainly employed in the food industry for freezing sweets or meat trays. The fourth type of cold room is the temperature blast chiller. The aim is to reduce the temperature of the product quickly to lower the risk of contamination and being able to preserve the product for longer. This type of cold room is commonly seen in industrial kitchens such as airline catering facilities. Based on the specifications described, it appears that the first or second type of cold room is what the airport requires.

To maintain and preserve the integrity of the product, having cold storage facilities must be complemented by a fleet of refrigerated trucks and associated delivery and handling processes to ensure in an unbroken cold chain. For example, it is important to ensure that temperature conditions are maintained within acceptable limits during the transportation process. Regardless of the transport mode of involved, it must be demonstrated that products were not exposed to conditions that could compromise their quality and integrity. To achieve this, a data logger can be employed. If deviations should occur, the manufacturer or supplier and recipient of the product should be notified. It is also necessary for equipment used for temperature monitoring during transport within vehicles and/or containers to be maintained and calibrated at regular intervals at least once a year.

[139]INTARCON (2023) 'Types of cold rooms', INTARCON, 15 June [Online]. Available at: https://www.intarcon.com/en/types-of-cold-rooms/ (Accessed 24 May 2023).

9.18 Recommendation #18: Develop and Grow the E-Commerce Sector

The recommendation calls for developing and growing the e-commerce sector in the country. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Medium to long term: 3-10 years	
SWOT aspects addressed:	Weakness	• Limited cargo volumes • Lack of cold storage facilities
	Threat	• Insufficient cargo volumes to grow transport connectivity to overseas markets • Limited or lack of sufficient cargo-handling capacity and facilities for airport sector • Limited or lack of sufficient cold-chain handling capacity and facilities • Failure to develop an export-oriented economy
	Opportunity	• Develop and grow the e-commerce sector • Develop the airport to become an e-fulfilment hub for the Caribbean • Upgrade and develop cargo-handling capacity and facilities for airport sector • Upgrade and develop cold-chain handling capacity and facilities • Improve logistics performance in the area of cost for greater competitiveness

Globally, the e-commerce market is gaining momentum as more businesses consider their prospects online. This development presents immense opportunities from the logistics perspective given that goods need to be transported from source of production to a distribution centre, and then to the final consumer. There will also be a proportion of reverse logistics involved, estimated at about 30% of the shipment. In addition, there is the trade in semi-manufactures as spare parts and components are moved using e-commerce logistics. Apart from the physical goods trade, logistics activities encompass the host of business services such as financial transaction, insurance and customer care.

For consumers and businesses, the benefits of e-commerce include overcoming geographical limitations, lowering costs, faster location of products, offer comparison shopping, providing abundant information, creating targeted communication, remaining open at all times, and allowing deals, bargains and group buying. In short, businesses can make use of these benefits with the convenience and availability of online shopping to their advantage. Customer reach for companies is raised manifold. Key concerns for e-commerce would be credit card frauds and payment issues. Nonetheless, growing internet penetration and widespread use of mobile devices and social media platforms will continue to be important drivers of e-commerce market growth.

There could be opportunities for the main airport in Saint Lucia to be developed into an e-commerce hub. This will need consultations with potential airline operators and other stakeholders in the trade to determine requirements for such a hub. With reference to **Figure 61**, flight time of 3 hours allows the main airport in Saint Lucia to serve as an e-fulfilment hub for the entire East Caribbean as well as northern parts of South America. Extending the flight time to 4 hours will allow Hewanorra International Airport to extend its reach to include Ecuador, Panama, Jamaica, Cuba, and whole of Colombia. With a flight time of 5 hours, express cargo operators will be able to cover central America, east coast of the US, Peru, and Bolivia. There is also potential for the airport to serve as consolidation and distribution hubs for cargo flights between Europe and South America. The airport can be positioned to serve as the primary gateway to the Caribbean and even Americas.

Master planning should be conducted for the potential site allocated to develop the e-commerce industry. Availability of good airport infrastructure, speedy customs clearance, cold storage facilities and security are essential. Stable and reliable internet connection will be particularly crucial and essential. The e-commerce hub can also help to boost air connectivity, air logistics activities as well as lend boost to the manufacturing sector in the country. In the longer term, growing air logistics activities can be used to develop an aviation cluster complete with MRO services, an aerospace industry, and specialised aeronautical training institutes.

Figure 61: Markets Covered Within 5-Hour Flight Time from Saint Lucia

Source: International Consultant, using map data from Google Maps.

9.19 Recommendation #19: Address Concerns Raised Towards State of Land Transport

The recommendation calls for addressing logistics inefficiencies associated with land transport in the country. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Inadequate road network and poor road conditions • Truck traffic congestion at the port • Port prioritising cruise traffic
	Threat	• Gridlock for truck traffic accessing and leaving the port
	Opportunity	• Improve logistics performance in the area of cost for greater competitiveness.

Figure 62: Example of a Narrow Stretch of the Backroad (No Markings)

Source: International Consultant.

The main cargo consolidation and distribution centres are located in the Parish of Castries, which includes Cul de Sac, followed by the Parish of Vieux Fort. The first issue concerns traffic congestion on the road between Castries and Gros Islet. For cargo leaving the port in Castries to go to Gros Islet, the time taken can increase significantly to 1-2 hours during peak traffic depending on severity of the congestion. The recommendation is for authorities to review the possibility of widening the road to a 2 x 2 carriageway. There is literally no alternative to the Castries-Gros Islet Highway. This is because the backroads may not be suitable for truck traffic given that many sections of the route involve tight turns and hilly terrain (see **Figure 62**). In some sections of the road, portions on the side were even missing due to landslides. The second issue concerns the Millennium Highway that connects Castries to Cul De Sac. We understand there is an ongoing roadworks on this stretch of the road. This is part of the Millennium Highway and West Coast Road Upgrading Project which aims to upgrade key road infrastructure that links Castries to Soufriere and improve travel time and safety. The project also aims to improve climate resilience of the roads. Efforts should be made to expedite the completion of the Castries-Cul De Sac section to facilitate cargo movements between the two areas and on to Vieux Fort.

Globally, the e-commerce market is gaining momentum as more businesses consider their prospects online. This development presents immense opportunities from the logistics perspective given that goods need to be transported from source of production to a distribution centre, and then to the final consumer. There will also be a proportion of reverse logistics involved, estimated at about 30% of the shipment. In addition, there is the trade in semi-manufactures as spare parts and components are moved using e-commerce logistics. Apart from the physical goods trade, logistics activities encompass the host of business services such as financial transaction, insurance and customer care.

Figure 63: Northern Part of Bridge Not Connected to Road Network at Cul De Sac (Saint Lucia)

Source: International Consultant, using map data from Google Maps.

For the third issue, we note from discussions with stakeholders in Saint Lucia there are concerns of flooding at the intersection at Cul De Sac close to the KFC restaurant. With reference to **Figure 63**, there has been a bridge constructed to address the road flooding issue. However, the northern end of the bridge was not connected to the main road network. This resulted in the bridge being unusable. Authorities should see to the completion of works with the bridge linked to the road network. In addition, the intersection is can be heavy with traffic. Authorities should consider installing traffic lights at the junction to regulate traffic to address this fourth concern.

For cargo leaving the port in Castries to go to Vieux Fort, the driving route will take to the Millennium Highway followed by the road that joins to Micoud Highway. Although congestion can occur at certain stretches of the route, the time taken is largely not affected as drivers may speed up to make up for lost time. Nonetheless, the fifth issue is road markings are missing for certain stretches on the Micoud Highway (see **Figure 64**), speeding trucks, and dangerous overtaking of vehicles. The situation can be exacerbated by vehicles which are low in horsepower which make climbing the slope heavy on gas and a string of vehicles piling up. Authorities should restore road markings and set up warning signs for stretches identified to have high accident occurrences. For the last issue, stakeholders in the transport and logistics community suggested that Gate #2 of the Port of Castries should be utilised especially when there is traffic congestion at Gate #1. Relevant authorities and SLASPA should consider this proposal in order to facilitate cargo movement to and from the port particularly during the high cruise season.

Figure 64: Section of Micoud Highway Without Road Markings

Source: International Consultant.

9.20 Recommendation #20: Develop and Grow the Export Sector

The recommendation calls for developing and growing the export sector. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Medium to long term: 3-10 years	
SWOT aspects addressed:	Weakness	• Limited cargo volumes • Limited investment opportunities with export potential • Limited coordination and cooperation between private and public sector
	Threat	• Failure to develop an export-oriented economy • Insufficient cargo volumes to grow transport connectivity to overseas markets • Stagnating or slow economic growth in key export markets of the Caribbean, US, Canada and/or Europe
	Opportunity	• Set up free trade zone with proximity to the main cargo centre (Castries for Saint Lucia). • Improve logistics performance in the area of cost for greater competitiveness.

Key exports of Saint Lucia included products under the HS code 2203 (beer made from malt – 16.3%), 2710 (petroleum oils excluding crude – 14.0%), 2517 (pebbles, gravel, crushed stone for concrete aggregates – 9.7%), 2208 (undenatured ethyl alcohol – 5.0%), and 0803 (bananas – 4.6%)[140]. They accounted for 49.6% of exports by the country in 2021.

[140]International Trade Centre (2023) Trade Map [Online]. Available at: https://www.trademap.org/Index.aspx (Accessed 3 May 2023).

To promote exports, discussion with stakeholders in Saint Lucia saw mentions of exploring new markets overseas and assistance in marketing, branding, and conducting trade shows. Stakeholders also mentioned the situation is exacerbated by the lack of 20-foot containers and a 40-foot container may be difficult to be filled by a single exporter. Hence for the commodity sector in Saint Lucia, relevant authorities should consider establishing a cooperative to help facilitate and promote exports. For example, the Grenada Cooperative Nutmeg Association (GCNA) provides drying, sorting, bagging, and labelling for the commodity, and exports 6 of 8 FEUs of the commodity per month through the Port of St. George's. In addition to the services mentioned, the GCNA can also be involved in certification, negotiating, marketing and branding. The Grenada Cocoa Association also performs buying, consolidation, marketing and exporting functions on behalf of farmers in the country.

To move up the export value chain, research and development becomes an important process. The community in Saint Lucia mentioned financial and technical assistance to improve agro-processing and production as well as certification. These suggestions indicate potential for authorities to explore subsidies which can be offered to the agricultural and primary industry sectors to assist producers in their research and development efforts, taking into account area of technical expertise and amount of financing required. The aim is to move up the commodity value chain. For commodities identified as key exports, authorities may want to consider devoting efforts at the national level by establishing national research and development institutes to drive such efforts.

Another approach to boost exports and thereby grow cargo volume for the country is attract investments from manufacturers and logistics companies to locate their business in the country. Stakeholders in Saint Lucia highlighted stable currency, stable business environment and tax regime, and political stability as key strengths. There are also organisations tasked with attracting investments which include Invest Saint Lucia, as well as schemes and incentives. While these efforts should be continued, it is important to continuously touch base with investors (both current and potential) to understand their concerns and anxieties, as well as deliver on their requests where possible. For reference, invest attraction in Singapore is performed by a dedicated agency called the Singapore Economic Development Board, which assigns an officer to address any requirements of the potential investor. This goes beyond matters that pertain to site selection, incentive package, and construction and operation of facility, and include other issues such as family relocation, housing, and education for their children.

Attracting investment by a key logistics company can also help to promote exports while lending a significant boost to cargo volume and international trade connectivity. This can be complemented with a free zone that is located either as port of the port complex or adjacent to it. The logistics company therefore becomes an important facilitator for investment and development a logistics cluster centred on the port facility. The building up of cargo volumes can boost international trade connectivity and facilitate diversification of export markets as well.

9.21 Recommendation #21: Designate Lead Agency to Drive Development of Logistics Sector

The recommendation calls for designating a lead agency who will be given the authority and responsibility to drive development of the logistics sector. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Short term: 1-2 years	
SWOT aspects addressed:	Weakness	• Limited coordination and cooperation between private and public sector
	Threat	• Failure to coordinate, manage and bring much needed changes to the logistics sector connectivity to overseas markets • Uncompetitive seaport sector
	Opportunity	• Galvanise the logistics community through regular dialogues and sharing sessions • Whole-of-Government approach to advance competitiveness of the logistics ecosystem • Improve logistics performance in the area of cost for greater competitiveness.

Logistics activities straddle several industries and economic sectors. The logistics sector is the bedrock on which modern economy functions. Given the crucial role and contribution of the sector, the recommendation calls for the establishment of a government agency that is dedicated to driving development of the logistics sector for the benefit of economic growth and development of the country.

Initiatives conceived and implemented will require collaborative efforts across the public sector as well as active participation from private sector organisations and associations. This Whole-of-Government (WOG) approach aims for effective delivery of proposed strategies and action plans that can leverage on expertise and support from various government departments and ministries. The WOG approach is about 'cross-boundary work' which calls for public servants to have a collaborative mindset. Cultural shift is at the core of the WOG approach. The rationale for WOG work is to eliminate 'silos', i.e., departments working in isolation from one another.

The WOG approach emphasises inter-departmental or inter-ministry collaboration as a core feature. It advocates building and sustaining relationships, managing multiple and conflicting accountabilities, and managing complexity and interdependence. At the same time, WOG teams and other inter-departmental and inter-agency structures must align with a common purpose to accomplish the required outcomes. Note that it is important to make available capacity development which can include creating repositories of shared experiences and lessons, joint training, practice guidelines, networking initiatives, and access to training.

Improving logistics performance and efficiency requires a rethink in policies, considerations and priorities. The complexity of the agenda will present significant challenges. The work cuts across administrative boundaries of transportation, infrastructure, industry, commerce, finance, and the environment. As such, policymakers must reconcile the need for depth and consistency of reforms with set priorities. For a start, the workplan of the proposed lead agency can take reference to the recommendations proposed in this report. It is also necessary to establish mechanisms to involve the private sector. In the case for Singapore, logistics development is driven by the Singapore Economic Development Board (SEDB). The agency, which reports to the Ministry of Trade and Industry, works closely with the Ministry of Transport and its subordinate agencies which are the Land Transport Authority, Civil Aviation Authority of Singapore, and Maritime and Port Authority. The SEDB also collaborates with the private sector organisation Singapore Logistics Association to drive affairs of the sector.

9.22 Recommendation #22: Separation of Regulatory and Commercial Functions of the Seaport

The recommendation calls for separation of regulatory and commercial functions for the seaport. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Medium to long term: 3-10 years	
SWOT aspects addressed:	Weakness	• Inefficient labour practices at the port
	Threat	• Uncompetitive port sector
	Opportunity	• Improve logistics performance in the area of cost for greater competitiveness.

The Saint Lucia Air and Sea Ports Authority carry the dual functions of being an operator and regulator at the same time. As a port authority, the entity is responsible for discharging its responsibilities pertaining to the regulatory aspects of seaport operations. As a commercial operator, the entity is provided held accountable for decisions made and overall port performance. The port authority operates like a private company and is supposed to be more customer-oriented and efficient. This is the result of deregulation which introduced commercialisation elements to improve overall efficiency and service quality for stevedoring and various port-related services. Nonetheless, this dual responsibility introduces the concern of conflict of interest especially for areas where the port authority has to "regulator itself" while being an operator at the same time. It may also be the case where efficiency levels are affected due to entrenched work practices and cultures which over the years, have become accepted norms.

The authorities could consider going a step further by introducing corporatisation where the commercial components of the port authority are put into a new entity which is given legal status as a company. The ownership is retained by the government. The corporatised entity is expected to be more responsive to customer needs while still subjected to government control and can be used to fulfil unprofitable national interests. The next step is to consider partial privatisation where the authorities can consider the landlord port model. In the landlord port model, the commercial entity becomes a full-fledged private port company. The government can opt to retain majority shareholding. The port authority becomes a regulator and landlord. The regulatory entity presides over the domains of planning and development, property rights and desired levels of efficiency which the port company should achieve. Functions such as terminal operations will be performed by the port company. In the landlord port, the port company owns the superstructure and uses it to perform cargo handling. An alternative structure is the tool port model where equipment is leased to the port company. The company operates under a concession arrangement.

The process can be initiated by examining the costs and benefits of current operating model by having regulatory and commercial functions undertaken by a single entity. From the regulatory perspective, focus will be on ability to carry out fully the responsibilities by the port authority. Reference can be made to international conventions which the country is signatory to, as well as national laws. From the commercial perspective, a benchmarking exercise can be undertaken to assess areas where the port has excelled or underperformed compared to the sample of ports. For Saint Lucia, examination should also be made regarding having regulatory functions of the airport and seaport sector under the charge of a single entity. The maritime and aviation industries can be rather distinct. For example, emphasis of airports is usually on passenger traffic whereas the seaport sector is typically focused on cargo traffic. For Saint Lucia, it appears that the emphasis is on the cruise sector which suggests that passenger handling for the seaport sector becomes the focus.

Both the regulatory and commercial perspectives can be used to ascertain whether the separation should proceed. Should the case be proven that separation indeed brings greater benefits to the country and local community, decision has to be made on the governance model that best suits the context of conditions faced in the country. There will also be legislative issues to address. Before carrying out the separation, functions that would be commercialised and those that would be retained by the port authority should be decided. Consultation process to engage relevant stakeholders (especially port stevedores and the unions) for political support for the reform will also be key.

9.23 Recommendation #23: Create Strategic Stockpile for Essential Food and Food Items to Bolster Food Security

The recommendation calls for creation of strategic stockpile for essential food and food items to address concerns over food security. The implementation timeframe and SWOT aspects to be addressed are:

Implementation timeframe:	Short to medium term: 1-5 years	
SWOT aspects addressed:	Weakness	• Entirely dependent on imports for grain and grain products
	Threat	• Food security challenges
	Opportunity	• Improve food security.

Food staples form the cornerstone of food security. They constitute the dominant part of the diet of the population and are consumed regularly, usually daily. They provide the major proportion of an individual's nutritional and energy needs. For most communities, food staples are likely to comprise one or more of the following food crops which are cassava, corn (maize), rice, plantains, potatoes, millet, sorghum, soybeans, sweet potatoes, yams and taro. Of these food items, corn, wheat and rice provide 60% of global food energy intake.

On this aspect, Saint Lucia is entirely dependent on overseas imports for cereals. Corn imports by Saint Lucia are almost exclusively from Brazil. For wheat, Brazil is a major supplier. For wheat flour, Saint Vincent and the Grenadines is the biggest source of supply to Saint Lucia. The exporter is a member of the CARICOM. Rice is also an important source of food in Saint Lucia. Guyana, who is a member of the CARICOM, is a key supplier of rice to the country. Diversification of wheat imports could consider other major exporting countries and regions which include the EU and South America. For soybeans, diversification of import sources may be difficult as the trade is dominated by Brazil and the US. With the importance of corn, wheat, soybeans and rice, it may be prudent for the government of Saint Lucia to consider creating stockpiles of these commodities for emergency use.

The recommendation therefore calls for creation of a national strategic stockpile for essential food and food items. The first step is to identify the lead agency to drive this initiative. The second step is to determine the composition of the basket of essential items for food security. This is followed by establishing the duration required. For some countries, the government may want to build a stockpile of rice that is sufficient to meet the needs of the population for a period of two months. The duration required for other countries may differ. This is a decision that has to be deliberated and made by policymakers in the respective countries. The fourth step is to determine the quantities required, taking reference to the duration which the stockpile is expected to last. The fifth step is to decide on the location and facilities where the stockpiles will be stored. The next step will be to decide on the administration of the food security plan and stockpile. Lastly, the plan would be put into implementation.

9.24 Chapter Summary

Concrete initiatives and policy and institutional measures are proposed in this chapter. This forms the last component of the study and addressed the fifth objective. Implementation timeline of the proposed recommendations are provided and the strategic road map makes reference to implementation over the short term (1 to 2 years), medium term (3 to 5 years), and longer term (6 to 10 years).

Recommendation #1 calls for strengthening the consensus building mechanism between public and private sectors for trade facilitation reform. Areas of attention for the reform include legal, organisation, technology, processes and people. Time frame: 1 to 2 years.

Recommendation #2 calls for establishing a national logistics skills curriculum for the country. Time frame: 1 to 2 years.

Recommendation #3 calls for a thorough review of work processes involved in collecting cargo and customs inspection and clearance at the port. Areas of attention are yard operations, gate operations and customs processes. Time frame: 1 to 2 years.

Recommendation #4 calls for implementing 24 hours, 7 days a week work system for the port. The work system may exclude public holidays for the moment, until deemed necessary at a later time. Time frame: 1 to 2 years.

Recommendation #5 calls for a national single window system to facilitate trade and logistics processes. Time frame: 1 to 5 years. A case study of Singapore's National Single Window System was given.

Recommendation #6 calls for efforts to go fully paperless with customs declaration, payments and inspections. This will accelerate digitisation and digitalisation of customs processes and facilitate trade. Time frame: 1 to 2 years.

Recommendation #7 calls for installation of a TOS to enhance port productivity and efficiency in the seaports. Time frame: 1 to 2 years.

Recommendation #8 calls for setting up a PCS to further enhance efficiency and productivity of port operations. The PCS is an extension of the TOS by incorporating other port service providers in the logistics and supply chain. Time frame: 1 to 2 years. A case study of the PCS in Singapore was given.

Recommendation #9 calls for a review of existing port tariff system. Time frame: 1 to 2 years. A case study comparing terminal handling charges for the Caribbean region was provided.

Recommendation #10 calls for a review of the import tariff system. Time frame: 1 to 2 years.

Recommendation #11 calls for technical assistance to be provided for equipment repair, maintenance and where necessary, replacement at mainports in Saint Lucia. It may also be necessary to acquire additional new equipment to address deficiencies seen in port productivity levels. Time frame: 1 to 5 years.

Recommendation #12 calls for locating and setting aside land to establish a container depot to provide value added services for cargo operations. Time frame: 1 to 5 years.

Recommendation #13 calls for a review of the current location of the ferry terminal at the Port of Castries and its relocation to another site. Time frame: 1 to 5 years.

Recommendation #14 calls for a review of courses pertaining to training and education for the logistics sector. Time frame: 1 to 5 years. A case study on logistics training and education in Singapore was given.

Recommendation #15 calls for fundamental review of current port capacity and its capability of meeting the needs over the long term in the country. This may see a new port developed at Cul De Sac. Time frame: 6 to 10 years. A case of developing the Port of Kaohsiung in Taiwan China was given.

Recommendation #16 calls for attracting and growing transhipment traffic with the purpose of transforming the port to become a major maritime hub in the Caribbean region. Time frame: 6 to 10 years. A case of development of Tanjung Pelepas in Malaysia as a transhipment hub.

Recommendation #17 calls for providing cold storage facilities particularly at the Hewanorra International Airport in Saint Lucia. Time frame: 1 to 5 years.

Recommendation #18 calls for developing and growing the e-commerce sector in the country. Time frame: 3 to 10 years.

Recommendation #19 calls for addressing logistics inefficiencies associated with land transport in the country. Time frame: 1 to 2 years.

Recommendation #20 calls for developing and growing the export sector in the country. Time frame: 3 to 10 years.

Recommendation #21 calls for designating a lead agency who will be given the authority and responsibility to drive development of the logistics sector. Time frame: 1 to 2 years.

Recommendation #22 calls for separation of regulatory and commercial responsibilities for the seaport. Time frame: 3 to 10 years.

Recommendation #23 calls for creation of strategic stockpile for essential food and food items to address concerns over food security. Time frame: 1 to 5 years.

CHAPT 10 CONCLUSION

10.1 Importance and Contribution of the Logistics Sector

Logistics activities serve as the gel for the efficient and productive functioning of modern societies. With reference to Figure 65, the impact of logistics activities is shown to permeate every sector of the Singapore economy, whether directly or indirectly. For the country, logistics accounts for 1.4% of GDP and employs 86,000 workers across 5,300 enterprises. More importantly, the sector directly supports another 52% of Singapore's economy via the clustering of trade-manufacturing-logistics activities, supporting industry progression to higher value-added activities, attracting investments through increased industry competitiveness, and improving international connectivity enabled by higher cargo traffic which resulted from the congregation of logistics and related activities.

With reference to the figure, contribution of logistics to various economic sectors are elaborated. In manufacturing, logistics activities enable just-in-time services as well as supporting logistics needs of a host of cargo owners. In construction, logistics activities cater to oversize cargo and prefab materials, and encompass all aspects of materials handling. In ownership of dwellings, logistics activities deal with consumer logistics, last mile logistics, as well as reverse logistics. For wholesale and retail trade, logistics serves as the anchor for international trade activities, having to frequently deal with challenges imposed by stringent customer requirements, seasonality, and handling across a variety of products, product-requirements and transportation modes. The expansion of FMCG goods trade (e.g., e-commerce) has also augmented the service geography of firms providing logistics solutions. This help to stimulate further development of the logistics market. Other types of logistics activities can be found embedded in the business services and finance and insurance sectors. The figure thus depicts the composition of a logistics cluster. The explanation underscores the importance of logistics as a crucial driver of industry competitiveness and national economic growth and development.

Figure 65: Contribution of Logistics to the Singapore Economy

Source: International Consultant, using information from Singapore Department of Statistics (2021)[141] .

[141] Singapore Department of Statistics (2021) Singapore Economy [Online]. Available at: https://www.singstat.gov.sg/modules/infographics/economy (Accessed 20 May 2021).

10.2 Summary of Recommendations and Key Actions

The following paragraphs shall recap on key actions and areas for attention required to facilitate implementation of the recommendations.

Recommendation #1: Strengthen the consensus building mechanisms between public and private sectors for trade facilitation reform

The recommendation to strengthen the consensus building mechanism between public and private sectors for trade facilitation reform calls for actions that include the following:

- Identify lead agency to drive trade facilitation reform;
- Determine the scope of reform, focusing on priority areas that require urgent attention at the initial phase;
- Engage relevant stakeholders from across key public and private sector organisations depending on the specific area of reform (may require establishing different task forces with different membership composition to expedite the reform process);
- Determine the desired outcomes and targets to be achieved with respect to each area of reform;
- Hold regular dialogues between the public and private sectors with updates on progress; and
- Conduct periodic reviews on the scope of reform to identify new priority areas that require urgent attention.

Recommendation #2: Establish national logistics skills curricula

The recommendation calls for establishing a national logistics skills curriculum for the country with actions that include the following:

- Establish a working committee tasked with developing a national logistics skills curriculum;
- Identify specific skill sets that are required for the logistics industry through consultation with stakeholders;
- Determine the desired outcomes and targets to be achieved with reference to the national logistics skills curriculum; and
- Identify partners from the public and private sectors for collaboration to design and offer courses with certification to address the skill sets demanded by the logistics industry.

Recommendation #3: Review work processes for cargo collection and clearance at the port

Areas of attention are yard operations, gate operations and customs processes. Key actions include the following:

- Make clear to stakeholders and publicise the process of collecting cargo from the port to avoid inconsistencies or misunderstandings (important to distinguish stipulated safe and efficient work processes from established norms);
- Make clear the guidelines for cargo inspection and clearance, and meticulously following through with the risk assessment criteria and status generated for cargo, with random checks conducted on green lane cargo; severe penalties to be imposed to discourage illegal or erroneous reporting;
- Award importers and exporters with consistent good track record with green lane status, can be evaluated and renewed annually;
- Eliminate the need to queue to enter the port with pre-clearance done using an online platform by the port authority for gate pass application and issuance;
- Establish a one-stop location in the port to handle all payments for services of the port authority and customs, as well as document processing and where possible, such activities should be handled electronically via a Port Community System;
- Establish an electronic system to track and trace containers and cargo in the port, and the system to be updated when the cargo or container is moved to another location (to be meticulously administered which will facilitate keeping track of cargo or containers and eliminate the need for runners to locate them);
- Container assigned to the green lane should be made ready for pick up by the truck at the port at the scheduled time of appointment; and
- Establish key performance indicators for the steps involved in collecting and clearing cargo and identify specific teams or departments responsible for every step, with the intention for progressive improvements to reduce the time and cost involved for the whole process.

Recommendation #4: Review implementing 24/7 work system at the port

The recommendation calls for implementing 24 hours, 7 days a week work system for the port. The work system may exclude public holidays for the moment, until deemed necessary at a later time. Key actions include the following:

- Estimate the volume of cargo and vessel traffic the port could expect to handle in the medium term;
- Review the benefits and costs of converting the port to be operational for 24 hours a day, 7 days a week, with the exception of pubic holidays, to accommodate growing port traffic;
- Work out the implementation plan and timeline including shift arrangement and notices if the 24/7 work system is deemed beneficial;
- Secure buy in from stevedores, customs, regulatory authorities and other port service providers for smooth implementation; and
- Implement the new work system.

Recommendation #5: Implement NSW system for trade and logistics facilitation

Through the NSW, cross-border trade can see improved efficiency, increased transparency, enhanced coordination, reduced costs, improved compliance, and better facilitation of cross-border trade. Key actions include the following:

- Identify sponsor(s) for the project and NSW project team, including project manager who is responsible for leading and driving the project;
- Determine requirements of the NSW, paying special attention to the technical and operational aspects of what is needed for a successful NSW implementation;
- Launch Request for Proposal (RFP) from prospective vendors for proposed NSW solutions, finalise terms and requirements, followed by tender process;
- Project plan should include the implementation timeline, milestones, specific tasks required, budget and resource plan;
- Identify project risks and develop plans to mitigate those risks;
- Training should be provided to all stakeholders who will need to use the NSW system;
- User support is an essential feature especially during the familiarisation and implementation stages;
- Evaluate project implementation, user acceptance testing, and complete procedures for project hand over including knowledge transfer; and
- Maintenance of NSW system with periodic updates and enhancements.

Recommendation #6: Accelerate efforts to go fully paperless with customs declaration, payments and inspections

The recommendation will accelerate digitisation and digitalisation of customs processes and facilitate trade. Key actions include the following:

- Identify lead agency to drive the recommendation (may not necessarily be customs especially when there are entrenched interests to perpetuate current practices and work arrangements);
- Do status check on current implementation of paperless customs processes with the aim to identify outstanding bottlenecks and concerns that need to be addressed (review should consider the entire IT infrastructure and architecture for trade transactions from the user perspective – which means industry consultation forms a critical component of the process);
- Determine specific action plans with implementation timelines and responsible agencies or departments to address outstanding issues including entrenched interests;
- Provide regular updates on progress of the implementation to reporting authorities as well as stakeholders in the trade and logistics community;
- Retrain staff made redundant by the process to be deployed to other roles such as in audit and compliance work;
- As a subsequent phase, conduct review of customs procedures to identify other areas which can go fully electronic to expedite cargo clearance (e.g., risk assessment, schedule of fines, inspection procedures, pre-clearance of import cargo); and
- Determine specific action plans with implementation timelines and responsible agencies or departments for this subsequent phase of implementation.

Recommendation #7: Install TOS to enhance productivity and efficiency of seaport terminal operations

There appears to be significant potential to improve port productivity and efficiency given feedback received from port users. Key actions include the following:

- Determine user requirements with respect to the TOS, taking into account KPIs to be achieved with projected cargo and vessel traffic over the decade;
- Review adequacy of the current TOS in meeting the envisioned needs, in particular for the main seaports;
- Evaluate capabilities of different TOS available in the market in terms of their suitability given local operating conditions (emphasis is on balancing between the factors of budget, scope, functionality, support and end result);
- Having decided on the TOS to use, follow through with implementation, training, and post-implementation follow-up; and
- Conduct periodic reviews to determine adequacy of the TOS, taking reference to port productivity and efficiency parameters benchmarked against other terminals in the region.

Recommendation #8: Set up the PCS

The PCS is an extension of the TOS by incorporating other port service providers in the logistics and supply chain. Key actions include the following:

- Identify and appoint the lead agency for the project;
- Determine the objectives of the PCS, including implementation timeline, coverage and scope of services to offer, including those offered by other public or private entities;
- Consider the legal frameworks which the PCS will need to work with (e.g., data protection acts at the national, regional and international levels);
- Identify the stakeholders to participate in the project and for inclusion in the consultation process;
- Consider the delivery of the PCS, whether through joint venture or PPP model;
- Use the RFP process to refine objectives and scope of the PCS;

- Launch tender to set up the PCS, with tender identifying priority modules and specifying list of systems to be integrated into the PCS;
- Having decided on the PCS to use and operating model, follow through with implementation, training, and post-implementation follow-up; and
- Conduct periodic reviews to determine adequacy of the PCS, taking reference to overall impact on logistics and business costs, and economic competitiveness.

Recommendation #9: Review system of port tariffs

Discussions with stakeholders in the logistics and transport community in Saint Lucia highlighted the concern of expensive port charges. Key actions include the following:

- Review the intended purpose of the port tariff system;
- Modernise the tariff structure to align to the current era of container shipping and national economic development and growth objectives, while meeting the purpose of the tariff system;
- Communicate and engage relevant stakeholders (especially port stevedores and the unions) for political support for the revamp;
- Initiate legislative procedures for the amendments;
- Simplify the tariff structure to make it easy to understand;
- Make the tariff structure transparent;
- Conduct benchmarking with other ports in the region to monitor cost competitiveness; and
- Conduct periodic reviews to ensure cost competitiveness of port tariffs and their consistency in meeting the development objectives of the country.

Recommendation #10: Review import tariffs to address high cost of imports

Key actions include the following:

- Assess the impact of high import tariffs on the country which can inhibit its competitiveness, focusing in particular on the detrimental effects on cost of living and cost of business, as well as effects of trade diversion;
- Review the scheme of trade tariffs for opportunities to reduce the rates (e.g., De Minimis Rule), taking into account potential loss of revenue vis-a-vis possible gains through trade creation and other effects including boost to export competitiveness due to cheaper imports of semi-manufactures or raw materials;
- Initiate the legislative process and consultation sessions necessary for the reform;
- Simplify the tariff structure to make it easy to understand;
- Make the tariff structure transparent;
- Conduct benchmarking with other countries in the region to monitor trade competitiveness; and
- Conduct periodic reviews to ensure trade tariffs are consistently applied and able to meet the economic growth development objectives of the country.

Recommendation #11: Provide technical assistance for equipment, repair, maintenance and replacement

The recommendation calls for technical assistance to be provided for equipment repair, maintenance and where necessary, replacement at mainports in Saint Lucia. It may also be necessary to acquire additional new equipment to address deficiencies seen in port productivity levels. Key actions for the short-term include the following:

- Carry out technical assessment to determine repairs and replacements needed for port equipment;
- Deploy technical team to make quick repairs or replacement of spare parts to restore malfunctioning equipment to working conditions; and
- Determine the schedule of replacement for port equipment where repairs are not possible and perform the replacement.

Key actions for the short to medium term include the following:

- Project port traffic volume for cargo and vessel over the next decade;
- Determine KPIs and targets to be achieved based on desired levels of operation and port asset utilisation;
- Estimate performance levels based on the latest stocktake performed to assess readiness and availability of port equipment;
- Identify equipment needed to be repaired, replaced or acquired by the port to achieve this desired level of operations and KPI targets, based on the existing location and configuration of the terminal (e.g., new or additional quay crane, reachstackers, forklifts, weighbridges, tugs etc.);
- Identify infrastructure works required, such as necessity for second quay crane for the Port of Castries with associated strengthening works based on projected cargo and vessel traffic, and address limitations to vessel draft;
- Work out the schedule for introducing the equipment and maintenance regime; and
- Train a team of technicians capable of performing equipment maintenance and repair.

Recommendation #12: Allocate land to be designated as container depot

The recommendation calls for locating and setting aside land to establish a container depot to provide value added services for cargo operations. Key actions for the short term include the following:

- Determine the volume of cargo traffic that the container depot should accommodate given existing operational requirements;

- Identify suitable land area to accommodate the container depot (taking into account land use planning and zoning of potential sites);
- Develop arguments based on sound economic, financial and social analysis on net benefits to be brought about by the container depot;
- Engage relevant stakeholders through private and public consultations; and
- Establish the schedule of implementation specifying affected areas, environmental mitigation measures, and completion time.

Key actions for the medium term include the following:

- Forecast port traffic volume for cargo, vessel and trucks over the two decades;
- Develop a port masterplan which necessitates reviewing the layout of the port in terms of its capability to meet the needs of the forecasted volume of vessel, cargo and truck traffic;
- Determine the operational, economic, environmental, social and traffic impact of the proposed port masterplan (inclusive of risk analysis and mitigation plan);
- Engage relevant stakeholders through private and public consultations; and
- Develop implementation plan, including timeline, budget, resource planning and schedule of works involved.

Recommendation #13: Explore relocation of the ferry terminal (for Port Castries)

The recommendation calls for a review of the current location of the ferry terminal at the Port of Castries and its relocation to another site. Key actions include the following:

- Develop forecasts for ferry vessel, passenger and road traffic for the next decade;
- Determine the required capacity in terms of land area and built-up area necessary to accommodate the forecasted ferry-related traffic;
- Identify potential locations in proximity to the city of Castries that can accommodate the ferry terminal;
- Conduct assessments on the operational, economic, environmental, social and traffic impact of the proposed ferry terminal (inclusive of risk analysis and mitigation plan);
- Engage relevant stakeholders through private and public consultations; and
- Develop implementation plan, including timeline, budget, resource planning and schedule of works involved.

Recommendation #14: Training and education for logistics sector

The recommendation to address lack of skilled logistics professionals in the industry calls for actions that include the following:

- Identify training needs based on consultation with stakeholders in the logistics industry;
- Identify partner tertiary institution to collaborate for training and education of workers in the logistics sector;
- Design and offer courses with flexible delivery modes to address the skill sets demanded by the logistics industry;
- dentify persons to be sent for training, with financial support provided by the company or third-party organisations; and
- Promote awareness, attractions and career opportunities of working in the logistics industry.

Recommendation #15: Explore development of a new port at Cul De Sac

Developing a new port is likely to involve multiple government departments and stakeholders. It will also include several rounds of public consultation before and during the construction process. Primary concerns will be the long-term impact of the project on the country and local community. Careful considerations should be made for the following aspects in terms of their impact and associated risks:

Economic and social impact	• Impact on value added, economic output, revenue and employment • Social costs and benefits
Environmental impact	• Mitigation and preventive measures • Compliance with national and international legislature
Site assessment	• Suitability of location based on site investigation • hysical constraints to future expansion
Technological impact	• Appropriate systems and applications to deploy • New port can trigger and facilitate adoption of technology such as IoT devices, WMS, TMS, ERP systems in the logistics community
Legal and regulatory impact	• • Compliance with national laws for all stages • • Transparency and consistency in administration
Financial impact	• • Availability and allocation of capital and operating expenditure • • Measures for cost control and mitigation
Industry impact	• Potential industries to co-locate • Establishment of free trade zones and support policies
Traffic impact	• Projected cargo, vessel and truck traffic • Composition of traffic and connectivity to shipping lines

Recommendation #16: Attract and grow transhipment traffic

The recommendation calls for attracting and growing transhipment traffic with the purpose of transforming the port to become a major maritime hub in the Caribbean region. Key actions include the following:

- Initiate discussions with shipping lines that are active in the Caribbean or other entities (shipping lines or otherwise) who have interests to grow their activity in the region, on their requirements and conditions to make the port become a transhipment hub including expected container throughput;
- Determine the required capacity in terms of land and other resources necessary to accommodate the projected transhipment traffic;
- Identify potential sites to locate the transhipment port;
- Assess the benefits and costs of becoming a transhipment hub in the region by accommodating to the requirements of the shipping line(s) or interested entities or both;
- Engage relevant stakeholders through private and public consultations; and
- Develop implementation plan, including timeline, budget, financing, resource planning and schedule of works involved.

Recommendation #17: Construct cold storage facilities at the airport (for UVF)

For air cargo, the main aviation gateway for Saint Lucia is the Hewanorra International Airport. Discussions with the logistics community mentioned the lack of cold storage facility at the airport. Key actions include the following:

- Assess the volume of cargo that requires cold storage at the airport with a view for projected traffic in the coming decade;
- Ascertain user requirements with respect to specific products anticipated to be handled by the facility;
- Identify potential site to locate the facility and conduct site assessment, taking into account impact on current and future aircraft and airport operations;
- Engage relevant stakeholders through private and public consultations; and
- Develop implementation plan, including timeline, budget, resource planning and schedule of works involved.
- For interim solution, explore feasibility of hooking up a 40-foot reefer container or converting one of the bays at HACS to be equipped with cold storage capabilities.

Recommendation #18: Develop and growth the e-commerce sector

Globally, the e-commerce market is gaining momentum as more businesses consider their prospects online. Key actions include the following:

- Initiate discussions with air cargo carriers that are active in the Caribbean, or other airlines, with interest to grow their activity in the region, on their requirements and conditions to operate an e-commerce hub at the airport;
- Determine the required capacity in terms of land and other resources necessary to accommodate the projected e-commerce traffic, taking into account associated cluster of activities and potential free zone;
- Identify potential sites to locate the e-commerce hub, taking into account impact on current and future aircraft and airport operations;
- Assess the benefits and costs of becoming an e-commerce hub in the region by accommodating to the requirements of the airline, taking account of the projected air cargo volume;
- Engage relevant stakeholders through private and public consultations; and
- Develop implementation plan, including timeline, budget, financing, resource planning and schedule of works involved.

Recommendation #19: Address concerns raised towards state of land transport

For the land transport sector, key actions include the following:

- Consider widening the Castries-Gros Islet Highway to a 2 x 2 carriageway to facilitate traffic flow;
- Expedite completion of roadworks on the Millennium Highway for the Castries-Cul De Sac stretch;
- Complete works on the bridge at Cul De Sac by linking it to the main road network;
- Consider installing traffic lights at the road junction at Cul De Sac next to the KFC restaurant to regulate traffic; traffic light can be made to work during certain periods of the day;
- Restore road markings for the Micoud Highway that connects Cul De Sac to Vieux Fort and install warning signs for stretches known to have high accident rates; and
- Consider using Gate #2 of the Port of Castries especially when there is traffic congestion at Gate #1, which can be prevalent especially during the high cruise season.

Recommendation #20: Develop and grow the export sector

Key actions include the following:

- Consider setting up cooperatives for targeted commodities where they can be tasked with buying, consolidation, marketing and exporting functions on behalf of farmers in the country;
- Assess possibilities of subsidising agricultural and primary industry sectors to assist producers in their research and development efforts, taking into account area of technical expertise and amount of financing required;

- For strategic commodities, establish national research and development institutes to drive such efforts at the country level;
- Continuous engagement with investors (both current and potential and especially for export sector) to understand their concerns and anxieties, and deliver on their requests where possible; and
- Initiate discussions with prospective key logistics companies for interest in using the country as a major logistics hub in the entity's supply chain and transportation network, with the aim to boost exports and international trade connectivity.

Recommendation #21: Designate lead agency to drive development of logistics sector

Given the crucial role and contribution of the logistics sector, the recommendation calls for the establishment of a government agency that is dedicated to driving development of the logistics sector for the benefit of economic growth and development of the country. Key actions include the following:

- Designated lead agency to drive logistics matters and development;
- Identify supporting agencies to deliver the Whole-of-Government approach to address challenges and opportunities for the logistics sector;
- Identify key private sector organisations to work with;
- Regularly review composition of WOG team to ensure membership is aligned to contemporary developments; and
- Initiate regular dialogues between stakeholders in the logistics community for consultative approach in developing and growing the logistics sector.

Recommendation #22: Separation of regulatory and commercial functions of the seaport

The recommendation calls for separation of regulatory and commercial responsibilities for the seaport. Key actions include the following:

- Examining the costs and benefits of current operating model by having regulatory and commercial functions undertaken by a single entity;
- Examine the merits of having regulatory functions for the aviation and maritime sector under the charge of the same entity which is SLASPA (additional area to examine for Saint Lucia);
- Decide on the governance model to adopt (e.g., tool port, landlord port or fully privatised port);
- Identify functions that would be commercialised and those that would be retained by the port authority should the decision be made to go ahead with the separation;
- Determine the implementation timeline and milestones to be achieved;
- Communicate and engage relevant stakeholders (especially port stevedores and the unions) for political support for the reform; and
- Initiate legislative procedures for the amendments.

Recommendation #23: Create strategic stockpile for essential food and food items to bolster food security

The recommendation calls for creation of strategic stockpile for essential food and food items to address concerns over food security. Key actions include the following:

- Identify lead agency to drive the initiative;
- Determine the basket of essential items for food security;
- Establish the duration which the stockpile is required to last during a food emergency or crisis;
- Determine the quantities required, taking reference to the duration which the stockpile is expected to last;
- Decide on the location and facilities for the stockpiles; and
- Decide on the administration of the food security plan and stockpile.

The concept of the logistics and the logistics cluster plays a key role with regards to pursing a logistics strategy and logistics network development of a country. Reference must be made to the role of the country for the wider geographical region. Logistics clusters are well-connected congregation of multimodal transport, logistics, light assembly and manufacturing, and various supporting services. Logistics clusters have enabled domestic and international long-haul shipments of containerised, non-containerised and bulk cargo. Through efficient logistics services, shippers and logistics service providers can operate extended supply chains more efficiently despite increased operational complexities due to longer distances, multiple modes, and several cargo hand-off points involved. Nonetheless, the role logistics clusters go beyond lowering or minimising logistics costs for firms. They are strategic tools for governments to create employment, stimulate economic activities, strengthen regional competitiveness, reduce urban congestion, and strengthen food security.

ANNEX 1

VESSEL ARRIVALS AT LCCAS, LCVIF AND LCCDS FOR APRIL 2023

Table A1: Example of Vessel Arrivals in April 2023 at the Port of Castries (LCCAS)

Name	Type	Flag	GT	LOA x Beam (m)	ATA	Length of Stay
Mein Schiff 2	Passenger Ship	Malta	111,554	316 x 42	31 Mar 0620 hrs	13h 53min
Rhapsody of the Seas	Passenger Ship	Bahamas	78,878	279 x 36	1 Apr 0708 hrs	11h 16min
Seven Seas Navigator	Passenger Ship	Bahamas	28,803	171 x 25	1 Apr 0838 hrs	9h 25min
Nomadic Hjellestad*	General Cargo Ship	Marshall Islands	9,530	138 x 21	1 Apr 1301 hrs	8h 58min
Celebrity Equinox	Passenger Ship	Malta	121,878	317 x 37	2 Apr 0606 hrs	11h 18min
Marella Explorer 2	Passenger Ship	Malta	72,458	247 x 32	3 Apr 0708 hrs	10h 56min
Tropic Jewel**	Containership	St. Vincent & Grenadines	15,215	160 x 25	3 Apr 1411 hrs	1day 3h
Industrial Royal*	General Cargo Ship	Liberia	8,963	135 x 22	4 Apr 0936 hrs	9h 23min
Viking Princess	Vehicles Carrier	Marshall Islands	9,827	117 x 20	4 Apr 1929 hrs	6h 46min
Fouma	Containership	Cyprus	15,375	166 x 25	4 Apr 2212 hrs	14h 44min
Lombok Strait#	Reefer Vessel	Liberia	14,413	167 x 25	5 Apr 0236 hrs	12h 33min
Celebrity Millennium	Passenger Ship	Malta	90,963	294 x 32	5 Apr 0714 hrs	10h 8min
Vision of the Seas	Passenger Ship	Bahamas	78,717	279 x 36	6 Apr 0643 hrs	11h 3min
Volendam	Passenger Ship	Netherlands	61,214	238 x 32	6 Apr 0722 hrs	11h 1min
Voyager of the Seas	Passenger Ship	Bahamas	138,194	311 x 47	6 Apr 0811 hrs	10h
Oslo Bulk 5	General Cargo Ship	Norway	5,629	108 x 18	6 Apr 1230 hrs	7h 49min
MSC Seaside	Passenger Ship	Malta	153,516	323 x 41	7 Apr 0732 hrs	11h 32min
Norwegian Epic	Passenger Ship	Bahamas	155,873	329 x 41	7 Apr 1217 hrs	7h 50min
Tampa Trader*	Containership	Singapore	9,932	148 x 24	8 Apr 1552 hrs	7h 19min
Hoegh Caribia	Vehicles Carrier	Marshall Islands	20,209	140 x 22	9 Apr 0651 hrs	10h 35min
Voyager of the Seas	Passenger Ship	Bahamas	138,194	311 x 47	11 Apr 0812 hrs	9h 47min
Celebrity Edge	Passenger Ship	Malta	130,818	306 x 39	11 Apr 0917 hrs	9h 57min
Tropic Island**	Containership	St Vincent & Grenadines	15,215	160 x 25	11 Apr 1830 hrs	10h 37min
Florida Highway	Vehicles Carrier	Panama	59,493	200 x 32	11 Apr 1947 hrs	9h 45min
Mein Schiff 2	Passenger Ship	Malta	111,554	316 x 42	12 Apr 0620 hrs	12h 53min
Norwegian Epic	Passenger Ship	Bahamas	155,873	329 x 41	12 Apr 0802 hrs	9h
AS Fabrizia@	Containership	Portugal	15,375	166 x 25	12 Apr 1015 hrs	14h 51min
Enchantment of the Seas	Passenger Ship	Bahamas	82,910	301 x 32	13 Apr 0718 hrs	10h 58min
Baltic Klipper#	Reefer/Containership	Liberia	14,091	165 x 25	13 Apr 1842 hrs	7h 57min
Rhapsody of the Seas	Passenger Ship	Bahamas	78,878	279 x 36	15 Apr 0706 hrs	11h 28min
Contship Bee*	General Cargo Ship	Liberia	9,940	148 x 24	16 Apr 1612 hrs	14h 14min
Marella Explorer 2	Passenger Ship	Malta	72,458	247 x 32	17 Apr 0709 hrs	10h 53min
Carmita	General Cargo Ship	Panama	2,545	87 x 13	17 Apr 0750 hrs	13h 1min
Nomadic Hjellestad*	General Cargo Ship	Marshall Islands	9,530	138 x 21	18 Apr 0617 hrs	10h 4min
Marella Discovery	Passenger Ship	Malta	69,472	264 x 36	18 Apr 0726 hrs	10h 37min
Tropic Jewel**	Containership	St. Vincent & Grenadines	15,215	160 x 25	18 Apr 1647 hrs	12h 8min
Fouma	Containership	Cyprus	15,375	166 x 25	20 Apr 0042 hrs	7h 13min
Atlantic Klipper#	Reefer/Containership	Netherlands	14,091	165 x 25	20 Apr 0811 hrs	11h 31min
Voyager of the Seas	Passenger Ship	Bahamas	138,194	311 x 47	20 Apr 0827 hrs	9h 35min
Rhapsody of the Seas	Passenger Ship	Bahamas	78,878	279 x 36	22 Apr 0702 hrs	11h 19min

Name	Type	Flag	GT	LOA x Beam (m)	ATA	Length of Stay
Hamburg Trader*	General Cargo Ship	Panama	9,957	148 x 23	22 Apr 1502 hrs	1day 19h
BBC Gdansk	General Cargo Ship	Antigua & Barbuda	6,155	122 x 18	24 Apr 0623 hrs	8h 20min
Tropic Island**	Containership	St Vincent & Grenadines	15,215	160 x 25	24 Apr 1517 hrs	23h 50min
Rhapsody of the Seas	Passenger Ship	Bahamas	78,878	279 x 36	25 Apr 0709 hrs	10h 20min
Grandeur of the Seas	Passenger Ship	Bahamas	73,817	279 x 36	25 Apr 1217 hrs	8h 10min
AS Fabrizia@	Containership	Portugal	15,375	166 x 25	25 Apr 2139 hrs	8h 49min
Fast Wil	General Cargo Ship	Guyana	1,391	80 x 11	26 Apr 0711 hrs	2days 7h
Vision of the Seas	Passenger Ship	Bahamas	78,717	279 x 36	27 Apr 0717 hrs	10h 48min
Duncan Island#	Reefer Vessel	Bahamas	14,061	179 x 25	27 Apr 1710 hrs	13h 17min
Voyager of the Seas	Passenger Ship	Bahamas	138,194	311 x 47	28 Apr 0710 hrs	10h 46min
Celebrity Equinox	Passenger Ship	Malta	121,878	317 x 37	28 Apr 0808 hrs	10h 7min
Potosi	General Cargo Ship	Antigua & Barbuda	2,519	88 x 13	29 Apr 0615 hrs	13h 36min
Viking Princess	Vehicles Carrier	Marshall Islands	9,827	117 x 20	29 Apr 1407 hrs	7h 5min

*Source: International Consultant, using data from MarineTraffic (2023)[142] . * Operated by CMA CGM. ** Operated by Tropical Shipping. # Operated by Geest Line. @ Operated by Crowley.*

Table A2: Example of Vessel Arrivals in April 2023 at the Port of Vieux Fort (LCVIF)

Name	Type	Flag	GT	LOA x Beam (m)	ATA	Length of Stay
Daniel B	LPG Tanker	Panama	4,224	100 x 18	2 Apr 0743 hrs	12h 57min
Tasing Swan	Chemical Tanker	Denmark	7,232	130 x 20	4 Apr 1029 hrs	1day 4h
Oslo Bulk 5	General Cargo Ship	Norway	5,629	108 x 18	7 Apr 0959 hrs	13h 50min
Lucy PG	Oil Products Tanker	UK	6,688	127 x 20	8 Apr 2209 hrs	4h 16min
Fairland	General Cargo Ship	Guyana	1,672	76 x 12	9 Apr 1000 hrs	3days 16h
Tasing Swan	Chemical Tanker	Denmark	7,232	130 x 20	11 Apr 0623 hrs	1day 5h
Admiral Bay II	RoRo/Passenger	St. Vincent & the Grenadines	518	44 x 10	11 Apr 1841 hrs	22h 28min
Carmita	General Cargo Ship	Panama	2,545	87 x 13	18 Apr 0700 hrs	12h 14min
Veronica PG	Oil Products Tanker	UK	10,632	119 x 20	19 Apr 0647 hrs	3h 18min
Fast Wil	General Cargo Ship	Guyana	1,391	80 x 11	22 Apr 0722 hrs	2days 6h
Tasing Swan	Chemical Tanker	Denmark	7,232	130 x 20	24 Apr 0610 hrs	8h 57min
Burhou I	General Cargo Ship	St. Kitts & Nevis	674	58 x 10	24 Apr 1413 hrs	2days 4h
Daniel B	LPG Tanker	Panama	4,224	100 x 18	25 Apr 0703 hrs	12h 28min
ICS Oceanus	General Cargo Ship	Bahamas	3,289	105 x 14	26 Apr 1746 hrs	2days
Potosi	General Cargo Ship	Antigua & Barbuda	2,519	88 x 13	28 Apr 0617 hrs	10h 28min
Fast Wil	General Cargo Ship	Guyana	1,391	80 x 11	28 Apr 1759 hrs	3days 19h
Cosima PG	Oil/Chemical Tanker	UK	5,241	105 x 18	30 Apr 0711 hrs	1day 6h

Source: International Consultant, using data from MarineTraffic (2023)[143] .

[142]MarineTraffic (2023) Castries Port [Online]. Available at: https://www.marinetraffic.com/en/ais/details/ports/2388?name=CASTRIES&country=St-Lucia (Accessed 30 March to 2 May 2023).
[143]MarineTraffic (2023) Vieux Fort Port [Online]. Available at: https://www.marinetraffic.com/en/ais/details/ports/2390?name=VIEUX-FORT&country=St-Lucia (Accessed 30 March to 2 May 2023).

Table A3: Example of Vessel Arrivals in April 2023 at Cul de Sac (LCCDS)

Name	Type	Flag	GT	LOA x Beam (m)	ATA	Length of Stay
Desna Star	Chemical Tanker	Liberia	8,621	129 x 20	31 Mar 2224 hrs	1day 3h
Rose PG	Oil/Chemical Tanker	UK	5,211	105 x 18	2 Apr 0151 hrs	10h 1min
Henrietta PG	Oil Products Tanker	Malta	6.688	127 x 20	5 Apr 0242 hrs	12h 36min
Tasing Swan	Chemical Tanker	Denmark	7,232	130 x 20	5 Apr 1624 hrs	8h 6min
Pelican Fisher	Oil/Chemical Tanker	UK	6,952	122 x 19	6 Apr 1005 hrs	20h 13min
Chemtrans Taurus	Crude Oil Tanker	Cyprus	41,589	227 x 32	7 Apr 0454 hrs	1day 8h
Erria Swan	Chemical Tanker	Denmark	7,232	130 x 20	8 Apr 2143 hrs	12h 11min
Kestrel Fisher	Oil Products Tanker	Netherlands	4,639	105 x 17	9 Apr 1151 hrs	21h 33min
Epic Caledonia	LPG Tanker	Singapore	3,591	95 x 16	10 Apr 1150 hrs	5h 31min
Tasing Swan	Chemical Tanker	Denmark	7,232	130 x 20	12 Apr 1624 hrs	8h 6min
Demerara	Oil/Chemical Tanker	Malta	7,368	120 x 22	13 Apr 2306 hrs	18h 43min
Cosima PG	Oil/Chemical Tanker	UK	5,241	105 x 18	14 Apr 2123 hrs	14h 20min
Kestrel Fisher	Oil Products Tanker	Netherlands	4,639	105 x 17	16 Apr 1738 hrs	5h 55min
Pelican Fisher	Oil/Chemical Tanker	UK	6,952	122 x 19	17 Apr 0758 hrs	16h 56min
Saint James LG	LPG Tanker	Malta	3,728	100 x 17	18 Apr 0127 hrs	7h 54min
Scot Augsburg	Oil/Chemical Tanker	Marshall Islands	5,200	117 x 18	18 Apr 1009 hrs	8h 2min
Cosima PG	Oil/Chemical Tanker	UK	5,241	105 x 18	22 Apr 2117 hrs	11h 57min
Ardmore Seawolf	Oil/Chemical Tanker	Marshall Islands	29,737	183 x 32	23 Apr 1952 hrs	1day 7h
Wisby Barbados	Oil/Chemical Tanker	Malta	6,952	122 x 19	25 Apr 1028 hrs	16h 21min
Evie PG	Oil Products Tanker	Malta	6,688	127 x 20	26 Apr 0309 hrs	1day 4h
Monica Kosan	LPG Tanker	Malta	3,728	100 x 17	27 Apr 0756 hrs	7h 31min
King Fisher	Oil Products Tanker	Netherlands	4,639	105 x 17	27 Apr 1610 hrs	16h 31min
Stena Prosperous	Oil/Chemical Tanker	Cyprus	30,344	186 x 32	28 Apr 1004 hrs	1day 21h
Scot Augsburg	Oil/Chemical Tanker	Marshall Islands	5,200	117 x 18	28 Apr 1937 hrs	3h 55min

Source: International Consultant, using data from MarineTraffic (2023)[144] .

[144]MarineTraffic (2023) Cul de Sac Port [Online]. Available at: https://www.marinetraffic.com/en/ais/details/ports/2389?name=CUL-DE-SAC&country=St-Lucia (Accessed 30 March to 2 May 2023).

ANNEX 2

EXAMPLE OF DIRECT FLIGHT CONNECTIONS FOR UVF AND SLU

Table A4: Example of Direct Flight Connections for Hewanorra International Airport (UVF)

To UVF from:	Airline	MON	TUE	WED	THU	FRI	SAT	SUN
Miami, MIA	American Airlines	1 B738	1 B738	1 B738	1 B738	1 B738	1 A32Q	1 B738
	Amerijet International	-	-	1 B75F	-	-	-	-
New York, EWR	United Airlines	-	-	-	-	-	1 B738	-
New York, JFK	JetBlue Airways	1 A320	1 A320	1 A320	1 A320	1 A320	1 A32S	1 A320
Charlotte, CLT	American Airlines	1 A320	1 A320	1 A320	1 A320	1 A320	1 A320	1 A320
Atlanta, ATL	Delta Air Lines	1 B738	1 B738	1 B738	1 B738	1 B738	1 B738	1 B738
Toronto, YYZ	Air Canada	-	-	-	-	1 7M8	-	1 7M8
	Westjet	-	-	-	-	-	-	1 73W
London, LGW	British Airways	1 B772	1 B772	1 B772	1 B772	1 B772	1 B772	1 B772
	TUI Airways	-	1 B788	-	-	-	-	-
Grenada, GND	British Airways	-	-	1 B772	-	-	1 B772	1 B772
Port of Spain, POS	Amerijet International	1 B763	-	-	-	-	-	-
Georgetown, GEO	British Airways	1 B772	-	-	1 B772	-	-	-
Scarborough, TAB	British Airways	-	1 B772	-	-	1 B772	-	-
Mustique, MQS	-	-	1 DHC6	-	-	-	-	-
From UVF to:								
Miami, MIA	American Airlines	1 B738	1 B738	1 B738	1 B738	1 B738	1 A32Q	1 B738
	Amerijet International	1 B763	-	1 B75F	-	-	-	-
New York, EWR	United Airlines	-	-	-	-	-	1 B738	-
New York, JFK	JetBlue Airways	1 A320	1 A320	1 A320	1 A320	1 A320	1 A32S	1 A320
Charlotte, CLT	American Airlines	1 A320	1 A320	1 A320	1 A320	1 A320	1 A320	1 A320
Atlanta, ATL	Delta Air Lines	1 B738	1 B738	1 B738	1 B738	1 B738	1 B738	1 B738
Toronto, YYZ	Air Canada	-	-	-	-	1 7M8	-	1 7M8
	Westjet	-	-	-	-	-	-	1 73W
London, LGW	British Airways	1 B772	1 B772	1 B772	1 B772	1 B772	1 B772	1 B772
	TUI Airways	-	1 B788	-	-	-	-	-
Grenada, GND	British Airways	-	-	1 B772	-	-	1 B772	1 B772
Georgetown, GEO	British Airways	1 B772	-	-	1 B772	-	-	-
Scarborough, TAB	British Airways	-	1 B772	-	-	1 B772	-	-
Mustique, MQS		-	1 DHC6	-	-	-	-	-

Source: International Consultant, using data from Flightradar24 (2023)[145] .

[145]Flightradar24 (2023) Vieux Fort Hewanorra International Airport [Online]. Available at: https://www.flightradar24.com/data/airports/uvf/routes (Accessed 16 May 2023).

Table A5: Example of Direct Flight Connections for George F.L. Charles Airport (SLU)

To SLU from:	Airline	MON	TUE	WED	THU	FRI	SAT	SUN
Bridgetown, BGI	InterCaribbean Airways	3 EM2, AT4	3 EM2	3 EM2	2 EM2	3 EM2, AT4	2 EM2	2 EM2
	Air Antilles	1 AT4/AT7	1 AT4	1 AT4	1 AT4	-	1 AT4	1 AT4
Fort-de-France, FDF	Air Antilles	1 AT4	-	1 AT4	-	1 AT4	-	1 AT4
	Mountain Air Cargo (FedEx Feeder)	1 C208	1 C208	1 C208	1 C208	1 C208	-	-
Kingstown, SVD	InterCaribbean Airways	-	1 AT4/EM2	-	-	1 EM2	-	1 EM2
	LIAT	1 AT4	-	-	-	1 AT4	-	-
Grenada, GND	Mountain Air Cargo (FedEx Feeder)	1 C208	1 C208	1 C208	1 C208	1 C208	-	-
Port of Spain, POS	Caribbean Airlines	1 AT7	-	1 AT7	-	1 AT7	-	1 AT7
Antigua, ANU	LIAT	-	-	-	1 AT4	-	-	-
Dominica, DOM	InterCaribbean Airways	1 EM2	1 EM2	1 EM2	1 EM2	1 EM2	-	1 EM2
	Air Antilles	-	1 AT4	-	1 AT4	-	1 AT4	-
Aguadilla, BQN	Ameriflight	1 SW4	-	1 SW4	-	1 SW4	-	-
From SLU to:								
Bridgetown, BGI	InterCaribbean Airways	2 EM2, AT4	3 EM2, AT4	2 EM2	1 EM2	3 EM2, AT4	1 EM2	3 EM2
	Air Antilles	1 AT4	1 AT4	1 AT4	1 AT4	1 AT4	1 AT4	1 AT4
	LIAT	-	-	-	-	-	1 AT4	-
Fort-de-France, FDF	Air Antilles	2 AT4, AT7	-	1 AT4	-	-	-	-
	Mountain Air Cargo (FedEx Feeder)	1 C208	1 C208	1 C208	1 C208	1 C208	-	-
	Kingfisher Air (DHL)	1 C208	1 C208	1 C208	1 C208	1 C208	-	-
Kingstown, SVD	InterCaribbean Airways	1 EM2	-	-	1 EM2	1 AT4	-	1 EM2
	LIAT	-	-	-	1 AT4	-	-	-
	Mountain Air Cargo (FedEx Feeder)	1 C208	1 C208	1 C208	1 C208	1 C208	-	-
Grenada, GND	Ameriflight	1 SW4	-	1 SW4	-	1 SW4	-	-
	Mountain Air Cargo (FedEx Feeder)	1 C208	1 C208	1 C208	1 C208	1 C208	-	-
Port of Spain, POS	Caribbean Airlines	1 AT7	-	1 AT7	-	1 AT7	-	1 AT7
Antigua, ANU	LIAT	1 AT4	-	-	-	1 AT4	-	-
Dominica, DOM	InterCaribbean Airways	1 EM2	2 EM2	1 EM2	1 EM2	1 EM2	1 EM2	1 EM2
	Air Antilles	-	1 AT4	-	1 AT4	-	1 AT4	-
Aguadilla, BQN	Ameriflight	1 EM2	1 EM2	1 EM2	1 EM2	1 EM2	-	-
	Mountain Air Cargo (FedEx Feeder)	1 AT7	1 AT7	1 AT7	1 AT7	1 AT7	-	-

Source: International Consultant, using data from Flightradar24 (2023)[146] .

[146]Flightradar24 (2023) Castries George F. L. Charles Airport [Online]. Available at: https://www.flightradar24.com/data/airports/slu/routes (Accessed 16 May 2023).

ANNEX 3

WORKSHOP HANDOUTS USED FOR SAINT LUCIA

Handout 1: Rate the Strengths of Saint Lucia for Logistics Performance

Scoring metric
5 – Major strength! Requires immediate action to capitalise upon!
4 – Important strength. Should build on this over the next 3-5 years.
3 – Seen as a strength. Can build on this over the next 6-10 years.
2 – Slight advantage held but easily nullified by competitors. Let's not waste time on this.
1 – Not a strength at all.

No.	Attributes	Score
1	Most diverse and well-developed manufacturing industry in Eastern Caribbean	
2	Low cost of operations for businesses	
3	Concentration of cargo consolidation and distribution centre in Castries	
4	Stable business environment and tax regime	
5	Stable currency (XCD)	
6	Stable political environment	
7	Competitive and high-quality freight forwarding sector and services	
8	Competitive and high-quality land transport sector and services	
9	Competitive and high-quality port sector and services	
10	Competitive and high-quality sea transport sector and services	
11	Competitive and high-quality airport sector and services	
12	Competitive and high-quality air transport sector and services	
13	Competitive manufacturing sector	
14	Efficient customs and border processes	
15	Government's proactive efforts to develop and grow the export sector	
16	Competitive tax regime (corporate tax rate of 30%)	
17	Competitive tourism cluster generating demand for logistics services	
18	Competitive exports of beverages (beer, spirits, liqueurs, alcoholic beverages)	
19	Competitive exports of refined petroleum	
20	Competitive exports of bananas (including plantains, fresh or dried)	

Handout 2: Rate the Weaknesses of Saint Lucia for Logistics Performance

Scoring metric
5 – Major strength! Requires immediate action to capitalise upon!
4 – Important strength. Should build on this over the next 3-5 years.
3 – Seen as a strength. Can build on this over the next 6-10 years.
2 – Slight advantage held but easily nullified by competitors. Let's not waste time on this.
1 – Not a strength at all.

No.	Attributes	Score
1	Limited cargo volumes	
2	Limited investment opportunities with export potential	
3	Poor security for cargo	
4	Inadequate road network and poor road conditions	
5	Lack of skilled logistics professional (e.g., management, supervisory, operational levels)	
6	Lack of visibility to cargo in the supply chain	
7	Lack of cold storage facilities	
8	Poor shipping connectivity	
9	Port prioritising cruise traffic	
10	Limited berths for vessels	
11	Ageing port infrastructure	
12	Shortage of containers	
13	Unreliable port equipment	
14	Inefficient customs and border processes	
15	Inefficient labour practices at the port	
16	Long dwell time for containers at the port	
17	Truck traffic congestion at the port	
18	Poor air connectivity	
19	Insufficient capacity at the airport to serve logistics needs of users	
20	Truck traffic congestion at the airport	
21	Poor service by customs brokers	
22	Insufficient electric power supply	
23	Unreliable internet connection	
24	Absence of a single window for border procedures	
25	Limited coordination and cooperation between private and public sector	
26	Bribery and corruption	

Handout 3: Rate the Threats to Saint Lucia for Logistics Performance

Scoring metric

5 – Situation critical! Requires immediate action!
4 – Important threat. Should be addressed over the next 3-5 years.
3 – Seen as a threat. Can be addressed over the next 6-10 years.
2 – Minor threat. Can live with it.
1 – Not a threat at all.

No.	Attributes	Score
1	Insufficient cargo volumes to grow transport connectivity to overseas markets	
2	Heavy reliance on the US market	
3	Lack of skilled logistics professional (e.g., management, supervisory, operational levels)	
4	Low rate of technology adoption (e.g., e-invoicing)	
5	Lack of accreditation for companies (e.g., GDP, GSP, ISO 9000, ISO 14000, ISO50001)	
6	Inefficient customs and border processes	
7	Poor security for cargo	
8	Shortage of containers	
9	Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector	
10	Limited or lack of sufficient cold-chain handling capacity and facilities	
11	Limited or lack of sufficient cargo-handling capacity and facilities for airport sector	
12	Gridlock for truck traffic accessing and leaving the port	
13	Gridlock for truck traffic accessing and leaving the airport	
14	Failure to develop an export-oriented economy	
15	Uncompetitive seaport sector	
16	Uncompetitive trucking sector	
17	Uncompetitive airport sector	
18	Uncompetitive freight forwarding sector	
19	Stagnating or slow economic growth in key export markets of US and Canada	
20	Stagnating or slow economic growth in key export market of Europe	
21	Stagnating or slow economic growth in key export market of the Caribbean	
22	Failure to coordinate, manage and bring much needed changes to the logistics sector	
23	Bribery and corruption	
24	Political or social instability	
25	Economic instability (e.g., high inflation, unstable currency)	
26	Climate change impacting on customer demand	
27	Climate change impacting on growing season	

Handout 4: Rate the Opportunities for Saint Lucia for Logistics Performance

Scoring metric

5 – Excellent opportunity! Requires immediate action!
4 – Important opportunity. Should be addressed over the next 3-5 years.
3 – Seen as an opportunity. Can be addressed over the next 6-10 years.
2 – Limited opportunity. Can live without it.
1 – Not an opportunity at all.

No.	Attributes	Score
1	Positioning as the container transhipment hub for the Caribbean	
2	Develop the airport to become an e-fulfilment hub for the Caribbean	
3	Set up free trade zone with proximity to the main cargo centre which is Castries	
4	Promote digitalisation for integrated supply chain management (e.g., WMS, TMS, ERP)	
5	Develop and grow the e-commerce sector	
6	Develop National Single Window for customs and border processes	
7	Training and education to develop logistics and supply chain management skills	
8	Upgrade and develop cargo-handling capacity and facilities for seaport sector	
9	Upgrade and develop cargo-handling capacity and facilities for airport sector	
10	Upgrade and develop cold-chain handling capacity and facilities	
11	Develop a new port	
12	Adopt technology such as use of data analytics for data processing and management	
13	Adopt technology such as use of IoT devices for tracking and tracing shipments	
14	Adopt blockchain technology for trade facilitation (e.g., e-bill of lading, smart contracts)	
15	Adopt technology for material handling such as automated warehouse management	
16	Promote research and development for logistics and supply chain management	
17	Improve logistics performance in the area of cost for greater competitiveness	
18	Adopt green initiatives for logistics and supply chain management	
19	Galvanise the logistics community through regular dialogues and sharing sessions	
20	Whole-of-Government approach to advance competitiveness of the logistics ecosystem	

Export industries Saint Lucia should develop competitiveness for:	
Areas of assistance for SMEs to improve their supply chain performance:	

Handout 5: Moving Forward for the Saint Lucia Logistics Sector

Area of opportunity:_____

Recommendations on specific actions:	
What **specific actions or initiatives** are needed?	
Who should **take lead to drive** these actions or initiatives?	

ANNEX 4

SCORES FOR VIEWS ON SWOT FOR LOGISTICS SECTOR IN SAINT LUCIA

Average scores obtained for views on **strengths**:

Aspects*	Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
Most diverse and well-developed manufacturing industry in Eastern Caribbean	2.92	2.67	2.75
Low cost of operations for businesses	2.15	2.17	2.33
Concentration of cargo consolidation and distribution centre in Castries	2.69	3.00	3.17
Stable business environment and tax regime	**3.62**	**3.83**	**3.75**
Stable currency (XCD)	**4.31**	**3.67**	**4.33**
Stable political environment	**3.54**	2.67	**4.08**
Competitive and high-quality freight forwarding sector and services	2.77	3.17	3.33
Competitive and high-quality land transport sector and services	2.92	**3.50**	3.42
Competitive and high-quality port sector and services	2.54	2.50	3.17
Competitive and high-quality sea transport sector and services	3.00	3.00	2.92
Competitive and high-quality airport sector and services	2.69	2.83	3.33
Competitive and high-quality air transport sector and services	2.85	2.83	3.08
Competitive manufacturing sector	3.00	2.50	2.92
Efficient customs and border processes	2.69	3.00	2.92
Government's proactive efforts to develop and grow the export sector	2.69	2.83	2.83
Competitive tax regime (corporate tax rate of 30%)	2.54	2.33	2.58
Competitive tourism cluster generating demand for logistics services	**3.46**	**3.50**	**3.67**
Competitive exports of beverages (beer, spirits, liqueurs, alcoholic beverages)	**3.08**	**3.83**	**3.50**
Competitive exports of refined petroleum	1.77	1.50	1.58
Competitive exports of bananas (including plantains, fresh or dried)	2.54	2.50	3.08

** Highlighted in bold are scores for attributes which are ranked in the top five positions.*

Average scores obtained for views on **weaknesses**:

Aspects*	Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
Limited cargo volumes	**4.00**	**4.17**	**3.58**
Limited investment opportunities with export potential	3.77	3.67	**3.83**
Poor security for cargo	2.69	3.50	2.67
Inadequate road network and poor road conditions	**4.69**	**5.00**	**4.17**
Lack of skilled logistics professionals (e.g., management, supervisory, operational levels)	3.00	3.67	3.08
Lack of visibility to cargo in the supply chain	3.15	2.33	2.83
Lack of cold storage facilities	3.92	3.50	**3.75**
Poor shipping connectivity	3.92	2.83	3.42
Port prioritising cruise traffic	**4.00**	**4.17**	3.08
Limited berths for vessels	**4.15**	2.83	3.25
Ageing port infrastructure	**4.08**	**4.50**	**4.08**
Shortage of containers	3.46	3.50	2.83
Unreliable port equipment	3.54	**4.50**	3.25
Inefficient customs and border processes	3.23	3.00	2.92
Inefficient labour practices at the port	3.08	3.83	2.92

Aspects*	Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
Long dwell time for containers at the port	3.15	3.50	2.92
Truck traffic congestion at the port	3.69	**4.67**	3.33
Poor air connectivity	3.08	2.67	3.00
Insufficient capacity at the airport to serve logistics needs of users	2.77	3.33	2.92
Truck traffic congestion at the airport	2.38	2.00	2.17
Poor service by customs brokers	3.08	2.50	2.83
Insufficient electric power supply	1.54	1.83	1.50
Unreliable internet connection	2.23	3.67	2.50
Absence of a single window for border procedures	3.08	3.00	3.42
Limited coordination and cooperation between private and public sector	3.62	3.00	**3.58**
Bribery and corruption	3.00	2.83	2.92

** Highlighted in bold are scores for attributes which are ranked in the top five positions.*

Average scores obtained for views on **threats**:

Aspects*	Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
Insufficient cargo volumes to grow transport connectivity to overseas markets	**3.69**	**4.67**	**3.92**
Heavy reliance on the US market	**3.77**	**4.83**	3.58
Lack of skilled logistics professionals (e.g., management, supervisory, operational levels)	2.62	**4.33**	2.50
Low rate of technology adoption (e.g., e-invoicing)	2.92	4.00	2.92
Lack of accreditation for companies (e.g., GDP, GSP, ISO 9000, ISO 14000, ISO50001)	3.15	2.50	3.67
Inefficient customs and border processes	3.31	3.17	3.50
Poor security for cargo	2.77	3.33	2.75
Shortage of containers	2.54	3.00	2.67
Limited or lack of sufficient cargo-handling capacity and facilities for seaport sector	3.08	**4.33**	3.25
Limited or lack of sufficient cold-chain handling capacity and facilities	3.46	2.83	3.58
Limited or lack of sufficient cargo-handling capacity and facilities for airport sector	3.23	2.83	3.33
Gridlock for truck traffic accessing and leaving the port	3.08	**4.67**	3.42
Gridlock for truck traffic accessing and leaving the airport	2.46	3.17	2.67
Failure to develop an export-oriented economy	**4.08**	**4.33**	**4.25**
Uncompetitive seaport sector	3.38	4.17	2.92
Uncompetitive trucking sector	3.38	3.00	2.58
Uncompetitive airport sector	3.38	3.50	2.83
Uncompetitive freight forwarding sector	3.08	3.00	3.25
Stagnating or slow economic growth in key export markets of US and Canada	3.46	3.50	**3.75**
Stagnating or slow economic growth in key export market of Europe	3.46	3.50	**3.75**
Stagnating or slow economic growth in key export market of the Caribbean	3.62	3.67	**3.83**
Failure to coordinate, manage and bring much needed changes to the logistics sector	**4.15**	**4.33**	**3.75**
Bribery and corruption	3.62	3.50	2.75
Political or social instability	3.38	3.50	2.25
Economic instability (e.g., high inflation, unstable currency)	3.54	3.83	2.92
Climate change impacting on customer demand	3.54	3.50	3.08
Climate change impacting on growing season	**4.00**	4.00	3.67

** Highlighted in bold are scores for attributes which are ranked in the top five positions.*

Average scores obtained for views on **opportunities**:

Aspects*	Manufacturers, Importers, Exporters	Logistics Service Providers	Government Sector
Positioning as the container transhipment hub for the Caribbean	4.08	**4.67**	4.00
Develop the airport to become an e-fulfilment hub for the Caribbean	**4.46**	4.33	3.67
Set up free trade zone with proximity to the main cargo centre which is Castries	3.69	**4.50**	3.58
Promote digitalisation for integrated supply chain management (e.g., WMS, TMS, ERP)	4.08	3.33	3.75
Develop and grow the e-commerce sector	**4.46**	**4.50**	**4.25**
Develop National Single Window for customs and border processes	**4.23**	**4.67**	**4.17**
Training and education to develop logistics and supply chain management skills	**4.31**	**4.67**	**4.17**
Upgrade and develop cargo-handling capacity and facilities for seaport sector	**4.15**	3.83	4.00
Upgrade and develop cargo-handling capacity and facilities for airport sector	3.92	3.83	3.75
Upgrade and develop cold-chain handling capacity and facilities	3.54	3.67	4.00
Develop a new port	3.62	4.00	2.92
Adopt technology such as use of data analytics for data processing and management	3.92	4.33	**4.25**
Adopt technology such as use of IoT devices for tracking and tracing shipments	3.77	**4.50**	**4.50**
Adopt blockchain technology for trade facilitation (e.g., e-bill of lading, smart contracts)	3.54	4.33	3.92
Adopt technology for material handling such as automated warehouse management	3.85	4.17	3.92
Promote research and development for logistics and supply chain management	3.92	4.33	4.08
Improve logistics performance in the area of cost for greater competitiveness	**4.15**	4.33	**4.25**
Adopt green initiatives for logistics and supply chain management	3.69	4.17	3.58
Galvanise the logistics community through regular dialogues and sharing sessions	3.92	4.33	3.75
Whole-of-Government approach to advance competitiveness of the logistics ecosystem	4.00	4.00	4.00

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