



Sellhorn | **HPC**
INGENIEURGESELLSCHAFT



ST. VINCENT AND THE GRENADINES PORT AUTHORITY

PORT MODERNISATION PROJECT KINGSTOWN, SAINT VINCENT

FINAL ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

11th January 2019



Sellhorn Ingenieurgesellschaft mbH
Teilfeld 5, 20459 Hamburg
Germany
Phone: +49-40-361201-0
Fax: +49-40-361201-28
E-Mail: info@sellhorn-hamburg.de
Internet: <http://www.sellhorn-hamburg.de>

HPC Hamburg Port Consulting GmbH
Container Terminal Altenwerder, Am Ballinkai 1,
21129 Hamburg
Germany
Phone: +49-40-74008-205
Fax: +49-40-74008-115
E-Mail: info@hpc-hamburg.de
Internet: <http://www.hpc-hamburg.de>

11/01/2019

Contents

1. EXECUTIVE SUMMARY	9
2. PROJECT BACKGROUND	11
2.1 PROJECT DESCRIPTION	11
2.1.1 Work Package 1.....	11
2.1.2 Work Packages 2 and 3	13
2.1.3 Work Package 4.....	14
2.2 PROJECT LOCATION	15
2.3 PROJECT JUSTIFICATION.....	16
2.4 CONSIDERATION AND ANALYSIS OF ALTERNATIVES.....	17
3. ENVIRONMENTAL AND SOCIAL LEGISLATIVE FRAMEWORK.....	21
3.1 ENVIRONMENTAL LEGISLATIVE FRAMEWORK	21
3.1.1 National Legislation.....	21
3.1.2 International Conventions.....	21
3.1.3 Institutions.....	22
3.2 SOCIO-ECONOMIC LEGISLATIVE FRAMEWORK	23
3.2.1 Introduction	23
3.2.2 National Legislation.....	24
3.2.3 International Treaties and Conventions	26
4. ENVIRONMENTAL AND SOCIAL BASELINE	29
4.1 METHODOLOGY	29
4.1.1 Methodology for Environmental Baseline Data Acquisition	29
4.1.2 Socioeconomic and Gender Methodology	31
4.1.3 Assumptions, Limitations and Gaps in Knowledge	38
4.2 PHYSICAL ENVIRONMENT	39
4.2.1 Landscape and Topography.....	39
4.2.2 Climate	41
4.2.3 Air and Noise Emissions	42
4.2.4 Waste Water Management.....	44
4.2.5 Solid Waste Management	45
4.2.6 Safety and Environmental Protection in the Port.....	47
4.2.7 Traffic Situation	49
4.3 MARINE ENVIRONMENT	51
4.3.1 Sensitive and Protected Marine Areas.....	51
4.3.2 Dive Survey	52
4.3.3 Invasive Species	57
4.3.4 Fisheries	59
4.3.5 Ecological State of Project Site	62
4.4 NATURAL HAZARDS	62
4.4.1 Storms and Hurricanes.....	63
4.4.2 Floods.....	65
4.4.3 Coastal Flooding	67
4.4.4 Volcanic Eruptions	68
4.4.5 Earthquakes.....	70
4.4.6 Tsunamis	71
4.4.7 Climate Change	71
4.5 SOCIO-ECONOMIC ENVIRONMENT.....	72
4.5.1 Governance Structure	73
4.5.2 Economic Activity	73
4.5.3 Population and Demographics	86
4.5.4 Gender and Social Profile	105
4.5.5 Historical and Archaeological Sites	110
4.5.6 Affected Community and Groups.....	111

5. IMPACT IDENTIFICATION AND EVALUATION.....	120
5.1 ENVIRONMENTAL IMPACTS	120
5.1.1 Significance Ratings.....	120
5.1.2 Construction Impacts	120
5.1.3 Operational Impacts	131
5.2 SOCIOECONOMIC IMPACT IDENTIFICATION AND ASSESSMENT	140
5.2.1 Impact Categorisation	141
5.2.2 Impact Ranking	141
5.2.3 Construction Impacts	143
5.2.4 Operational Impacts	157
5.2.5 Cumulative Impacts.....	162
6. MITIGATION / OPTIMISATION MEASURES	165
6.1 MITIGATION OF ENVIRONMENTAL IMPACTS	165
6.1.1 Noise Impacts	165
6.1.2 Air Quality Impacts	169
6.1.3 Water Quality Impacts	169
6.1.4 Dredging and Reclamation Impacts.....	172
6.1.5 Coastal Impacts	173
6.1.6 Visual Impact	173
6.1.7 Dust Impacts	174
6.1.8 Traffic Congestion and Accident Risks	175
6.1.9 Waste Impacts	175
6.2 SOCIOECONOMIC MITIGATION MEASURES	177
6.2.1 Construction.....	177
6.2.2 Port Operations.....	186
6.2.3 Cumulative Impacts.....	189

List of Figures

Figure 1: Map of St. Vincent and the Grenadines.....	15
Figure 2: Kingstown Bay and the Port of Kingstown.....	16
Figure 3: Topographic Map of St. Vincent.....	39
Figure 4: Topographic Map of Kingstown Area and Kingstown Catchment Area	40
Figure 5: Flood Hazard Map of Kingstown and Campden Park.....	41
Figure 6: Cruise Vessel Approaching the Port of Kingstown	43
Figure 7: Littering Behind Vendor Booths	46
Figure 8: Port of Kingstown Repair Workshop and Fuelling Station	48
Figure 9: Street Vendors on the Boardwalk in Kingstown.....	50
Figure 10: Container Truck Leaving the Port Area	51
Figure 11: Area of SCMCA	52
Figure 12: Dive Site at Future Port (Reclamation) Area	53
Figure 13: Brain Coral at Project Site, Overgrown by Sponges	53
Figure 14: Litter at Sea Floor at the Project Area	54
Figure 15: Dumped Tire at Project Site Inhabited by Different Marine Species.....	54
Figure 16: Hard Substrate Communities	55
Figure 17: Rock Revetment	55
Figure 18: Seagrass Meadow at Project Site	56
Figure 19: Invasive Starfish	58
Figure 20: Lionfish in Project Area	59
Figure 21: Fish Catch from Shore	60
Figure 22: Poster Sea Turtle Ban	61
Figure 23: St. Vincent - Areas at Risk of Flooding by Rain.....	66
Figure 24: Flooding in Kingstown, September 2014.....	67
Figure 25: Storm Surge Hazard Map	68
Figure 26: Volcanic Centre of St. Vincent	69
Figure 27: Volcanic Hazard Zones of St. Vincent.....	70
Figure 28: Total Gross Domestic Product for the Period 2000-2013	74
Figure 29: GDP Growth Rate 2012-2017	75
Figure 30: Total Exports, Imports and Trade Balances for Saint Vincent and the Grenadines for the Period 2000-2015.....	76
Figure 31: Performance of the Manufacturing Sector (2001-2010).....	79
Figure 32: Performance of the Tourism Sector (2007-2017)	82
Figure 33: Visitor Arrivals to St. Vincent and the Grenadines	83
Figure 34: Performance of Agriculture Sector (2001-2010)	84
Figure 35: St. Vincent and the Grenadines Agricultural Trade Balance	85
Figure 36: Construction and Real GDP (2001-2015).....	86
Figure 37: Population Size and Growth, 1871-2012.....	87

Figure 38: Average Annual Population Increase from 1971 to 2012.....	88
Figure 39: Population Density of SVG	89
Figure 40: Population Pyramid of St. Vincent and the Grenadines, 2012	91
Figure 41: Sex Ratio (Males to 100 Females) in SVG, 1871-2012	92
Figure 42: Sex Ratio (Males to 100 Females) by Age Group, 2012.....	92
Figure 43: Employed Population by Gross Monthly Income for Main Job, 2015	107
Figure 44: Typical Houses in Rose Place	111
Figure 45: Location of Rose Place	112
Figure 46: Houses along Lower Bay Street in Rose Place	113
Figure 47: View along the Bay at Rose Place Showing Fishing Boats.....	114
Figure 48: Community Map of Rose Place Focusing on the Bay Front Area, Lower Bay Street	117
Figure 49: Vendors Along the Seawall (Foreshore Road) in Little Tokyo.....	119
Figure 50: Noise Reduction with Distance	122
Figure 51: Coastline Altered by Project.....	128
Figure 52: Sediment Transported Westward by Current	129
Figure 53: River Sediment Bar at North River Mouth	130
Figure 54: Kingstown Waterfront (as seen from Fort Charlotte).....	138
Figure 55: Visual Impact of Containers Stored at Kingstown Port	139
Figure 56: Centre Line High Mast Lighting Concept.....	140
Figure 57: "Spill Trailer"	171
Figure 58: Example of a Spill Response Kit	172

List of Tables

Table 1: Development Options	17
Table 2: Relevant International Treaties and Conventions	27
Table 3: Stakeholders Identified for Engagement/Interviews.....	33
Table 4: Stakeholders Interviewed During Stakeholder Engagement Process	37
Table 5: Average Temperatures at Kingstown	42
Table 6: Average Precipitation at Kingstown.....	42
Table 7: Sulphur Limits in Marine Fuels in Different Marine Areas	43
Table 8: Fish Landings at the Kingstown Fish Market 2008 - 2017	60
Table 9: Tropical Storms or Hurricanes Impacting St. Vincent	64
Table 10: Percentage of Employed Population by Industry, 2015 and 2017	80
Table 11: Cruise Vessel Calls and Passenger Arrivals 2013-2017.....	83
Table 12: Household Population by Age Group and Sex, 2012.....	90
Table 13: Percentage Distribution of Population by Major Ethnic Group and Sex, 2001 & 2012.....	93
Table 14: Population 15 Years and Older by Marital Status and Sex, 2012.....	94
Table 15: School Attendance by Age, 2001 & 2012	95

Table 16: Labour Force Characteristics by Age and Sex, 2015.....	98
Table 17: Unemployment Rate by Age Group and Sex, 2015	100
Table 18: Health Indicators, 2016	102
Table 19: Reported Cases of Gender-based Violence by Gender of Victim 2009-2018.....	108
Table 20: Rose Place Community Mapping Exercise	116
Table 21: Environmental Significance Ratings	120
Table 22: Construction Equipment Noise	121
Table 23: Emission Factors for Diesel Engines	133
Table 24: Impact Significance Ranking Matrix	142
Table 25: Summary of Socioeconomic Impacts (Pre-Mitigation)	164
Table 26: WHO Noise Limits	165

1. EXECUTIVE SUMMARY

This Environmental and Social Impact Assessment (ESIA) Report presents the findings of studies and site-visits that have been conducted to evaluate anticipated environmental and social impacts associated with the Kingstown Port Modernisation Project, and provides recommendations for mitigating those impacts. The report also includes a detailed synopsis of the proposed mitigation measures in form of an Environmental and Social Management Plan (ESMP) that will govern the construction and operation of the new port facilities.

Project Background

The Kingstown Port Modernisation Project is planned to be executed in four main work packages that shall be carried out in a progressive manner during the coming years. They include:

- Work package 1 – New Primary Cargo Port in Kingstown
- Work package 2 – New Intra-Regional Cargo Terminal, Kingstown
- Work package 3 – New Inter-Island Ferry Terminal, Kingstown
- Work package 4 – Road improvement works in Kingstown

The container terminal will be constructed on reclaimed land. The required volume of filling material is estimated to be approximately 305,000 m³. Under the current design, dredging is required to accommodate the design vessels as described above.

Environmental Baseline

The existing environmental conditions were examined. To this end, stakeholder surveys and a series of discussions with representatives of the authorities took place. Like at other Caribbean islands, St. Vincent's marine environment suffers from anthropogenic damages like destructive fishing practices and overfishing, coastal degradation and pollution which led to a loss of valuable resources like corals and big reef fishes. Nevertheless, diving investigations have shown that the ecological condition of the future reclamation area can be considered good. The soft bottom is well covered by seagrass meadows and the fauna of the rock revetment, although being an artificial biotope, is comparable to colonisation of natural rocks.

Environmental Impacts

Potential impacts of the proposed port development on the environment have been assessed, both, during construction phase and during operational phase. It is possible to mitigate most of these impacts by applying Best Environmental Practices. For impacts caused by reclamation, however, no mitigation measures could be defined, nor for the visual impact.

Socioeconomic Environment

The existing socioeconomic environment (baseline conditions) is presented in Section 4, including but not limited to economy, population/demographics, poverty, gender and a profile of the affected community. This section includes the socioeconomic information obtained during the field visit to St. Vincent and the Grenadines for baseline assessments,

as well as a thorough literature review. Key stakeholders that could be affected by the proposed project were identified and included those associated with government agencies, fishing groups, businesses, affected individuals and communities in the Kingstown area. Activities conducted during the field visit included meetings and focus groups with these key stakeholders and the affected community, as well as a public consultation.

Socioeconomic Impacts

A socioeconomic and gender impact analysis was carried out and is described in Section 5, including a detailed classification of the potential positive and negative impacts from the different phases (construction and operation) of the proposed port project. The results of the stakeholder engagement process were incorporated into the socioeconomic impact analysis to inform the determination of impact significance. The stakeholders expressed concern about the potential direct and indirect effects of the project on Kingstown and in particular, the Rose Place community.

Positive socioeconomic impacts are expected to be primarily economic impacts due to the following activities: national level increases in shipping activity, purchasing/renting of supplies, creation of employment opportunities either direct or indirect, and increased tourism. The major significant negative socioeconomic impacts identified before applying mitigation measures are due to physical and economic displacement of members of the Rose Place community, fisher folk and vendors who ply their trade along the seawall in Kingstown. Most routine project-related impacts are considered to be of low to medium significance; with those affecting livelihoods, community and households considered to be of high significance.

Mitigation Measures

The mitigation measures required to eliminate/reduce/compensate for the negative environmental and socioeconomic impacts are presented in Section 6 of the report. Implementing the proposed and available mitigation measures, as well as proposed resettlement and community practices will manage these impacts to limit the residual impacts to low or medium significance. The majority of the resultant residual impacts are considered low; however, there will be a few residual impacts of medium significance resulting from the long term and irreversible social effects of relocation, even after mitigation.

Environmental and Social Management Plan (ESMP)

The Environmental and Social Management Plan (ESMP) is presented in Section 7 of this report. Management plans developed for mitigation of the project's socioeconomic impacts are a Resettlement Plan, Stakeholder Engagement Plan and Grievance Mechanism. The ESMP presents a framework for effective socioeconomic management at the proposed site during all project phases. Monitoring requirements, with associated performance indicators, for the phases of the proposed project are also provided in this section, which covers the different socioeconomic aspects that affect the local community.

2. PROJECT BACKGROUND

2.1 Project Description

In March 2016, the Government of St. Vincent and the Grenadines (GOSVG) approved a Port Rationalisation and Development - Master Plan for the Port of Kingstown, St. Vincent.

The Masterplan, prepared by the Consulting Company Mott MacDonald¹, describes the most successful of five development alternatives, the so-called “development option C”. In this option, the port development project (in the following: the project) is planned to be executed in four main work packages as described below. The work packages shall be carried out in a progressive manner within a 3-year implementation time frame.

- Work package 1 – New Primary Cargo Port in Kingstown (in the following: “container terminal”)
- Work package 2 – New Intra-Regional Cargo Terminal, Kingstown
- Work package 3 – New Inter-Island Ferry Terminal, Kingstown
- Work package 4 – Road improvement works in Kingstown

The Master Plan was part of a study financed by the Caribbean Development Bank (CDB). It includes a demand forecast, development criteria, the conceptual development options, and the decision on the preferred option, based on selected development criteria, including:

- Least cost
- Economic and operational efficiencies
- Least Environmental Impacts
- Least Social and Economic Impacts
- Ability to meet the Port Authority of St. Vincent and the Grenadine’s (SVGPA) long term requirements.

At the time of this assessment, the engineering design for work package 1 has not been finalized and a detailed operational concept for the container terminal has also not been developed. The work packages two to four were still in the planning phase.

2.1.1 Work Package 1

Work package 1, the “New Primary Cargo Port in Kingstown”, includes:

- Seaward reclamation of approximately 6.5 hectares of new port area adjacent to already reclaimed land, to provide for a double berth suitable for the projected design vessels with a length between 120 m length (Ro-ro vessel) and 192 m (Car Carrier). The Masterplan² describes maximum draught to be –10 m; however, the

¹ Mott MacDonald and St. Vincent and the Grenadines Port Authority, Port Rationalisation and Development Study, Final Report and Master Plan, March 2015, and SVG Port Mater Plan Re-Scoping Study, Final Report, 09 June 2017

² As (1) above

current design for the container terminal foresees a draught of –12.5 m for safe vessel approach.

- A terminal with a sheet pile quay wall of 380 m length and rock revetments of 130 m length at both sides. Alternatively, the sides of the terminal will also be constructed of sheet piles. The Consultant recommends not making a final decision on this and leaving this for the Contractor to decide – a possible fixed decision might be reached in the FEED phase.
- A container storage yard and a Container Freight Station (CFS)
- Customs and Port Administration Building and adjacent car park
- An area and transit shed for agricultural products and bananas, including a transit shed for the company “Geest”
- A break bulk and vehicle storage
- An equipment maintenance area
- A truck parking, and
- A solid waste reception facility.

The terminal will be equipped with cargo handling facilities, i.e. Reach Stackers (RS) for handling of full containers, Empty Container Handlers (ECH) and two mobile harbour cranes (MHCs). Existing equipment will continue to be used as long as possible on the terminal until it has to be replaced by modern equipment.

Further installations on the container terminal include:

- A storm water drainage system with oil separators to prevent run-off of contaminated water from the terminal to the sea in case of spillages
- A network for supplying drinking water and collection of waste water
- Electrical supply from the public network, supplemented by a back-up generator
- A firefighting system
- A security fence as required by the ISPS Code, and a sentry house at each gate

At full capacity, the containers will be stacked in blocks to a maximum stacking height of six containers (empty), respectively four containers (laden). It can be assumed that the capacity for container storage is well above the requirements based on the traffic forecast. Therefore, containers will be stacked to a height of two or three only, which requires fewer moves, less time and less energy consumption.

The container terminal will be constructed on reclaimed land. The required volume of filling material is estimated to be approximately 305,000 m³. The Draft Geotechnical Report of this project³ discusses as an alternative to construct the berth on piles. This would drastically reduce the amount of filling material required, while at the same time having less

³ Draft Geotechnical Survey, Port Modernisation Project, Kingstown, St. Vincent, submitted by ARMANA, 2018

impact on the marine environment, on current and sedimentation patterns. A final decision has not yet been made, but the sheet pile solution is likely to be preferred for financial reasons.

Under the current design, dredging is required to accommodate the design vessels as described above. Sediment samples that were taken at different depth showed that the dredged material would consist mainly of sand and to a lesser extent of gravel. The estimated total dredging volume is less than 20,000 m³. It is planned to use this material for reclamation.

After completion of the terminal, all cargo operations presently carried out in Campden Park will be relocated to Kingstown.

Construction workforce is estimated to reach up to 100 workers. Recruitment of workers from local and regional communities should be prioritised. Additionally, skilled staff will be required, i.e. the main equipment operators like crane operators, piling rig operators, dredging equipment and ship operators. It can be assumed that they will be provided by the contracting companies.

The operational port workforce will require about 388 full-time employees; work on the terminal will be in two day-shifts. Local and regional workforce should be preferred; training and development initiatives should be performed to improve skills of workers. This should include women who are traditionally underrepresented in port work.

The total number of indirect and induced jobs generated by port activities is expected to be significantly higher than the above mentioned number of direct employees.

2.1.2 Work Packages 2 and 3

The following work packages include the construction of two further terminals west of the container terminal:

- An Intra-regional Cargo Port of a size of 0.7 ha (work package 2), and
- An Inter-island Ferry Port of 0.6 ha size (work package 3).

For Work Packages 2 and 3, a detailed planning is not yet available as they will be funded from separate sources. It has been proposed in the Masterplan that the Primary Cargo Port (i.e. the container terminal) should go live first⁴. On the two adjacent terminals, administrative buildings and a building, which includes a waiting area for passengers will be constructed.

The two new terminals will be separated from the container terminal by the North River outflow of a width of 14 m. It has been mentioned during a meeting with SVGPA, that there should be a connecting bridge between the container terminal and the Intra-Regional terminal. Up to now, there are no definite plans for this.

⁴ Saint Vincent and the Grenadines Port Authority, Mott MacDonald, SVG Port Master Plan Re-Scoping Study, Final Report, 09 June 2017

2.1.3 Work Package 4

Work package 4 involves road improvement works in Kingstown. According to the SVG Port Master Plan Re-Scoping Study⁵, the minimum required complimentary road improvements works should include:

- A bypass route for non-cargo related traffic
- Local road improvements to facilitate port traffic
- General road condition improvements.

At present, all port traffic, cruise/ferry traffic and all other traffic arriving into Kingstown from the windward side intercept at the junction between James Street and Upper Bay Street, causing at times heavy congestion and safety issues in this area.

Therefore, it has been proposed by the Ministry of Transport and Works⁶ that for non-port traffic, and for commercial traffic not destined for Kingstown, the by-pass route along Level Garden Bypass will be upgraded by widening of the existing single lane road to 2 lanes.

A further necessary road improvement measure would be the widening and upgrade of the foreshore road directly behind the reclaimed area for the Primary Cargo Port by expanding the capacity of the road to a 4-lane road with 2 lanes in each direction.

General road condition improvement measures will include:

- Signage for new port facilities, entrance and exits etc.
- New road markings
- New traffic signalling which would enable better traffic flow
- Local repair of roads to Grenville, Halifax and Tyrell street
- Pedestrian and vehicle segregation where possible in new build roads
- Re-directional systems during peak hours
- Public awareness campaigns
- Widening of roads, where possible
- Road side parking restrictions, where possible.

⁵ As footnote (4)

⁶ As footnote (4)

2.2 Project Location

The Port Modernisation Project will be realized in Kingstown, the capital of St. Vincent and the Grenadines (SVG).

SVG is an archipelagic State belonging to the “Windward Islands” in the south-eastern part of the Caribbean. St. Vincent is the biggest and most populated island of SVG, commonly referred to as “the mainland”. The Grenadines comprise 32 small islands and cays, of which nine are inhabited. In total, SVG covers a land area of approximately 388 km².

Figure 1: Map of St. Vincent and the Grenadines

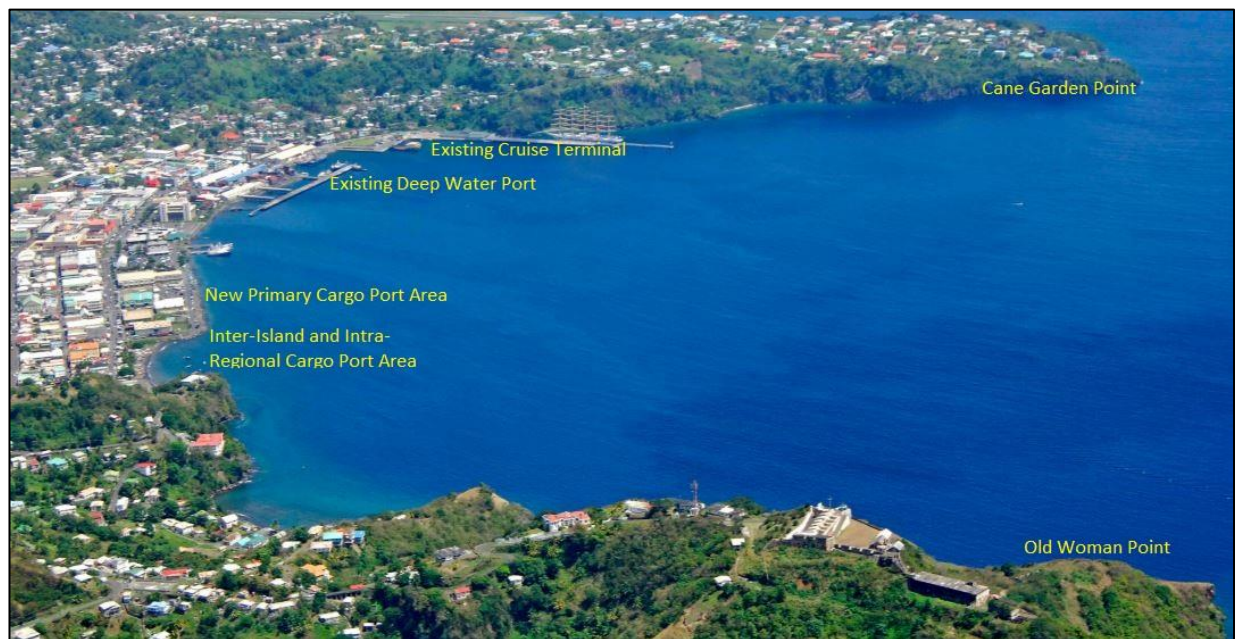


Source: Environmental Management Framework (EMF) for Regional Disaster Vulnerability Reduction Project (RDVRP), 2004 – 2006, Government of St. Vincent and the Grenadines

Kingstown is located in the south-west of St. Vincent. The New Primary Cargo Port (work package 1) is proposed to be constructed to the north-west of the existing cargo port between the North River estuary and the landing sites at the fish market, and against existing reclaimed foreshore lands, which is occupied by shops, warehouses, parking lots, the fish market, administration buildings and commercial properties.

Work packages 2 and 3 are proposed to be constructed in front of the fishing village at Rose Place, west of the North River estuary.

Figure 2: Kingstown Bay and the Port of Kingstown



Source: <https://marinas.com>⁷ (modified)

2.3 Project Justification

The main reason for the Port Modernization Project is the fact that Kingstown's port assets are more than 40 years old and not designed for handling of modern cargo and for heavy equipment. The infrastructure is insufficient to handle the steady growth of cargo volumes: between 2010 and 2017, annual import volumes in St. Vincent grew by 4.3% whereas the export volumes grew annually by 2.4%. The number of containers, in particular, is forecasted to double from 15,561 TEU in 2010, to 32,310 TEU in 2030⁸. The layout of the present Port of Kingstown has been planned for general cargo; containers cannot be handled efficiently there.

Due to insufficient capacity and outdated port infrastructure, all container/cargo operations, with the exception of banana-related cargo, have been moved to the Campden Park Container Port (CPCP). However, the CPCP also urgently requires refurbishment and strengthening. The CPCP is not able to accommodate larger vessels. The terminal, which presently handles 85% of all containerized cargo in St. Vincent and the Grenadines, has been deteriorating abnormally⁹. In addition, the CPCP facility is located remote from the main warehousing and retail activities in Kingstown. That means that cargo arriving in containers at Campden Park has to be trucked across the steep and winding Leeward Highway to Kingstown to the consumer, and vice versa for shipment.

St. Vincent's maritime transport is challenged by inadequate infrastructure provision, which causes inefficient port operations. This leads to delays and additional transport costs. A well-functioning port is vital for the country's economy which highly depends upon international trade. Therefore, modernization and construction of new port facilities are

⁷ https://marinas.com/view/harbor/w4t771_Kingstown_Bay_Kingstown_St_Vincent_and_the_Grenadines

⁸ Sellhorn, HPC, 2018: Saint Vincent and the Grenadines Port Authority, Port Modernisation Project, Kingstown Saint Vincent, Inception Report

⁹ Caribbean Development Bank, Country Strategy Paper, St. Vincent and the Grenadines, (2014-18)

urgently required. A modernised and expanded seaport would enhance economic activities and facilitate trade, and would also improve work safety and border security.

2.4 Consideration and Analysis of Alternatives

In the Masterplan, five development options have been formulated, evaluated and then compared for selection, based on evaluation criteria as described in Chapter 2.1 of this report. The options did not include a “Do Nothing” alternative, but “Do Minimum” alternatives, which include the possibility to rehabilitate and reconstruct the existing deep-water berths and backup facilities of the Port of Kingstown. The development options are summarized in the table below:

Table 1: Development Options

DEVELOPMENT OPTIONS	
Option	Activities
A1 “Do Minimum”	<p>Maintain break-bulk operations at Kingstown and container operations at CPCP:</p> <ul style="list-style-type: none"> • Carry out the necessary rehabilitation/reconstruction works to the Kingstown Deepwater Wharf. • Acquire the existing warehouse and land plot adjacent to CPCP to create a new larger container stripping and warehousing area. • Shift all container stripping activities from Kingstown to CPCP. • Pave non-hardstand areas at CPCP to create additional container stacking area. • Convert the use of the existing cargo warehouse at CPCP to terminal maintenance. • Extend the existing administration building to accommodate Customs officials and new welfare and amenities facilities.
A2 “Do Minimum”	<p>Shift break-bulk operations to CPCP and return container operations to Kingstown:</p> <ul style="list-style-type: none"> • Carry out the required rehabilitation/reconstruction works to the Kingstown Deepwater Wharf. • Maintain small container yard within CPCP area for use by Campden Park producers (ship to shore container transfer via ships gear). • Construct new transit shed at CPCP for banana and agricultural products. • Demolish banana and agricultural produce facilities at Kingstown (former Geest facility). • Construct new access bridge over South River for access to a secondary container stacking yard.
B	<p>Redevelopment and expansion of the existing port at Kingstown:</p> <ul style="list-style-type: none"> • Replacement/extension of the existing Deepwater Wharf to provide a double berth suitable for the projected design vessels, and adequate width for a high capacity mobile harbour crane (MHC). • Expansion of the existing container stacking area through reclamation and culverting over the South River. • Relocation and reduction in size of the existing Geest operation to improve the internal port configuration and efficiency. • Relocation of the maintenance yard away from the centre of port activity. • Rationalisation of the Schooner Wharf area through reclamation and provision of new quays and piers. • Relocation of the inter-island ferry berth and main entrance through reclamation and provision of new quay facilities. • Provision of additional cruise tender jetties. • Provision for a fast ferry operation at the existing cruise terminal.
C	<p>Relocation of the commercial port and ferry terminal to a new location within the Kingstown precinct:</p> <ul style="list-style-type: none"> • Seaward land reclamation to provide the required port area. • Dredging to provide suitable water depth. • Provision of new quays and piers for relocation of the small intraregional traders. • Provision of a new berth for the inter-island ferry service. • Decommissioning and demolition of the existing deep-water wharf, and landside port infrastructure. • Termination of the lease agreement at Campden Park Container Terminal when the new Kingstown port terminal is ready for operations (SVGPA should propose for CPCP to be kept as a backup terminal) • CPCP Ltd should be consulted and advised on the future of CPCP after the lease agreement is terminated.
C2	<p>Inclusion of the Arnos Vale site:</p> <ul style="list-style-type: none"> • Transfer of cruise terminal facilities to Arnos Vale. • Conversion of existing Kingstown cruise berth for the use of interisland ferries, widening of the berth to allow vehicle access. • Transfer of intra-regional cargo to that part of the Kingstown schooner wharf previously used by the ferries. <p>A tunnel road project linking Kingstown and Arnos Vale via Sion Hill is currently being assessed for financial and technical feasibility. Should this project be realised, it would serve as a major connection route between Kingstown and Arnos Vale.</p>

Source: Mott MacDonald, 2015

After careful evaluation, the decision was made for "Option C" which concludes that a new, modern seaport facility shall be built at the western end of Kingstown (towards Rose Place), in order to combine all port facilities, also those at Campden Park, at the Kingstown site.

The reasons for this decision listed in the master plan are:

- Strong working relationship between the port and Kingstown town centre
- Phasing of development significantly simplified, with very little to no impact on maintaining port operations
- Full segregation between port traffic and cruise terminal traffic
- Retain relatively close proximity of main administration building to port operations, eliminating need for relocating port offices
- Rationalised internal port layout will improve internal port circulation, yard efficiency, and health and safety of port operatives
- Less need for extensive road transfer of containers from CPCP to Kingstown on the narrow Leeward Highway with its dangerous bends
- Significantly less reliant on Leeward Highway improvements between CPCP and Kingstown
- Impact on social groups in Kingstown remains relatively unchanged
- Shift of port operation close to existing concentration of warehouse space within Kingstown
- Reduced competition for alternative land use in new Kingstown location
- Possibility to expand the cruise terminal in the longer term
- No requirement for Customs to relocate administrative operations
- Shift of port related traffic away from congested central Kingstown area
- Less reliance on improvement of Kingstown central road network
- No heavy construction activity in congested town centre
- Release of port waterfront land for alternative commercial use with possibility of funding new port development with revenue generated by lease of former port area
- Safer passenger embarkation at the new ferry terminal, no mix of passenger and cargo loading operations
- Decongesting the streets in front of the cruise and passenger terminal
- Longer term opportunity for a fast ferry berth at the former inter-island ferry terminal.

The disadvantages identified for this development option are:

- Dredging and reclamation are required
- Requirement for substantial volumes of (imported) reclamation material
- Ecological impacts due to dredging and reclamation works
- Significant impact on the small fishing community to the north-west of the proposed port location (Rose Place)
- New port location more susceptible to disruption from hurricane or heavy seas than present situation
- Need to move the mobile harbour crane (MHC) from CPCP to Kingstown, resp. to buy a new MHC
- Increased need for provision of new power and water supply utilities to support port development
- Heavily dependent on development of released port land to fund capital works
- Significant changes to zoning requirements
- Redundancy issues at CPCP with Kingstown becoming the primary commercial port reinstated
- Potential disruption of the North River flows.

3. ENVIRONMENTAL AND SOCIAL LEGISLATIVE FRAMEWORK

3.1 Environmental Legislative Framework

3.1.1 National Legislation

The protection and monitoring of the environment is directly and indirectly regulated by a number of acts (laws) of the Assembly of the Government of St. Vincent and the Grenadines. Key environmental acts (laws) and regulations related to the Project include:

- Town and Country Planning Act (1992 and amendments). All physical planning in St. Vincent has to be conducted in accordance with this act. It also requires an Environmental Impact Assessment (EIA) for developments that pose threats to the environment.
- Environmental Health Services Act (1991) provides for the regulation of activities that may affect public health and the environment, and for pollution control
- Central Water and Sewerage Authority Act (2007) includes measures for improvement, preservation, conservation, utilization, and apportionment of all water resources
- Fisheries Act (1986) protects and preserves marine resources
- Occupational Safety and Health Act (2017v) sets standards for occupational safety and health
- Waste Management Act (No.31 of 2000) and Solid Waste Regulations (No. 11 of 2005) contain rules for the public management and disposal of solid waste, including hazardous waste
- National Parks Act (2002) established by the National Parks, Beaches and Rivers Authority. The Authority shall have power and control over all rivers, streams, springs, swamps, and beaches.
- Litter Act (1991) makes provisions for the control of emissions and effluent discharge into water
- Noise Control Act, 1988 describes a code of practice for noise control also at construction sites
- Marine Parks Act (1991) provides for the establishment and control of marine parks.

3.1.2 International Conventions

In addition to national environmental legislations, SVG is also a party to a number of Regional and International Conventions and Protocols related to protection of the environment including:

- United Nations Convention on the Law of the Sea, a comprehensive legal framework governing, among others, uses of the oceans and outlining general responsibilities towards limiting marine pollution and preserving marine resources
- MARPOL 73/78, the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes
- The Convention on Biological Diversity, a legally binding agreement on the use and conservation of biological diversity
- UN Framework Convention on Climate Change (UNFCCC), and the Kyoto Protocol, an intergovernmental treaty developed to address the problems related to climate change
- Convention on International Trade in Endangered Species of Fauna and Flora (CITES), an international agreement that regulates international trade of threatened and endangered animals (live or dead), animal parts, and plants
- Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol, a framework for global efforts to protect the Earth's protective ozone layer
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which controls the international trade in hazardous wastes
- Biosafety Protocol, outlining documentation requirements and other procedures for promoting the safety of international trade in living (or genetically) modified organisms
- Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region
- OECS St. George's Declaration, declaring Principles for Environmental Sustainability which seeks to, inter-alia, build the capacity of Member States and regional institutions to guide and support processes of sustainable development

3.1.3 Institutions

- The Ministry of Health, Wellness and the Environment (MOHWE) has the overall mandate for environmental management in SVG and oversees all environmental issues, implements projects, policies, awareness campaigns and international negotiations.
- The Ministry of Agriculture, Forestry, Fisheries, Rural Transformation, Industry & Labour is the institutional body of the state responsible for the formulation, articulation and implementation of all policies and plans relating to Agriculture, Forestry, Fisheries, Rural Transformation, Industry & Labour
- Ministry of Housing, Informal Human Settlements, Lands & Surveys is responsible for approval of planning, building and construction, and preparation of GIS hazard maps

- Ministry of National Mobilisation, Social Development, the Family, Gender Affairs, Persons with Disabilities, Youth, Sports and Culture
- The National Emergency Management Organization (NEMO) is a statutory body whose chief responsibility is that of “coordinating disaster management in the state”. NEMO is responsible for preparing the National Response Plan. The National Emergency Council, the National Emergency Executive Committee and District Disaster Management Committees are the key organs of NEMO.
- The Central Water and Sewerage Authority (CWSA) is a statutory body under the Ministry of Health, Wellness and the Environment. It is responsible for the production and distribution of piped water and for waste management on Saint Vincent, and advises the Minister relating to the improvement, preservation, conservation and utilization of the country’s resources.

3.2 Socio-Economic Legislative Framework

3.2.1 Introduction

The legal and regulatory framework that protects, conserves, enhances and restores the socioeconomic resources of St. Vincent and the Grenadines lies within the jurisdictions of governmental ministries and their respective departments/divisions. Relevant legislation, specific regulatory agencies, international conventions and agreements to which St. Vincent and the Grenadines is a signatory are discussed in this chapter.

Relevant socioeconomic legislation includes:

- Land Acquisition Act (Chapter 241, 1947)
- Saint Vincent and the Grenadines National Trust Act, 1969
- Saint Vincent and the Grenadines National Trust Amendment Act, 2007
- Preservation of Historic Buildings and Antiquities Act, 1976
- Domestic Violence (Summary Proceedings) Act, 1995
- Saint Vincent and the Grenadines Domestic Violence Act, 2015
- Criminal Code Cap. 124 (“1990 Rev”) as amended by Family Court Act, 1992 and the Criminal (Amendment) Code, 1993
- The Status of Children Act (Chapter 243, 2009)
- The Protection of Employment Act (2003)
- Equal Pay Act (No. 3) of 1994
- Employment of Women, Young Persons and Children Act (No.53) of 1992

3.2.2 National Legislation

- Land Acquisition Act (Chapter 241, 1947)

Under the laws of SVG, the Land Acquisition Act governs the acquisition of land by the GOSVG for a public purpose. Under this Act, the government may issue a declaration to initiate the acquisition of land required for a public purpose, such as projects that are intended to benefit the general public. All issues relating to payment of compensation can be submitted to a Board of Assessment whose award must be filed in the High Court. The Act details the procedure that must be followed to acquire the land, including notification of intention, survey, negotiation procedures and compensation guidelines.

- Saint Vincent and the Grenadines National Trust Act, 1969 and Saint Vincent and the Grenadines National Trust Amendment Act, 2007

The Saint Vincent and the Grenadines National Trust Act, Cap. 329 outlined the purpose of the SVG National Trust as the conservation of the historical and natural heritage of St. Vincent and the Grenadines. Through this legislation, the National Trust can identify, document and preserve buildings, monuments and places of historic and archaeological interest, protect cultural assets, island wildlife reserves, and museums, including the acquisition of property and the raising of funds for the management of such property.

- Preservation of Historic Buildings and Antiquities Act, Cap. 247

Under the Preservation of Historic Buildings and Antiquities Act, Cap. 247 the Minister of Tourism is empowered to prepare a list of historic buildings. A listed building cannot be demolished, altered or extended without the permission of the Planning Authority. The government may also acquire any building to be a historic building either by agreement or in accordance with the provisions of the Land Acquisition Act.

- Domestic Violence (Summary Proceedings) Act, 1995

Under the Act, victims of abuse, married or within common-law unions, can obtain a Protection, Occupation or Tenancy Order against perpetrators, issued by the Family Court, which are aimed at reducing the incidences of domestic violence. A court can grant:

- A protection order that prohibits abuse and molestation, excludes the abusive person from the home, school, workplace or other specified areas
- An occupation order which gives a right to remain in the household residence
- A tenancy order which vests the tenancy in the person who applied for the order
- Other orders relating to use of furniture and household effects, payment of rent, mortgage, utilities etc.

- Saint Vincent and the Grenadines Domestic Violence Act 2015

This Act provides greater protection for victims of domestic violence and makes provision for the granting of protection orders and for matters incidental thereto and connected therewith. It broadens the definition of domestic violence to mean any controlling or abusive behaviour that harms the health, safety or well-being of the applicant or any child in the care of the applicant. These behaviours include, but are not limited to, physical abuse or threats of physical abuse; sexual abuse or threats of sexual abuse; emotional, verbal or psychological abuse; intimidation; harassment; stalking; damage to or destruction of property or entry into the applicant's residence without consent, where the parties do not share the same residence. It also strengthens the mechanism and responses to protect children from abuse, particularly incest and to punish those who perpetrate abuse on children.

- Criminal Code Cap. 124 ("1990 Rev") as amended by Family Court Act, 1992 and the Criminal (Amendment) Code, 1993

Physical, sexual, and other forms of abuse is also addressed under the Criminal Code Cap 124 of the 1990 Revised Laws of SVG, where sexual offenses (Chapter VIII); offenses against the person, including femicide; and abduction and kidnapping attract various penalties. The Code also includes penalties for encouraging prostitution and detention in a brothel.

- The Status of Children Act (Chapter 243, 2009)

This Act seeks "to remove the legal disabilities of children born out of wedlock and to provide for matters connected therewith or incidental thereto". The Act prescribes that all children have equal status and protects children's right related to inheritance whether their parents are married to each other or not. It also applies to those whose parents do not reside in Saint Vincent and the Grenadines. The Act describes the procedures to be followed to determine paternity, which can be mandated by the Court.

- The Protection of Employment Act (2003)

The objective of this Act is to support successful employment relationships by promoting confidence in employment relationships. The Act addresses protection against unfair dismissal and lists terms and conditions under which employment can be fairly terminated such as after a fixed term of employment, after a probationary period, or for good cause.

- Equal Pay Act (No. 3) of 1994

This Act makes provision for the removal and prevention of discrimination, based on the sex of the employee, in the rates of remuneration for males and females in paid employment, and for matters incidental thereto. It defines an employee as a person who works at an establishment, or where that person works elsewhere, if the employment is carried out from that establishment. The employer must pay equal pay for equal work so as not to discriminate between male and female employees employed by the employer's establishment. The burden of proving that equal pay has been paid for equal work rests with the employer.

- Employment of Women, Young Persons and Children Act (No.53) of 1992

This Act addresses the employment-related concerns of women and children. It sets out equal remuneration for all workers including industrial and agricultural workers, and allows for maternity leave to be granted to women.

3.2.3 International Treaties and Conventions

On the international level, the Government of St. Vincent and the Grenadines actively supports and participates in several treaties and accords designed to formalise international cooperation on regional and global social protection strategies. The relevant international treaties are presented in Table 2. In addition, the National Economic and Social Development Plan 2013-2025 includes sustainable socioeconomic development; and as a consequence, the port modernisation project must incorporate these guidelines and strategic objectives.

Table 2: Relevant International Treaties and Conventions

Socio-Economic Treaty/Agreement	Purpose/Standards	Year Adopted*
Convention on the Protection of the Underwater Cultural Heritage	To ensure and strengthen the protection of underwater cultural heritage.	2010
Convention on the Rights of Persons with Disabilities	To promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity.	2010
Convention for the Safeguarding of the Intangible Cultural Heritage	To safeguard the intangible cultural heritage.	2009
Convention on the Protection and Promotion of the Diversity of Cultural Expressions	To protect and promote the diversity of cultural expressions	2009
Convention concerning the Protection of the World Cultural and Natural Heritage	To ensure the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage	2003
Convention concerning Discrimination in Respect of Employment and Occupation	To declare and pursue a national policy designed to promote, by methods appropriate to national conditions and practice, equality of opportunity and treatment in respect of employment and occupation, with a view to eliminating any discrimination in respect thereof.	2001
Maritime Labour Convention	To secure the right of all seafarers to decent employment.	2010
Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)	To to end discrimination against women in all areas of life. It defines what constitutes discrimination against women and sets up an agenda for national action to end such discrimination.	1981
Inter-American Convention on the Prevention, Punishment and Eradication of Violence against Women (known as the Convention of Belém do Pará)	To establish mechanisms for protecting and defending women's rights, and for combating violence against women's physical, sexual, and psychological integrity, whether in the public or the private sphere.	1996
Convention on the Rights of the Child	To protect the rights of all children in the world. It establishes 4 principles that must govern the implementation of all the rights it advocates: Non-discrimination; Best interest of the child; Right to life, survival and development; Respect for the views of the child.	1993

* Denotes the year of ratification of, or accession to, the treaty by Saint Vincent and the Grenadines.

¹ World Intellectual Property Office and European Union External Action Service Treaties Database; Retrieved 15 June 2018 from <http://www.wipo.int/wipolex/en/profile.jsp?code=VC> and [http://ec.europa.eu/world/agreements/searchByCountryAndContinent.do?countryId=6124&countryName=Saint%20Vincent%20and%20the%20Grenadines&countryFlag=treatiesenvironmental and social baseline](http://ec.europa.eu/world/agreements/searchByCountryAndContinent.do?countryId=6124&countryName=Saint%20Vincent%20and%20the%20Grenadines&countryFlag=treatiesenvironmental%20and%20social%20baseline)

4. ENVIRONMENTAL AND SOCIAL BASELINE

This Chapter of the ESIA report aims to describe the existing (baseline) social and environmental conditions at and around the proposed project site. The geographical setting of the project has already been described in Chapter 2.2 of this report.

4.1 Methodology

Baseline data were collected to describe the present physical, biological and socioeconomic conditions in order to be able to determine the level of impact expected, and to enable the monitoring of these impacts during and after the project.

Baseline information has been gathered through secondary data sources like review of previous data and studies, relevant literature, and internet research.

Primary data have been collected at the project site; for this, the environmental specialist has been on location on 19th to 28th March, 2018. A follow up site visit was carried out from 29th May to 8th June 2018. The social and gender specialists were in Kingstown on 21st May to 2nd June, 2018.

4.1.1 Methodology for Environmental Baseline Data Acquisition

Acquisition of relevant data and information included the following:

- Review of national environmental policies, strategies, legislations and guidelines as well as the CDB's Environmental and Social Review Procedures (2014) and the World Bank Safeguard Policies
- Review of relevant previous studies in the region and relevant literature
- Secondary data collection from SVGPA and other Government Offices
- Field investigations at the project site and collection of site specific baseline data, among others during a dive survey, preparing underwater photography and video footage, identification of potential issues
- Conducting consultations with key stakeholders in the project area including the project affected people.

Relevant Policies and Legislations

St. Vincent's environmental policies and pertinent legislations, as well as the CDB's Environmental and Social Review Procedures and WB's Safeguard Policies were reviewed to ensure that environmental legislation is successfully implemented in the ESIA process. A brief description of the relevant environmental policies and legislative framework within which the environmental assessment was undertaken can be found in Chapter 3 of this report.

Review of Previous Studies and Literature

Important studies already carried out in the area were provided by SVGPA, first of all the port development studies that have been carried out by the consultancy company Mott MacDonald (*Mott MacDonald and St. Vincent and the Grenadines Port Authority, Port Rationalisation and Development Study, Final Report and Master Plan, March 2015* and *Saint Vincent and the Grenadines Port Authority, Mott MacDonald, SVG Port Master Plan Re-Scoping Study, Final Report, 09 June 2017*). These and other relevant and pertinent literature were obtained and all relevant data and information presented in the documentation was extracted and combined with the data collected during field/dive surveys, at relevant Government Offices and at consultations made with different stakeholders (see below).

Field Survey

Main objective of the field survey was to collect primary data, to identify potential impacts, and to conduct consultations with government officials and key stakeholders, including potentially project affected people.

Consultation and data gathering exercises involved a number of sources, including personnel from:

- St. Vincent and the Grenadines Port Authority
- Ministry of Health, Wellness and Environment, - SV Focal Point of the “Caribbean Fund for Wastewater Management” – GEF CREW
- Central Water and Sewerage Authority, Solid Waste Management Unit
- Ministry of Finance, Economic Planning, Sustainable Development and Information Technology, GEF Focal Point
- Ministry of Housing, Informal Human Settlement, Lands and Survey Department
- National Parks, Rivers and Beaches Authority
- Ministry of Agriculture Rural transformation, Forestry and Fisheries
- Ministry for National Mobilization, Social Development and Youth
- “Environmental Protection Activist”, Freelance Worker for IUCN and FAO Projects

The fisher folk of Rose Place will be most affected by the project. Two meetings with this stakeholder group took place on 31st May and on 6th June, 2018, in order to inform them about the proposed project, to get input from stakeholders on potential project impacts, and to obtain information on catches, fishing methods and the general state of inshore fishing.

In parallel with the data collection from local offices, diving investigations were carried out in order to obtain a general overview of the ecological status of the project site. This task enabled

the environmental specialist to identify potentially affected resources located within the project's direct impact zone (see Chapter 4.1).

Impact Identification and Evaluation

Subsequent to the evaluation of the baseline conditions and analysis of stakeholders' opinions, the environmental impacts likely to result from the project have been identified, predicted and evaluated for significance and status (beneficial/adverse), magnitude, extent, duration in time, likelihood of occurrence, and potential for effective mitigation. The combination of these parameters has been summarized to determine the significance of impacts, which will then be the basis for impact assessment and prioritization of mitigation (see Chapter 5).

4.1.2 Socioeconomic and Gender Methodology

The Socioeconomic and Gender Baseline Data Collection was conducted in a participatory, gender-responsive and socially-inclusive manner; engaging key stakeholders so that representatives of both women and men were actively involved. This approach acknowledged that there are obstacles to women's participation and sought to alleviate these barriers by specifically addressing the differential experiences of women and men, and thus, their different opinions, concerns, needs, and priorities. The data collection exercise aimed to describe the existing socioeconomic and gender conditions relevant to the project and the analysis of its impacts, both at the proposed project site(s) and within its area of influence. Therefore, the study area included Port Kingstown, the wider Kingstown area and the Rose Place ("Bottom Town") community.

4.1.2.1 Literature Review and Scoping

Literature and secondary data on the existing socioeconomic and gender conditions relevant to the project were reviewed. This step was performed in order to develop a preliminary understanding of the potential socioeconomic impacts of the project, as well as the socioeconomic, cultural and gender characteristics of the study area including, but not limited to, demography (by age and gender), community structure and organization (including community-based organizations (CBOs), leadership and patterns of decision-making), income data, employment, livelihood and labour force information (by age and gender), access to services (health, education, water, sanitation), health and education data (by age and gender), recreation, land use patterns, and cultural areas of importance. In addition, the applicable social and gender-related legislative regulatory framework was reviewed.

Secondary sources of information included:

- Socio-demographic information from published reports and online resources
- Published and unpublished resources of various government departments
- Country Gender Assessment
- Relevant policy and legal documents including poverty assessments, census reports, and labour force surveys

- Historical and/or archaeological information from online resources, and
- Other relevant published information or online data from government, statutory bodies, international agencies and other legitimate sources.

Data collected was disaggregated by sex where possible to understand women's access to and control over resources, labour patterns, resources use patterns, and the distribution of benefits among women and men.

4.1.2.2 Stakeholder Analysis

Stakeholder input is critical to both the identification and assessment of socioeconomic and gender impacts. These are the persons and/or groups that experience the impacts (positive or negative) from proposed activities and their input is important in both understanding the potential impacts and in assessing severity and duration. A comprehensive mapping and analysis of relevant stakeholders was conducted to identify interactions between these groups and project activities.

Literature primarily informed this analysis, in addition to which, an initial field visit was conducted from March 21-26, 2018 during which meetings with key project stakeholders assisted with the identification of other stakeholders. In particular, directly affected communities and vulnerable groups (groups that may be disadvantaged by virtue of their age, ethnicity, religion, culture, gender, physical and mental ability or way of life) were the focus of this analysis.

Key stakeholders groupings were identified and are presented below in Table 3 with the justification for their inclusion.

Table 3: Stakeholders Identified for Engagement/Interviews

STAKEHOLDER GROUPINGS	INTEREST IN/RELATIONSHIP WITH PROJECT
Fisher Folk and Vessel Owners	Potentially affected by increased road and marine traffic, relocation due to construction of port infrastructure, loss of livelihood and emergencies
Vendors and Push Cart Operators	Potentially affected by increased road traffic, relocation due to construction of port infrastructure and loss of livelihood
Taxi Drivers and Truckers	Potentially affected by increased road traffic and rerouting of existing traffic patterns due to construction of port infrastructure
Persons with Disabilities (PWDs)	Potentially affected by increased road traffic and disruption of existing onshore transportation facilities during construction of port infrastructure
Affected Community (Rose Place)	Potentially affected by increased road and marine traffic, resettlement due to construction of port infrastructure, loss of livelihood and emergencies
Government Agencies	Regulatory agencies issuing permits and other approvals. Involved with project implementation with respect to information dissemination, sources of data and mitigation measures such as relocation/resettlement
Port Authority (including workers)	Project proponent; Workers potentially affected by reduced workforce required for modernised Port Kingstown, including shift of Campden Park shipping activities to Kingstown
Non-Governmental Organizations (NGOs) and Community-Based Organizations (CBOs)	Representatives of affected and/or interested groups
Business Owners and Operators	Potentially affected by relocation of shipping operations to Kingstown in the case of Campden Park; Potentially affected by increased road traffic, noise, dust and relocation in the case of those in the vicinity of the project in Kingstown

Some of the broad stakeholder groups identified in Table 3 are further defined below:

- Government Agencies
 - Ministry of Health and the Environment
 - Ministry of National Mobilization, Social Development, Family, Gender Affairs, Persons with Disabilities and Youth
 - Social Protection Division

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

- Gender Affairs Division
- Community Development Division
- Youth Affairs Division
- Ministry of Agriculture, Forestry, Fisheries, Rural Transformation, Industry and Labour
 - Fisheries Division
 - Department of Labour
- National Emergency Management Organisation (NEMO)
- Ministry of Transport, Works, Urban Development and Local Government
 - Kingstown Town Board
- Ministry of Finance, Economic Planning, Sustainable Development, and Information Technology
- Ministry of Education, Reconciliation, Ecclesiastical Affairs and Information
 - Adult Education Division
- Ministry of National Security, Air and Sea Port Development
- Ministry of Housing, Informal Human Settlements, Land and Surveys and Physical Planning
- Ministry of Foreign Affairs, Commerce and Trade
- Ministry of Tourism, Sports and Culture
- NGOs and CBOs
 - National Society of Persons with Disabilities
 - Red Cross
 - Young Women's Christian Association (YWCA)
 - SVG Human Rights Association
 - National Council of Women, SVG (NCW)
 - SVG National Trust
 - National Workers Movement
 - National Youth Council of St. Vincent and the Grenadines

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

- Urban League
- Business Owners and Operators
 - Merchants and manufacturers at Camden Park, such as fuel importing companies, vessel agents, stevedoring companies
 - Businesses in the vicinity, or are users of, the existing and modernised port e.g. Correas, Greaves, Geest Line
 - Inter-island ferry operators
 - SVG Chamber of Industry and Commerce

4.1.2.3 Stakeholder Engagement and Participation

The socioeconomic and gender field visit was conducted from May 21 to June 1, 2018. Stakeholder consultation, participation and engagement was conducted to ensure that relevant information was exchanged so that primary data on stakeholder’s perspectives, concerns, perceived current and future needs and priorities, as well as input and feedback on the proposed project and its impacts, were collected. In particular, directly affected communities and vulnerable groups as identified in the stakeholder analysis were engaged in participatory meetings.

The stakeholder engagement and participation strategy included interviews, focus groups, and public meetings, which were sensitive to local social organization and patterns of authority and decision-making. The time, place and venue of meetings were selected to ensure that all stakeholders were given an equal opportunity to participate. Separate meetings with women and men in the communities and their representatives at the community and national level were conducted.

For this study, the primary information collected was both qualitative and quantitative in nature; sources of information included:

- Individual and focus group meetings with community groups and other relevant stakeholders identified in the stakeholder analysis
- Transect and community walks
- Community mapping, and
- Public consultation with the community and other stakeholders.

The public consultation was held on May 30, 2018 within the Rose Place community, along Lower Bay Street in the vicinity of the “Hard Court,” to encourage participation of all members of the community and in particular those who may be directly affected by the project. Community members assisted with the logistical details for the meeting and members of the public were also invited to the consultation. There were approximately 32 adults, 10 of whom were female, at the consultation. The number of attendees was determined using a tally

system since some of the attendees did not wish to register their names, so that the record (**Appendix 1**) does not reflect this number.

A women's meeting was held separately on May 31, 2018 at the "Soup Kitchen" in Rose Place. There were 18 adult female attendees (**Appendix 2**) who were asked to express their views and concerns on the Port Kingstown Modernisation Project, as well as participate in a community mapping exercise. The separate women's meeting was conducted both to allow for identification of issues specific to women in the community and to provide a safe space for their voices to be heard. At both meetings, the objective was to give attendees the opportunity to ask questions, raise concerns and express their opinion on the planned activities.

In addition to these meetings, two community walks were conducted in Rose Place during the field visit to collect information about the community's dynamics and obtain a first-hand view of the community and its people. Informal discussions were held with community members during the walks to engage those who may not have attended the consultation. It was considered crucial to understand the views and opinions of residents regarding their community and the surrounding resources, and the information obtained provided a basis for making recommendations.

A transect walk was also conducted along the seawall in the Little Tokyo area to conduct informal interviews with vendors who may be displaced by the project activities. Discussions were also held with taxi drivers, roadside vendors and businesses within the potentially affected areas of Kingstown. This informal approach was chosen, in particular for the vendors, to discern people's honest opinions that may not be elucidated at a group meeting.

Formal interviews/meetings were held with key informants from stakeholder organizations. These meetings were conducted primarily during the field visit but further discussions were held with National Emergency Management Organisation by the local social and gender expert subsequent to the field visit. The stakeholder organizations and key informants interviewed during the stakeholder engagement process are listed in Table 4. The results of the stakeholder engagement process have been embedded throughout the document.

Table 4: Stakeholders Interviewed During Stakeholder Engagement Process

STAKEHOLDER ORGANISATION	PERSON(S) INTERVIEWED
Ministry of National Mobilization, Social Development, Family, Gender Affairs, Persons with Disabilities and Youth <ul style="list-style-type: none"> • Gender Affairs Division • Community Development Division • Youth Affairs Division 	Merissa Burke Janine Haywood Jemima George LaFleur Quamime-Harry Colchie Phillips Roger Young Ena Walters Yolande London
Ministry of Agriculture, Forestry, Fisheries, Rural Transformation, Industry and Labour <ul style="list-style-type: none"> • Fisheries Division • Department of Labour 	Jennifer Cruickshank Howard Raquel Jacobs Lawrence Steve Stewart
National Council of Women of St Vincent and the Grenadines (NCW)	Beverly Richards Lolita Charles Colleen Oliviere
The St. Vincent and the Grenadines Chamber of Industry & Commerce (CIC)	Anthony Regisford
Ministry of Transport, Works, Urban Development and Local Government <ul style="list-style-type: none"> • Kingstown Town Board 	Hudson Nedd Aliston Tixiera Marlon Nanton Branston Plough-Feddows
Ministry of Education, Reconciliation, Ecclesiastical Affairs and Information	Beverly Neptune Yvonne Antoine
Ministry of Housing, Informal Human Settlements, Land and Surveys and Physical Planning	Nellie Clarke Trent
St. Vincent and the Grenadines Taxi Drivers Association	Winston Morgan
Coreas Hazells Inc (Correas)	Brian George
Urban League	Sean Frederick
National Society for Persons with Disabilities (NSPD)	Patricia Cumberbatch
St. Vincent and the Grenadines Port Authority (SVGPA)	Bishen John Lenski Douglas
National Emergency Management Organisation (NEMO)	Michelle Forbes

4.1.3 Assumptions, Limitations and Gaps in Knowledge

There were several limitations with the conduct of the socioeconomic and gender data collection exercise as outline below.

Assumptions

- All data and information provided by stakeholders are current and accurate.
- The proposed port layout plan is the most up-to-date revision.

Limitations

- Attempts to contact some stakeholders were unsuccessful; thus, no input has been received from them. In a few cases, the organisations were no longer in operation.
- Statistical data were not available from some organisations so that qualitative and anecdotal information was used.
- Data and reports that were promised by some organisations were not delivered despite follow-up calls and emails.
- While a number of stakeholders were identified for meetings, it was sometimes very challenging to schedule and confirm convenient meeting times with these stakeholders. As such, representatives from some of the organisations identified for interviews were not met.
- The study was done with the information available to the specialists at the time of executing the study. The sources consulted are not necessarily exhaustive, and additional information which might strengthen arguments, contradict information in this report and/or identify additional information might exist. However, the specialist did endeavour to take an evidence-based approach in the compilation of this report and did not intentionally exclude scientific information relevant to the assessment.

Gaps in knowledge

- At the time of preparation of the ESIA, final design details for the port and project implementation were not yet available so preliminary information was used. Complementary studies, which may have further information relevant to the project were conducted simultaneously, or after the ESIA, and are included as part of the feasibility study:
 - Traffic Impact Assessment
 - Financial and Economic Analysis
 - Climate Risk Vulnerability Assessment

4.2 Physical Environment

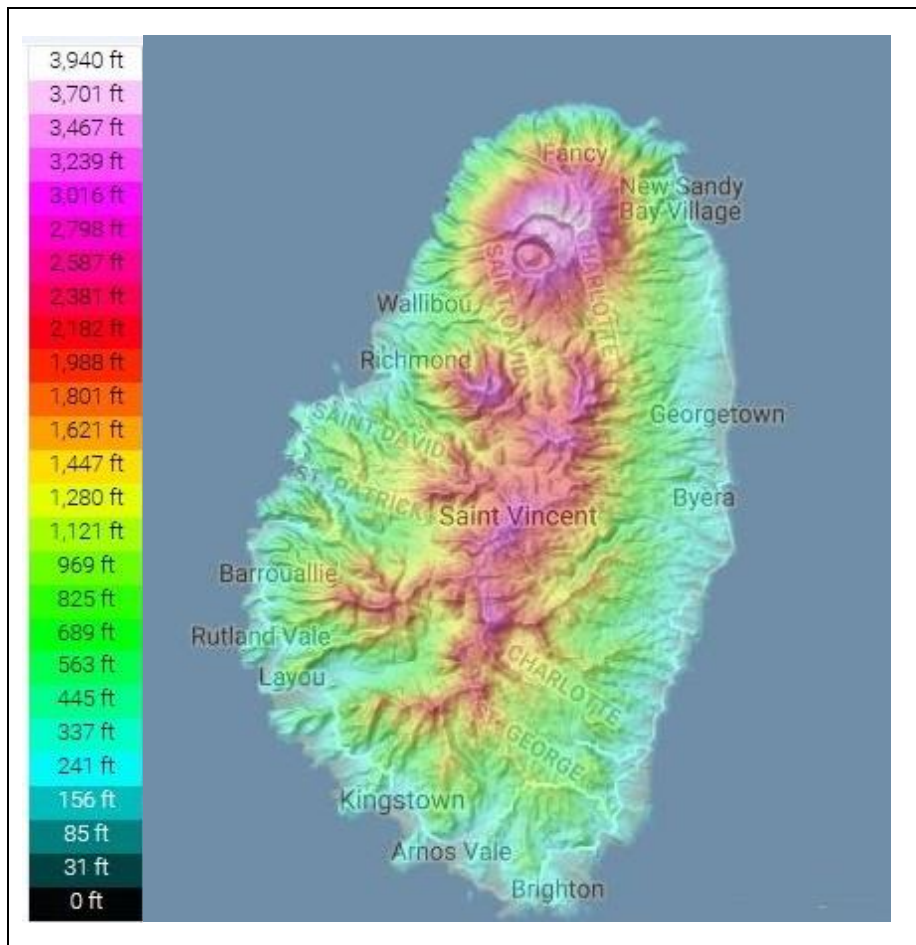
4.2.1 Landscape and Topography

St. Vincent

St. Vincent is an island of volcanic formation, about 29 km long and 18 km wide. The highest peak is the active volcano La Soufrière with an altitude of 1,234 m. To the south, there is a chain of extinct volcanoes, of which the highest, Richmond Peak, rises to 1,079 m.

The island is characterized by steep slopes and a multitude of ridges bordering narrow valleys. There is hardly any flat land, only 5% of the island's surface has slopes of less than 5°. The majority of settlements and hotels are located along coastal areas. Also, most of the infrastructure has been constructed along the coast line, like roads, water lines, and telephone and electricity lines.

Figure 3: Topographic Map of St. Vincent

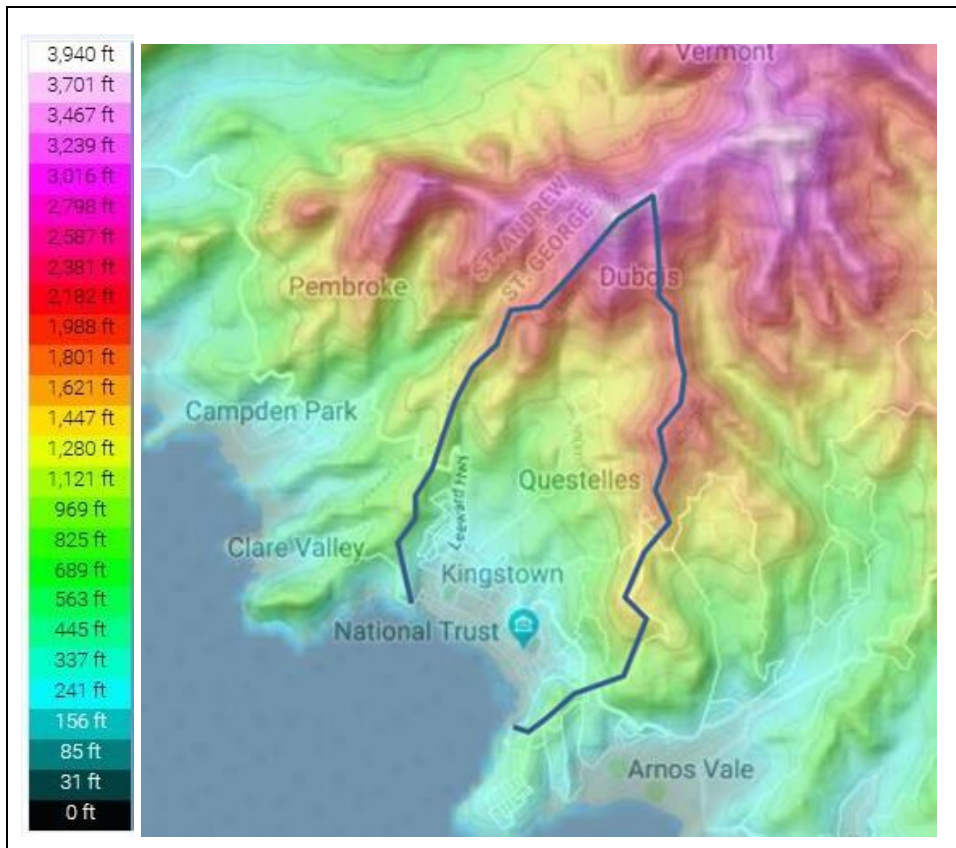


Source: <http://en-gb.topographic-map.com>

Kingstown

The city of Kingstown has been built along the coastline of Kingstown Bay. With increasing population numbers, suburbs have developed in the valley of Kingstown’s hinterland which rises steeply towards two mountain ridges. Today, this area has the highest population density of St. Vincent.

Figure 4: Topographic Map of Kingstown Area and Kingstown Catchment Area



*Source: <http://en-gb.topographic-map.com>, modified by HPC
Blue Line: Boundary of Catchment Area*

The port project area, i.e. the land on which the terminals will be constructed, will be newly reclaimed land, directly adjacent to the foreshore land that has already been reclaimed in 1991 and which now comprises much of the business district, the central bus station, the fish market, and also major government offices and the office of the Prime Minister.

Due to the steady growth of the city and its suburbs, the vast majority of the catchment area of about 7.5 km² is now inhabited or cultivated. Only the highest mountain areas are still covered by natural vegetation and forests.

Two main rivers (North- and South River) and their tributaries provide for an outflow of rainfall throughout the catchment area into the Kingstown Bay. Between the rivers there is a short covered drain. During dry season, the rivers are small and carry little water; during rainy

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

season they strongly swell and the discharge of the rivers may become too high to be accommodated in the normal river bed. This regularly leads to flooding in the city¹⁰.

Figure 5 shows that almost all lower areas of Kingstown may be affected, including the area of the planned port (see Chapter 4.4.2).

Figure 5: Flood Hazard Map of Kingstown and Campden Park



Source: CHaRIM Project St Vincent National Flood Hazard Map¹¹

4.2.2 Climate

St. Vincent and the Grenadines has a tropical marine climate; rainfall and temperature vary with altitude.

In Kingstown, the mean temperature is around 27°C, dropping by only a few degrees in the cooler months of November to March. Maximum temperature can reach a high of 31°C between the months of May and October, and minimum temperature can reach a low of 23°C in February.

¹⁰ Verbal communication at National Parks, Rivers and Beaches Authority and Ministry Agriculture, rural Transformation, Forestry and Fisheries

¹¹ CHaRIM Project St Vincent National Flood Hazard Map, Methodology and Validation Report, DRAFT VERSION, 18 May 2016, By: Victor Jetten, Faculty of Geoinformation Science and Earth Observation (ITC), University of Twente, The Netherlands

Table 5: Average Temperatures at Kingstown

Kingstown	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min (°C)	24	24	24	25	26	24	24	26	26	26	25	25
Max (°C)	29	29	29	30	31	30	31	31	31	31	30	30
Min (°F)	75	75	75	77	79	75	75	79	79	79	77	77
Max (°F)	84	84	84	86	88	86	88	88	88	88	86	86

Source: <https://www.climatestotravel.com/climate/saint-vincent-and-grenadines>

The rainy season lasts from June to December, and the dry season from January to May. Annual precipitation varies between 1,500 mm on the coast to 3,800 mm in the central mountains. The rainy season is also the period of highest tropical storm activity in the region, which peaks in the months of September, October and November.¹²

Table 6: Average Precipitation at Kingstown

Kingstown	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Prec. (mm)	110	90	90	70	125	205	210	255	225	205	205	175
Prec. (in)	4.3	3.5	3.5	2.8	4.9	8.1	8.3	10	8.9	8.1	8.1	6.9
Days	14	10	9	9	11	15	18	20	19	19	18	16

Source: <https://www.climatestotravel.com/climate/saint-vincent-and-grenadines>

4.2.3 Air and Noise Emissions

Air Emissions

St. Vincent has only few industrial facilities; in addition, steadily blowing winds are making air pollution in the area a minor issue. According to the WHO’s “Global Ambient Air Quality Database” (update 2018), the average amount of fine particulate matter (PM 2.5), for example, is in SVG below 13 µg/m³ air. This figure is within the range of a “safe” level of PM 2.5, which is according to the WHO at around 10 µg/m³. This level is far surpassed by most other countries¹³.

When vessels are at berth, the amounts of air pollutants at the port and its vicinity will be significantly higher than the national average. Ships, in particular cruise ships, are the main contributors to air pollution in Kingstown. In the season 2016/2017, 218 cruise vessels were calling at the Port of Kingstown. At present, the Caribbean is not declared Emission Control Area (ECA) by the International Maritime Organization IMO, (except for the U.S. Caribbean Sea area around Puerto Rico and the United States Virgin Islands) which means that the permitted Sulphur content of vessels’ fuel is allowed to be 3.5%¹⁴ (for comparison: the EU standard EN 590:2009 requires for all road and non-road vehicles fuel with a Sulphur content of 0.001%).

¹² St. Vincent and the Grenadines, Pilot Program for Climate Resilience (PPCR), Phase One Proposal, The World Bank, Inter-American Development Bank, 2011

¹³ <http://www.who.int/airpollution/data/cities/en/>

¹⁴ MARPOL Annex VI, Regulation 14

Accordingly, it could be observed that incoming ships showed a clear exhaust plume (see figure below). On January 1, 2020, the Sulphur limit applicable to all marine fuels worldwide will be reduced to 0.5%, which will improve the air quality in Kingstown considerably.

Table 7: Sulphur Limits in Marine Fuels in Different Marine Areas

Outside ECA	Inside ECA
3.5 % since 1 st January 2012	1.0 % since 1 st January 2010
0.5 % on and after 1 st January 2020	0.1 % since 1 st January 2015

Source: IMO

Figure 6: Cruise Vessel Approaching the Port of Kingstown



Source: HPC, 2018

NABU, a German environmental organization, put the average fuel consumption of a mid-size cruise ship at 150 tons of fuel a day. Each ton of heavy fuel oil (HFO) generates 3.1 tons of CO₂ and considerable amounts of other harmful pollutants like NO_x and SO₂. Cruise vessels, like all other ships, have to keep their engines running at all times, also while at berth, to provide the energy supply on board. However, the energy demand of cruise ships is higher than that of cargo vessels, as energy has to be provided for up to four thousand passengers. Therefore, cruise vessels generate above-average emissions while at berth. The Masterplan of Mott McDonald suggests “shore-side electricity” for cruise ships as an emission-free alternative to the use of oil while at berth. However, for the time being it is not possible for the Port of Kingstown to provide electricity for cruise ships; the country’s energy supply system is not designed for this, it would collapse.

According to SVGPA, shore-side electricity will be an option as soon as sufficient alternative energy will be available¹⁵. There is a study presently being conducted on the use of geothermal energy; if such kind of energy supply can be realized, connection of vessels to shore-side electricity could be installed to improve the air quality at the port.

Noise Emissions

Road traffic is the main source of noise in Kingstown. Noise levels have been measured on the 31st May, 2018, at around 5 PM along Bay Street, on the way from the ferry terminal to Rose Place. Measurements were made from the curbside, using a hand-held sound level meter (PCE-999 by PCE Instruments); distance to the traffic lane was around 2 m.

Measurements were taken at the rush-hour time, road traffic density was high. The mean street noise (total noise level, including all sources), was 73.2 dB (A), varying from <60 dB (A) (car passing slowly) to >85 dB (A) (accelerating truck, motorcycle). The high value was even surpassed by taxis pushing their horns to attract potential customers. Sound levels of car horns are usually above 100 dB (A).

The noise level at Kingstown during rush-hour was high, considering that the WHO Guidelines advise noise limits for mixed areas – residential, commercial and industrial to be 60 dB (A) during daytime¹⁶.

Honking is a frequent phenomenon in Kingstown and has a significant impact on traffic noise induced an additional 2 to 5 dB (A) noise over and above traffic noise.

At night, traffic noise levels were significantly lower than during the daytime. Measurements have not been taken, but it could be observed that the high noise levels occurred only on weekdays and during day time; at night and on Sundays there was significantly less traffic and there was also no noise from street vendors.

The noise level inside a port is proportional to the activity level. As there was hardly any port activity during the consultants' stay on location, noise generated by the port was negligible at that time.

4.2.4 Waste Water Management

At present, there is no adequate sewage treatment facility on St. Vincent. Most houses are reported to have septic tanks for collection and treatment and soak-away systems for disposal of effluent.

At Kingstown, the city's collected sewage was formerly pumped through a comminutor into a collection tank. As this comminutor has not functioned for a long time, a grid is now used to filter off larger pieces. Subsequently, the sewage is discharged via a pumping station next to the leeward bus terminal through a pipeline directly to the sea without any further treatment. The pipeline is reported to be approximately 1,500 m in length and is supposed to end outside

¹⁵ Verbal communication: SVGPA, 31st May 2018

¹⁶ WHO World Health Organization, Geneva, 2007: Guidelines for Community Noise

of the Kingstown bay at “sufficient depth”; the strong current quickly dilutes the waste water stream. Just recently, several cracks in the pipeline have been repaired and the pipeline’s exact position has been mapped. After that, sea water samples have been taken and analysed and there have been no issues with regard to sea water quality since. The sea water tests have been documented¹⁷; however, the data was not available at the time the Consultants were on site.

The areas of central Kingstown and a small area in Arnos Vale are connected to a waste water discharge system as described above. The sewage from Kingstown area is more or less domestic as there are no significant industrial companies. Typical pollutants of industrial sewage, e.g. heavy metals, are not likely to be expected.

The South Coast area of the island is a densely populated area and most of the hotels can be found there. This area is separated from the Kingstown area by the highlands of Cane Garden and thus not connected to the capital’s sewage pipeline. Many of the hotels are reported to have a septic tank and soakaway system but their efficiency is limited due to the proximity to the coastline and resultant high water table level. Thus, waste water is often discharged directly to the sea without any treatment. The result is a heavily stressed marine environment in this area. Nearly all corals are gone and bathing water standards are of critical concern¹⁸.

St. Vincent is represented at the “Caribbean Fund for Wastewater Management” by a Senior Environmental Health Officer from the Ministry of Health, Wellness and Environment (MOHWE). Up to now, St. Vincent has not participated at any projects supported by this fund.

4.2.5 Solid Waste Management

The Solid Waste Management Unit (SWMU) of the CWSA organizes and manages regular collection and disposal of household waste, as well as certain fractions of vessel generated waste. Almost everywhere on the island, the waste is picked up once a week and brought to one of two landfills.

There is one landfill at Diamond and another at the Belle Ilse area. Both landfills have no special sealing at the ground; they are reported to be constructed on a layer of clay, which is impermeable to leachate. The dimension of each landfill has been calculated to be sufficient for accommodating the waste that will be generated within the next 20 years. Waste management measures, such as recycling, should significantly extend this period.

Climate change and related sea level rise are considered a threat in particular to the low lying landfill at Diamond which is close to the coastline¹⁹.

Private companies have started to recycle certain waste fractions, specifically valuable recyclables, such as scrap metal. Other waste fractions like plastic, cardboard, glass are started to be recycled, but most of the waste is still landfilled.

¹⁷ Verbal communication CWSA

¹⁸ GEF-CREW Caribbean Regional Fund for Wastewater Management

¹⁹ Verbal Communication CWSA

Despite the fact that there is a regular waste collection, littering is still a problem at SVG. The streets of Kingstown are kept clean regularly; however, the street vendors in particular leave larger amounts of garbage after closing their sales booths. To keep the city clean, anti-littering awareness campaigns have been carried out and posters, billboards and waste bins were set up in strategically important places (e.g. at bus stops).

Nevertheless, the environmental awareness is still low among some parts of the population. It has been reported that households upriver still throw garbage into the riverbed during the dry season, which is then flushed to the city and into the sea during the rainy season²⁰.

The GOSVG considers single-use plastic food containers as a major source of littering and coastal pollution. In order to reduce the adverse environmental effects of plastics, SVG put a ban on single-use containers and other items made of styrofoam. This ban came into force on the 1st May, 2017 as the “Environmental Health (Expanded Polystyrene Ban) Regulations”.

Figure 7: Littering Behind Vendor Booths



Source: HPC, 2018

(Picture taken at the Foreshore Road)

Ships calling at the port can dispose solid waste / garbage only. They have to announce this in advance via their agents, the waste is collected in containers and then landfilled. Even though St. Vincent has signed the MARPOL Convention, which requires all signatory states to provide adequate reception facilities for all types of vessel-generated waste, including waste oil which is generated on board of vessels in considerable amounts, liquid waste is not accepted in the Port of Kingstown. It is presently checked, in how far such waste oil can be re-used as fuel or for energy generation. According to information from SVGPA, there is a plant on Mustique that incinerates oily wastes. SVGPA has delivered waste oil there in the past, but not on a regular basis. At present, waste oil from workshops is collected in drums which are landfilled.

Due to the lack of an incinerator in the port, other vessel-generated wastes like food (quarantine) waste are also not accepted at the Port of Kingstown. Quarantine waste is not allowed to leave the port²¹.

²⁰ Verbal Communication MOHWE

²¹ Verbal communication SVGPA

4.2.6 Safety and Environmental Protection in the Port

The Port of Kingstown and the container terminal at Campden Park have been visited during the consultants' stay in March 2018. At that time, there was no vessel at berth in both ports and there were no cargo handling activities.

General "Good Housekeeping"

Both ports looked quite clean, litter, garbage or cargo residues could not be seen.

In the Port of Kingstown, waste oil from engines is collected in drums in the repair workshop; however, the ground underneath the vehicles was completely oiled; repairs and / or changes of motor oil have been carried out without using a drip tray or other precautionary measures to prevent oil spillages from spreading and contaminating the ground.

At the port's fuel station, the ground was also oiled, which means that diesel has been spilled several times during fuelling. The area where vehicles are fuelled is not sealed; spilled fuel can penetrate into the soil through joints and cracks in the concrete plates.

The port does not have any drainage system to collect storm water. In ports without storm water management, storm and rainwater runoff is often a leading cause of water pollution as it is carrying whatever pollution it encounters to the sea. Some common pollutants associated port activities include:

- Spilled oil
- Cargo residues
- Litter
- Pollutants from workshops and repair areas, e.g. cleaners or residues from abrasive blasting.

Dangerous Goods

For storage of dangerous goods there is a dedicated area in the port (in front of the warehouse). During the site-visit, there has not been any dangerous cargo in the port. Generally, only few substances or articles, which are dangerous goods as defined by the International Maritime Dangerous Goods (IMDG) Code, are handled; they comprise "mild" dangerous goods only, like dyes or acids for cleaning, paint, batteries, etc.

Dangerous goods of more hazardous properties than the above mentioned cleaners and paints are presently not handled or stored in the port or in the warehouse; they are delivered directly from the vessel to the customer ("direct delivery"), the transport is escorted by police.

In Campden Park, LPG is discharged in tank containers, also for direct delivery.

The port employees are trained on handling and storage of dangerous goods in accordance with the IMDG Code during regular general HSE training. The last training was conducted in

2015; for this year, an upgrading training for managers and supervisors is scheduled ²². Regular trainings are required by the IMDG Code, but also by SVGPA's "Manual for Port Operations" (2007).

Figure 8: Port of Kingstown Repair Workshop and Fuelling Station



S

Source: HPC, 2018

Fire Fighting

Fire extinguishers are placed at the workshop and the warehouse, but there is no hydrant in the port²³. The next available hydrant is in front of the Financial Complex, at about 180 m distance as the crow flies. This contradicts the provisions of SVGPA's "Manual for Operations Department", which requires hydrants to be installed at various points of the port compound.

In the event of a fire, the local fire department, which is stationed at the central police station at less than 300 m distance from the port, intervenes.

Work Safety

Only few workers were to be seen in the port; most of them were wearing personal protective equipment (PPE); i.e. high visibility vests and safety boots, but not all of them were wearing a safety helmet.

Regular trainings on work safety and occupational health are held with all port employees, additional training is conducted when new equipment is purchased. Newly hired employees receive induction training.

²² Verbal communication SVGPA

²³ Verbal Communication SVGPA

Internal training takes place several times per year on different topics; in addition, once a year there are training sessions with external trainers.

Port Sustainability

SVGPA is planning to manage the new port in a sustainable way and to reduce the operational impacts of the planned new port facilities. The Port Authority is aware that the surrounding city and the close proximity of the local community is an environmental and social issue which has to be taken into account. SVGPA is presently setting up a Health, Safety and Environment (HSE) Department; Health and Safety Officers already exist, an Environmental Officer is currently being trained.

SVGPA also aims at proactively addressing environmental and social responsibilities by planning to implement an Environmental Management Systems (EMS) in accordance with ISO 14001. In a first step, the Port Authority plans obtaining an ISO 14001 certification for its new buildings and to later on extend that accreditation to cover all new port facilities.

Planned measures include: energy efficient buildings and lighting, waste and sewage management, greening of areas, and rain water collection. The new port buildings are intended to serve as a model for other official or Government buildings²⁴.

4.2.7 Traffic Situation

Car ownership has increased significantly in St. Vincent, from 2,000 vehicles in 1979 to approximately 20,000 in 2016²⁵. Once per month, a car carrying vessel calls at the Port of Kingstown, bringing on average 250 new or used cars²⁶.

The high amount of passenger cars and trucks presents serious problems on the island in terms of traffic congestion, safety and air and noise emissions. In particular at rush hour, when commuters drive to and from work, Kingstown's arterial roads are completely blocked by vehicles. Minibuses, which stop for picking up passengers also outside the prescribed bus stops, aggravate the situation even more.

The roads in Kingstown are often severely jammed. In order to keep the traffic flowing, most roads have been designated as one-way streets. However, they are narrow and many of them are in a poor condition. Cars are parked on the roadsides, taxis and minibuses are waiting there for passengers. Vendors are selling their goods and people are pushing carts; this narrows the streets even more. The boardwalks along most main streets are also occupied by vendors, and pedestrians have to walk on the lane among the vehicle traffic which poses a safety concern.

Cars and trucks that are stuck in a traffic jam, as well as short-term parking cars and taxis waiting for customers, usually leave their engines idling.

²⁴ Verbal communication: SVGPA

²⁵ Resources 2016, 5(2), 21, Article: The Dilemmas of Risk-Sensitive Development on a Small Volcanic Island, Emily Wilkinson, Emma Lovell, Barbara Carby, Jenni Barclay and Richard E.A. Robertson

²⁶ Verbal communication: SVGPA

Saint Vincent and the Grenadines Port Authority
Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

Bigger trucks are facing serious problems on the narrow roads. When a container truck leaves the port, it may happen that all other road users have to stop or even back up to let the truck pass.

Traffic bottlenecks also arise when a cruise ship or ferry arrives at the port and taxis and minibuses are queuing up to pick up passengers.

Figure 9: Street Vendors on the Boardwalk in Kingstown



Source: HPC, 2018

Figure 10: Container Truck Leaving the Port Area



Source: HPC, 2018

4.3 Marine Environment

4.3.1 Sensitive and Protected Marine Areas

The Government of St. Vincent and the Grenadines has developed a framework for the identification, listing and management of sites of great environmental, socio-economic and heritage value. In total, 35 legally designated protected areas sites have been identified on land, at coastal areas and in the sea.

The marine protected area, which is closest to the project area is the South Coast Marine Conservation Area (SCMCA), about 5.5 km to the south-east of Kingstown. It encompasses a sea area of 260.49 hectares and it comprises coral reefs with sand and seagrass habitats²⁷.

Despite SCMCA's protected status which, according to IUCN classification, belongs to category II (National Park: protected area managed mainly for ecosystem protection and recreation), the area is intensively used by a wide range of stakeholders. The SCMCA was designated in 1987 for protection of the marine life in this area of high biodiversity. A number of government agencies are legally mandated to regulate the activities within the SCMCA but due to limited human, financial and technical capacity, activities within the SCMCA remain largely

²⁷ St. Vincent and the Grenadines, National Parks, Rivers and Beaches Authority, National Parks and Protected Areas System Plan 2009 - 2014

unregulated²⁸. The land side is densely populated; most hotels and the main tourism industry are located there. The sea side is a popular yacht anchorage and an important recreational area; it is frequented by locals and tourists alike for swimming, snorkelling and other water sport activities. Furthermore, it is an important fish landing site, and despite the protected status spear fishing is taking place there²⁹.

Figure 11: Area of SCMCA



Source: *Cost Benefit Analysis and Marine Park Planning*³⁰

The lack of adequate infrastructure (toilets and proper sewage reception facilities for yachts, sewage treatment at hotels) has resulted in sewage and waste being dumped into the sea. Treatment facilities or pump out stations for yacht sewage are planned, but not yet available.

4.3.2 Dive Survey

In order to obtain an estimate of the ecological status of the project area, underwater observation by SCUBA diving has been conducted on the 5th June 2018. This visual survey took place at the future reclamation area, encompassing the area designated as the proposed container terminal, at a depth of 5 to 10 m. Reference diving site was the area between Young Island and Fort Duvernette (dive on 3rd June, 2018).

This diving survey served to gain a general overview of presence or abundance of marine life and cannot be a detailed inventory of flora and fauna.

At both dive sites, the almost complete lack of big fishes and also of corals was immediately noticeable. Big fish species that are typically found at or near reefs, like groupers or parrot fish, could not be seen.

²⁸ As above

²⁹ Verbal communication with National Parks, Rivers and Beaches Authority.

³⁰ Cost Benefit Analysis and Marine Park Planning in the South Coast Marine Conservation Area, St. Vincent and the Grenadines, Ministry of Agriculture, Rural Transformation, Forestry, Fisheries and Industry, St. Vincent and the Grenadines

Figure 12: Dive Site at Future Port (Reclamation) Area



Source: left - Google (modified), right – HPC, 2018

Nearly all hard substrates were densely populated by different species of sponges. A number of studies in recent years, which have been conducted in the Caribbean, as well as the Indo-Pacific describe a direct relation between overfishing, strong growth of sponges, and the destruction of coral reefs. With overfishing and diminished sea turtle populations, in particular Hawksbill turtles, sponges are not kept at bay by predators anymore and thus can multiply excessively, overgrowing and even destroying corals (see Figure 13). Climate change and associated increase in water temperature further contribute to the destruction of coral reefs.

Figure 13: Brain Coral at Project Site, Overgrown by Sponges



Source: HPC, 2018

The main differences between the two dive sites was that there was lower visibility at the project site, which suggests an eutrophication of this stretch of coastline, most probably as a result of nutrient input from the land via the rivers, leading to reduced water clarity.

Despite the proximity to the city and the harbor, the seafloor at the project site looked clean, only few pieces of garbage were scattered on the ground, most of them were old tyres which

were used by different marine organisms as shelter or as a hard substrate to settle on (see Figure 15 below). It can be assumed that the lighter pieces of garbage have been carried away by the strong counter-clockwise current.

Figure 14: Litter at Sea Floor at the Project Area



Source: HPC, 2018

Figure 15: Dumped Tire at Project Site Inhabited by Different Marine Species



Source: HPC, 2018

The marine habitats in the project area can be categorized into hard bottom substrate (rocks, rock revetment) and soft bottom substrate (sand flats and seagrass meadows).

Rock Revetment

The artificial shoreline which consists of boulders is comparable to the natural rocky habitat at the reference dive site. Figure 16 shows that at both sites sponges form the typical hard bottom communities. At the project site, smaller species and encrusting sponges predominate, while at the reference site bigger barrel sponges are seen.

The rock revetment is characterized by abundant gaps and caves of different sizes between the rocks, which provide habitats for small reef fish and other marine species, even a spiny lobster has been found there.

The number of fishes that were seen close to the rock revetment was surprisingly high; fish species there are predominantly solitary reef fish or fish in small groups, whereas at the reference site school fish in high numbers could be observed (see Figures 16 and 17). At both diving sites, the fishes were of a size of less than 15 cm.

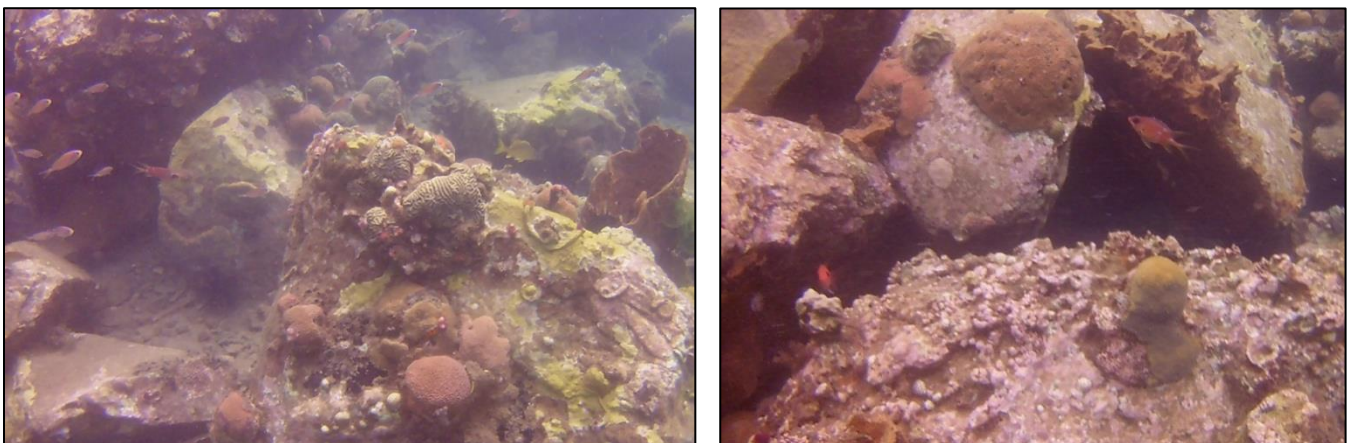
Figure 16: Hard Substrate Communities



Source: HPC, 2018

Natural Rocky Shore at Reference Site (left, with Boga School) and Artificial Rock Revetment (right, with Damsel Fish)

Figure 17: Rock Revetment



Source; HPC, 2018 (Blackbar Soldierfish)

Soft Bottom

The sea floor at the project site is nearly entirely covered by seagrass, merely at the strip of seabed just in front of the revetment, which consists of stones, there was no seagrass coverage.

There are a few small sandy patches in the seagrass meadow, presumably caused by anchors.

Up to a depth of >8 m, the area is well-illuminated and the seagrass meadows look intact (Figure 18).

Figure 18: Seagrass Meadow at Project Site



Source; HPC, 2018 (seagrass Halophila stipulacea)

The ecological value of seagrass is high as it provides significant ecosystem services, such as:

- Stabilization of sediments by the extensive root systems, thus reducing turbidity and coastal erosion
- Providing grazing area, e.g. for sea turtles
- Providing food and shelter for various species of marine animals like fishes, invertebrates (e.g. fanworm, see Figure 15), crustaceans, including those of high commercial value (e.g. lobster, see also Figure 15)
- Spawning and nursery area for different fish species
- Removal of carbon dioxide from the marine environment, conversion to oxygen through the process of photosynthesis.

4.3.3 Invasive Species

During the dive survey, three invasive species have been observed, namely the seagrass *Haliophila stipulacea*, as described above, the brittle star *Ophiothela mirabilis*, and the lion fish.

Invasive species are non-native species of plants or animals which have been brought to the Caribbean intentionally or unintentionally and found conditions that allow them to spread and multiply. Invasive species can cause ecological, economic and social problems by replacing native species and changing communities and ecosystems, thus altering their functions, structure and services.

The most common introduction of marine invasive species into new environments is via ships' ballast water and associated with fouling communities encrusting the ships' hull. Thus, an increase in shipping activities involves the risk of an increasing number of invasive species in a given region.

- *Haliophila stipulacea* arrived from the Red Sea and Western Indian Ocean to the Caribbean in the early 2000s. Since then it has displaced native seagrasses and spread rapidly. It has the ability to immediately take over sea beds that are disturbed by human alteration, e.g. by dredging. It grows well in high nutrient conditions, i.e. near human settlement and sewage discharge, and it reproduces fast.

The ecological consequences of the displacement of native seagrasses in the Caribbean are not yet fully investigated; first studies suggest that *H. stipulacea* supports fewer fish species than the native seagrass meadows³¹. *H. Stipulacea* forms pure meadows along at least six islands within St. Vincent and the Grenadines. All locations are anchorages or moorings³².

- *Ophiothela mirabilis* is a small starfish which is easy to recognize because it has 6 arms instead of the five-beam radial symmetry that starfish normally have. Its original distribution is the Pacific Ocean. It has recently invaded southwest Atlantic waters and is expanding fast. Its presence near Brazilian and Caribbean ports suggests that this invasive starfish has been introduced by shipping.

³¹ <https://oceanbites.org/invasive-seagrass-changes-fish-community-in-the-us-virgin-islands-2/>

³² Continued expansion of the trans-Atlantic invasive marine angiosperm *Halophila stipulacea* in the Eastern Caribbean, Aquatic Botany 112 (2014)

Figure 19: Invasive Starfish



Source: HPC, 2018

Ophiothela mirabilis at the Project Site

The starfish lives as epibiont (organism that lives on the surface of another living organism) on a number of species like sponges, sea urchins and other starfish species. It has also been found at high numbers on corals. The high abundances of *O. mirabilis* on corals suggest potential impacts, these need to be further studied³³.

- Two species of lionfish (*Pterois volitans*, the Red Lionfish, and *P. miles*, the Devil Firefish) have invaded the Caribbean and are threatening the Atlantic and Caribbean reef communities. The two species are nearly identical in appearance; they can only be distinguished by the number of dorsal and anal fin rays. The lionfish is native to the Indo-Pacific; it was first sighted in 1985 in Florida. It is not clear how the lionfish was introduced to the Atlantic, it was either released from an aquarium, or it has been discharged with ships' ballast.

Lionfish don't have any predators in the Atlantic and Caribbean region. Their population grows rapidly, because they are excellent hunters, they multiply quickly and they can exist literally everywhere from close to shore down to more than 300 m water depth.

The rapid growth in the populations of these fish poses a grave threat to the region's reefs. Consequently, the region's fishing and tourism industries, which depend on intact reefs, may also be at risk³⁴.

³³ Host species of the non-indigenous brittle star *Ophiothela mirabilis* (Echinodermata: Ophiuroidea): an invasive generalist in Brazil? Marine Biodiversity Records, 2016

³⁴ World Resources Institute, 2011

Figure 20: Lionfish in Project Area



Source: HPC, 2018 (*Pterois spec.*)

4.3.4 Fisheries

Fishing has always been a traditional and important source of employment and income on St. Vincent. Approximately 2,500 fishers and are directly, and further 500 people are indirectly employed in fishing.

The majority of Kingstown's fisher folk live elsewhere on St Vincent; 150 fisher folk moor their boats at Rose Place, a small community at the western part of Kingstown, where they sleep on occasion on the beach or in the boats in order to ensure the safety of their boats and engines.

Most of the fisher folk are daily operators, they go out to sea in the morning and return late in the afternoon or evening. The coastal waters of St. Vincent are completely overfished. Big reef fishes like groupers have not been caught at the coast and the reefs for years. Therefore, the fisher folk have to travel long distances for catching anything, some of them go as far as Barbados (180 km distance)³⁵. There is no disaggregated data on near shore and high seas or deep sea fishing. Most of them use open fishing boats of 6 to 9 m length with one or two outboard engines. Fishing methods include:

- Beach seine - approximately 1%
- Hand line and Trolling - 93%
- Pot Fishing - 1%, and

³⁵ Verbal communication: Fisher folk on 6th June, 2018

- Bottom Lining (Palangue) - 5%.

In the evening, the catch is directly delivered to the fish market at Kingstown via the fish landing site. During a Stakeholder Meeting, some of the fisher folk complained that, due to the long distances they have to travel, the Fish Market sometimes is already closed at the time they want to land their catch. Therefore, they urgently require an ice machine at Rose Place to keep their catch fresh³⁶.

The table below represents the amounts of fish landed at the Kingstown Fish Market for the past ten years, to which fisher folk from Rose Place significantly contributed.

Table 8: Fish Landings at the Kingstown Fish Market 2008 - 2017

Year	Amount of fish landed (lbs)	Value of Fish Landed (\$)
2008	927,697	4,958,729
2009	1,398,915	6,076,034
2010	1,295,503	6,586,423
2011	1,139,920	5,987,200
2012	1,019,731	5,954,703
2013	1,075,006	6,693,927
2014	1,066,084	6,256,098
2015	1,036,183	6,162,365
2016	933,124	6,032,855
2017	731,321	5,006,480

Source: SVG Fishery Department

Although only very small fish can be found at the coast, there are still some people fishing from the shore for their own consumption or for selling the catch as bait. The figure below shows the catch of an angler who was fishing directly at the revetment of the foreshore road, consisting of a few very small fishes of about 12 to 15 cm length.

Figure 21: Fish Catch from Shore



Source: HPC, 2018

³⁶ Stakeholder Meeting at Rose Place

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

SVG has a long history of sea turtle exploitation. Until recently, sea turtles have been harvested, turtle meat and their shells have been exported, and meat and eggs have been consumed locally for centuries. This led to a decline in the abundance of sea turtles.

Recognizing that sea turtles are an important component of the marine environment, the GOSVG launched the “Sea Turtle Conservation Program for St. Vincent and the Grenadines” in November 2016, which includes monitoring of turtle nesting beaches, awareness programs, training and education programs for fisher folk and the population. Since 1st of January, 2017, sea turtles are legally protected in St. Vincent and the Grenadines; it is illegal to catch or kill them or to disturb their nest.

Figure 22: Poster Sea Turtle Ban



Source: National Parks, Rivers and Beaches Authority Official Newsletter

SVG is one of the few countries in the world where hunting of whales is still legal. Different species of small whales and dolphins are hunted, like pilot whales (locally called “black fish”), or orcas.

Meanwhile, whaling has shown a negative impact on other economic activities, such as the cruise tourism or on whale-watching tours. In April last year, Vincentian fisher folk killed two orcas in front of a boat carrying tourists. As a consequence, the cruise operator whose guests had to witness the killing cancelled all whale and dolphin watch bookings with the local tour operator. This incident led the GOSVG to consider a ban on killing of whales and orcas.

Whale-watching is a significant and growing tourism industry worldwide. Whaling has a longstanding tradition in the Caribbean; however, it has nowadays a very negative image and it detrimentally affects the tourism industry. The Greater Caribbean is the permanent home to more than 30% of all cetaceans (whales, dolphins, and porpoises), and several big whale

species (e.g. humpback whales) are seasonally present there³⁷. This offers perfect whale-watching opportunities in the area all year-round and a lucrative sector for employment and revenue generation.

4.3.5 Ecological State of Project Site

The review of the available information on the ecology of the area, as well as the observations made during the dive investigations suggest the ecological importance of both habitats that will be affected by the proposed project, the revetment and the seagrass meadows.

The native seagrass meadows have largely been replaced by the invasive species *Haliophil sp.*; nevertheless, this also forms beds that provide food and refuge for many marine organisms, including commercially important species like rock lobster. The seagrass enhances nutrient cycling, water quality, and sediment dynamics.

The colonization of the revetment by sessile organisms was comparable to the natural rocks at the reference dive site.

The project site gave the impression of a functioning ecosystem. Studies of coastal habitats worldwide have shown that the majority of marine species, including commercially and ecologically important species, utilize coastal habitats during some time of their life span, indicating the high ecological value of coastal habitats³⁸.

4.4 Natural Hazards

Saint Vincent and the Grenadines are have been affected by different natural disasters, including

- Storms and hurricanes
- Floods
- Coastal flooding, storm surges
- Volcanic eruptions
- Earthquakes
- Landslides
- Tsunamis

some of which have caused tremendous damages.

³⁷ A Review of Whale-Watching and Whaling with Applications for the Caribbean, Coastal Management 30, 2002

³⁸ ICES Journal of Marine Science, Volume 71, Issue 3, 1 April 2014

According to the World Development Indicators Report (The World Bank, 2006), the country is extremely vulnerable to natural disasters. Using data from 1970-2005, the researchers compiled an index to convey and rank vulnerability of countries across the globe to Natural Disasters. In terms of land area, Saint Vincent and the Grenadines was ranked the 2nd most disaster prone country in the world. Because of its small size, a single disaster event can be devastating to the entire country.

The National Emergency Management Organisation (NEMO) was established in 2002, with the mandate of reducing the impact of natural hazards through disaster preparedness and planning. This organization performs this mandate through:

- Warning, analysing and forecasting of potential hazards.
- Informing, development and dissemination of information packages to enhance the capability of individuals, government entities and the private sector to cope with emergencies.
- Training, identification of skills necessary to implement a national disaster management programme and the sourcing of the necessary trainers to prepare and conduct the relevant training.
- Public sensitization, implementing mitigation projects as well as establishing a National Disaster Response Plan.

NEMO's functions include also the coordination of the various agencies involved in disaster management, preparedness, response, and rehabilitation, as well as the provision and maintenance of all resources and stocks to meet emergency needs.

NEMO also conducts an annual review of the agency's performance and designs measures to improve its performance.

4.4.1 Storms and Hurricanes

From June to November, tropical systems affect the Caribbean with the passage of hurricanes originating from the Atlantic basin.

St. Vincent is located in the southernmost part of the hurricane belt. Therefore, the country is threatened by the passage of storms and hurricanes, as well as direct hits by tropical storms.

Generally, Atlantic storms and hurricanes follow a west-northwest track as they approach the Windward Islands. In rare circumstances, such as Lenny (1999) and Omar (2008), they can develop west of the island in the Caribbean basin and move in an easterly direction and can cause damage to St Vincent's west coast. Such storms can also impact Kingstown Bay which, at the leeward side of the island, is usually protected by two promontories (Cane Garden Point and Old Woman Point) towering about 1.3 km out into the sea (see Figure 2).

The years in which St. Vincent has been impacted by hurricanes or tropical storms are listed in table 9 below. Details and names could not be found for every storm or hurricane; storms before 1950 were not named.

Risk at Project Site

The risk of storm exposure is high in the project area. Although the leeward side is less vulnerable to storms than the windward side of the island, the past has shown that storms can also have a strong impact there.

The position of the project site in the western part of Kingstown Bay has been described to be more vulnerable to storms than the more eastern position of the present port³⁹.

Table 9: Tropical Storms or Hurricanes Impacting St. Vincent

Year	Name	Type	Loss of Life	Losses
1916		TS		
1918		TSBR		
1921				
1928		TS		
1933		2 TSBR		
1943		TSBR		
1944		2 TSBR		
1955	Janet	BR	122	
1960	Abby	TS		
1967	Beulah	TSBR		
1974				
1979				
1980	Allen	TS		
1986	Danielle	TSBR		
1987	Emily	BR	2	
1988	Isaak	TS		
1990	Arthur	TS		
1994		TSBR		
1995	Iris, Luis, Marilyn	Triple storm		Damage to port, deep-water pier
1999	Lenny	BD		Several houses, Cruise Terminal
2001	Jerry	2 TS		
2002	Lili	BR	4	More than 700 houses
2003		TS		
2004	Ivan	BR		More than 700 houses
2005	Emily	TS		More than 500 houses
2007	Dean	BR		
2008	Omar	BD	1	
2010	Thomas	BR	9	
2012		TS		More than 1,200 houses
2016	Matthew	TS		
2017	Harvey, Irma + Maria	1 TS, 2 BR		

Sources: <http://dipecholactools.org/saintvincent>, <http://www.hurricanecity.com/city/saintvincent.htm>, and other sources, e.g. "Initial National Communication on Climate Change"⁴⁰
 (BR) = Brush; (TS) = Tropical Storm; (BD) = Back Door, meaning coming from opposite coast / opposite side.

³⁹ Mott MacDonald, Port Rationalisation and Development Study, Final Report and Masterplan, March 2015

⁴⁰ Initial National Communication on Climate Change, St. Vincent and the Grenadines, prepared by: National Environmental Advisory Board and Ministry of Health and the Environment

4.4.2 Floods

Flood events are frequent in St. Vincent as a result of heavy rainfall during tropical storms and hurricanes. Such floods can come very fast due to the run-off from the steep slopes of the catchment area (so-called “flash floods”).

Flash floods can cause landslides and mud flows. As most of the valleys are inhabited, these floods can cause great damage and casualties, e.g. in December 2013, or in the November 2016 flood which affected up to 25,000 people⁴¹. People suffered severe losses to their crops, houses were washed away, roads and bridges were extensively damaged or blocked by mud and debris, leaving a number of communities inaccessible by road.

According to reports of the International Federation of Red Cross and Red Crescent Societies (IFRC), the island’s water and sanitation systems were also severely damaged posing the risk of epidemiological diseases like Zika or Hand Foot and Mouth Disease (HFMD).

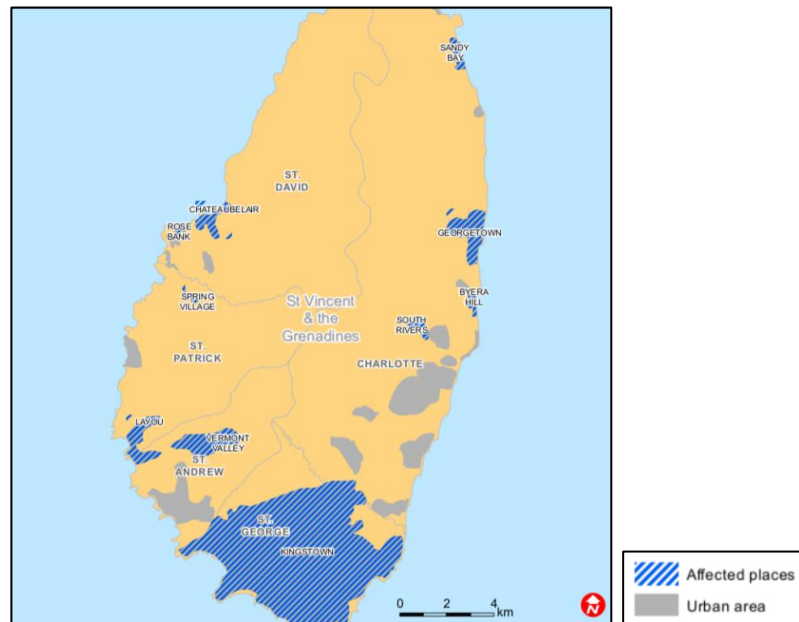
In part, the floods are caused or aggravated by human behaviors⁴²:

- Logging of trees in the upper catchment area, which causes high rates of soil erosion, because there is less vegetation to slow rain water as it runs down the mountain ridges, and the binding nature of the plants’ root systems is gone. Logging and removal of vegetation also decreases the saturation capacity of soil, thus less water can be absorbed and more of the rainfall will travel by overland flow.
- Unplanned and/or informal settlements are blocking the natural flow of the water.
- River beds are sometimes used as “waste dumps” during dry season; at rain season the debris blocks the flow.
- Rivers are straightened and canalized which increases the speed of water flow.
- Bridges are under dimensioned (e.g. the bridges at the North River), which leads to backflow and rising water levels.
- River beds are narrowed and canalized to extend the land at each side.

⁴¹ <https://reliefweb.int/disaster/fl-2016-000130-vct>

⁴² Verbal communication: National Parks, Rivers and Beaches Authority

Figure 23: St. Vincent - Areas at Risk of Flooding by Rain



Source: International Federation of Red Cross and Red Crescent Societies – Saint Vincent and Grenadines: Floods – December 2013

In Kingstown, human-made changes also adversely affected the natural flow of rain water:

- The ground is sealed by concrete and tar which reduces the soil's infiltration capability and increases run-off
- The course of the South River has been rerouted
- Road construction and buildings have led to alteration of the natural flow of water and also partly the course of the rivers
- The dimensions of the gutters and gullies are insufficient; they quickly overflow. Poor solid waste management practices (littering) and blocked drains make this situation worse
- Sediments build up at the North River estuary, water is backed-up and cannot flow off.

Risk at Project Site:

The project area has already been subject to regular flooding in the past and the likelihood of renewed flooding in this area can be regarded as certain. Appropriate countermeasures have to be taken in engineering design.

Figure 24: Flooding in Kingstown, September 2014



Source: youtube

4.4.3 Coastal Flooding

Areas along coastlines become subject to flooding as a result of storms, hurricanes and abnormally high tides.

As mentioned before, the western (“leeward”) coast of St. Vincent is usually protected from tropical storms and hurricanes that typically tend to move from the Atlantic toward the west-northwest, following the trade winds.

If storms, as for example hurricane “Lenny” (November 1999) form in the Western Caribbean Sea and move on a west-to-east track towards the Eastern Caribbean Islands, they hit the usually “leeward” and protected parts of the islands, which are less prepared for high waves and winds, damaging boats and coastal structures, and causing beach erosion there.

Despite the fact that Lenny’s storm track was more than 460 km north of St. Vincent, the rough surf produced by this storm (nick-named “Left-Hand Lenny”) severely hit the Port of Kingstown. Heavy swells seriously damaged the cruise ship terminal and the terminal buildings, which were brand new at that time⁴³.

The “Regional Disaster Vulnerability Reduction Project (RDVRP)”⁴⁴ has identified Kingstown Bay as a storm surge hotspot, even though the height of storm surges is expected to be significantly lower than those in its neighboring bays (see Figure 25 below). But Kingstown, as the main economic center is considered highly vulnerable, because critical facilities can be damaged there and as a result services are often delayed until repairs can be completed.

⁴³ Verbal communication: National Parks, Rivers and Beaches Authority

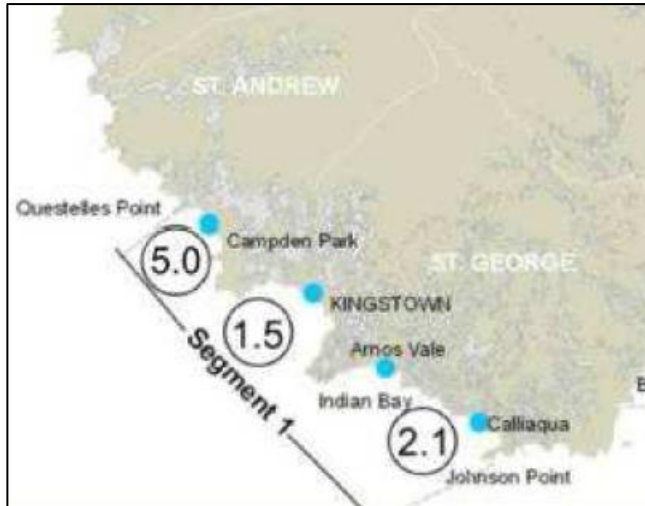
⁴⁴ Disaster Risk Reduction Country Profile: Saint Vincent and the Grenadines, Dec. 2014, National Emergency Management Organisation (NEMO), Ministry of National Security, Air and Sea Port Development, Kingstown, ECHO European Commission’s Humanitarian Aid and Civil Protection Department, UNISDR United Nations Office for Disaster Risk Reduction

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

The fisher folks at Rose Place are also vulnerable to storm surges. They keep their boats on the beach next to their houses. If the boats are destroyed by storm surge, they have no other way to make their living. Storm warning are issued in time by the Government and the fisher folks can bring their boats to safety in higher places at Bay Street⁴⁵.

Figure 25: Storm Surge Hazard Map



Source: Regional Disaster Vulnerability Reduction Project (RDVRP)

In circle: maximal storm surge height (m)

Risk at Project Site

The Climate Risk and Vulnerability Assessment (CRVA) Report (see Annex 8) predicts a total storm surge wave height resulting from the combination of storm surge, high tides, wave setup and sea level rise due to climate changes to be 3.3 m within a 10-year return period, and 4.4 m within a 25-year return period.

4.4.4 Volcanic Eruptions

The island of St. Vincent is entirely of volcanic origin. Next to six “dead” volcanic centers (see Figure 26), the volcano La Soufriere at the northern end of the island is still active with on average one explosive eruption every 100 years within the past 4000 years⁴⁶.

Last century, two explosive eruptions have occurred, one in 1902, during which the northern part of the island has been seriously damaged and about 1,680 people were killed, and another one in 1979. Due to timely warning there was no loss of life during the 1979 outbreak, but 20,000 people had to be evacuated to safer areas. The eruption had a major economic impact on agriculture, especially with regard to bananas, which represented approximately 50% of export earnings at that time.

⁴⁵ Verbal Communication at the Rose Place Stakeholder Meeting

⁴⁶ Seismic Research Center, University of the West Indies, Trinidad & Tobago

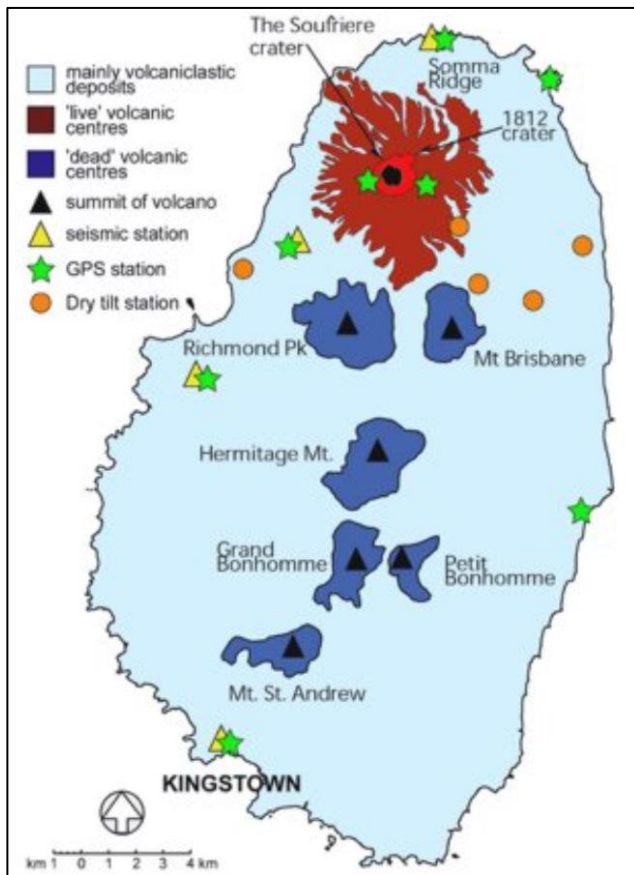
Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

When La Soufrière erupts, up to one-third of the island is potentially exposed to pyroclastic flows, mudflows and ballistic projectiles, and the entire country is potentially affected by damaging effects of ash fall on crops, infrastructure and water supply. A number of settlements and about 15% of St. Vincent’s population are located in “very high-risk” and “high-risk” zones (see Figure 27). These people would need to be evacuated in case of an eruption.

As can be seen in Figure 26, a series of seismic control stations has been installed to receive timely data and exact observation of seismic activities. This network of instruments allows also a more precise prediction about timing, type and magnitude of seismic activities⁴⁷ and it has already been of invaluable support during La Soufrière’s rapid activities in 1979.

Figure 26: Volcanic Centre of St. Vincent



Source: Smithsonian Institution – Global Volcanism Program

Risk at Project Site

A map showing different “hazard zones” in terms of volcanism has been created, based on the projected impact of explosive activity from La Soufriere. According to this map (figure below)

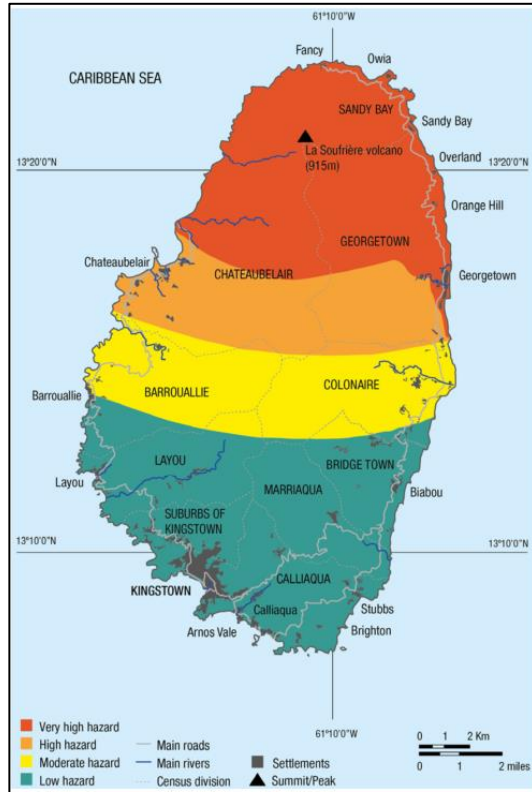
⁴⁷ The Soufriere Monitoring Unit at the Ministry of Agriculture Forestry and Fisheries and the Seismic Research Center

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

the project area is located within the “low hazard zone”. Thus, the risk of volcanism at project site is low.

Figure 27: Volcanic Hazard Zones of St. Vincent



Source: Smithsonian Institution – Global Volcanism Program

4.4.5 Earthquakes

Each year, the Eastern Caribbean experiences about 1,200 earthquakes greater than magnitude 2.0. Most of them are of “weak” intensity, i.e. they are felt only by few people at rest, especially on upper floors of buildings. It is estimated, however, that the region will experience at least one magnitude 6, i.e. ”strong” earthquake every 3 – 5 years. It is also estimated that the earthquake zone in which St. Vincent is located could experience earthquakes of level 7 (“very strong”) on the Mercalli intensity scale for a return period of 50 years, which could cause major damages to constructions⁴⁸.

In the past year, eight earthquakes of intensity above 1.5 have been recorded for St. Vincent, only two of them (October 2 and November 5, 2017) were above magnitude 4. There have been no reports of damages, losses or injuries resulting from the quakes⁴⁹.

⁴⁸ Seismic Research Center, University of the West Indies, Trinidad & Tobago

⁴⁹ <https://www.iwnsvg.com/2018/08/21/earthquake-jolts-svg-southern-caribbean/>

On the 19th of August 2018 a magnitude 6.8 earthquake shook St. Vincent and the Grenadines and other parts of the south-eastern Caribbean.

The earthquake occurred at latitude 10.51° north and longitude 62.76° west at a depth of 73 km, according to data released by the University of the West Indies Seismic Research Centre, located in Trinidad. The centre of the earthquake was 55 km east-southeast of Carúpano, Venezuela, 95 km northeast of Maturín, Venezuela, and 131 km southeast of Porlamar, Venezuela.

In SVG, the earthquake was felt across the country, and many persons commented about the duration of the earthquake, saying that it lasted for a rather long time. There were no immediate reports of injury or damage to property as a result of the tremor.

Risk at Project Site

Earthquakes are extremely difficult to predict as they rarely follow a pattern. As mentioned above, the region will experience at least one magnitude 6, i.e. "strong" earthquake every 3 – 5 years. However, it is not possible to limit the event to a specific date.

4.4.6 Tsunamis

In the recent past, no incidents caused by tsunamis have been reported for St. Vincent. Tsunamis can occur as a result of volcanic eruption, earthquake, or landslides. The most likely cause is from earthquakes of magnitude above 6.

The "Kick 'em Jenny" under water volcano, located 9 km off Grenada, has caused small tsunamis with an amplitude of 1-2 m in the past (1939, 1955 and 1965). This volcano has the potential to cause bigger tsunamis in future as more violent eruptions are predicted. Tsunami travel times from "Kick 'em Jenny" to nearby islands are generally less than 10 minutes, which leaves very little warning time for the general public. For St. Vincent and the Grenadines, NEMO is the official Authority for tsunami information and warnings.

It is estimated that over the last 500 years about 10 tsunamis have occurred in the Eastern Caribbean resulting in around 350 deaths. Presently, there is no tsunami warning center in the Caribbean.

Risk at Project Site

A risk cannot be assessed.

4.4.7 Climate Change

The change of climate in St. Vincent follows the general global trend. Over the past 22 years, both, maximum and minimum temperatures are increasing: maximum temperature by 0.2°C per decade, and minimum temperatures by 0.15°C per decade. It has also been observed that the number of warm days and nights have increased over the last two decades while there are less cool days and nights.

Also, the number of dry days has been increasing, even though calculated rainfall indices show an increase in the number of heavy rainfall events that occur in a year⁵⁰.

Sea level rise, as one consequence of the climate change, is expected to be near the global mean. The IPCC projects sea-level rise by the year 2100 to be 65 cm, with an uncertainty range of 30 to 110 cm⁵¹. The sea level rise projections of the Climate Risk and Vulnerability Assessment Report (Annex 8 to the Feasibility Report) are on equal scale; there it is indicated that the sea level will rise by 15 cm by 2025, 37 cm by 2050, and 111 cm by 2100, which could lead to a significant loss of beach area for Saint Vincent.

The most likely impacts of sea level rise are:

- Increased coastal erosion
- Inundation of low-lying coastal areas
- Increased flooding and storm damage
- Wetland loss
- Increased salinity of surface and ground water
- Higher water tables.

The impacts of coastal flooding have already been described. Damage to shorelines and infrastructure from coastal erosion can be observed along the coastline. In sections of the windward side, an average of 1.6 m erosion per year has been recorded for the last three years. Over the same period, Orange Hill, also located at the windward side, has lost a total of 15 m due to coastal erosion. Some areas, e.g. at Georgetown, already had to be evacuated.

Risk at Project Site

For this project, a separate climate change risk study has been prepared, which provides the necessary details for a risk assessment (see Annex 8 to the Feasibility Report).

4.5 Socio-Economic Environment

This section summarises the socioeconomic baseline conditions in St. Vincent and the Grenadines (SVG), through information gathered from primary and secondary data sources as part of the socioeconomic and gender impact assessment. The construction phase of the project is expected to have a significant impact on the socioeconomic environment of Kingstown, whereas the project's routine operations are expected to have a less significant impact. Specific emphasis has been placed on users and residents of the coastal areas of

⁵⁰ Disaster Risk Reduction Country Profile: Saint Vincent and the Grenadines, Dec. 2014, National Emergency Management Organisation (NEMO), Ministry of National Security, Air and Sea Port Development, Kingstown, ECHO European Commission's Humanitarian Aid and Civil Protection Department, UNISDR United Nations Office for Disaster Risk Reduction

⁵¹ As footnote 49

Kingstown, in particular Rose Place (“Bottom Town”) given that the proposed project will directly affect these stakeholders.

4.5.1 Governance Structure

St. Vincent and the Grenadines has a democratic political system characterized by political stability, an independent court system that enforces basic rights and freedoms, and a legal justice system that enables good governance and business security. It falls within the Commonwealth of Nations, which means that there is a constitutional monarchy with executive power vested in the British monarch, represented locally by a Governor-General. The Governor-General appoints a Prime Minister and Cabinet of ministers, which controls the government.

SVG is a member of the Organisation of Eastern Caribbean States (OECS), which includes the other Windward Islands and some of the islands of the Lesser Antilles. The OECS has developed a common currency and is developing a common approach to education, trade and free movement of its citizens among member states. The country is divided politically and administratively into six parishes: Charlotte, Saint Andrew, Saint David, Saint George, Saint Patrick and the islands of the Grenadines⁵². The country is also a member of the CARICOM Single Market and Economy (CSME), which facilitates creation of a single enlarged economic space and greater production efficiency.

4.5.2 Economic Activity

The economy of St. Vincent and the Grenadines (SVG) is open and based upon a high dependence upon international trade and service linkages to sustain its economic activities. There is a limited domestic market, and as a small island developing state (SIDS), population and physical size hinders its ability to attract or sustain significant productive capacity or demand centers. Primary agriculture, once the dominant economic activity, has lost its place of prominence to the tertiary sector (service industries), which currently constitutes over 70% of the Gross Domestic Product (GDP)⁵³. As a consequence the country has a high reliance upon the importation of consumer and intermediate products, with limited provision for localized value added services⁵⁴.

4.5.2.1 Gross Domestic Product (GDP)

Figure 28 depicts Gross Domestic Product (GDP) in constant prices for the period 2000 – 2013. GDP increased steadily from 2000 to 2013, at an average annual rate of 1.3 percent during the 1997 to 2001 period, ranging from EC\$1.23 billion in 2000 to a period peak of EC\$1.73 billion in 2008. Thereafter, the economy continued to realise positive real growth up to 2008, with 2005 being the lowest (2.8%) and 2003 being the highest (7.6%). The performance in 2003 could be attributed to the telecommunications sector, as well as activities in the hotel

⁵² Disaster Risk Reduction Country Profile: St. Vincent and the Grenadines (NEMO, 2014)

⁵³ IICA Country Strategy 2014 - 2018: St. Vincent and the Grenadines (Inter-American Institute for Cooperation on Agriculture, 2013)

⁵⁴ Inception Report (HPC Hamburg, 2018)

Saint Vincent and the Grenadines Port Authority

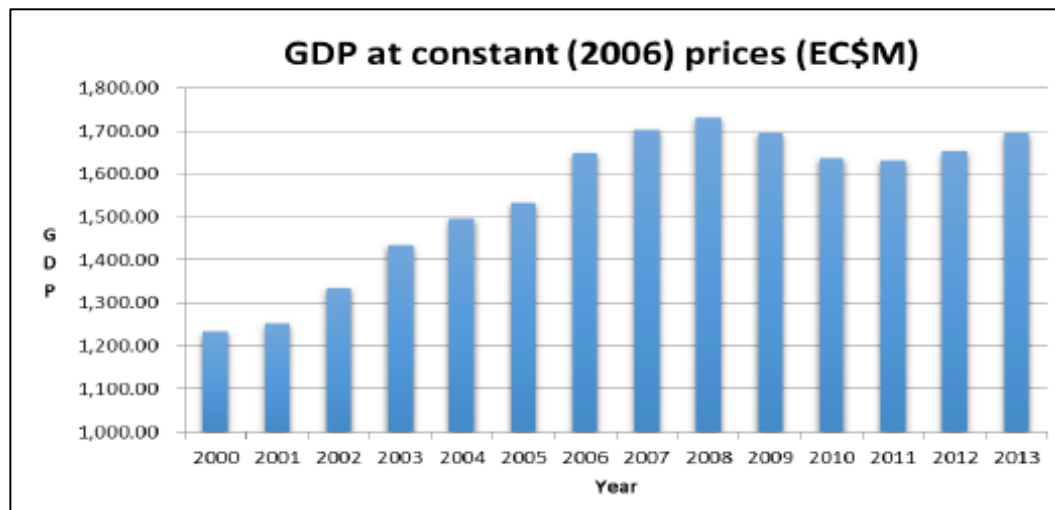
Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

and restaurant and construction sectors. There was another peak in 2006 (6.0%), followed by relative and steady falls in economic outputs for the periods 2009, 2010 and 2011.

Several sectors were adversely affected during this economic downturn, including construction, hotels and restaurants, and agriculture. Despite the adverse economic climate, some sectors posted growth: public administration, defence and compulsory social security, private household employment, wholesale and retail trade, communications, mining and quarrying, real estate and housing, and health and social work (5.4%). During this period, the Government of St. Vincent and the Grenadines (GOSVG) provided economic incentives, such as reductions in company tax and personal income tax, as well in the tourism sector, subsidies on agricultural inputs and motor vehicles for farmers, assistance to the poor, the elderly, children, and expectant mothers, wage increases and investment programmes⁵⁵.

The years 2012 and 2013 recorded reversals in this downward trend with GDPs of EC\$1.65 billion and EC\$1.69 billion respectively. The gradual recovery from the global impacts of the worldwide financial recession was evidenced by GDP growth between 2012 to 2017 (Figure 29), which has been 1.8% on average. In 2017, SVG was 189th worldwide in terms of its economy with a GDP of USD\$790 million and inflation rate of 2.2% reported for 2017 (WB, 2018)⁵⁶. The rate of economic growth continues to be positive despite the challenges faced by the main productive sectors, mainly the contraction in the agriculture and construction sectors.

Figure 28: Total Gross Domestic Product for the Period 2000-2013

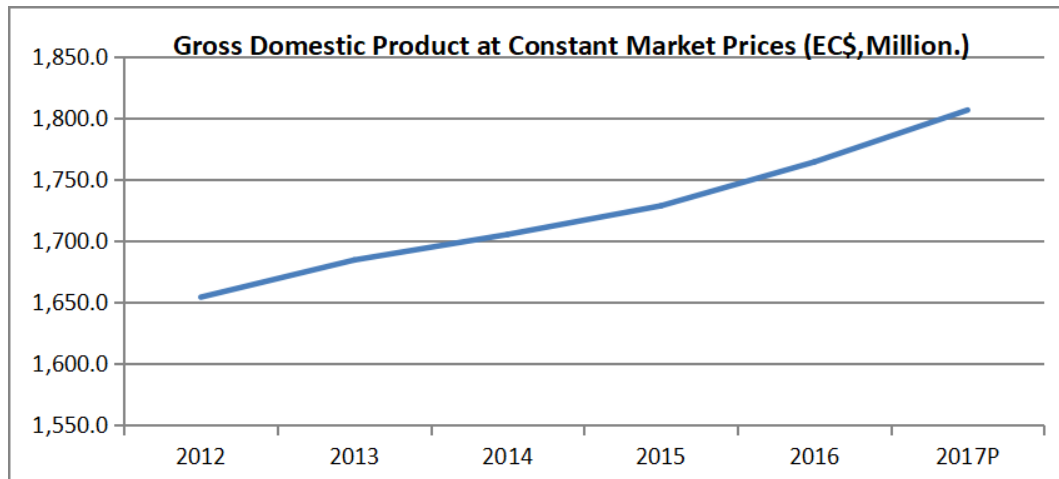


Source: St. Vincent & the Grenadines Statistical Office, 2015

⁵⁵ National Report St. Vincent And the Grenadines Third International Conference on Small island Developing States - National report (Ministry of Health, Wellness and the Environment, 2013)

⁵⁶ <https://data.worldbank.org/country/st-vincent-and-the-grenadines> (World Bank, 2018)

Figure 29: GDP Growth Rate 2012-2017



Source: St. Vincent & the Grenadines Statistical Office; HPC 2018

Economic development remains highly dependent upon the country's integration with the global trade and travel systems; the former to facilitate cost effective delivery of imported goods, and the latter to sustain the provision of tourism and business services. This dependency upon the external environment raises significant risks for the country, notably exposure to global economic conditions and the unpredictability of natural disasters⁵⁷. The economic outlook for SVG is cautiously optimistic as the global economy gradually recovers. In addition, the completion of the Argyle International Airport may improve the tourism sector and there has been increased public sector investment⁵⁸.

4.5.2.2 Exports and Trade

SVG is heavily dependent on imports because of a limited manufacturing sector, reflecting a combination of its limited market plus constrained export opportunities. Limiting factors are high unit production costs, a relative lack of production scale labour costs, and issues related to meeting quality standards in the USA and EU markets⁵⁹. Trade liberalisation and globalisation have made growth more difficult leading to both a collapse of the banana industry and an inadequacy of resources to effect the rapid structural adjustments required by a more competitive and dynamic global economy⁶⁰.

Trade balances were negative for the period 2005-2015 due to a commodity trade deficit. The most significant categories of imports for the country are food and live animals, followed by beverage and tobacco, manufactured goods and machinery and equipment. Tourism, though not identified as a distinct sector, is growing in importance and is the largest source of foreign exchange. The structure of foreign trade is shown below in Figure 30.

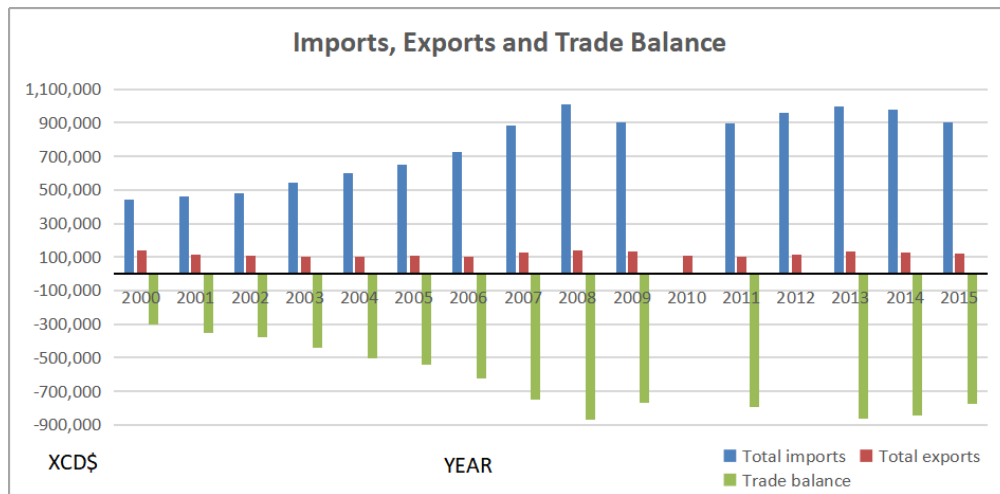
⁵⁷ Inception Report (HPC Hamburg, 2018)

⁵⁸ Country Strategy Paper St. Vincent And The Grenadines (2014-18) (Caribbean Development Bank, 2014)

⁵⁹ Port Rationalisation and Development Study, Final Report (Mott MacDonald, 2015).

⁶⁰ Country Strategy Paper St. Vincent And The Grenadines (2014-18) (Caribbean Development Bank, 2014)

Figure 30: Total Exports, Imports and Trade Balances for Saint Vincent and the Grenadines for the Period 2000-2015



Source: Saint St. Vincent and the Grenadines Statistical Office, 2018

4.5.2.3 Port and Shipping Activity

In Port Kingstown the shipping and port activity includes:

- Distributive trade
- Shipping related facilities including berthing facilities and warehouses
- St. Vincent Banana Growers Association shipping facility
- The Port Authority offices
- Cruise ship terminal building
- Grenadines ferry services.⁶¹

Regional traders use the Schooner Wharfs to ship goods within CARICOM; individuals/families also use this area to ship or receive personal effects, small packages and household goods. The Banana Exporting Group, WIBDECO, and Fairtrade use the Geest facility to ship bananas to Europe. Along with the intra-regional traders, they are the principal exporters from the Kingstown Port. Over the past ten years there has been a steady reduction in the volume of shipping by regional traders, as well as the export of bananas from the Geest facility. The result is an all-round reduction in the volume of goods and persons competing for space both at the regional dock and within the area of the Geest shed⁶².

The Grenadines wharf is used mainly by commuters and visitors between Saint Vincent and the Grenadines, as well as merchants and other businesses. There are approximately nine hundred passengers per day between Port Kingstown and Port Elizabeth. The operators of the

⁶¹ St. Vincent Coastal Vulnerability Assessment Final Report (Environmental Solutions Ltd.,2007)

⁶² Port Rationalisation and Development Study, Final Report (Mott MacDonald, 2015).

ferries estimate that approximately seventy tonnes of goods are transported daily from Kingstown to Bequia. These goods include building materials, supplies for merchants and hotels. Cruise ship passengers arrive seasonally, primarily between the months October to April⁶³. During the 2016-2017 season, the number of vessel calls was on the same level as the year before, but the number of arriving passengers increased by 44%. For the current season a further increase of cruise vessel calls and passenger arrivals has taken place.

In Campden Park, the shipping facilities include the container shipping berthing facilities, a container storage area and the administrative offices further away from the coastline. A grain offloading facility is also located at the eastern end of Campden Park Bay. The East Caribbean Group of Companies Ltd. (ECGC) is the main exporter; including the East Caribbean Grain Company (flour, rice and animal feed) and East Caribbean Metal Industry (steel products).

Other companies that benefit from proximity to the port include Saint Vincent Metals Ltd., Hairoun Brewery, Saint Vincent Packaging Ltd. and Saint Vincent Container Corporation (paper products). A review of the current trade flows and port handling volumes indicate a continued steady growth, even if the volumes stagnated in 2017. The overall development for handled containers for the period 2010 to 2017 had an annual growth of 3%. The latest development of the port volumes for 2016 and 2017 show that volumes have followed the forecast development.⁶⁴

4.5.2.4 Energy

For 2015, an estimated 144.2 million kWh was consumed across the country⁶⁵. SVG is still heavily dependent on fossil fuels, as 80% of the electrical energy generated comes from this source, so that the economy is affected by developments in the international petroleum market, primarily fluctuations in the world oil prices. The remaining 20% comes from hydro-electricity generated by three plants at Cumberland, Richmond and South Rivers. However, the electricity company, St. Vincent Electricity Services Ltd. (VINLEC), has reported reductions in its hydro-electricity supply during the dry season due to reduced stream flow leading to use of diesel to meet demand⁶⁶.

SVG depends on the imports of secondary sources of energy, i.e. diesel oil, gasoline, LPG and kerosene and jet fuel, as well as primary sources, i.e. firewood and photovoltaic solar panels. In 2012, diesel oil was the main form of energy consumed (33.6% of total consumption), followed by gasoline, electricity, LPG, firewood, charcoal and then kerosene. The transport sector consumed 45% of the total energy consumed, mainly maritime transport, and domestic consumers account for approximately 30% of the energy in the form of electricity, kerosene and LPG. The commercial and public services sector (including hotels, restaurants, and small businesses) was the third major consumer of energy in 2012 in the form of electricity, diesel oil, LPG and gasoline. The industry sector used approximately 5.5% of total energy consumed in

⁶³ Port Rationalisation and Development Study, Final Report (Mott MacDonald, 2015).

⁶⁴ Inception report (HPC Hamburg, 2018)

⁶⁵ https://www.indexmundi.com/saint_vincent_and_the_grenadines/energy_profile.html

⁶⁶ Second National Communication on Climate Change Saint Vincent and the Grenadines (Ministry of Health, Wellness and the Environment, 2015)

2012; an increase compared with 2010. Construction, agriculture, fishing, and mining are minor consumers of energy⁶⁷.

Less than 0.1 per cent of homes use a form of renewable energy (wind, or solar)⁶⁸. The Lowmans Bay Power Plant has a capacity of 17.4 Mega Watts and provides approximately 60% of all power generated on the mainland. Studies conducted at La-Soufriere suggest that the potential for geothermal energy is high. The government intends to tap into to this potential to reduce Saint Vincent And the Grenadines' dependence on fossil fuel⁶⁹.

4.5.2.5 Industry

SVG does not have any major industries but there are industrial activities related to agriculture, mining, manufacturing, tourism and housing. The main industrial activity is based at Campden Park and Diamond Industrial Estates. Processing and packaging of wheat and rice are conducted in a plant at Campden Park and arrowroot starch is processed at Owia. Mining is done for igneous rocks, as well as beach sand for the local construction industry⁷⁰. There was an average decline of 1.2% annually in the manufacturing sector from 2001 to 2010 (Figure 31)⁷¹. The GOSVG has reviewed the macroeconomic framework to provide incentives to expand the manufacturing sector in SVG that has suffered due to finance, management, company size and increased liberalization⁷².

Manufacturing production is concentrated at the Campden Park Industrial Estate where the following companies are established:

- East Caribbean Grain Company (flour, rice and animal feed)
- Hairoun Brewery (beverages)
- Saint Vincent Container Corporation (paper products)
- Saint Vincent Packaging Limited (plastics)
- East Caribbean Metal Industry (steel products).

Employment by industrial sector in SVG for 2017 is shown in Table 10. The wholesale and retail industry employed the greatest proportion of people (17.5% in 2017), followed by agriculture, forestry and fishing (15.1% in 2017) and construction (10.5% in 2017). Wholesale and retail also employed the greatest proportion of females in 2017 (21.2%), followed by education (15%) and then information and communication (11.2%). Males were primarily employed in the agriculture, forestry and fishing industry (21%) in 2017, followed by

⁶⁷ Saint Vincent and the Grenadines Energy Balances 2010 - 2012 (OLADE Latin American Energy Organization, 2015)

⁶⁸ National Report St. Vincent And the Grenadines Third International Conference on Small island Developing States - National report (Ministry of Health, Wellness and the Environment, 2013)

⁶⁹ Second National Communication on Climate Change Saint Vincent and the Grenadines (Ministry of Health, Wellness and the Environment, 2015)

⁷⁰ Second National Communication on Climate Change Saint Vincent and the Grenadines (Ministry of Health, Wellness and the Environment, 2015)

⁷¹ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

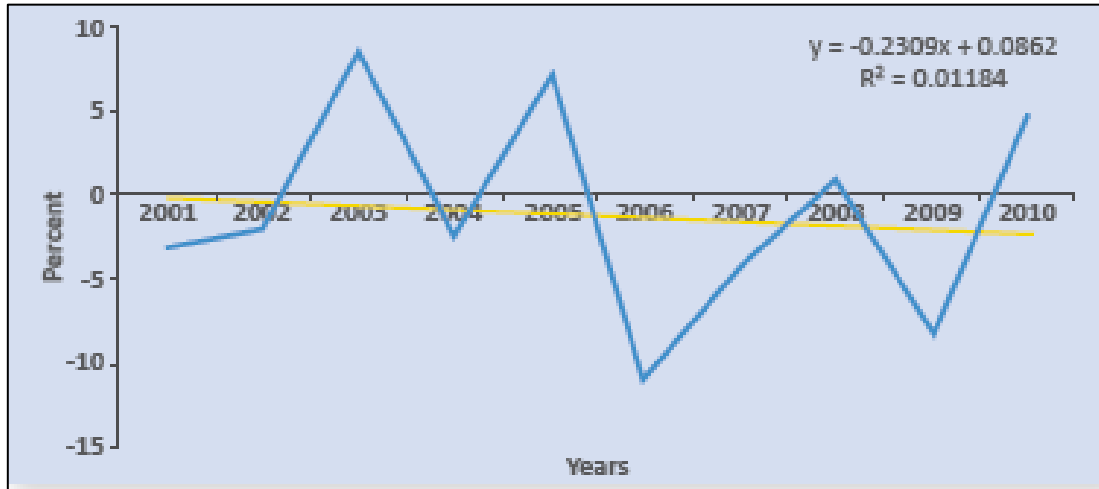
⁷² National Report SVG Third International Conference on SIDS (Ministry of Health Wellness and the Environment, 2013)

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

construction (18.3%), and wholesale and retail (14.6%). In 2017, real estate, renting and business activities accounted for the largest contribution to GDP, followed by transport, storage and communications, and then wholesale and retail⁷³.

Figure 31: Performance of the Manufacturing Sector (2001-2010)



Source: Statistical Office, Ministry of Finance and Economic Planning

⁷³ http://stats.gov.vc/stats/?page_id=1146

Table 10: Percentage of Employed Population by Industry, 2015 and 2017

Industrial Group	2015			2017		
	Men	Women	Total	Men	Women	Total
Agriculture, Forestry and Fishing	17.3	7.8	13.3	21.0	7.8	15.1
Mining and Quarrying	0.3	0.0	0.2	0.4	0.2	0.3
Manufacturing	7.7	4.9	6.6	5.7	5.0	5.4
Electricity	1.5	0.4	1.1	1.2	0.5	0.9
Water	0.5	0.3	0.4	1.4	1.1	1.2
Construction	13.7	2.5	9.0	18.3	0.7	10.5
Wholesale and Retail Trade	11.6	16.2	13.5	14.6	21.2	17.5
Transportation and storage	9.8	3.4	7.1	9.9	2.2	6.4
Accommodation and Food Service activity	5.3	9.0	6.8	5.2	11.2	7.9
Information and Communication	1.2	1.4	1.2	1.1	1.0	1.1
Financial and Insurance Activities	1.4	2.7	1.9	1.4	2.3	1.8
Real Estate Activities	x	x	x	x	x	x
Professional, Scientific and Technical Activities	1.2	1.9	1.5	1.4	2.4	1.8
Administrative and Support Service Activities	3.1	1.9	2.6	3.0	3.8	3.3
Public Administration and defence	7.3	9.2	8.1	6.1	6.7	6.4
Education	3.2	13.2	7.4	3.2	15.0	8.5
Human Health and Social Work Activities	1.4	8.0	4.2	1.4	7.6	4.1
Arts, Entertainment and Recreation	1.2	2.6	1.8	0.6	1.9	1.2
Other Services	1.7	2.4	2.0	1.5	2.6	2.0
Activities of Households as Employers	4.7	7.6	5.9	1.0	6.0	3.2
Activities of Extraterritorial Organization	x	x	x	x	x	x
Not Stated	5.7	4.6	5.2	1.7	0.8	1.3
Total	100	100	100	100	100	100

Note: Categories are based on International Standard Industrial Classification of All Economic Activities Revision 4 (ISIC Rev. 4)

x suppressed to meet the confidentiality requirements of the Statistics Act.

Source: Statistical Office of St Vincent and the Grenadines

4.5.2.6 Tourism

Tourism has grown in importance within the SVG economy due to the contraction of the agricultural sector. It has served to create jobs and bring in foreign exchange to the country. The aim for the sector is to diversify into ecotourism, sport tourism and scuba diving tourism with improvements planned in accommodations for infrastructural support to the sector. Focus will be placed on the cultural and natural resources of the country⁷⁴. The tourism sector declined by an average 2.9% per annum during the period 2001 - 2010. However, this was followed by a small but steady increase in cruise ship arrivals (Table 11).

Performance during this period was uneven with the sector experiencing high growth of 30.1% in 2003, increasing marginally in 2006, followed by declines in 2009 and 2010 respectively (figure 32). Stay over visitors declined by 3% in 2002, but increased by 20% in 2005. There was marginal growth in 2006 and 2007 of 1.3% and 1.7%, respectively. In 2008, there was a contraction of 2.7% and this sub-sector further declined by 10% in 2009⁷⁵. Visitor arrivals to SVG increased steadily at an average yearly rate of 0.5% for the period 2001 to 2010, with some fluctuation. Decline occurred from 2001 to 2003 and recovered in 2004 with a subsequent decline of 2.1% in 2005. A peak in visitor arrival was seen in 2006, followed by further fluctuating but overall declines up to 2010⁷⁶. There were further fluctuations from 2010 to 2013 but visitor arrivals have since shown a steady increase over the period 2013 to 2017 (Figure 33). The direct contribution of travel & tourism to GDP in 2016 was XCD129.2mn (6.2% of GDP) and supported 2,500 jobs (5.8% of total employment). This primarily reflects the economic activity generated by industries such as hotels, travel agents, airlines and other passenger transportation services (excluding commuter services). But it also includes, for example, the activities of the restaurant and leisure industries directly supported by tourists⁷⁷.

⁷⁴ Second National Communication on Climate Change Saint Vincent and the Grenadines (Ministry of Health, Wellness and the Environment, 2015)

⁷⁵ St. Vincent and the Grenadines National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

⁷⁶ St. Vincent and the Grenadines National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

⁷⁷ Travel & Tourism Economic Impact 2017 St. Vincent and the Grenadines (World Travel & Tourism Council, 2017)

Figure 32: Performance of the Tourism Sector (2007-2017)



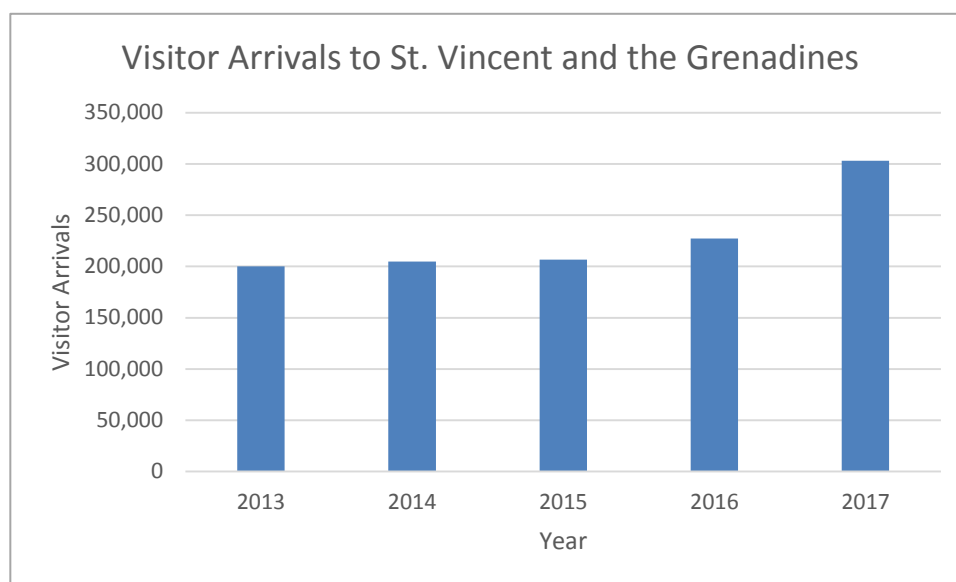
Source: World Travel & Tourism Council

An increased number of cruise vessel passengers and other regular tourists (yachting) created an increased demand for services, as well as for additional investments in construction activities (Table 11). During the 2016-2017 season, the number of vessel calls was on the same level as the year before, but the number of arriving passengers increased by 44%. For the current season a further increase of cruise vessel calls and passenger arrivals has taken place. The new international airport at Argyle was inaugurated in February 2017 and has substantially increased the availability and capacity for tourist arrivals. Another strategy is to increase the number of hotel rooms in St. Vincent by investing in new hotels. These activities are carried out in cooperation between the government and the tourist industry. Development that should contribute to growth in the sector are the Buccament Bay Hotel development and the Canouan jet port and hotel development⁷⁸. There is also a move to increase accessibility to the Grenadines islands. The plan is to introduce a number of fast ferries between St. Vincent and selected Grenadines islands to be able to offer an integrated concept and increase St. Vincent's competitiveness. This current and planned development is expected to further generate additional economic activities in SVG⁷⁹.

⁷⁸ National Report St. Vincent And the Grenadines Third International Conference on Small island Developing States - National report (Ministry of Health, Wellness and the Environment, 2013)

⁷⁹ Inception report (HPC Hamburg, 2018)

Figure 33: Visitor Arrivals to St. Vincent and the Grenadines



Source: Statistical Office of St. Vincent and the Grenadines

Table 11: Cruise Vessel Calls and Passenger Arrivals 2013-2017

CRUISE SHIP SEASONS 2013-2017										
MONTH	CALLS				%GROWTH	PAX ARRIVALS				%GROWTH
	2013-2014	2014-2015	2015-2016	2016-2017		2013-2014	2014-2015	2015-2016	2016-2017	
OCTOBER	5	3	7	9	28.6	227	70	243	579	138.3
NOVEMBER	16	25	27	31	14.8	9,407	13,595	11,006	16,144	46.7
DECEMBER	31	38	40	41	2.5	14,814	15,706	17,220	24,572	42.7
JANUARY	30	41	40	36	(10,0)	15,244	16,727	15,836	21,898	38.3
FEBRUARY	32	35	44	32	(27,3)	18,572	19,574	19,105	21,416	12.1
MARCH	39	32	51	48	(5,9)	14,244	12,515	17,061	27,893	63.5
APRIL	19	14	13	21	61.5	6,793	3,403	3,835	8,674	126.2
TOTAL	172	188	222	218	(1,8)	79,301	81,590	84,306	121,176	43.7

Source: SGVPA, HPC 2018

4.5.2.7 Agriculture

Agriculture was once the basis for St. Vincent's economy, including sugar, arrowroot, cotton and bananas. These crops were grown as monoculture on plantations but declines occurred with time; the most recent being the decline of the banana industry⁸⁰. The agricultural sector is still considered important to the economy, despite the reduced performance recorded over time on a national level. On the local level, it contributes to the domestic food supply and the livelihood of rural families⁸¹. This sector showed average yearly growth of 0.5% from 2001 to 2010 but showed several fluctuations over this period. Bananas' contribution to GDP gradually

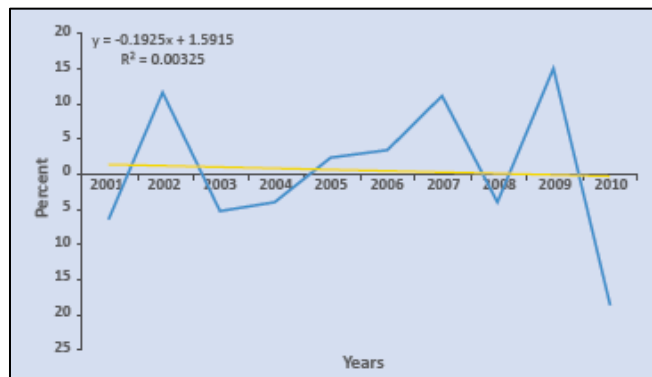
⁸⁰ Second National Communication on Climate Change Saint Vincent and the Grenadines (Ministry of Health, Wellness and the Environment, 2015)

⁸¹ IICA Country Strategy 2014 - 2018: St. Vincent and the Grenadines (Inter-American Institute for Cooperation on Agriculture, 2013)

declined on average from 2000 to 2006 but showed slight increases in 2007 and 2009, with an overall decline from 2.6% in 2000 to 0.3% in 2010. ‘Other crops’ continued to be the largest contributor to the agricultural sector, moving from 42.0% in 2000 to 72.3% in 2010. Figure 34 illustrates the fluctuation in this sector. The importance of banana exports to the economy has declined steadily over time with the lowest performance occurring in 2001 with a fall in output of product and a simultaneous decline in livestock production⁸². SVG is now a net importer of bananas rather than a net exporter.

Although banana production has declined significantly and has affected national economy, the number of people whose livelihood is based on agriculture has declined only marginally. This is because of the gain in importance of other crops: roots and tubers, vegetables, fruits and livestock, but none has replaced banana and sugar with respect to national level importance⁸³. The agricultural sector is comprised of 55% males and 45% females and average age in industry is 45 years old. There are approximately 7,000 agricultural holdings across SVG, with 90% of them being family-owned. These farms are usually less than 5 acres in size; on average approximately 1.7 acres for bananas and approximately 1 acre for other crops and livestock; with generally low levels of technology and a heavy reliance on manual labour. The agricultural sector, particularly banana production, has been affected due to an invasion of exotic diseases, loss of preferential access to the UK market, and severe tropical storms. This contraction of the agricultural sector has contributed significantly to rural poverty. There is concern that agricultural lands are being lost due to conversion to residential use, which could affect the level of food production in the country and consequently its ability to feed itself.

Figure 34: Performance of Agriculture Sector (2001-2010)



Source: Statistical Office, Ministry of Finance and Economic Planning

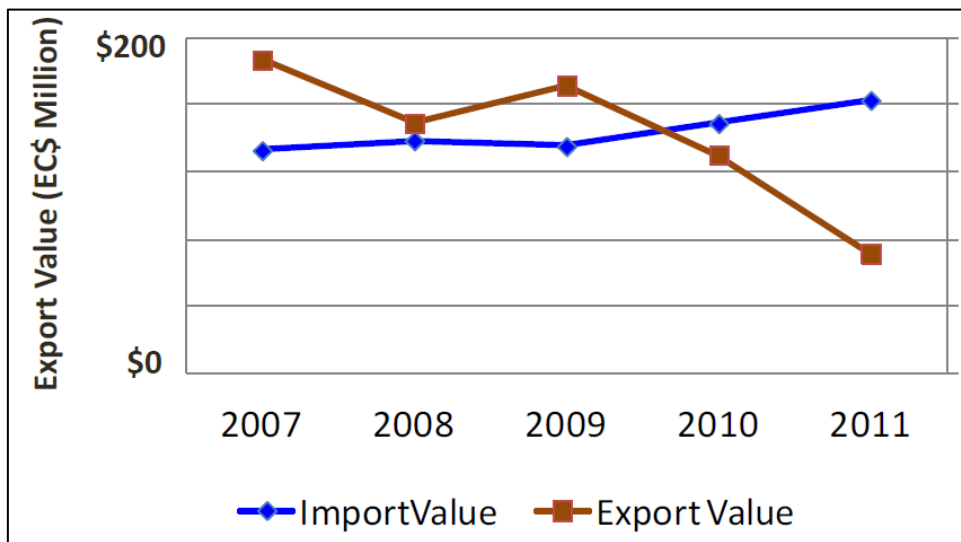
The agricultural sector also suffers from several other challenges: disorganized producers, low levels of technology use, inadequate systems for dealing with disaster management and climate change, movement of the workforce out of agriculture with few youths entering the sector, poor/no marketing infrastructure and system, little food processing for value added, and

⁸² St. Vincent and the Grenadines National Economic and Social Development Plan 2013-2025 (Government of St. Vincent and the Grenadines, 2013)

⁸³ IICA Country Strategy 2014 - 2018: St. Vincent and the Grenadines (Inter-American Institute for Cooperation on Agriculture, 2013)

wider range of consumer choices from imports. There have also been five extreme weather events from 2009 to 2014; both droughts and storms representing losses of tens of millions of dollars (XCD). Presently, food imports are still very high at approximately \$170 million XCD every year, particularly meat and meat products (Figure 35). Nevertheless, SVG is still considered one of the main suppliers of agricultural produce in the eastern and southern Caribbean. Such trade can be further developed for commodities such as roots, tubers and live animals but the agricultural sector needs marketing improvements and increased competitiveness⁸⁴.

Figure 35: St. Vincent and the Grenadines Agricultural Trade Balance



Source: SVG National Commission on Gender Equality

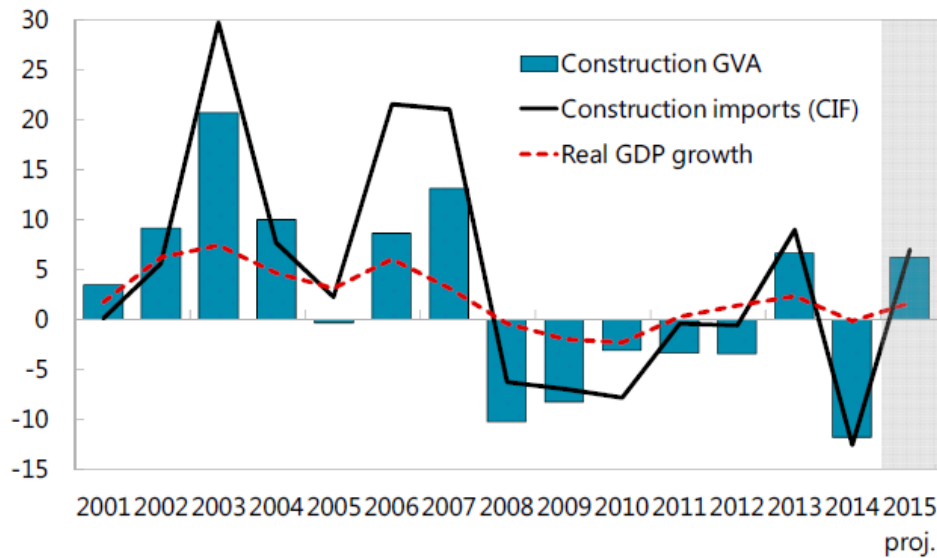
4.5.2.8 Construction

For the period 2001 to 2010, the SVG construction sector grew at an average rate of 4.4% per year, with the greatest decline occurring in 2008 during the global financial downturn with a rebound in the sector in 2015 (Figure 36). Major construction projects occurred in 2007, such as the Windward Highway Rehabilitation project, Canouan Airport Extension and several private sector tourism projects, which led to strong growth in the sector for that year⁸⁵. Another important recent infrastructural project was the Argyle International Airport, which was completed in 2017. The construction of the Geothermal Energy Plant and Port Kingstown Modernisation Project represent additional contributors to the construction industry.

⁸⁴ IICA Country Strategy 2014 - 2018: St. Vincent and the Grenadines (Inter-American Institute for Cooperation on Agriculture, 2013)

⁸⁵ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

Figure 36: Construction and Real GDP (2001-2015)



Source: ECCB and IMF

4.5.2.9 Land Tenure

Land tenure in SVG is vested primarily in the GOSVG, who owns more than 60% of the total land area, with private land accounting for only 40% of the land area. Government land ownership includes all the land above the 1,000-foot contour (approximately 34,000 acres) and more than 7,000 acres of agricultural land. The Land and Surveys Department manages over 80% of state-owned lands; other lands are managed by the Forestry Department, the National Parks Authority and the Housing and Lands Development Corporation. Much of the state lands are protected areas that are being preserved for sustainable water supplies and biodiversity protection.

Abandoned plantations were also acquired by the state in order to promote economic activity in rural areas. Only 0.4% of agricultural holdings in SVG are 100 acres and over, but these represent 53.6% total area in holdings. The small size of these agricultural land holdings may not be economically viable given the types of crops being cultivated in SVG. Secure land tenure is also important for small farmers who cultivate land to which they do not have secure title. Urban land tenure is largely freehold (74%) based on 1991 figures and 2.2% leasehold tenure. Squatting was at 9.7%; others were rented or some informal arrangement⁸⁶.

4.5.3 Population and Demographics

The 2015 Housing and Population Census recorded a total household population of 109,188; this number represented 55,551 males and 53,637 females (Figure 37). There were an additional 85 homeless and 718 across various institutions. Population growth rate was targeted at 0.7% annually in 1996, and was to be achieved by 2000 through a combination of

⁸⁶ St. Vincent and the Grenadines National Land Policy (P.A. Isaacs, 2014)

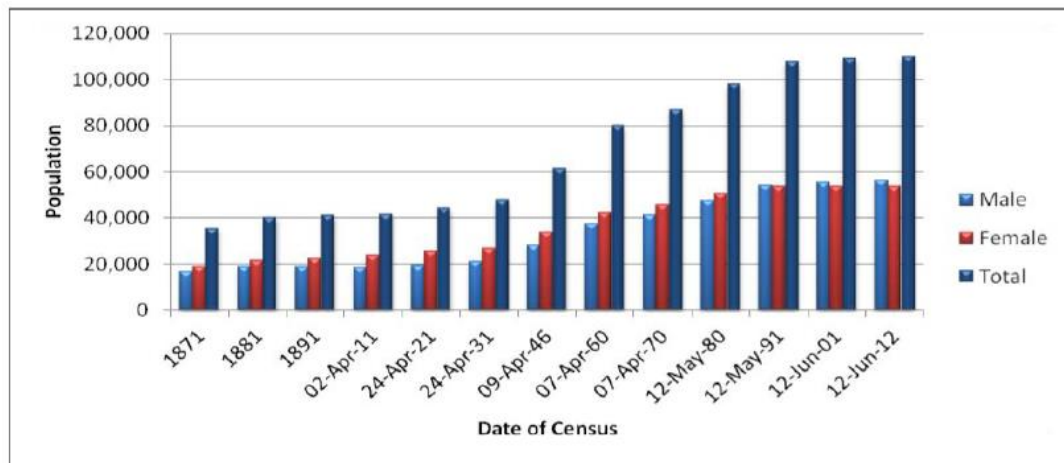
Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

reduced total fertility rate of 2.4 and a decrease of teen fertility. The actual growth rate in 2001 was 0.13-0.57%, which was less than targeted. The population is increasing as a rate of approximately 0.89%; this represents an annual increase of 81 persons per year between 2001 and 2012 (Figure 38). The estimated population size as calculated by the World Bank for 2017 was 109,897⁸⁷.

SVG's population resides primarily in the coastal zone (approximately 85%) and six of the 13 census districts have shown positive growth since 2001. The greatest increase is in the Caliaqua and the Suburbs of Kingstown census divisions with increase of 7% and 5.8 % respectively⁸⁸. Kingstown covers an area of 1.9 square miles and decreased in population from 13,526 in 2001 to 12,712 in 2012; a 6% decrease and constituting 11.6% of the total population in 2012.

Figure 37: Population Size and Growth, 1871-2012



Source: Statistical Office of SVG

Children under the age of 15 comprised 24.6% of the country's population in 2012 and the elderly (65 years and over) comprised 9.1% of the population. Educational level increased to 8.3% tertiary level educational attainment in 2012. The number of households also increased to 36,829 households in 2012, compared with 30,518 households in 2001. The size of the labour force also increased from 43,528, in 2001, to 52,014, in 2012. There was a higher unemployment rate of 21.5% in 2012, compared with 20.9% in 2001.

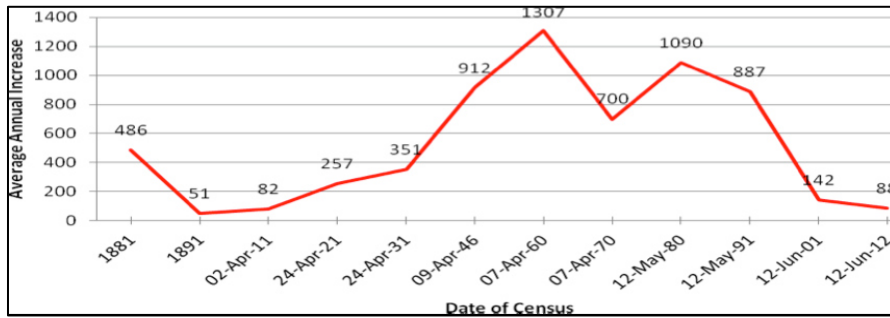
⁸⁷ <https://data.worldbank.org/country/st-vincent-and-the-grenadines?view=chart>

⁸⁸ St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

Figure 38: Average Annual Population Increase from 1971 to 2012

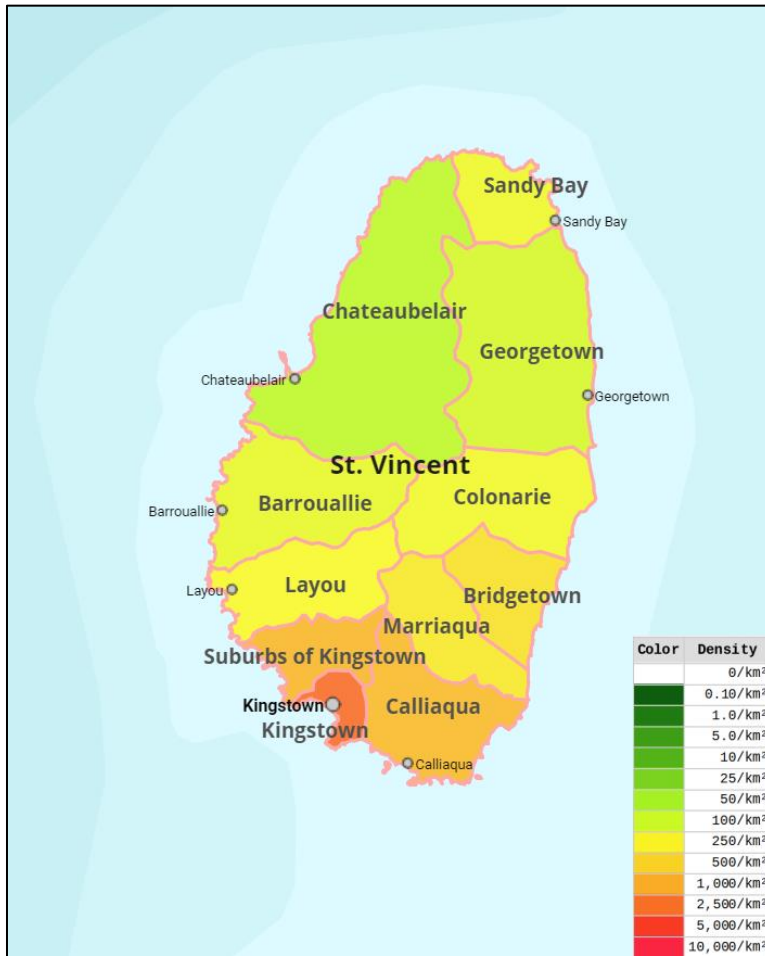


Source: Statistical Office of SVG

4.5.3.1 Population Density

In 2012, the population density of St. Vincent and the Grenadines was 732 persons per square mile compared to 707 per square mile in 2001, with the mainland having a population density of 746 persons per square mile, the same as in 2001. The census division of Kingstown (6,794), Suburbs of Kingstown (2,158), Calliaqua (2,051), Bridgetown (912) and Marriaqua (830) continued to have the highest densities (Figure 39). Kingstown has a high population density of 6794 versus 7293 in 2001. With Kingstown covering an area of only 1.9 square miles, this high density can be attributed to the high concentration of primary infrastructure in this division. Such high population densities put a strain on the infrastructure; and, on social and other services. Kingstown’s population density was 9 times the national average.

Figure 39: Population Density of SVG



Source: Thomas Brinkhoff: City Population, <http://www.citypopulation.de>

4.5.3.2 Population by Age Group and Sex

Young people represent the largest proportion of the population in SVG, even though this proportional representation reduced from 2001 to 2012. Children, 0-14 years, was 26,295 in 2012 24.6% of the total population (Table 12), a decrease from 2001 when it accounted for 30.7% of the population. Youths (15 – 24 years) accounted for 17.1% of the population in 2012, a decrease from 2001, when it accounted for 19.7%. There was also a decrease in the population of the 25 to 44 year age group, from 29.1% in 2001, to 28.3% in 2012, which may have been due to migration. The older age groups (45 - 64 and over 65) increased in proportional representation with the 45 – 64 age group increasing from 13.2% in 2001 to 20.9% in 2012. These increases may have been due to reduced death rates and increased life expectancy. The population pyramid for 2012 (Figure 40) is typical of an ageing population with a diminishing base, especially within the age groups under 10 years, indicating continued declines in the birth rates. The middle and top of the pyramid have broadened indicative of a middle income, developing country, with reduced or constant birth rates, reduced death rates,

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

and increased life expectancy. The elderly population (60 years and over) also increased in its proportion of the total population, from 9.8% in 2001 to 12.6% in 2012⁸⁹.

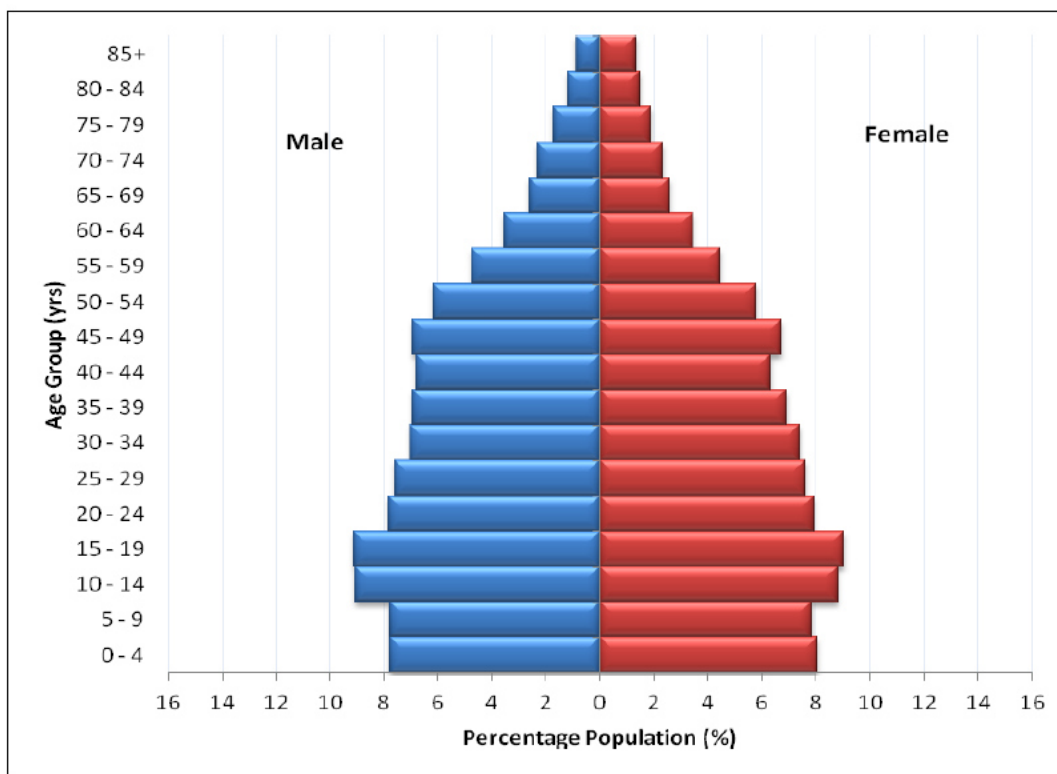
Table 12: Household Population by Age Group and Sex, 2012

<u>Age Group</u>	<u>Total Household Population</u>			<u>Sex Ratio</u>
	<u>Male</u>	<u>Female</u>	<u>Total</u>	
0 – 4	4,314	4,331	8,645	100
5 – 9	4,308	4,212	8,520	102
10 – 14	5,042	4,718	9,760	107
15 – 19	5,053	4,859	9,912	104
20 – 24	4,354	4,253	8,607	102
25 – 29	4,228	4,089	8,317	103
30 – 34	3,887	3,976	7,863	098
35 – 39	3,839	3,714	7,553	103
40 – 44	3,772	3,383	7,155	111
45 – 49	3,861	3,605	7,466	107
50 – 54	3,436	3,112	6,548	110
55 – 59	2,642	2,389	5,031	111
60 – 64	1,970	1,851	3,821	106
65 – 69	1,457	1,384	2,841	105
70 – 74	1,282	1,254	2,536	102
75 – 79	964	1,014	1,978	095
80+	1,142	1,493	2,635	076
Total	55,551	53,637	109,188	104

Source: Statistical Office of SVG

⁸⁹ St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

Figure 40: Population Pyramid of St. Vincent and the Grenadines, 2012



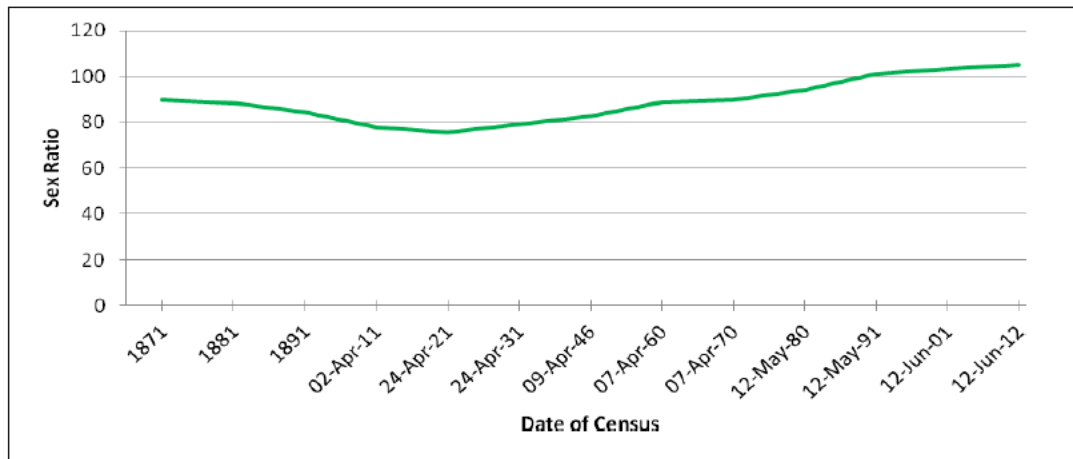
Source: Statistical Office of SVG

4.5.3.3 Sex Ratio

The sex ratio in the country is approximately 1:1 female to male (55,353 to 55,835) (Figure 41). The sex ratio of the local born population, observed in 2012, was 103 males to every 100 females. In comparison with the 2001 census, the sex ratio of the local born population was 102 males to every 100 females. The data revealed a minimal increase in the sex ratio of the local-born population. The population’s composition also shifted from a female majority to a male majority. The sex ratio for SVG gradually increased from 76 males per 100 females, in 1921, to 105 males per 100 females, in 2012 (Figure 42). There is no evidence to suggest that this change can be attributed to anything other than an increase in the birth of males in the country. For example, in 2011, 878 males and 847 females were born and in 2012, 925 males and 915 females were born. Infant mortality in SVG mainly occurs within the first 28 days and is due to prematurity and perinatal infections or congenital conditions originating in the perinatal period⁹⁰.

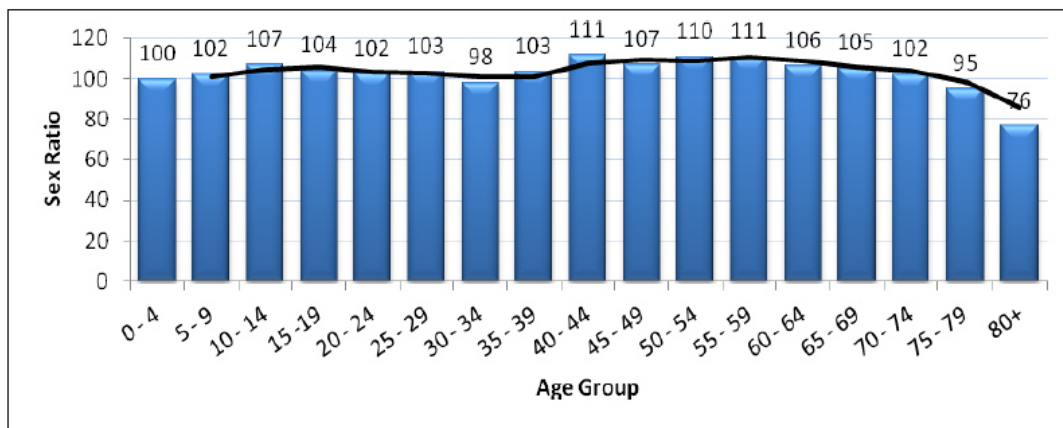
⁹⁰ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

Figure 41: Sex Ratio (Males to 100 Females) in SVG, 1871-2012



Source: Statistical Office of SVG

Figure 42: Sex Ratio (Males to 100 Females) by Age Group, 2012



Source: Statistical Office of SVG

4.5.3.4 Ethnic Composition

There is a diverse range of ethnicities within SVG, with the majority of the population of African descent. The Caribs/Amerindians are an indigenous group of the country and there are other minority ethnic groups. Table 13 shows the classification of ethnicities by sex based on self-classification. People of African descent represented 71.2% of the population, in comparison with 72.8% in 2001, with 69.9% of females and 72.5% of males in the population in 2012. Persons of mixed heritage were the second largest ethnic group representing 23.0% of the population; a 16.2% increase when compared with 2001. The number of persons who identified themselves as Indigenous accounted for 3.0% of the population; a 15.9% decline since 2001; the reasons for this decline were not given. East Indian/Indian comprised 1.1% of

the population, while all Other Ethnic Groups (Caucasian, Portuguese etc.) comprised less than 1.0%⁹¹.

Table 13: Percentage Distribution of Population by Major Ethnic Group and Sex, 2001 & 2012

<u>Major Ethnic Group</u>	2001			2012		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
African Descent	74.3	71.4	72.8	72.5	69.9	71.2
Indigenous People	3.6	3.7	3.6	2.9	3.1	3.0
White/Caucasian	0.8	0.8	0.8	0.8	0.8	0.8
East Indian/Indian	1.3	1.4	1.3	1.1	1.1	1.1
Mixed	18.8	21.3	20.0	21.8	24.2	23.0
Portuguese	0.6	0.6	0.6	0.7	0.6	0.7
Other Ethnic Group	0.2	0.2	0.2	0.2	0.1	0.2
Not Stated	0.5	0.7	0.6	0.0	0.0	0.0
All Groups	100	100	100	100	100	100

Source: Statistical Office of SVG

4.5.3.5 Religious Composition

At the last census in 2012, the majority (82.5%) of residents considered themselves to be of a Christian religious denomination. The Rastafarian religion was the second largest, with 1.1% of the population identifying itself with this group. The Hindu and Muslim/Islam religions, collectively accounted for 0.2% of the religious identity of the population. 7.5% of the population did not affiliate themselves with any religion or religious denomination, and 4.7% chose not to state any. Since the last census conducted in 2001, there was a 2.3% increase in the followers of the Christian religion, and a 25.9% decline in those of the Rastafarian religion⁹²; the reasons for this decline were not given.

4.5.3.6 Household Characteristics

In 2012, there were 36,829 households in SVG with an average household size of 3.0 persons. The main source of lighting is from the public supply (88.9% of households in 2012) and 80.5% of the population received public piped water on their compounds, either into their dwelling units or into their yards. The analysis of households and housing characteristics reveals that the overall standard of living increased between 2001 and 2012, represented by the indicator that there was an increase in the percentage of households that owned the dwellings that they occupied; 75.6% in 2001, and 78.7% in 2012.

Of the 36,829 households in St. Vincent and the Grenadines in 2012, 61% were headed by males, whereas 39% were headed by females. This means that for every female headed household there were 1.5 male headed households. This is similar to the case of 2001, when 60.1% of households were headed by males and 39.9% were headed by females. Kingstown had a proportion of 58.5% male household heads versus 41.5% female; a sex ratio of 1.4. However, there were more female headed households than male in the over 80 age range because of a higher female life expectancy. Heads of households were primarily in the 35 - 64

⁹¹ St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

⁹² St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

age range (63.2%), followed by the 15 - 34 age range (15.8%). A greater number of household heads in 2012 held educational certificates than in 2001 with approximately 60% employment rate⁹³.

4.5.3.7 Marital Status

In 2012, the population of SVG over the age of 15 were mainly single never married (54.3%) and the second largest marital status of this age group was married (38.7%) (Table 14). The legal minimum age for marriage is 18; marriage by underage persons is allowed with written parental consent. The next largest group were widowed (3.6%) and then the divorced group (2.1%). There was roughly equal representation in each group of males and females except for the widowed group in which females made up 5.48% versus 1.8% males. Over the period 2001 and 2012, there were 292 marriages per 1,000 people and 16 divorces per 1,000 people. Approximately 41.0% of household heads were married or living in a common law union⁹⁴.

Table 14: Population 15 Years and Older by Marital Status and Sex, 2012

<u>Union Status</u>	<u>Male</u>	<u>%</u>	<u>Female</u>	<u>%</u>	<u>Total</u>	<u>%</u>
Single Never Married	23,854	56.9	20,812	51.55	44,666	54.3
Married	15,907	37.9	15,956	39.52	31,863	38.7
Divorced	813	1.9	890	2.20	1,703	2.1
Widowed	752	1.8	2,213	5.48	2,965	3.6
Legally Separated	307	0.7	342	0.85	649	0.8
Not Stated	233	0.6	144	0.36	377	0.5
Don't Know	21	0.1	19	0.05	40	0.1
Total	41,887	100	40,376	100	82,263	100

Source: Statistical Office of SVG

4.5.3.8 Education

St. Vincent and the Grenadines achieved universal primary education since the 1990s and has sustained net enrolment rates over 75.0%⁹⁵; universal access to secondary education was attained in 2005. This was achieved, in part, through significant government expenditure under the policy of ‘No Child Left Behind’. During the period 2000 – 2010, education was an average of 16.8% of the total budget allocation; this amount was 913.5 million XCD in 2010⁹⁶.

At the last census in 2012, there was a decrease in the school-aged population (under 20 years of age) compared to the previous census in 2001, which corresponded to a 13.9% decrease in school attendance. Generally, at younger ages (3-14 years) slightly more males than females attended school, whereas more females than males attended school in the 15 years and over age group; with a sex ratio of 0.45 (Table 15). Kingstown had a total of 3,208 persons attending school, including 46 technical/vocational, 21 professional, 13 special education, 139 community college, 174 university and 24 adult education. In 2012, there were

⁹³ St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

⁹⁴ St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

⁹⁵ St. Vincent and the Grenadines Millennium Development Goals 2012 (Central Planning Division, 2013)

⁹⁶ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

2,335 children attending pre-primary school and 11,243 (39.6 %) attending primary school. There were more males (5,776) than females (5,467) attending primary schools, the highest proportion of persons attending school was enrolled in a primary educational institution. In secondary schools there were 8,481 students: 4,315 males and 4,166 females. There were also 885 persons with higher degrees⁹⁷.

Table 15: School Attendance by Age, 2001 & 2012

Age	2001			2012			2001 – 2012		
	School Attendance			School Attendance			Population Percentage Change		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
3	588	603	1,191	601	610	1,211	2.2	1.2	1.7
4	837	808	1,645	732	771	1,503	-12.5	-4.6	-8.6
5	1,047	1,042	2,089	812	834	1,646	-22.4	-20.0	-21.2
6	1,255	1,183	2,438	805	753	1,558	-35.9	-36.3	-36.1
7	1,105	1,105	2,210	887	813	1,700	-19.7	-26.4	-23.1
8	1,081	1,140	2,221	810	815	1,625	-25.1	-28.5	-26.8
9	1,110	1,124	2,234	790	826	1,616	-28.8	-26.5	-27.7
10	1,129	1,040	2,169	948	929	1,877	-16.0	-10.7	-13.5
11	1,180	1,140	2,320	1,072	968	2,040	-9.2	-15.1	-12.1
12	1,037	978	2,015	906	870	1,776	-12.6	-11.0	-11.9
13	1,023	1,098	2,121	883	847	1,730	-13.7	-22.9	-18.4
14	971	1,017	1,988	954	873	1,827	-1.8	-14.2	-8.1
15	760	927	1,687	838	854	1,692	10.3	-7.9	0.3
16	661	767	1,428	747	755	1,502	13.0	-1.6	5.2
17	510	673	1,183	721	665	1,386	41.4	-1.2	17.2
18	323	496	819	443	402	845	37.2	-19.0	3.2
19	169	242	411	207	236	443	22.5	-2.5	7.8
20 +	448	828	1,276	817	1,632	2,449	82.4	97.1	91.9

Source: Statistical Office of SVG

After the census in 2012, there has been continued progress in education in SVG. In 2014 – 2015 the total enrolment in primary education was 6,836 males and 6,527 females, and dropout rates were among the lowest in the region for the period 2013 - 2014. The teacher-pupil ratio has fallen from 26:1 in 2008 – 2009 to 15:1 in 2014 – 2015. This occurred because of the drive by GOSVG to improve the shortages of qualified teachers through measures such as scholarship opportunities at the SVG Teacher’s College, training/upgrades to 150 teachers annually, post-graduate training abroad and distance learning opportunities⁹⁸. There has been a challenge of encouraging males into the teaching profession; 82% of primary teachers were female in 2014 - 2015. The number of teachers with higher degrees remains low (17.8% of primary school teachers). On the secondary level, pass rates increased at the Caribbean Secondary Education Certificate (CSEC) from 71.16% in 2014 to 75.16% in 2015⁹⁹.

⁹⁷ St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

⁹⁸ St. Vincent and the Grenadines Education Statistical Digest 2016 - 2017 (Ministry of Education, 2018)

⁹⁹ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

For the 2016 - 2017 academic year, there were 3,564 early childhood pupils, 13,026 primary (6,639 males and 6,387 females), 10,113 secondary (5230 males and 4883 females) and 2,109 post-secondary students in SVG. There were 129 early childhood centres, 68 primary schools, 27 secondary schools and one community college where the teaching staff comprised 454 care givers, 905 primary and 704 secondary teachers. Kingstown had 36 pre-school centres, 10 primary schools including one Special Needs school and 8 secondary schools. There were 4,023 primary school children in Kingstown in 2016/2017¹⁰⁰.

For the academic year 2016/17, the secondary school dropout rate was 2.46%. The rate for males was 2.89%; a small increase from the previous year (2.72%) and 2.01% for females; a small decrease from the previous year (2.16%); dropouts are more prevalent between the ages of 14-16. The repetition rate for males was also higher than that for females. During the same period, the rate for males was 16.74%, for females it was 9.43%, while the total was 13.16%. There is no ready analysis which points to level of performance for both males and females, and especially for the greater rates for dropout and repetition among males. The GOSVG has stated that efforts must be made to assist those who experience difficulties in learning and are thus forced to repeat or worse yet drop out of the cycle¹⁰¹. The GOSVG provides continuing education for school dropouts. Since 2008, a total of 522 persons have been granted skills certificates with 411 (291 women and 149 men) receiving them in the 2008–2014 period. The under-participation and poor performance of some boys in secondary education and adult males in tertiary education are recognized by the GOSVG as a complex of issues, which must lead to interventions that are strategic with multi-faceted and interconnected benefits to the whole system.

Special Education

There are three government-funded schools for children with special educational needs in SVG that cater to the needs of PWDs, and persons who have learning difficulties. The special education schools are located in Kingstown, Georgetown and Northern Grenadines. In 2016/17, 113 students were enrolled in special education institutions; 80 were male and 33 were female¹⁰². However, specialized support is still required for these children, including therapeutic intervention services, diagnosis and special curricula. The students also have few options for moving forward into the traditional educational system. In addition to which, there is a lack of wheelchair access at all other schools¹⁰³.

Adult and Continuing Education

The focus of adult education in SVG is on equipping adults with skills in agriculture, Information and Communications Technology (ICT) industries, and commerce, as well as for personal development, self-employment and general entrepreneurship. Training is done at the Multipurpose Centres (MPCs), Technical and Vocational Education and Training (TVET) Centres and National ICT centres. There were 196 persons enrolled in adult education

¹⁰⁰ St. Vincent And The Grenadines Education Statistical Digest 2016 - 2017

¹⁰¹ St. Vincent And The Grenadines Education Statistical Digest 2016 - 2017

¹⁰² St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

¹⁰³ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

programmes in 2012 (0.7% of school attendees). There were more females (154) than males (43) seeking continuing education in 2012. These students were primarily from Calliaqua, Suburbs of Kingstown and Kingstown¹⁰⁴. TVET is of importance to the GOSVG as it wants to build a skilled workforce that can be competitive on a technical level. However, there remains the misconception in the country that TVET programmes are for “slow learners” and those who could not succeed in mainstream education. There needs to be further efforts to change this mind-set.¹⁰⁵

THE GOSVG is cognizant that challenges remain within the educational system, despite the achievement of universal access to primary education. There is a need for universal completion of quality education, as well as a need for staff, physical space and strategic remedial interventions to meet the requirements of students without the requisite academic foundation at the secondary level. The GOSVG has committed to providing support to improve academic performance and quality of delivery¹⁰⁶.

4.5.3.9 Labour Force

In SVG, working age is considered 15 years and over, which was 83,246 persons in 2015, 67.9% of whom were in the labour force i.e. economically active population, and 32.1% were not. This working age population was almost evenly divided between males (50.6%) and females (49.4%). Youth (15-24 years old) comprised 22.1% of the working age population, whereas the 25-54 age groups and 55 and over age group comprised 54.8% and 23.1%, respectively. There were 54,734 persons in the labour force in 2015, which consisted mostly of males (Table 16). There were 30,383 males, compared with 24,130 females; women (58.7%) were less likely to participate in the labour force than men (72.6%) representing a gender gap of 13.9 percentage points.

In 2015, the labour force participation rate was highest within the working age group of 25 to 54 years; 90.5% of men and 77.0% of women participated in the labour market from this age group. The gender gap in labour force participation was widest in the population 55 years and over, 55.1% of men and 27.3% of women, a difference of 27.8 percentage points. Among young men and women aged 15 to 24 years, labour force participation rates were fairly similar, as 47.0% of men and 45.3% of women participated in the labour force¹⁰⁷.

¹⁰⁴ St. Vincent and the Grenadines Population and Housing Census Report 2012. SVG Statistical Office

¹⁰⁵ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

¹⁰⁶ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

¹⁰⁷ Overview of the Labour Market of St Vincent and the Grenadines (Statistical Office of SVG, 2015)

Table 16: Labour Force Characteristics by Age and Sex, 2015

<u>Age Group</u>	<u>Working Age Population</u>	<u>Economically Active (Labour Force)</u>			<u>Persons Not in the Labour Force</u>
		<u>Employed</u>	<u>Unemployed</u>	<u>Total</u>	
Both Sexes					
15 – 19	9,912	978	1,575	2,553	7,359
20 – 24	8,607	3,866	2,547	6,413	2,194
25 – 29	8,317	4,895	1,634	6,529	1,788
30 – 34	7,863	5,016	1,288	6,304	1,559
35 – 39	7,553	5,046	1,017	6,063	1,490
40 – 44	7,155	4,943	802	5,745	1,410
45 – 49	7,466	5,080	788	5,868	1,598
50 – 54	6,548	4,340	545	4,885	1,663
55 – 59	5,031	2,930	427	3,357	1,674
60 – 64	3,821	1,590	179	1,769	2,052
65+	9,990	2,137	391	2,528	7,462
Total	82,263	40,821	11,193	52,014	30,249
Male					
15 – 19	5,053	601	794	1,395	3,658
20 – 24	4,354	2,279	1,208	3,487	867
25 – 29	4,228	2,725	801	3,526	702
30 – 34	3,887	2,728	604	3,332	555
35 – 39	3,839	2,809	487	3,296	543
40 – 44	3,772	2,814	425	3,239	533
45 – 49	3,861	2,869	423	3,292	569
50 – 54	3,436	2,549	310	2,859	577
55 – 59	2,642	1,771	280	2,051	591
60 – 64	1,970	1,062	121	1,183	787
65+	4,845	1,483	240	1,723	3,122
Total	41,887	23,690	5,693	29,383	12,504
Female					
15 – 19	4,859	377	781	1,158	3,701
20 – 24	4,253	1,587	1,339	2,926	1,327
25 – 29	4,089	2,170	833	3,003	1,086
30 – 34	3,976	2,288	684	2,972	1,004
35 – 39	3,714	2,237	530	2,767	947
40 – 44	3,383	2,129	377	2,506	877
45 – 49	3,605	2,211	365	2,576	1,029
50 – 54	3,112	1,791	235	2,026	1,086
55 – 59	2,389	1,159	147	1,306	1,083
60 – 64	1,851	528	58	586	1,265
65+	5,145	654	151	805	4,340
Total	40,376	17,131	5,500	22,631	17,745

Source: Statistical Office of SVG

In 2015, the national unemployment rate was 22.5% with a higher proportion of unemployed women; the largest gender gap in unemployment was among young men and women. At all levels of education, except pre-university or post-secondary, women were less likely than men to be employed. However, the gender gap generally decreased as educational attainment increased. Among those with a primary education or less the gender gap in employment was 27.4 percentage points, as 62.7% of men and 35.3% of women were employed. In contrast, among those with a university education, the gender gap narrowed to 5.3 percentage points, as 79.3% of men and 74.0% of women were employed.

Women were more likely than men to be unemployed across all levels of education. Similar to employment rates, the gender gap for unemployment declined with higher levels of education. The gender gap was the highest among those with a secondary education, as 36.5% of women and 27.3% of men in the labour force were unemployed, a gender gap of 9.2 percentage points. The gender gap was narrowest among those with a university education, as 4.7% of women in the labour force were unemployed compared with 1.7% of men. Unemployment rates for male household-heads were lower than that of female household-heads, irrespective of family structure.

The private sector was the main source of employment and the GOSVG was the largest single employer. More males (>60%) were employed in the private sector and more females (55.3%) were employed within government organisations. There is labour segregation within the occupational sectors. The most common occupations among women were 'services and sales workers', followed by 'professionals', 'elementary occupations' and 'clerical support workers'. These were the occupations of 72.9% of female workers. Among men, most (67.9%) were employed in the categories 'craft and related trade workers,' 'services and sales workers,' 'skilled agricultural, forestry and fishery workers,' and 'elementary occupations'.

Although women were less likely to be employed than men, a higher proportion of them were employed in the 'professionals', 'technicians/associate professionals' and 'clerical support workers' groups, which comprised 36.5% of employed women, compared with 15.7% of employed men. Men (20.7%) were about seven times more likely than women (2.9%) to report being employed in lower-skilled occupations. However, there were larger proportions of women in part-time employment and in lower earning categories. Although earnings increased with higher levels of educational attainment, among those with university education, women were less likely than their male counterparts to be in the highest earning group¹⁰⁸. This suggests that women needed much higher levels of education to be able to compete with men.

The largest gender gaps in employment were seen in industries such as 'agriculture, forestry and fishing', 'construction' and 'education'. 17.3% of men were employed in this industry, compared with 7.8% of women. Similarly, men were more likely to be employed in 'construction', as 13.7% of men were employed in this industry, compared with 2.5% of women. Meanwhile, women were more likely than men to be employed in 'education' 13.2% of women and 3.2% of men were employed in this sector.

¹⁰⁸ Overview of the Labour Market of St Vincent and the Grenadines (Statistical Office of SVG, 2015)

Table 17: Unemployment Rate by Age Group and Sex, 2015

Age Group	Total	Men	Women
15-24	45.5	40.5	50.8
25-34	28.6	24.0	33.6
35-54	17.9	13.7	22.8
55-64	18.3	17.1	20.4
65+	20.9	19.6	26.5

Source: Statistical Office of SVG

4.5.3.10 Health

The Ministry of Health, Wellness and the Environment (MOHWE) is responsible for primary, secondary and tertiary health care within nine defined health districts in SVG. This care is provided by a network of institutions based including 39 primary care health centres, each of which serves a population of approximately 2,900 persons¹⁰⁹. The primary care services available include emergency care, medical care, prenatal and postnatal care, midwifery services and child health services including immunization school health, family planning services, communicable and non-communicable diseases control¹¹⁰. Family Nurse Practitioners are primarily responsible for school health and diabetic and hypertensive care. In addition to medical health there is a school feeding programme that targets children from financially challenged families¹¹¹. Secondary care is provided at the Milton Cato Memorial Hospital (MCMH), which is the only public acute care referral hospital. The delivery of care is organized into seven departments; these are Accident and Emergency, Out-patient Department, Surgery, Medicine, Operating Theatre, Pediatric and Obstetrics/Gynecology¹¹². There are also five rural hospitals that are able to provide a minimum level of secondary care.

A public Mental Health Centre and the Lewis Punnett Home provide care for the indigent elderly population and physically and mentally challenged adults. Community-based mental health services are delivered by staff from the Centre through scheduled clinics in five locations and home visits. There are no specialist services for children and adolescents with mental disorders. NGOs, such as the Marion House (a centre that provides substance abuse counselling), the Salvation Army, and churches provide services for vulnerable populations that

¹⁰⁹ Health Systems Services Profile St. Vincent and the Grenadines (Pan American Health Organization (PAHO), 2010)

¹¹⁰ Strategic Plan for Health St. Vincent and the Grenadines (MOHWE, 2007)

¹¹¹ National Report SVG Third International Conference on SIDS (Ministry of Health Wellness and the Environment, 2013)

¹¹² IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

include persons with mental illness¹¹³. In addition to public institutions, there are five private resident elderly care facilities. There has been a general increase in utilization of private health care facilities because of their technological advancement, shorter wait time and capacity for specialist services¹¹⁴.

Key health indicators for SVG are mainly positive (Table 18). In particular, infant mortality has been reduced and life expectancy at birth is approximately 74 years. There is also full immunisation coverage for children under 5 and maternal deaths are very low¹¹⁵.

¹¹³ WHO-AIMS Report on Mental Health System in Saint Vincent and the Grenadines (WHO and MOHWE, 2009)

¹¹⁴ Health Systems Services Profile St. Vincent and the Grenadines (Pan American Health Organization (PAHO), 2010)

¹¹⁵ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

Table 18: Health Indicators, 2016

Indicators	Estimate
Life Expectancy at Birth (in completed years) (the average number of years that a newborn could expect to live if he or she were to pass through life subject to the age specific mortality rates of a given period)	73
Male	71
Female	75
Perinatal Mortality Rate per 1,000 Live Births (The number of perinatal deaths per 1000 total births. A perinatal death is a fetal death (stillbirth) or an early neonatal death)	24.9
Infant Mortality Rate per 1,000 Live Births (The number of deaths to infants under 1 year of age per 1,000 live births in a given year)	16.6
Child Mortality Rate per 1,000 Live Births (The number of deaths of children before reaching age five per 1,000 live births under current age-specific mortality patterns)	16.9
Still Births (count) (A stillbirth is a baby born with no signs of life at or after 28 weeks gestation)	23
Total Fertility Rate (The average number of children that would be born to a woman by the time she ended childbearing if she were to pass through all her childbearing years conforming to the age-specific fertility rates of a given year)	2.1
Registered Nurses per 1,000 population	4.5
Immunisation Coverage in infants less than 1 year (%)	
DPT (%)	100
OPV (%)	100
BCG (%)	100
MMR 1 (%)	100
MMR 2 (%)	99
Births Attended by Skilled Personnel (%)	98.6

Source: Statistical Office of SVG

A health issue of concern is the increase in lifestyle-related diseases, as expected from a population of an increasingly developed country with an increased life expectancy. Chronic

non-communicable diseases now account for most of the deaths in SVG, both male and female (80% in 2004).

HIV/AIDS

HIV/AIDS is an increasing health threat to the population leading to significant financial, human and technical resources being expended to treat these diseases. Regional efforts are being made with respect to HIV/AIDS management with international assistance (financial, human and technical resources)¹¹⁶. This has led to a regional decline of 49% in infections since 2001¹¹⁷. The number of documented cases of HIV as at 2004 was 796; 54% of which were AIDS cases and total deaths were 405. For the period 1984 to 2017, there have been a total of 1,545 HIV cases, 910 male, 577 female and 18 unknown; of these there have been 736 deaths¹¹⁸. The male to female ratio in 2004 was 1.7:1 with heterosexual contact as the most common form of transmission.

AIDS-related deaths account for about 5% of total deaths annually, with male deaths responsible for about 66 % and female deaths about 34 %. Approximately 60 % of AIDS-related deaths occur among the age-group 25-44 years. Based on 2004 data, HIV cases were dominated by males in all age groups, except the paediatric group, 15-19 and 65-69 age groups. 70% of cases were within the 20-44 age group; 6% within the teenage group and 4% of pediatric cases¹¹⁹. As of 2009, a total of 1,093 persons have been diagnosed with HIV/AIDS since its first incidence in 1984. The number of HIV cases reported in 2010–2011 and 2012–2013 remained relatively constant at 103 and 108, respectively¹²⁰. In 2018 there have been 39 new HIV cases, of which 26 are males and 13 females¹²¹.

The Ministry of Health, Wellness and the Environment implements the HIV/AIDS/STI Prevention and Control Programme, which includes awareness raising activities. The HIV and Aids National Strategic Plan 2010-2014 also included awareness raising as a key intervention. Given the higher number of males with HIV, such outreach should continue, or increase, focus on males.

Child Abuse

Child abuse is often unreported in SVG, nevertheless there has been an increase in the reported cases. Five residential institutions or homes shelter children who face sexual/physical abuse, neglect, abandonment, or homelessness. For the period 2011-2015, 251 cases were reported and 143 children were placed in these homes. Incidents often involve the same child, which accounts for the variation in number of cases and number of children placed in care. The reported cases for 2014 and 2015 were primarily neglect and physical and sexual abuse with

¹¹⁶ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

¹¹⁷ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

¹¹⁸ Data from HIV/AIDS/STI Prevention and Control Unit, 2018

¹¹⁹ Strategic Plan for Health St. Vincent and the Grenadines (MOHWE, 2007)

¹²⁰ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

¹²¹ Data from HIV/AIDS/STI Prevention and Control Unit, 2018

more female than male victims (95% of sexual abuse cases reported in 2015 were female)¹²². For the period 2016 to 2018, a further 97 cases of domestic violence against juveniles were reported¹²³. There are several programmes conducted by the Child Development Division and other government agencies, as well as NGOs and faith-based organization, such as the Marion House. These include sessions on parenting skills, child protection parenting sessions and programmes that focus on parents of high-risk children and/or children who are already in ‘the system’ due to care and protection issues¹²⁴.

Adolescent Pregnancy

The adolescent (15-19 years old) pregnancy rate is relatively high in SVG, 51.7 births per 1,000 in 2014 and 49.3% of women reported having their first pregnancy as adolescents and 2.5% before the age of 15. Despite the access to contraceptives and available information on sexual and reproductive rights, the 2012 Housing and Population Census still noted that 16.9% of births were to adolescents. SVG has been listed by the United Nations Population Fund as having one of the highest rates of teenage pregnancy in the Caribbean. High rates of teenage pregnancy have important implications for the health and education of girls and the development of the country in general. The Ministry of Health, Wellness and the Environment continues to provide sexual reproductive health (SRH) care services to the population including teenage pregnancy prevention, contraceptive distribution and education. Access to contraceptives and other aspects of SRH care and services for adolescents is restricted as they require parental approval to access such services and most schools do not offer comprehensive sex education¹²⁵.

International studies have confirmed that many pregnant and parenting teens feel stereotyped and stigmatised, which may interfere with their personal well-being and the well-being of their children¹²⁶. The programme implemented by the Gender Affairs Division, in collaboration with the Ministry of Education, has created opportunities for ensuring equal opportunity for teen mothers. School places are being guaranteed for these young women who would have had to terminate their school life as a result of pregnancy. Alternatively, they can participate in the continuing education programme and enrol in courses that allow them to attain their certificate of completion and sit for exams. Government programmes provide support for fees associated with these courses and for childcare that allow young mothers to gain employment and independence. The Marion House also offers parents between the ages of 15 and 25 a chance to improve their parenting skills and rebuild self-esteem and confidence through the Young Parents’ Empowerment Programme.

Further possible national interventions to address teenage pregnancy include:

¹²² IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

¹²³ Data from Gender Affairs Division of SVG, 2018

¹²⁴ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

¹²⁵ IMF Country Report No. 17/400 Situation Analysis of Children in Saint Vincent and the Grenadines (UNICEF Office for the Eastern Caribbean Area, 2017)

¹²⁶ Differential social evaluation of pregnant teens, teen mothers and teen fathers by university students (K. Weed and J.S. Nicholson, 2014)

- training for teachers to help them form positive relationships with young people and to resolve conflicts,
- protecting young people from bad experiences of work (e.g. low wages),
- creation of more employment opportunities in disadvantaged communities,
- interventions to prevent domestic violence,
- interventions to improve housing,
- mentoring schemes for young men.

Other possible strategies for supporting young parents include:

- anti-discrimination policy and practice for schools and other professional services,
- raising the availability and standard of temporary accommodation and housing,
- new employment opportunities,
- acceptable, affordable and reliable childcare provision,
- safe, inexpensive forms of credit,
- flexibility in timing of return to education and employment.¹²⁷

4.5.4 Gender and Social Profile

Women continue to be one of the vulnerable groups in SVG and poverty is gender-based as young females represent approximately 53% of the country's unemployed. The Gender Affairs Division supports the mainstreaming of gender and other programmes within SVG. They also provide assistance to mothers and assist teenage mothers to return to school by providing day care, meals, transport and other assistance¹²⁸. The legislation described earlier in this report has improved women's support and empowerment in dealing with family maintenance and domestic violence complaints¹²⁹. The National Council for Women (NCW) is the civil society body involved with training, youth organising, counselling and general welfare support to women.

Gender Equality

There is gender equity in SVG with respect to equal opportunity, entitlement and access to:

- primary and secondary education,
- health care,
- social security,
- social, financial and legal services,
- employment,

¹²⁷ Young people, pregnancy and social exclusion: A systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support (Harden A, Brunton G, Fletcher A, Oakley A, Burchett H, Backhans M, 2006)

¹²⁸ Gender Affairs Division, SVG, 2018, personal communication

¹²⁹ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

- information and communication,
- utilities,
- property ownership,
- inheritance and tenure.

However, males are under-represented in post-secondary education and the range of jobs available tends to reinforce gender stereotypes. Women continue to be the primary caregivers in addition to being primary or sole (>40% of households) income earners in many households. Despite this, men have not assumed additional responsibility as caretakers¹³⁰. Mothers who are employed, particularly in the tourism sector, work long hours with no day care of their children, who are often left on their own. Average income for work is also lower for women than for men, even when they are in the same occupational category (Figure 43), such that female headed households always receive lower incomes than male headed households¹³¹. Females also have lower, but increasing (58.7% in 2015), labour force participation rates than males, indicating that this gender gap is decreasing. Possible factors that may affect women's participation could be discrimination, education, unpaid care work and work-family balance. Unemployment rates were also generally higher for women in 2015. Despite increased education and employment, there remains under-representation of women in most areas of paid employment¹³². On an international level, poverty levels and vulnerability continue to be highly correlated with gender.

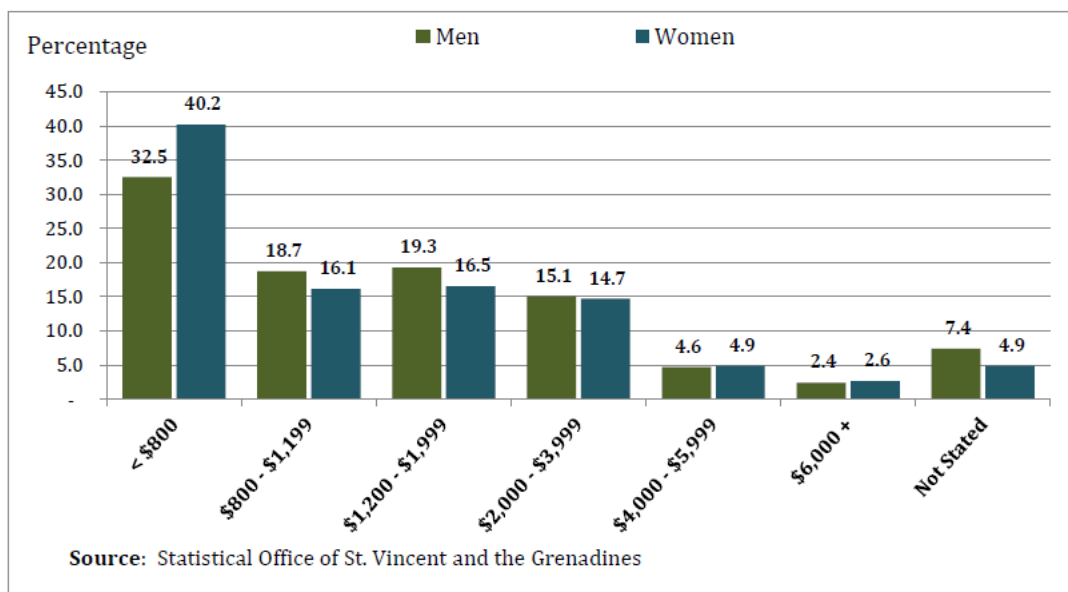
Ensuring that women are represented in leadership and decision-making roles is important to advancing gender equality. Women were employed as managers and professionals in human health and social work activities (82.8%), education (73.1%), accommodation and food service activities (62.7%) and public administration and defence (54.4%), more than men. Although women made up 11.4% of the total construction industry, they represented 20.4% of managers. In addition, women made up 50.1% of the total wholesale and retail trade industry, but 42.7% of managers and professionals. In 2015, employed women in St. Vincent and the Grenadines were more likely than employed men to be engaged in formal employment and to benefit from social protection. 57.4% of employed women benefited from paid annual leave, compared with 38.7% of employed men. Likewise, employed women were more likely than employed men to be entitled to insurance benefits from National Insurance Services (NIS), as 72.5% of employed women were entitled, compared with 58.4% of employed men. On the other hand however, men were more entitled to benefit from other types of insurance (6.5% versus 4.4%).

¹³⁰ Country Strategy Paper St. Vincent And The Grenadines (2014-18) (Caribbean Development Bank, 2014)

¹³¹ Gender Profile: St. Vincent and the Grenadines (Commonwealth of Learning, 2015)

¹³² Overview of the Labour Market of St Vincent and the Grenadines (Statistical Office of SVG, 2015)

Figure 43: Employed Population by Gross Monthly Income for Main Job, 2015



Source: Statistical Office of SVG

There remains low participation of women in decision-making and the political arena with 19 men (83%) and four women (17%) in parliament, and nine males and one female in Cabinet. Women in SVG have also been able to attain top administrative posts especially in the public service such as the diplomatic service and the judiciary. There has been increased representation of women on government-appointed public sector boards from 18.7% of seats (46) in 1994 to 28% of seats (197) in 2014¹³³.

Gender-Based Violence

Gender-based and sexual violence are of serious concern in SVG, with the main victims being young, unemployed women between 13-34 years of age. Domestic violence in SVG is usually perpetrated on women (72%) by men (83%). This abuse is usually physical, and to a lesser extent sexual, which occur on an equal basis at home (51%) and in public (44%). Older females were generally abused by a domestic partner and males were likely abused by a stranger, whereas young people were abused by individuals unrelated to them¹³⁴.

For the period 2009 to November 2018, 1,074 cases of domestic violence were reported to the police of which female victims accounted for 778 cases and male victims 290 cases; in six cases it was not stated whether the victim was male or female. Approximately 19% of the victims were juveniles. Of the 1,074 cases of domestic violence, there were 785 physical offences, 178 sexual cases, eight verbal and 103 other cases. Among females, of the 778 cases, 510 were physical cases, 181 were sexual cases, eight were verbal cases and the rest

¹³³ Country Strategy Paper St. Vincent And The Grenadines (2014-18) (Caribbean Development Bank, 2014)

¹³⁴ Caribbean Development Bank Country Gender Assessment St. Vincent & The Grenadines (Rawwida Baksh and Associates, 2015)

were other cases. The perpetrators were 102 adult females, 888 adult males, 57 juveniles and 27 for which gender was not stated¹³⁵.

The Gender Affairs Division implements preventative, rehabilitative and supportive programmes, such as the anti-violence programme, the Men As Partners (MAP) programme, rehabilitative programmes for perpetrators of domestic violence, and support groups for the victims of domestic violence. As gender roles change, especially amongst the poor, a sense of male powerlessness may lead to increased domestic violence. The Gender Affairs Division, Family Services Department, and Marion House provide counselling and education services for victims. Police officers have also been trained on gender sensitisation and handling of domestic violence cases. There is also one government-operated shelter for victims of domestic violence. In addition, in November 2017, Cabinet approved the establishment of the National Commission on Gender-Based Violence that serves as a national oversight body for gender-based violence in SVG, and there is a National Gender-Based Violence Action Plan.

Table 19: Reported Cases of Gender-based Violence by Gender of Victim 2009-2018

YEAR	GENDER OF VICTIM		TOTAL NUMBER OF CASES*
	Male	Female	
2009	0	2	02
2011	0	2	02
2012	18	30	48
2013	44	128	172
2014	32	110	142
2015	8	26	34
2016	11	25	36
2017	93	281	374
2018	84	174	258
Total	290	778	1,074

*Total includes six cases for which gender was not stated.

Source: Gender Affairs Division

The Gender Affairs Division also commemorates the 16 Days of Activism Against Gender-Based Violence during the period November 25th – December 10th, 2018. Activities included a three-day training workshop to sensitize key stakeholders on the Domestic Violence legislation, protocols and procedures in responding to reports of domestic violence. On November 19th, 2018, the Gender Affairs Division commemorated International Men’s Day under the theme “Men Leading by Example”. 7 men in 2 urban communities were recognized for their

¹³⁵ Data from Gender Affairs Division of SVG, 2018

contribution in Community, Sports and Youth Development. These men – and men in general - can be used as partners in the fight against gender-based violence in SVG; including men and boys within any kind of activities to reduce gender-based violence is necessary, not only as a prevention strategy, but to take advantage of their participation for replication and word of mouth campaigns. Discourse on violence against women must include domestic violence, the social reproduction of unequal power between men and women and the need to develop preventative mechanisms at household, community, and national levels.

Youth

Youth (15-29 years) are among those with relatively high unemployment rates within the SVG national economy. This is of concern to the country and the Youth Affairs Division guides youth development programmes to provide life skills and socialisation to the youth of SVG. One such programme is the Youth Empowerment Service (YES) programme, which started in 2001. Under this programme, participants are sent to public and private organisations for a period of 6 to 12 months. They receive a monthly stipend and on-the-job training including such skills as: basic laboratory procedures; physiotherapy; dental care; child development; hospitality and clerical duties. A certificate is issued at the end of the programme, which can be leveraged into further education or more permanent employment. More than 3,000 young people have benefited from this programme¹³⁶.

Persons with Disabilities (PWDs)

There are approximately 4,717 PWDs in SVG; 2283 males and 2434 females¹³⁷, of which 83 are members of the National Society for PWDs. In the Kingstown Census Division, there are 592, 278 males and 314 females¹³⁸. PWDs are protected under the laws of SVG against discrimination for employment, access to health care, the judicial system, or the provision of other state services. However, the law does not mandate access to buildings for PWDs, and government funding for organizations supporting PWDs was insufficient to meet their needs. The GOSVG makes a concerted effort to recruit and hire PWDs through programmes such as YES. Education is provided until age 21 for PWDs and the government partially supports a separate school for PWDs. The Ministry of National Mobilization, Social Development, NGO Relations, Family, Gender Affairs, and Persons with Disabilities is responsible for assisting persons with disabilities¹³⁹.

There are issues of universal access, lack of signage and parking for PWDs throughout SVG, including within Kingstown and at the port and cruise ship complex. Transportation is also a challenge as there are only two wheelchair accessible buses run by the government and two privately run vehicles by the Helping Hands Centre. The van at Arnos Vale is for medical emergencies only so PWDs must have private transport or someone to assist them with public transport. The inter-island ferry is also not easily accessible since the fast ferry, which was wheelchair accessible, is not currently operating. The normal ferries are accessible by car but

¹³⁶ SVG National Economic and Social Development Plan 2013-2025 (GOSVG, 2013)

¹³⁷ Data from Statistical Office of SVG, 2015

¹³⁸ Data from Statistical Office of SVG, 2015

¹³⁹ Saint Vincent and The Grenadines 2016 Human Rights Report Country Reports on Human Rights Practices for 2016 (United States Department of State, 2016)

persons are not allowed to stay in their vehicles during the trip and without access to passenger areas, PWDs cannot use these ferries. Besides the special education school in Kingstown, there are PWDs in primary and secondary schools throughout SVG. However, tertiary education is not available in SVG for PWDs. Skills training is provided by the National Society for PWDs whereby stipends are provided for attendees and trainers are hired to instruct on sewing, home economics and other income-generating skills¹⁴⁰.

Poverty

SVG has a moderate Human Development Index of 0.722 and an overall rank of 99¹⁴¹. However, according to the 2007-2008 Country Poverty Assessment, there was a poverty index for this same period of 30.2%, which was still a decrease as compared to 37.5% in 1996. The indigence level was also reduced, going from 25.7% in 1996 to 2.9% in 2008. Despite these reductions, the assessment found that approximately 50% of the population was either poor or at great risk of falling into poverty. In particular, rural communities, single parent households, large families and banana farmers were at greatest risk. The Housing and Land Development Corporation has provided houses for individuals in need including no-income houses for the underprivileged, low income houses and middle income houses. Since 2002, the corporation had built more than 350 houses for residents of SVG¹⁴².

4.5.5 Historical and Archaeological Sites

Historical and sites of archaeological significance are located within Kingstown where many buildings were built in the 19th century. St Mary's Catholic Cathedral of the Assumption and the St George's Anglican Cathedral were both built in the 1800's. The Kingstown Methodist Church was built in 1790 by Methodist missionaries who purchased an old Roman Catholic Church. The old library, the Carnegie Building on Halifax Street was built in 1909 and was declared a protected National Heritage Site with effect from February 4th 2009. Other heritage buildings in Kingstown are the Court House, Kingstown Police Headquarters and the Peace Memorial Hall¹⁴³.

¹⁴⁰ National Society for PWDs, SVG, 2018, personal communication

¹⁴¹ <http://hdr.undp.org/en/countries/profiles/VCT#>

¹⁴² National Report St. Vincent And the Grenadines Third International Conference on Small island Developing States - National report (Ministry of Health, Wellness and the Environment, 2013)

¹⁴³ <http://discoversvg.com/index.php/es/stvincent/around-st-vincent/kingstown/255>

Figure 44: Typical Houses in Rose Place



Source: HPC, 2018

Within Rose Place, Nine Steps has been a site of curiosity for both visitors and nationals for many years. The community itself is old and one of the original residential areas of Kingstown. The houses are mainly wooden, brightly coloured and some have intricate fascia boards and lattice work. Recently, the National Trust has cited the community as one of architectural and cultural significance. The Trust intends to undertake a restoration process of these buildings and has identified several buildings for rehabilitative work, none of which are located along the bayfront area. These sites of historical significance should not be affected by the project.

4.5.6 Affected Community and Groups

4.5.6.1 Rose Place

Location and Households

Rose Place, better known as “Bottom Town”, is a small community located at the extreme western corner of Kingstown Bay on the northern end of the city of Kingstown. The community lies between Tyrell Street (or Back Street) to the north and McCoy Street to the east and Kingstown Bay to the south (Figure 45). To the west of Rose Place is the village of Edinboro. According to the 2012 Population and Housing Census there are 225 residents distributed among 85 households; of these, 97 are females and 128 are males¹⁴⁴. Rose Place has extended seaward, with squatters now residing on the Bay. The smaller group, located in the western corner of the community, has resided there for over three generations. The second group occupies the frontage along the Bay towards the east and is larger and more recent but have still been there for more than 10 years in most cases. There are approximately two dozen families or groupings within this latter group and eight within the former. This means that the population is relatively mature and in- and out-migration may not be as frequent as was previously assumed. The length of time that residents have said that they have lived in Rose

¹⁴⁴ 2012 Population & Housing Census Preliminary Report (SVG Statistical Office)

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

Place indicates that there is a stable resident base. The location of Rose Place also means that it is susceptible to natural disasters; the staff of NEMO for several years has engaged the community of Rose Place in disaster preparedness training/exercises. NEMO, along with the community, developed an evacuation plan and signs have been created and are ready to be installed.

Figure 45: Location of Rose Place



Source: CERMES

Many of the houses along the Bay are subdivided and occupied by multiple families, the heads of which are usually related, for example mother and daughter or siblings would share a subdivided building. Many households in Rose Place are headed by women and the average household size was about four. Although these houses are squatter dwellings, most have electricity and some also have cable TV, internet/WiFi and running water but without in-door toilets. There are other more permanent structures along the sea-side of Lower Bay Street, which include the shop, the Goodwill Fishermen’s Cooperative and the storage rooms for fisher folk¹⁴⁵. The Goodwill Fisherman’s Co-operative, which was the only one in the area, is no longer operational. Home ownership in Rose Place is low (56.7%) with a high proportion of household being headed by females. Rose Place is considered to be one of the communities in SVG where poverty is prevalent (~75% of the community earns less than \$250 XCD per month). There are few indoor toilets or proper garbage disposal facilities; most residents use public water facilities (~61%), baths and toilets.

¹⁴⁵ Port Rationalisation and Development Study Final Report (Mott MacDonald, 2015)

Figure 46: Houses along Lower Bay Street in Rose Place



Source: HPC, 2018

Livelihood

The community is traditionally a fishing village with 150 fisher folk, many of whom reside elsewhere but operate their fishing activities from the village, some are boat owners but the large proportion are crew members. At least two women from the community have indicated that they fish/own boats. There are over 50 fishing boats that are hauled up on land or moored along the water front (Figure 47). Fishing activity at Rose Place makes a significant contribution to the Kingstown Fishing Industry and Fish Market¹⁴⁶. Residents generally assist with the mooring of boats and are given fish from owners of boats whenever there is a catch. There are also residents who engage in subsistence fishing and who sell the excess to restaurants. Other activities related to fishing that are conducted in the village are the maintenance of pirogues and boat engine repair the repairs of engines¹⁴⁷. A storage facility was constructed by the GOSVG, with a total of 12 lockers storing fishing gear and other equipment but this capacity was quickly exceeded. The fisher folk then constructed approximately 45 wooden houses or structures along the beach front to store equipment but many use them for living or sleeping quarters as necessary.

There are other activities that lead up to the annual Fisherman's Day that involve the community including:

- Worship Day- where fisher folk attended church services in the area
- School's Day - gifts were given to Pre School in Rose Place and the Catholic Church soup kitchen
- Health Day- where fisher folk and members of the community were given free consultation on health issues and had their blood pressure and glucose level checked

¹⁴⁶ Fisheries Division, SVG, 2018, personal communication

¹⁴⁷ Port Rationalisation and Development Study Final Report (Mott McDonald, 2015)

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

- Safety Day - Safety lectures were held by the Red Cross Association
- Fish Night - Sale of fish dishes
- Kids' Fun Day - swimming competitions, shore fishing competition and beach volley ball.

The coast and sea are used for storing boats and fishing but residents also use the beach for recreation and sports¹⁴⁸

Figure 47: View along the Bay at Rose Place Showing Fishing Boats



Source: HPC, 2018

Many households have only one wage earner and a few have secondary income earners. Males from Rose Place have found employment at Port Kingstown in the past but with the decline in the agricultural industry, unemployment in the village is high. Literacy rates are also low (58% attained primary level schooling) and the area is subject to drug use and gambling by residents. Other businesses or forms of employment include: auto-mechanic shops; taxi services; the selling of meals from kitchens; push cart operator; and the retailing of dry goods. Other residents earn their income as employees of the Government and the private sector, whilst others are engaged in vending of small items such as cigarettes from their homes. There are a scattered number of businesses and government offices within and on the borders of the community, including a gas station, a hardware store, shops, and a laundry. Additionally, the Youth Affairs Division building and some churches also share the area. Some residents also

¹⁴⁸ Youth Affairs Division, SVG, 2018, personal communication

work in trades such as masonry, welding and carpentry. Gambling is seen as a secondary means of earning income, mainly by men. Men are also more likely to be employed outside the home (67%).

Social Issues

Approximately 18% of Rose Place residents had completed secondary school, which is low when compared to the national average of 22%. 12 young people from Rose Place and Ottley Hall have participated in the YES programme over the past 12 months, which ended in August 2018. These participants were all female within the 16-29 age range¹⁴⁹. One individual from the YES programme was employed at the Port in the past. Community members indicated that some school aged children are not able to attend school every day because of a lack of money but all others who attend primary school go to school daily. Domestic and gender-based violence is not considered to be prevalent in their community by the women of Rose Place who were engaged during community walks and focus group meetings. They indicated that neighbours may have conflicts but these do not turn violent. This is supported by the fact that in 2016, of the cases reported to the police, 2.7% of the domestic violence cases reported nationally and 0% of child abuse cases were reported to have occurred in the community of Rose Place¹⁵⁰.

In addition, for the period 2015 to 2018, of 75 teen pregnancies reported to the Gender Affairs Division, only 1 teen pregnancy was from Rose Place¹⁵¹. There are females and single parents from Rose Place who are vendors (either from their homes or on the streets of Kingstown). These women “hustle” by selling snacks, braiding hair, cleaning and selling drinks from coolers but are not permanently employed so that they subsist only¹⁵². There are also PWDs who reside at Rose Place; two of which are females who sell in the Kingstown Fish Market and on the streets to provide for their families¹⁵³. Positive social measures have included “homework help” by a young person in Rose Place to younger children. Programmes implemented by the Urban League within the community, such as sports, cultural and “summer” programmes. They also supply school material and donations to the community, as well as hold festivals at Ottley Hall, which Rose Place youth would attend. There are proposals for after school sessions that may be held at the Soup Kitchen, which is a hub for religious and community activity¹⁵⁴. There is adequate access to health care (facilities and personnel) since Rose Place is in close proximity to the hospital.

Community Mapping

Participants were asked to illustrate on the maps provided households within their community that may be affected by the project and number of household members divided into male and female. Table 20 shows the results of the exercise and the number of the identified buildings is labelled as depicted on the map in Figure 48. This exercise allowed for a preliminary

¹⁴⁹ Youth Affairs Division, SVG, 2018, semi-structured interview

¹⁵⁰ Rose Place Social Assessment (M. Finch-Burke, 2018)

¹⁵¹ Data from Gender Affairs Division, 2018

¹⁵² National Council of Women, SVG, 2018, semi-structured interview

¹⁵³ National Society for Persons with Disabilities, SVG, 2018, semi-structured interview

¹⁵⁴ Urban League, SVG, 2018, semi-structured interview

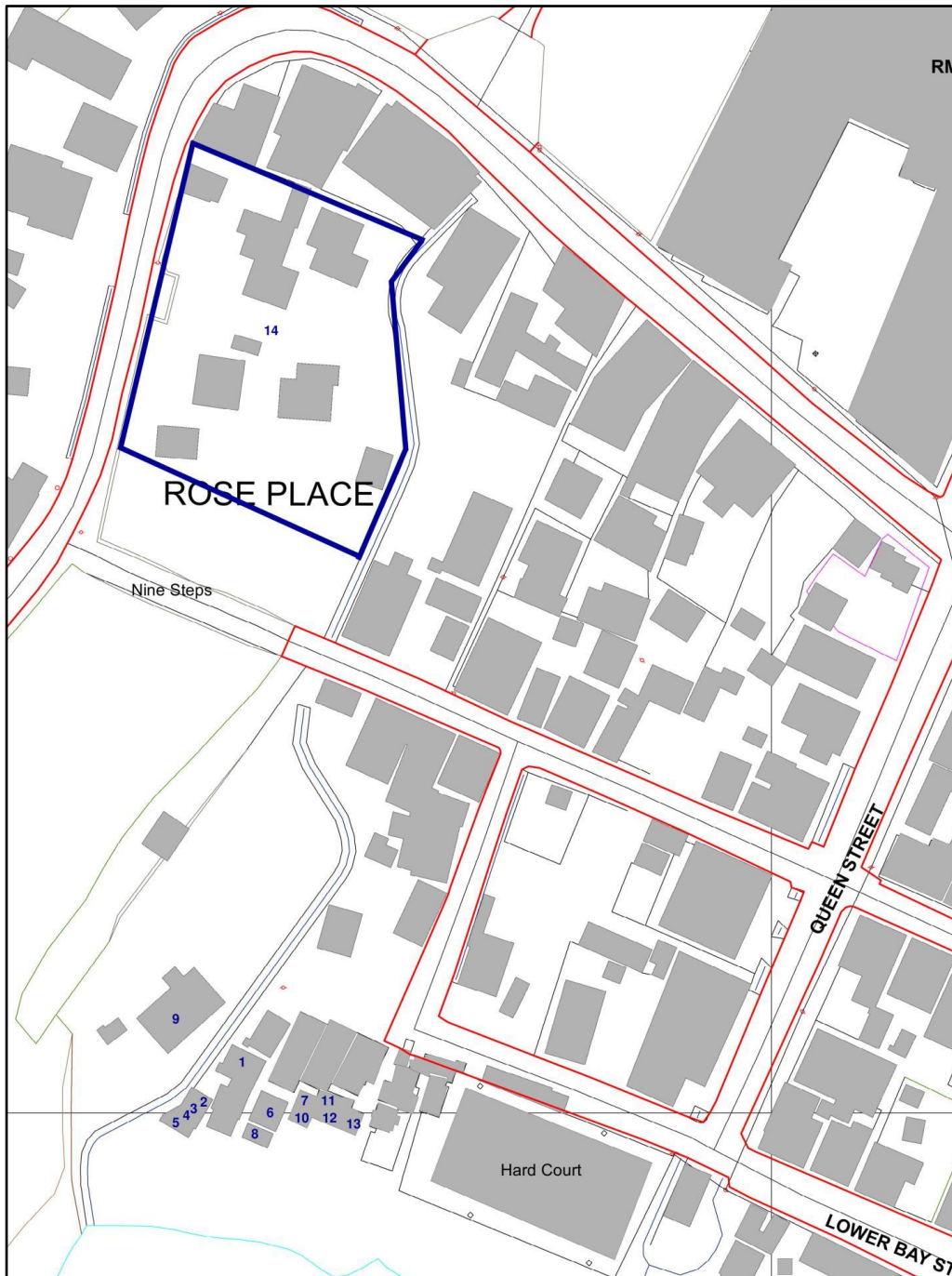
assessment of households that are located in Rose place and in particular, those along the bay front.

Table 20: Rose Place Community Mapping Exercise

Building/Region Number	Household Profile
1	Welcome Family (Extended family) Males - 7; Females - 1; Children school age - 3; 2 secondary, 1 primary
2	Belgrave Family (Single parent family); Females - 2; Children school age - 1
3	Single parent family Females - 1 Males - 1
4	Extended family Females - 3 Males - 3 Children school age - 3; 1 secondary, 2 primary
5	Single parent family Females - 2; Males - 2; Children school age- 2; secondary
6	Single parent family Males - 2
7	Males - 1; Females - 1
8	Males - 3; Female - 1; School-aged Children - 2; secondary
9	Brothers and sister; Males - 2; Females - 1
10	Nuclear family; Male - 3; Females - 1
11	Males - 1
12	Males - 1
13	Males - 1; Females - 3
14 (Nine Steps Area)	27 males; 32 females; 15 school children; 2 retirees; 1 business; 12 unemployed; 20 employed

Source: Primary Information from Community Meeting 31 May, 2018

Figure 48: Community Map of Rose Place Focusing on the Bay Front Area, Lower Bay Street



Source: Women of Rose Place Community Meeting, 2018

The GOSVG has since determined that “one hundred and five (105) persons, the equivalent of thirty-two (32) businesses and thirty-four (34) households, reside on the bay front”¹⁵⁵. This is the area that will be affected by relocation when that particular phase of the project is

¹⁵⁵ Rose Place Social Assessment (M. Finch-Burke, 2018)

implemented. Of the affected residents, 48.6% are self-employed, 7.6% are elderly, 23.8% are children, and 1.9% are PWDs¹⁵⁶. The residents of eighteen of these households along the bay front were profiled in greater detail, there were 8 couples, 5 single female headed households and 5 single male headed households, including 1 elderly male. Among the eighteen houses, there are forty one children, 5 of whom attend secondary schools that are accessible by walking or a 15-minute bus ride. 4 of the children are too young to attend school and the rest attend primary school, mainly at the Kingstown Anglican School.

One young man indicated that he will be attending a skills training programme that is run by Marion House in January, whereas 2 youths had dropped out from secondary school and were not engaged in any programmes or jobs. One young female indicated that she had dropped-out of school due to pregnancy. Four of the adults are employed full time; 2 married females and 2 single men. The other adults work as casual labourers/workers and small/micro business operators. The businesses include 3 shops and 2 vending structures, referred to as “parlours”. There are 2 other adults who sell from their homes or travel into central Kingstown and sell from a tray or mobile trolley.

4.5.6.2 Kingstown Vendors and Taxi Drivers

Based on an inventory conducted by the Kingstown Town Board, there are at least 87 vendors who ply their trade in Little Tokyo, of which 41 are along seawall. There are 27 tent-like structures along the seawall and 17 in Little Tokyo. This figure is probably higher since not all vendors were captured in the inventory and has been estimated at more than a hundred. These vendors are approximately equally proportioned, with both females and males representing 50% of vendors. The vendors sell food, drinks, snacks and other small items; gambling was also observed at the stalls, which are called “bars” where alcoholic beverages are sold. Prostitution and drugs were also reported as occurring at these stalls¹⁵⁷.

Vendors along the seawall have stated that they have been there for over 20 years but were generally resigned to the possibility of relocation. Although there are plans to relocate 150-200 street vendors, who are primarily female, to an area opposite the Central Market, the Little Tokyo seawall and Rose Place vendors were not included in these plans. There are also six small shops near the Leeward Bus Terminal that pay dues to the Town Board. The Leeward and Windward Bus Terminals are also in this area where approximately 10 government long-haul buses are parked¹⁵⁸.

¹⁵⁶ Rose Place Social Assessment (M. Finch-Burke, 2018)

¹⁵⁷ National Council of Women, SVG, 2018, personal communication

¹⁵⁸ Kingstown Town Board, SVG, 2018, personal communication

Figure 49: Vendors Along the Seawall (Foreshore Road) in Little Tokyo



Source: HPC, 2018

The taxi drivers of Kingstown, 73 of whom belong to the SVG Taxi Drivers Association, face high levels of traffic and are concerned that the continued centralization of activities in Kingstown would lead to further bottlenecks and delays; this would affect their time and cost. The taxi drivers are in favour of separating the cruise ship and inter-island ferries to alleviate traffic issues since trucks and other large vehicles come into Kingstown from the Grenadines. The number of taxi parking spots in Kingstown is very limited with 20-25 spaces by the financial complex, 11-12 on South River Road, 8 in front of Greaves and others located outside of Kingstown. Street vendors occupy the parking spaces and protrude into the roadways so that taxi drivers are unable to access their spots and passage of vehicles is both difficult and more dangerous, especially on Fridays and Saturdays.

The taxi drivers are primarily male with three females in the Association and two additional females who do not belong to the Association. Taxi drivers are somewhat afraid to work in Kingstown at night due to high levels of crime, mostly theft and violence that has occurred in the past. The advantages of the new airport have not been realized since the number of flights has not increased and additional costly fuel is required to travel the additional distance to the Argyle airport¹⁵⁹.

¹⁵⁹ SVG Taxi Drivers Association, SVG, 2018, personal communication

5. IMPACT IDENTIFICATION AND EVALUATION

5.1 Environmental Impacts

5.1.1 Significance Ratings

An environmental impact is defined where an interaction occurs between a project activity and an environmental receptor. Impacts are generally ranked according to their “significance” determined by considering the impact’s

- Temporal scale (short term, medium term, long term, permanent)
- Spatial scale (localized, project site, regional, national, global)
- Severity (slight, moderate, severe, very severe)
- Likelihood (unlikely, may occur, probable, definite).

Impact significance is subsequently ranked as “Low”, “Moderate”, “High” or “Major”, as presented in Table 21 below.

Significance of an impact also depends on the sensitivity of the receptor. Various criteria are used to determine this sensitivity including, amongst others, rarity (e.g. rare or endangered species), value to other resources (e.g. biotope providing food for species that are not directly impacted by the project), or naturalness.

Impacts can be “positive” or “negative”.

Table 21: Environmental Significance Ratings

Significance	Description
Low	An acceptable impact which is localized, temporary or short term and either unlikely to be detectable or could be effectively mitigated through standard environmental management controls. Mitigation is desirable but not essential
Moderate	An impact which requires mitigation. It extends beyond the project area to the surrounding area but is contained within the region where the project is being developed. The impacts are short term and result in changes that can be mitigated with specific environmental management controls.
High	An impact that is widespread, long term and results in substantial and possibly irreversible change to the environmental value. Avoidance through appropriate design responses or the implementation of site-specific environmental management controls are required to address the impact.
Major	A very serious impact which may be sufficient by itself to prevent implementation of the project. The impact may result in permanent, severe and unmitigable effects.

5.1.2 Construction Impacts

Most impacts resulting from the construction period of the port development project are non-permanent. Typical impacts resulting from port construction include noise, air and water

pollution. They can usually be mitigated with proper construction management and the use of Best Management Practices (BMPs).

At present, only a rough estimate of the duration of the construction work can be made. The estimated time span for those construction works with the greatest potential for impacting the natural or human environment is:

- Dredging: 1 – 4 weeks
- Reclamation: 6 – 9 months
- Sheet Pile driving: 4 – 7 months

Landside impacts on natural environment are not expected; the project site is located in an urbanized area, at the landside there is no natural environment.

5.1.2.1 Noise

Noise impacts occur mainly in the direct vicinity of the construction sites. Construction activities will involve the use of different equipment and methods, and their operation will vary throughout the construction period. The table below depicts an estimate of the typical noise levels of construction equipment. As can be seen from this table, the noise levels will differ, depending on the equipment used. Noise levels also will change according to which of the above mentioned construction phase is involved. Sheet pile driving works, in particular, will result in highest noise levels.

Table 22: Construction Equipment Noise

Equipment Type	Typical Sound Level dB (A) Reference Distance: 15 m
Dump Truck	88
Portable Air Compressor	81
Jackhammer	85
Dozer	87
Generator	76
Pile Driver	101
Rock Drill	98
Pump	76
Pneumatic Tools	85
Backhoe	85

Source: Handbook of Noise Assessments, 1987, May, D.N., Editor, Van Nostrand Reinhold Company, New York

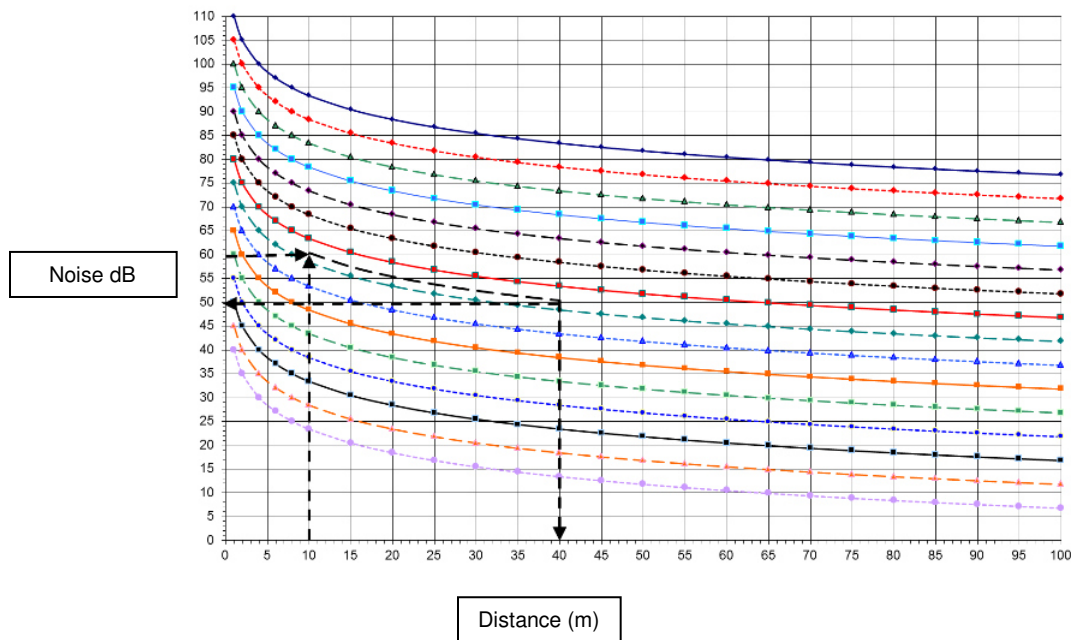
Land-Side Noise Effects

The effects of noise on the surrounding area will vary depending on the noise sensitivity of the receptor. Potential impacts will include annoyance, interference with speech communication, disturbance of work or leisure, or disturbance of sleep, and can have effects on mental and physical health.

The project area is located adjacent to the inner city; residential areas are in its proximity.

With increasing distance from the sound source, noise becomes weaker. According to theory, the reduction in sound level is by 6 dB (A) when the distance is doubled. The Business District, which is directly adjacent to the construction site, i.e. between the construction site and the closest inhabited street (Bay Street), represents a buffer zone of more than 100 m width. It can be assumed that the noise of pile driving, which will be the most noticeable noise source, will be around 75 dB (A) on Bay Street (compare figure below).

Figure 50: Noise Reduction with Distance



Source: Applied Acoustics

The Business District, as the area closest to the construction site, will be most impacted by noise. In this area, there are facilities which are not typically considered to be sensitive receptors, such as the central bus station, the fish market, or the Bayview Carpark. At these areas, there is already a high noise level.

At Bay Street, the background noise level at daytime is generally high and dominated by high levels of road traffic noise (see chapter 4.2.7).

Noise Impacts caused by Construction Works:

Nature: Negative, reversible

Duration: Short to medium term

Likelihood: Definite

Significance (before mitigation): Moderate - High

Noise Effect on Marine Life

Pile driving causes noise and vibrations which can disturb the marine environment and can lead to displacement of fishes and other mobile marine organisms. This impact is reversible, as the noise generation is temporary and mobile organisms usually return to the area once the noise ceases.

Noise Effect on Marine Life:

Nature: Negative, reversible

Duration: Short term

Likelihood: High

Significance: High

5.1.2.2 Air Quality

Construction activities will have an impact on local air quality, caused by the following activities:

- Exhaust of dredging vessel
- Exhaust of vessels delivering the material for reclamation
- Movement of heavy duty construction vehicles on the roads and on construction site.

The composition of emissions from construction activities will be similar to those of cargo vessels (waterside construction) and trucks (construction on reclaimed land). Emissions include PM, CO, CO₂, NO_x, and SO_x. The total emissions depend on the number of vehicles and engines used for the project, their condition, operators' and drivers' behavior, driving style, but also on drivers' training and awareness (a widespread example for low awareness is the vehicle or machine running idle when not in use).

Air pollutants from construction vessels and vehicles will be temporary in nature and limited to the construction site and immediate surrounding area.

At present, exact planning of vehicles and equipment is not possible. Provided that BEP is applied, it can be assumed that the impacts will be moderate.

5.1.2.3 Impacts of Dredging and Reclamation

Impacts on Water Quality

Resuspension of contaminated sediments, which is common water pollution source during dredging works, is considered to be low at the Port of Kingstown, as the sediment consists for the most part of sand and cobble stones. There is a general agreement that pollutants are bound only to the "fine" sediment fraction (grain size < 63 µm) which contain organic material¹⁶⁰. The Draft Geotechnical Survey showed that the sediment at the project site

¹⁶⁰ Hans Goossens and John J.G. Zwolsman: An Evaluation of the Behaviour of Pollutants During Dredging Activities, Terra et Aqua Number 62, March 1996

contains predominantly coarser material, which usually does not bind contaminants. Out of ten boreholes, only the one at the sampling site near the North River outlet has been described to contain grey fine sand and organic matter¹⁶¹.

Dredging and reclamation often have an impact on the water quality in terms of an increased turbidity of the water body. Due to the composition of the sediment, this impact can be considered low. Also, it is temporary and reversible.

Impacts of Dredging and Reclamation Works on Water Quality:

Nature: Negative, reversible

Duration: Short term

Likelihood: Unlikely

Significance: Low - Moderate

Impacts on Marine Flora and Fauna

As mainly sand will be dredged, turbidity is not expected to affect the aquatic life.

The major impact of dredging and reclamation operations will be the complete removal, respectively burial of the benthic organisms (bottom flora and fauna) at excavation and reclamation site.

The diving investigations showed that the project site was well-covered by marine life (see chapter 4.1.2). Although the seagrass meadows consist mainly of invasive species, they are of ecological value. As the seagrass *Halophila stipulacea* is considered an “opportunistic” species with a fast rate of reproduction and growth, a rapid recolonization can be assumed at the dredging site; there, the impact can be considered as reversible, and repopulation of the dredged area by other benthic organisms will follow as soon as the original state of the seagrass meadow is restored.

Therefore, dredging impacts on marine flora and fauna will be medium to low.

At the reclamation area, however, 6.5 ha of seafloor will be permanently lost for any kind of marine life. The loss of the seagrass meadows involves the loss of significant ecological services that the seagrass provides, including:

- High rate of primary productivity with associated nutrient cycling, oxygen release and absorption of CO₂
- Provision of food and habitat for numerous fish, turtles and invertebrates.

The revetment will be lost as a habitat over a length of 380 m. This area is quite well inhabited by various sessile organisms and it provides shelter for a number of fish species and other mobile organisms, among them economically valuable species like rock lobster.

¹⁶¹ Armana, June 2018: Draft Geotechnical Survey, Port Modernisation Project, Kingstown, St. Vincent

The sheet piling will provide a hard substrate on which sessile organisms will settle; however, there will be fewer organisms in number and species, and there will be no retreats for fish, the diversity of the biotope will be substantially reduced.

The decision as to whether the two sides of the terminal (130 m each) will be constructed as rock revetment or will consist of sheet piling had not yet been taken at the time of the assessment.

Impacts of Dredging and Reclamation Works on Marine Flora and Fauna:

Nature: Negative, irreversible

Duration: Permanent

Likelihood: Definite

Significance: High

5.1.2.4 Impacts on Water Quality

In addition to the above potential impacts on water quality caused by turbidity, unintended releases of pollutants from the construction site can affect the water quality of Kingstown Bay. Impacts could result from pollutants released from construction materials and equipment, such as fuels, lubricants, concrete and all types of waste and garbage, as well as sewage that will be generated by the workforce during the construction phase.

The primary mechanism for discharge of pollutants from the construction sites will be in storm water runoff.

Impacts of Construction Works on Water Quality:

Nature: Negative, reversible

Duration: Short term

Likelihood: May occur

Significance (before mitigation): Moderate - High

5.1.2.5 Dust Impacts

Impacts on the Surrounding Area

Dust generation can result from on-site activities, such as the breaking-up of materials and the movement of soil. Dust impacts are related to:

- Activities undertaken
- Duration of activities
- Prevailing meteorological conditions (wind speed, direction and rainfall)
- Proximity and sensitivity of receptors.

Reclamation works are not expected to generate dust, as the material used for the fill is generally wet.

Construction works on the reclaimed area can generate fugitive dust emissions, which can cause air quality impacts in the immediate vicinity of the site. These impacts will be temporary and can be kept to a minimum through use of BEPs.

Dust Impacts of Construction Works:

Nature: Negative, reversible

Duration: Short term

Likelihood: May occur

Significance (before mitigation): Moderate

Impacts on Construction Workers

Dust from construction works will primarily impact workers' health.

The main types of construction dust harmful to workers' health include:

- Silica dust, created when working on materials such as concrete
- Wood dust, created when working on softwood, hardwood and wood-base products like plywood
- Lower toxicity dusts, created when working on materials containing little or no silica including gypsum, plasterboard, paving stones or limestone.

Workers on the construction site exposed to these types of dusts are taking risks to their health. The main dust-related diseases include:

- Lung cancer
- Silicosis
- Chronic Obstructive Pulmonary Disease (COPD)
- Asthma.

Impacts of Construction Works on Workers:

Nature: Negative, Direct

Duration: Short term

Likelihood: May occur

Significance (before mitigation): High

5.1.2.6 Impacts on Traffic, Accident Risks

The material for the backfill is planned to be delivered by sea. Therefore, during the reclamation phase no appreciable increase in traffic is to be expected.

During construction works on the reclaimed area, increased traffic congestion and accident risks are likely to be issues of concern. It can be assumed that the foreshore road will be closed to traffic during construction. This road is presently intensively used as parking area; vehicles currently parked there must move to other areas and will have an impact on traffic flow there. The number of heavy duty trucks added to the already high volume of traffic in the city will increase the risk of accidents for all road users, including the roadside vendors. This impact will continue until construction is complete.

Impacts of Construction Works on Traffic:

Nature: Negative

Duration: Short to medium term

Likelihood: May occur - Probable

Significance (before mitigation): Moderate - High

5.1.2.7 Waste Impacts

The generation of construction waste is not expected, as the project does not involve any removal of structures or demolition of buildings.

Waste from construction side will include garbage like wood, paper, plastic, cement bags, but also cement residues, sections of stones or paving material. Hazardous waste or hazardous substances will include paint cans and residues, or petroleum products.

Workers will generate municipal wastes such as food wastes, packaging and wastepaper. If not disposed of correctly, these wastes can be windblown or otherwise impact the environment.

Waste impacts can easily be managed by implementing BEPs.

Impacts of Construction Waste:

Nature: Negative, Direct

Duration: Short term

Likelihood: May occur

Significance (after mitigation): Moderate

5.1.2.8 Coastal Impact

The development of structures along coastlines inevitably influences coastal processes (erosion and sedimentation) of the region. The western part of the shore in front of Kingstown will be considerably altered which will have a potential impact on the coastal hydrology as discussed below.

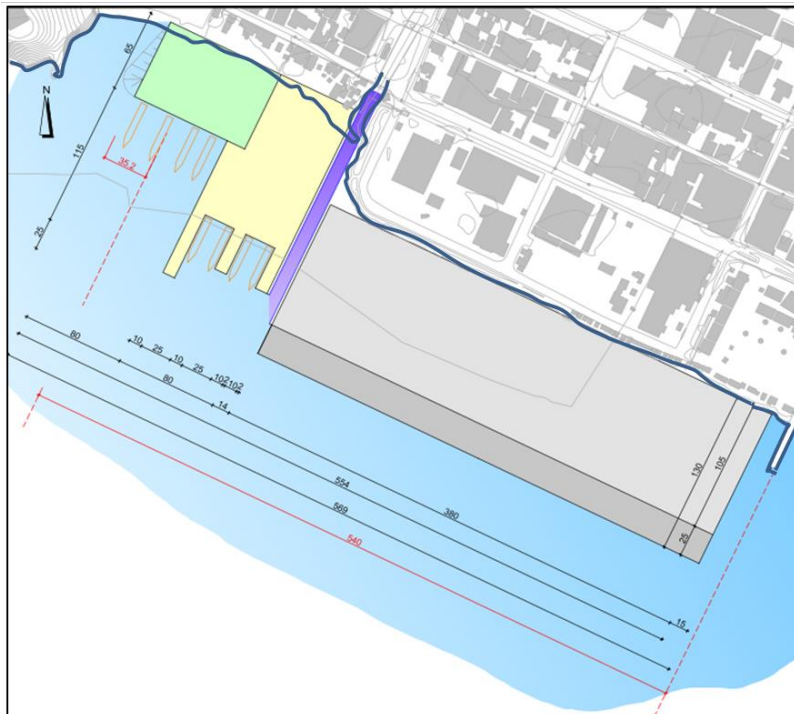
Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

Coastal currents are responsible for sediment transport. In front of Kingstown’s shoreline is a counter-clockwise longshore drift in parallel to the coastline, which ensures continuous sediment transport from east to west. It can be assumed that the project will have the following potential impacts.

The construction of the terminals will alter the transfer of sand and other material, affecting the local sediment budget.

Figure 51: Coastline Altered by Project



Source: Sellhorn, 2018 (modified – blue line: present coastline)

Figure 52: Sediment Transported Westward by Current



Source: SVG Ministry of Housing, Informal Human Settlement, Lands and Survey Department

Construction of the container terminal (work package 1)

The construction of the container terminal will not stop the sediment transport itself; however, it will change the sediment deposition pattern by blocking the current close to the coastline at that area. This will cause sedimentation on the up-drift side of the terminal (at the fishing jetties), and concurrent erosion of the beach on the down-drift side.

As can be seen in Figure 52, the sediment introduced by the North River is drifting westwards by the current and settles on the beach.

If the coastal current is interrupted by the container terminal, sediments, which are introduced by the North River will no longer be carried westwards to the beach; they will most probably be deposited directly at the estuary. This process, which is already taking place presumably because of altered coastal currents caused by the formerly reclaimed foreshore area, will be intensified. The North River sediments can no longer contribute to the restoration of the beach.

Figure 53: River Sediment Bar at North River Mouth



Source: HPC, 2018

Construction of the Intra-regional Cargo Port and the Inter-island Ferry Port (work packages 2 and 3)

With construction of these two terminals, three quarters of the beach in front of Rose Place will be covered and will therefore no longer exist. The construction of the two terminals will narrow the North River estuary and extend the river further seawards; the sediment bar, which now forms at the coast, will also be shifted further seawards and has potential for increased sedimentation rates (and future dredging requirements) at the berths of the Intra-regional Cargo Port.

Impacts due to sedimentation are high and will require regular maintenance dredging.

The loss of beach material is an impact that can be considered high and irreversible. The beach sand is the first defense against storm impacts for the Rose Place community and the western part of Kingstown. It is the foundation for a functional ecosystem as it provides the substrate for plants, which in turn form the basis for faunal life. In addition, plants stabilize the seabed and thus counteract erosion. The loss of beach will allow waves to deliver greater destructive energy at the base of the cliffs.

Coastal Impacts of Construction Works:

Nature: Negative, irreversible

Duration: Permanent

Likelihood: definite

Significance: High - Major

5.1.3 Operational Impacts

The operation of the new port will not create adverse environmental impacts in addition to operating the existing ones, as the project does not involve the addition of port facilities; the new port is rather a relocation or consolidation of port sections that already exist in Campden Park and in the eastern part of Kingstown Bay.

Beneficial Impacts

Operation of the new port facilities will have beneficial environmental impacts; the port facilities will be built in a sustainable way from the outset in order to meet current environmental protection requirements. Planning already includes measures that will have a positive impact on the environment and on safety, such as:

- A drainage system with oil separators that will prevent polluted rain or storm water from entering the sea
- A sufficient number of hydrants
- An enclosed solid waste facility
- Optimized routing of cargo handling equipment and vehicles which decreases energy and fuel consumption
- Sustainable building construction.

New equipment and devices to be purchased will meet new standards in terms of energy consumption, noise and air emissions.

Container trucks no longer have to deliver twenty or even forty feet containers from Campden Park to Kingstown, which contributes significantly to the increase of road safety, given the steep and winding Leeward Highway.

On the other hand, goods produced at Campden Park industrial sites now have to be transported to Kingstown to be shipped from there. It is assumed that small trucks will be used for this.

5.1.3.1 Noise Impacts

As the port migrates to the west, operational noise is generally likely to decrease in the eastern part of Kingstown, while it will increase in the western parts of the city and the bay. The noise generated during the terminal operations at ports varies depending on the type of equipment and the nature of the work being performed.

Main sources of noise are:

- Cargo handling equipment including harbour cranes, reach stackers, empty container handlers, and trucks, which are usually driven by diesel engines. Noise sources on these are engines, exhaust systems and tires.
- Cargo handling methods. Noise is generated by driving and cargo handling events (e.g. lowering of containers too fast).
- Vessels moored in the port. Noise is generated by on board auxiliary engines, funnels and exhaust systems, different kind of ventilation and air conditioning systems, hydraulics and pumps. With the growing ship size the noise usually increases.
- “Specific penetrating noise sources” include warning sirens on cranes and vehicles when reversing, and vessel’s horns sounded on departure.
- In and out truck traffic, which creates problems both, with air pollution and noise, in the port area and its vicinity.
- At the ferry terminal, noise is generated by vehicles entering and leaving the ferry via the metal ramps between the vessels and the quay, driving on the ramps creates loud impulse sounds.

Sound levels of different cargo handling equipment have been measured to be (direct measurements):

Gantry crane: 100 – 110 dB (A)

Fork lift truck: 105 – 110 dB (A)

Truck (road): 102 (slow driving) – 110 (accelerating) dB (A)

Port work will have no impact on the city's night rest, as work is generally carried out in 2 day shifts.

Moored ship noise is an important environmental factor. The IMO has set noise levels on board ships to be limited to 70 dB (A) at work areas like navigating bridge during the ship’s normal operational conditions on sea. Limits for outside moored ships do not exist, and even if the IMO noise limits are applied, the total sound power of the main engine and diesel generator exhaust outlets can reach 107 dB (A) in a port¹⁶². Furthermore, there is a low frequency range (below 100 Hz) while the ship's engine is running which can be heard from far away and which can even travel through windows, if they are not well isolated.

Noise Impacts created by Port Operations:

Effect: Negative

Duration: Permanent

¹⁶² Noise from ships in ports, Possibilities for noise reduction, Lloyd’s Register ODS, Danish Environmental Protection Agency

Likelihood: Probable

Significance: Moderate to High

5.1.3.2 Impacts on Air Quality

Cargo handling equipment, trucks and other vehicles are generally run by diesel; most vessels moored in the port are fueled by HFO. These are the main sources of air pollution in the port.

The table below depicts emission factors in kg/t fuel for diesel engines¹⁶³:

Table 23: Emission Factors for Diesel Engines

Emission Factor								
	NOx Slow Speed	NOx Medium Speed	CO	HC	CO ₂	SO ₂	PM Fuel Oil	PM Gas Oil
kg/t fuel	87	57	7.4	2.4	3,170	20 x S%	7.6	1.2
g/kWh	17	12	1.6	0.5	660	4.2 x S%	1.5	0.2

Source: Lloyds Register

There are a number of studies and publications that clearly show that burning of fossil fuels, in particular ships' fuel, creates air pollution which is linked to respiratory disease, premature death, and cancer.

Due to close proximity to the port, the Kingstown community faces health risks from associated air pollution.

In Kingstown, the onward transport of cargo is primarily limited to the city of Kingstown and the south coast area. This reduces the transport distances compared to the haulage from Campden Park. Fuel consumption and generation of air pollutants are reduced accordingly.

The containers will be stripped in the port of Kingstown; the cargo is redistributed on a short way, whereby small trucks and also handcarts will be used. All this will contribute to a reduction in air pollutants emission, despite the higher volume of cargo.

Ships and the related release of air pollutants are considered to be the main air emission source in the port. The growing number of ships calls suggests a corresponding increase in air pollutants. However, Chapter 4.2.3 already mentioned the drastic tightening of vessels' air emission values by the IMO, established through Annex VI of the MARPOL Convention.

The introduction of the new marine fuel standards, in particular the significant Sulphur cut from the current 3.5% global limit to 0.5% in 2020 will considerably reduce the SOx and SO₂ content in the vessels' exhaust.

The IMO requires also NOx and PM emission limits for ships' engines. That will be achieved either through cleaner ships fuel or by use of exhaust gas cleaning systems. It will be the

¹⁶³ Lloyds Register Engineering Services, 1995

responsibility of the port state to check that ships comply with these stricter emission standards; the Port of Kingstown has to be prepared for this.

Impacts of Port Operations on Air Quality:

Effect: partly beneficial due to shorter on-transport of cargo

Duration: Permanent

Likelihood: definite

Significance of air pollution impact (after mitigation and after introduction of new vessel fuel standards): low - medium

5.1.3.3 Impacts on Water Quality

Land-based operational water pollution is largely prevented by the planned drainage system of the new terminals. Untreated storm water will no longer be discharged into the sea, as the terminals are equipped with a drainage system and appropriate retention facilities / oil separators.

Shipping-related water pollution includes oil spills, discharge of bilge water or sewage, dumping of waste or cargo residues.

For the handling of domestic wastewater on the terminals, the existing sewerage infrastructure will continue to be used.

As already discussed in Chapter 4.2.4, the current way of wastewater disposal in St. Vincent leads to water quality impacts. However, it is beyond the port's capability to arrange for an appropriate treatment of the terminal's domestic wastewater and it is not expected that the wastewater generated in the port will contribute significantly to increasing the discharge of wastewater into the sea.

The overall wastewater situation in St. Vincent can be described as unacceptable; the port's contribution to this will be rather small.

5.1.3.4 Dangerous Goods

It can be assumed that with growing cargo volumes also the amounts of dangerous goods that have to be handled in the port will increase. This kind of cargo can present a risk to people, property and the environment if damaged, spilt or ignited.

Risks associated with storage of dangerous goods include:

- Escape or spillage of goods
- Fires or explosions resulting from the nature of the dangerous goods
- Chemical reactions between incompatible goods, or self-reacting goods.

It can be assumed that future quantities of dangerous goods will not be so large that a separate area for the storage of hazardous goods will have to be designated; moreover, there would not be sufficient space for this on the terminal.

Given the immediate proximity to the city centre, the current method of handling dangerous goods, namely by direct delivery, should be maintained as far as possible.

For dangerous goods that have to be stored in the port, the segregation rules according to the IMDG Code apply. These containers should be allocated to the end of rows with doors facing roadway in order to be accessible as quickly as possible in case of emergency.

Impacts of Handling of Dangerous Goods:

Effect: Negative, severe – very severe

Duration: short term

Likelihood: may occur

Significance: High - Major

5.1.3.5 Traffic Congestion and Accident Risks

Increased port activities are expected to have impacts on the road infrastructure, traffic and accident risk.

The import of containers will almost triple from currently 9.940 TEU to 26.420 TEU by the forecast year 2040; the ratio for exports is similar, rising from 1.900 TEU to 5.160 TEU¹⁶⁴.

Congestion is already impacting Kingstown's inhabitants and their businesses. An increase of truck and lorry traffic will exacerbate this condition.

Although trucks and freight vehicles are making up a small share of all vehicle traffic, they generate a disproportionate share of several externalities, such as infrastructure damage, pollution, greenhouse gases and noise. Thus, freight vehicles are often seen as a nuisance from the public perspective.

Work package 4 of this project foresees measures for road capacity expansion, development of a traffic by-pass, etc. It should be considered, however, that the greater Kingstown area is already a densely populated area with limited road capacity. Detailed investigations are necessary as there is the possibility that the traffic problem is shifted (e.g. to the by-pass route which is also inhabited). Work package 4 should therefore start as soon as possible; results from this work package should be implemented before the new port starts its operation.

Impacts of Port Operations on Traffic:

Effect: Negative, long-term

Duration: Permanent

Likelihood: Definite

¹⁶⁴ HPC, 2018, Cargo forecast for St. Vincent, 2018 - 2040

Significance: High

The reduction of traffic movements along the mountainous section between Kingstown and Campden Park is considered a *beneficial impact*. The road is risky and if the growing container business continued at Campden Park, an increasing number of accidents could be expected.

5.1.3.6 Waste Impacts

Operational port waste includes:

- Waste from ships and boats, e.g. waste oil, sewage, garbage
- Waste from commercial cargo activities, like package material, cargo residues
- Wastes generated from maintenance activities and associated maritime industry activities, e.g. hazardous waste such as batteries, paint cans, residues from sandblasting or other maintenance work on ships or port equipment
- Garbage generated by port workers
- Food waste from the canteen.

Vessel-generated waste includes waste oil and bilge water, cargo residues (minerals, grain, salt, sugar, etc.), and ship-source garbage.

If not disposed of properly, the effects on marine ecosystems may range from direct mortality or harm to marine wildlife as a consequence of the ingestion of or entanglement in marine litter, to indirect harm or mortality resulting from the release of potentially toxic chemicals attracted to plastics in organisms after ingestion.

Since 1st of May 2011 the Wider Caribbean Region (Caribbean Sea and Gulf of Mexico) became a designated Special Area under Annex V of the MARPOL Convention, which prohibits the discharge of all sorts of garbage by ships. The International Chamber of Shipping estimates that between 1.4 and 2.5 kg of wet garbage and 0.5-1.5 kg of dry garbage are produced per person, per day on medium sized ships¹⁶⁵. MARPOL requires the ports to be prepared to accept the quantities of waste a ship intends to dispose of. In St. Vincent, this waste is then landfilled, thus further reducing the low landfill capacity as described in chapter 4.2.5.

Kingstown Port is currently unable to accept waste oil from ships. It is also a little too much to ask that such a small country has disposal facilities for all categories of waste produced on board. However, there is an increased risk of illegal oil disposal at sea. Therefore, the port must be able to carry out strict controls in accordance with MARPOL regulations.

Operational port waste, if not properly managed, can end up in the sea with the potential for contamination and/or pollution.

¹⁶⁵ http://www.ukmarinesac.org.uk/activities/ports/ph6_2_2.htm

Impacts of Port Operations on Waste Generation:

Effect: Negative, national to international

Duration: Long term

Likelihood: May occur

Significance: High

5.1.3.7 Ballast Water Impacts

The total number of extra-regional vessels calling at Kingstown port will increase from 342 in 2018 to 470 in 2040. As the number of vessels increases, the risk of invasive species being introduced into local waters increases, too.

Ballast water is mainly responsible for the transport of marine organisms into foreign habitats worldwide. These organisms include bacteria, microbes, small invertebrates, eggs, cysts and larvae of various species. If suitable conditions exist in the new environment into which they are released, these organisms can survive, reproduce and become aquatic invasive species.

Invasive species can impact human health and economic development either directly (e.g., through damage to economically important fish resources) or indirectly, through the disruption of ecosystem services. Both has happened already in SVG (see Chapter 4.1.3).

In 2004, the IMO adopted “The International Convention for the Control and Management of Ships’ Ballast Water and Sediments” (Ballast Water Convention BWC) which entered into force September 8th 2017. The Convention aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships’ ballast water and sediments.

The BWC requires all ships to implement a ballast water and sediments management system in accordance with the guidelines set out by the IMO. This includes:

- A filtration systems and/o chemical disinfection
- A ballast water exchange record book
- Duties of the personnel on board for carrying out ballast operations.

SVG did not yet sign the BWC. Nevertheless, as the Convention is in force and the threat of invasive species being introduced is great, the Port of Kingstown must be able to carry out controls in accordance with the BWC.

Such controls are usually included in the Port State Control procedures.

Impacts of Port Operations on Ballast Water Generation:

Effect: Negative, national to regional

Duration: Long term, mostly irreversible

Likelihood (before mitigation): Probable

Significance: High

5.1.3.8 Visual Impacts

The waterfront of Kingstown is a very sensitive area, since it can be overlooked from all sides. The construction of the port facilities will definitely represent a visual impact; however, it will be perceived subjectively and differently by the local residents.

In particular from the water side, cranes and stowed containers will block the traditional view of the city; the familiar waterfront skyline will be replaced by containers and cranes.

This topic has been raised during a stakeholder meeting. It was mentioned with regret that “it will no longer be possible to see the churches of Kingstown” when returning from the islands¹⁶⁶.

The impact is irreversible.

It can be rated moderate to high which suggests that there is substantial potential for the public to voice concern over visual impacts of moderate to high intensity.

Figure 54: Kingstown Waterfront (as seen from Fort Charlotte)



Source: HPC, 2018

¹⁶⁶ Meeting at the National Parks, Rivers and Beaches Authority

Figure 55: Visual Impact of Containers Stored at Kingstown Port



Source: www.dreamstime.com

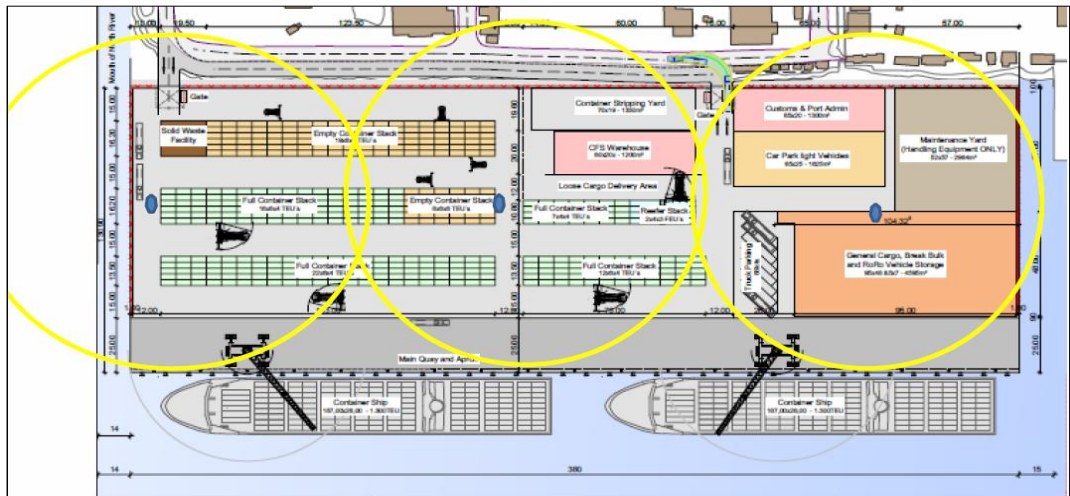
Different people will perceive the visual impact of stored containers and cranes differently. However, the new port facilities will definitely alter the character of views.

Figure 55 (above) shows that containers stacked 3 tiers high significantly impair the view of the city from waterside. According to the "Basic Operational Concept", empty containers will be stacked up to 6 tier high at the terminal's full capacity, which will be an even bigger visual impact.

"Light pollution":

The "Basic Operational Concept" foresees a line of three light masts of a height of 40 – 45 m across the center line of the terminal as shown in Figure 56 below.

Figure 56: Centre Line High Mast Lighting Concept



Source: HPC, 2018.

These can have a significant visual impact and be a nuisance to adjacent residents.

In view of the turnover figures, however, it can be assumed that port work is generally carried out in day shifts, which reduces the probability of night disturbances and light pollution.

Bright, flashing lights from ships can cause irritation and disrupt sleep patterns to those living near the port.

Light Pollution caused by Port Operations:

Effect: Negative, local

Duration: Short term, reversible

Likelihood: May occur

Significance: High

5.2 Socioeconomic Impact Identification and Assessment

The potential direct, indirect, and cumulative socioeconomic, cultural, and gender impacts of the project during construction and operation were analyzed. This analysis addressed both qualitative and quantitative impacts based on the results of stakeholder engagement. In particular, outstanding social issues and concerns in the project area that hinder women, children and persons with disabilities (PWDs) to fully access services and markets were considered. The different barriers and constraints faced by women, men, youth and PWDs due to their different reproductive and productive tasks in the household and the economy were also assessed.

5.2.1 Impact Categorisation

The range of social, cultural and gender impacts were categorized as follows, as identified by stakeholders during the consultation process.

- Population/Demographic Movement
- Economic and Material Well-being
- Livelihood Assets and Activities
- Community Organisations and Local Institutions
- Social Services and Infrastructure
- Public/Community Health and Safety
- Vulnerable Groups
- Community and Lifestyle
- Gender Relations and Equity
- Cumulative Impacts.

Specific issues that were relevant to each of these categories were considered.

5.2.2 Impact Ranking

The assessment and ranking of socioeconomic impacts was based on quantitative baseline data, qualitative stakeholder information and expert opinion. The impacts were characterized based on their nature, magnitude, duration and probability, as described below.

- Nature: Impacts may be negative or positive, direct or indirect. Direct impacts affect the receptor in a straightforward manner whereas indirect impacts affect the receptor via another mechanism.
- Magnitude: Impacts may be low (perceptible change but no significant change to human activities); moderate (perceptible change but human activities will not suffer from it in the long term); or high (human activity is affected in the medium or long term).
- Duration: Impacts may be short term ranging from a few days to a few months, or long term ranging from a few months to a few years or more.
- Probability; Impacts may be rare (not foreseeable but could occur); likely (likely to occur at a given moment under normal operating conditions); or high (will occur/almost unavoidable under normal operating conditions).

Each impact was also subject to gender assessment. An impact may have either a negative or positive effect, on both males and females. It would also have a differential impact on males and females, thus leading to effects on gender equity. Once the potential impacts were classified according to the framework above, these criteria factored into an overall analysis of impact significance, according to the ranking matrix presented below (Table 24). This assigned significance was used to prioritize impacts for mitigation. Thus, the main socioeconomic positive and adverse impacts of the project were determined.

Table 24: Impact Significance Ranking Matrix

IMPACT SIGNIFICANCE	DEFINITION
Beneficial	Improvement in the ability of household or community to maintain or improve its livelihood/store of assets. Enhancement in quality or availability of resource leading to improvement in quality of life. For example: Enhancement in physical capital including availability of infrastructure; Enhancement in social capital, including skills for future employment; Enhancement of relationship between SVGPA and the study area communities; or Enhancement in public/community health and safety
Low	Possible short-term decrease in availability of resource or access to infrastructure not affecting livelihood Possible short-term decrease in quality of life of household or community not affecting long-term outcomes No effect on public/community health and safety No discernible long-term effect on the local economy Impacts which are long lasting but to which the community is able to adapt, such as increased access to information/possible slow cultural change/changes in economic structure
Medium	Potential effect or perceived effect on ability of household or community to maintain livelihood/store of assets in the short term Potential reduction in quality of life in the short term Potential disruption to lifestyle in the short term Perception of missed opportunity to improve Possible decrease or perceived decrease in access to infrastructure to which community is unable to adapt in the short term Negative effect on human health which can be contained and is therefore short to medium-term with no increased mortality Impacts which may result in high levels of complaint in the short-term
High	Negative effect on public/community safety Negative effect on human health which cannot be contained or results in increased mortality. Effect on ability of household or community to maintain livelihood/store of assets to an extent not acceptable by affected people Permanent physical or economic displacement Permanent reduction in quality of life Permanent cultural change to which the communities are unable to adapt Widespread perception of missed opportunity to improve quality of life, resulting in frustration and disappointment

5.2.3 Construction Impacts

5.2.3.1 Population / Demographic Movement

Population / demographic related changes and impacts that can be associated with the proposed Port Kingstown Modernisation Project are related to:

- Physical displacement of households and/or population segments
- Influx of construction workers, job seekers and opportunists.

Physical displacement of households and/or population segments

Physical displacement has been identified by the proponent as necessary under the option “C” chosen for the project. Work package 3 of the project comprises of a new Inter-island Ferry Terminal located to the northwest of Kingstown, extending approximately 45 m along the Bayside area within the Rose Place community. It is expected that members of the Rose Place community who reside within this coastal area along Lower Bay Street will have to be relocated to another community.

Based on a social assessment conducted by the GOSVG, approximately 105 people from 32 businesses and 34 households will potentially be affected¹⁶⁷. In a community of approximately 225 people¹⁶⁸, this represents a significant reduction in population numbers. The large number of households within fewer numbers of buildings is due to the fact that many of the houses are subdivided and occupied by multiple families.

The relocation of these households will lead to significant demographic change processes and economic impacts on the local economy. Resettlement and relocation can also result in significant upheaval of a community and even breakdown of traditional social structures and cultures (discussed further in Section 5.3.3.8). The impacts of relocation on a person depends on the level of attachment to a place, which in turn is informed by variables such as age, number of years spent in that particular area, and personality.

Where people have been living in a specific area for years, they are used to their surroundings, e.g. the route they travel to work, the amenities (shops, businesses, leisure) they visit and costs of goods and services in their area. Apart from their surroundings, one could also expect that they are attached to their homes and what it represents, such that the impacts could be numerous and vary among people. Although the homes on the Bay are considered illegal settlements or “squatters”, some of these residents have been there for more than 10 years and others all their lives of more than 20-30 years. Therefore, there is strong attachment to their homes and community. Some residents are renters so that loss of housing with no suitable replacement can potentially result in homelessness.

Community members have expressed great concern as to where they will be relocated, especially as it relates to distance from their existing homes, jobs and Kingstown. Other issues

¹⁶⁷ Rose Place Social Assessment (M. Finch-Burke, 2018)

¹⁶⁸ 2012 Population & Housing Census Preliminary Report (Census Office, Ministry of Finance and Economic Planning)

were related to what their new houses would be like if they are relocated¹⁶⁹. Past resettlement in SVG, such as Diamond Village, has led to displaced people returning to their original areas but the infrastructure no longer existed to sustain them¹⁷⁰. In these cases, displaced residents may attempt to fit back into the community, in effect compressing the available living space. Besides population/demographic changes, other socioeconomic impacts will be experienced due to relocation; these are discussed in later sections.

In this instance, relocation will also have physical benefits due to the susceptibility of the Bayside area to flooding, other natural hazards and climate change effects (see Section on Environmental Impacts for details). If residents are made more aware of these benefits the social impact may be lessened.

Gender assessment: This impact will affect both men and women but will have a different effect based on gender due to the different roles of men and women within the community. Displacement could affect relations between men and women and their roles within the community. Women are the primary caregivers in the majority of households in Rose Place so that women's stated concerns related to physical displacement were practical needs about access to services and schools for their children. Men discussed requiring close proximity to fishing boats for security reasons since their boat engines are at high risk of being stolen if left unattended. Other issues relevant to women would include safety and security (social, economic, and health) for themselves and their children/dependents in the new location; women and girls tend to be affected more by feelings of insecurity in a new location than men/boys.

In addition, concerns about the location of the new neighbourhood would include access to food, income/livelihood, transportation and the organization of family groupings from Rose Place into the new community. Gender roles could also be affected as the community may shift depending on location of the resettled community and employment and other opportunities in the area for men and women.

The significance of the socioeconomic impacts resulting from the number of households to be relocated may be tempered by the fact that some residents are willing to improve their quality of housing by moving to a different location. However, the majority of community members currently perceive physical displacement as a negative activity so the assessment was done on this basis¹⁷¹. An appropriate resettlement plan could also minimize the disturbance to the local community and ensure smooth transition to industrialization.

Impacts of Construction Works on Physical Displacement of Households and/or Population Segments:

Nature: Negative, Direct

Magnitude: High

¹⁶⁹ Women's Community Meeting and Public Consultation, SVG, 2018.

¹⁷⁰ Ministry of Housing, Informal Human Settlements, Land and Surveys and Physical Planning, SVG, 2018, personal communication.

¹⁷¹ Public Consultation, SVG, 2018.

Duration: Long term

Probability: High

Significance (before mitigation): High

Influx of construction workers, job seekers and opportunists

The contract for the construction phase of the project has not yet been issued so that it is not known whether a local, regional or international contractor will be hired. The numbers of construction workers required for the project has been estimated at approximately 100 unskilled workers; skilled workers will be provided by the contractor. This will lead to an influx of job seekers, mostly from the neighbouring areas, may occur as news of the project spreads. Due to the size of SVG, relative ease of access to Kingstown and short distance away to these neighbouring communities, it is not likely that these job seekers will move to the area. However, once construction starts, if workers from other areas have steady albeit temporary employment, they may choose to settle in the immediate Kingstown area to be as close to economic activity as possible.

An increase in the transient construction population would have a negative impact only if there is an increase in crime and antisocial behaviour such as drug and alcohol abuse in the Kingstown area. This would in turn lead to pressure on existing Kingstown infrastructure and services such as the Police. Conflicts with local communities, particularly given likely competition for employment and services, pressure on the existing health care facilities in the broader study area and potentially decreased access for local communities are possible.

Gender assessment: The increase in population, if it occurs, is expected to be primarily males if traditional hiring practices are followed, thus temporarily changing the demographic structure of Kingstown. Due to an influx of a transient workforce during a project's construction and operation, social and health problems, including those associated with law and order, are possible. These problems can include increased alcohol consumption, domestic and sexual violence, sexually transmitted infections such as HIV and AIDS, and prostitution¹⁷². However, the probability of this impact is anticipated to be very low for this project.

Influx of construction workers, job seekers and opportunists:

Nature: Negative, Direct

Magnitude: Low

Duration: Short term

Probability: Rare

Significance (before mitigation): Low

5.2.3.2 Economic and Material Well-being

There could potentially be both positive and negative impacts on economic and material well-being during construction.

¹⁷² Inclusion of gender in environmental impact assessment (S. Kumar Singh and V. Wankhede, 2018)

Economic Benefits

The project will have significant positive economic benefits at a national level on the construction sector. It is a considerable capital investment that will require raw materials that will impact on local economic dynamics because of a “construction boom.” The project will also indirectly inject money into communities where material is obtained as it will require procurement of supplies from local sources, which creates supply chain opportunities for local suppliers, including women.

Economic Benefits of Construction Works:

Nature: Positive, Direct

Magnitude: Moderate

Duration: Short to long term

Probability: Likely

Significance: Beneficial

Employment

Temporary employment will potentially be available for local workers during the construction phase and consequently increased income. Income from employment will lead to increased purchasing power in communities, with accrual benefits to small businesses. There is a high rate of unemployment in Rose Place so such opportunity would be welcome. It should be noted that residents feel disillusioned by previous experience with construction of the existing cruise ship terminal, which they stated was awarded to a non-national company that had its own employees and did not require local labour. They are therefore very concerned about possible employment by the project¹⁷³.

The number of construction jobs that may be created is as yet unknown so this impact may differ from this initial assessment. However, it can be reasonably expected that the duration of the construction activity will be relatively short, the largest demand for jobs will be during the construction phase and the size of the construction workforce for the project will mean opportunity for economic development as demand for goods and services as well as procurement of various commodities from a local market will increase. The local economy will be boosted by port-related activities and be greatly involved in urbanization and industrialization. The construction phase may also lead to a temporary increase in the requirement for informal food vendors¹⁷⁴.

Gender assessment: This impact will differ for males and females since port construction jobs have traditionally been male-dominated. Infrastructure projects such as the port could potentially exacerbate existing gender biases if employment opportunities exclude women to a large extent. For instance, the project could inadvertently increase gender inequality in some households if men were given employment in these projects over women, thus increasing women’s dependency on men as household income providers. Local women should be

¹⁷³ Public Consultation, SVG, 2018.

¹⁷⁴ Labour Division, SVG, 2018, personal communication.

encouraged to participate in these activities where their skills are compatible with the jobs available, or training provided to give them the necessary skills. Structural gender discrimination against women in the labour market, including occupational segregation in sectors such as construction, and a persistent wage gap between men and women, hinder women's ability and options for transcending poverty.

Impacts of Construction Works on Employment:

Nature: Positive, Direct

Magnitude: Moderate

Duration: Short term

Probability: Likely

Significance: Beneficial

Economic Activity

Construction will have significant impacts on the economic activity and businesses in the vicinity of the reclamation and construction site. Correias and Gibsons in particular are located adjacent to the main access point into the port construction/reclamation site. The increased traffic from transport of materials and movement of workers may disrupt their economic activity and that of the six to eight small businesses in the vicinity. Small businesses within the reclamation and construction area will be displaced; in particular one of the well-known Rose Place businesses that will have to be relocated is "De Plant Shop" more commonly known as "Spirit's Place." Efforts have been made previously to relocate this building but no option suggested was acceptable to the business owner¹⁷⁵. Loss of business structures with no alternate locations identified can result in loss of income.

Gender assessment: This impact involves business activity so gender differences will arise from whether the ownership of the business is male or female and the number of male and female employees. The impact will also vary depending on the position of the male and female employees within the different levels of the business. If relocation is not possible, depending on the level within the business, some employees may have difficulty finding another job. Relocating the business will have differential positive and negative outcomes for different users. For example, if relocation is necessary, distance travelled to work, and all associated activities, such as taking children to school, may decrease or increase for workers. Suppliers and customers of the business will also be affected depending on whether they are male or female.

Impact of Construction Works on Economic Activity:

Nature: Negative, Direct

Magnitude: Moderate

Duration: Short term

Probability: High

¹⁷⁵ Ministry of Housing, SVG, 2018, semi-structured interview

Significance (before mitigation): Medium

5.2.3.3 Livelihood Activities and Assets

Several groups within the Kingstown working population will be economically displaced by the project, impeding their ability to earn their livelihood.

Rose Place and Kingstown Fisher folk

The determination has been made that the fishing activity at Rose Place Bay cannot coexist with the project since in accordance with ISPS Code, a fence will be built around the new terminal to limit access to regional and international vessels for reasons of safety and security. This fence will restrict access to the bay from which the community members currently fish. The fishing done by the fisher folk at Rose Place is a major contributor to the fishing industry in Kingstown and hence SVG. Fisher folk keep their boats on the beach where they are nearby to ensure their safety. In addition to launching the boats from Rose Place, beach seining takes place from the bay area. Bait fish vendors who keep bait fish for sale in nets outside their boats will also be affected.

The relocation of the fisher folk from Rose Place would require for them to be transferred to a site where there are equal or better services. The existing infrastructure to aid the fishing industry at Rose Place includes: storage rooms and a fuel supply station. Fisher folk throughout SVG are victims of theft of equipment – mainly engines. Any relocation will require multiple considerations including storage rooms, electricity, water and a gasoline station or pump¹⁷⁶.

Alternative locations were examined previously and included those within close proximity of Kingstown, such as Calliaqua and Great Head to the east and on the west Ottley Hall and Lowmans Bay. Other locations were too far away and would have resulted in an increase in operational cost to the fisher folk. These sites were not suitable because they either were crowded, a security risk, incompatible with current activities, and/or inaccessible for the fisher folk as they do not have transportation. If the fisher folk are relocated to a site deemed as unfavorable there may be a disruption of the livelihood of several fisher folk as well as an overall decline in the fishing industry due to their importance within this industry¹⁷⁷.

Fisher folk feel marginalized and not included in the decisions about their livelihood. They do not believe they have many options for alternative locations and they want to avoid going to another community. Moving to the Kingstown fish landing site near the Fish Market was considered possible. Financial compensation was not deemed adequate for a loss of livelihood and access to the bay¹⁷⁸. The option of moving to Kingstown may not be immediately possible since construction of the port will be taking place near the existing fishing wharves. Fisher folk currently fish both, in the nearshore environment of the bay immediately offshore the existing port, as well as further offshore; the available statistics on fishing do not differentiate between proportion of income derived from near shore vs. off-shore/deep sea fishing. Some use seines

¹⁷⁶ Final Rescoping Study (Mott McDonald, 2016)

¹⁷⁷ Final Rescoping Study (Mott McDonald, 2016)

¹⁷⁸ Public Consultation, SVG, 2018

that they keep tied to their boats with the fish inside until they are sold either in the Fish Market or on the streets¹⁷⁹. This type of activity will no longer be possible during construction and operation of the new port; this would mean an alteration in accustomed fishing behavior and although fishing can continue adaptation to these changes will be required by the fisher folk.

Rose Place Vendors

Women are the primary vendors in the community; they sell items, such as cigarettes, soft drinks etc. from their houses, including those on Bayside. In some cases, they are the head of the household and/or the main source of income for supporting the family. Relocation from their houses negatively affects their ability to financially contribute to or support their families unless an alternative income source is found.

Displaced Rose Place Community Members

Relocated community members may have to pay increased transportation costs to get to work every day. Most of them work in Kingstown as cashiers, shop workers etc. so that if they move further away, their livelihoods may be negatively affected.

Kingstown Vendors (Little Tokyo area)

The Town Board conducted a partial inventory of vendors in the Little Tokyo area, which registered 87 vendors; 41 of whom were located along the seawall. They have estimated the number of vendors to be displaced will be more than a hundred. A relocation of this magnitude will be both logistically and financially onerous for which they do not have the capacity. Although there are plans to relocate 150 to 200 street vendors to a stall in an area opposite the Central Market, the vendors in Little Tokyo were not included in this plan¹⁸⁰. Vendors, some of whom have been there for as much as 30 years, are aware of the pending displacement despite a lack of official notification¹⁸¹.

Push-cart Operators

These operators transport goods for people from the market to their vehicles or taxis; to and from the Grenadines Ferry; and to and from the cruise ships. Altered transportation and traffic arrangements can affect them by reducing their access to customers.

For all groups described above, the loss of subsistence livelihoods could potentially lead to reduction in income; impoverishment; reduction in income for food, health and education; increased debt; decrease in care for elderly and disabled; increased stress from worry about future; children forced out of education and into work; increase in illegal activities such as crime and prostitution; decrease in women's income and status. Loss of access to the beach for fishing would lead to lower nutrition and income. Loss of access to vendors of former areas where they could ply their trade could mean longer journey times to access services and markets.

¹⁷⁹ Public Consultation, SVG, 2018

¹⁸⁰ Kingstown Town Board, SVG, 2018, semi-structured interview

¹⁸¹ Vendors Little Tokyo, SVG, 2018, transect walk

Gender assessment: Loss of primary livelihoods would affect women disproportionately, as it can increase time and work burden for women in providing for their families where women are traditionally responsible for meeting the subsistence needs of families and are no longer able to do so. Establishing new sources of income and shifting employment can also lead to the loss of traditional values and way of life. Fisher folk are primarily male but at least two females have indicated that they own boats. The Kingstown Town Board stated that Little Tokyo, including seawall, vendors are evenly distributed with an approximate 50-50 male-female representation¹⁸².

Impacts of Construction Works on Livelihood Activities and Assets:

Nature: Negative, Direct

Magnitude: High

Duration: Short to Long Term

Probability: High

Significance (before mitigation): High

5.2.3.4 Community Organisations and Local Institutions

The Rose Place community feels disempowered and excluded from decisions that will affect their lives and livelihoods. There is community inclusion on the planning committee for the project (Mr. Llewellyn/"Bully") but sufficient, accurate information from committee meetings does not appear to be disseminated back to the wider community.

Physical and economic displacement of such a relatively large number of residents, vendors and fisher folk will require significant human, financial and social resources from government institutions. The Economic Planning, Social Development, Fisheries, Youth Affairs and Gender Affairs Divisions/Departments as well as the Kingstown Town Board will all have to be involved in the effort required for implementation of the resettlement plan as well as potential indirect effects from relocation/loss of income. The Town Board has already indicated that they lack the capacity for such an undertaking and require assistance to relocate vendors.

Gender assessment: There is a lack of equitable representation on the project committee since there is only one male community representative. Community stakeholder consultation and local development plans could potentially be made without the voice of women. Care must be taken to avoid minimal engagement of women resulting in no or nominal engagement in the project processes leading to frustration and disenchantment.

Impacts of Construction Works on Community Organisations and Local Institutions:

Nature: Negative, Indirect

Magnitude: Moderate

Duration: Short term

Probability: Likely

¹⁸² Kingstown Town Board, SVG, 2018, semi-structured interview

Significance (before mitigation): Medium

5.2.3.5 Social Services and Infrastructure

Transportation dynamics and infrastructure will be impacted by the project. The Windward and Leeward transport system will be displaced from its location in Little Tokyo. Although the original transport arrangements are not followed and passengers get onto the buses anywhere rather than at designated spot, the bus terminal will need to be housed elsewhere. Approximately 10 government-owned long-haul buses are also parked in this area and will need to be situated in an alternate location. The terminals are also used for parking private cars¹⁸⁴, which was not its originally intended use but given the limited amount of parking available in Kingstown, the inability to use this area for parking will add to an already overcrowded parking situation.

Other infrastructures that will be affected include access to and quality of roads during construction. Although later phases of the project will include upgrades to some roads in Kingstown, initially during construction, roads may deteriorate from the passage of heavy equipment and trucks, and users' access will be restricted (see Section on Traffic Impacts for further details). Any influx of workers for construction will also increase the burden on public services designed to cater for the permanent population including recreational facilities such as sporting facilities, theatres, recreational areas and services, such as clinics.

The Kingstown Anglican School is in very close proximity (approximately 60 m) to one of the access roads that leads to the construction/reclamation site. Impacts from noise, dust and traffic as well as potential accidents and emergencies would have a significant effect on these students. During the field visits it appeared, based on its location, that the school would have to be relocated but in December 2018, a senior official at the school stated that the Planning Division has indicated that the school will not have to be relocated for the project. In the event that this changes as the project progresses, the relevant government authorities will further discuss and address this matter.

Any rehabilitation to be done at Port Kingstown will cause some disruption to the services and users. Redevelopment of the main port of Kingstown, and inter-island ferry terminal will cause extensive disruption. The scale of disruption to cruise ships and passengers will depend on the following: the degree to which rehabilitative works spill over into the pedestrian and vehicular traffic area, and the time of the year when the work at the ferry terminal is carried out¹⁸⁶.

There may also be temporary disruptions to utility supplies (water and electricity) if any utility infrastructure must be modified or is damaged during project implementation. Disruption to infrastructure and utilities could result in impacts to livelihood, health and education services provision or quality of life and, if unmanaged, result in health impacts (e.g. water restrictions or inability to pass roads in an emergency). Any impacts on social services and infrastructure would be disproportionately experienced by people or households who are vulnerable due to age, chronic illness, poverty, or persons with disabilities resident in the household. If

¹⁸⁴ Kingstown Town Board, SVG, 2018, semi-structured interviews

¹⁸⁶ Port Rescoping Study, Final Report (Mott McDonald, 2016)

unmitigated, disruption to services might result in community distrust and resentment towards the project.

Gender assessment: This impact may have a greater differential impact on women if access to child care is restricted since, as discussed previously, women are generally the primary caregivers in SVG. Changes to the availability of transportation due to the loss/relocation of access to the bus terminal may increase the time burden for women who may have to go further to get to their transportation. The temporary loss of utilities (electricity and water) will also affect women's and children's time burden as they will spend more time in their daily activities and may even need to collect water from public facilities. Traffic disruptions and construction activities in the vicinity of the school and the routes to the school will also affect the general safety of women and children.

Impacts of Construction Works on Social Services and Infrastructure:

Nature: Negative, Direct and Indirect

Magnitude: Moderate

Duration: Short term

Probability: Likely

Significance (before mitigation): Medium

5.2.3.6 Public / Community Health and Safety

The public and communities that find themselves in close proximity to the construction site (by either working nearby, walking, or driving) will be potentially affected by noise, dust and any potential accidents/emergencies emanating from the site. Fugitive dust and noise from the site, if generated at high levels that the public comes into contact with, can negatively affect public health, especially persons with respiratory conditions such as asthma. Increased traffic from transport of required material and supplies could also affect members of the public if they are involved in accidents on route to the area.

Public / community health and safety will also be a concern in the area(s) where the raw material for reclamation will be obtained. It is possible that the material will be quarried in SVG or imported if the quantity of required material is not available locally. If the material is obtained from SVG, then the community in the vicinity of quarrying operations will experience a greater risk of health effects from dust and vehicular accidents.

Gender assessment: Males and females will be affected by health and safety impacts. Additional health and safety issues emanating from the construction site will be experienced by females and children. Children will be walking, either from home or from the ferry or will be driven to the Kingstown Anglican School in the vicinity of the construction site.

Impacts of Construction Works on Public / Community Health and Safety:

Nature: Negative, Direct

Magnitude: High

Duration: Short term

Probability: Rare

Significance (before mitigation): Low

5.2.3.7 Vulnerable Groups

Vulnerable Groups in the context of this project include the poor, elderly, children / youth, women / girls and PWDs. Vulnerable groups within the study area may be excluded from decision-making and information-sharing processes. The Rose Place community itself is considered a vulnerable population due to its high level of poverty. Any impact on this community exacerbates existing conditions such as high unemployment rates, low levels of income, and poverty. The burden of physical and economic displacement will be placed disproportionately upon this community when compared to other vulnerable groups within the study area. People living in poverty as a result of high unemployment rates, low income levels and a poor education struggle to survive on a daily basis and are therefore more susceptible to potential impacts and the psycho-social effects thereof.

Stress from relocation can lead to chronic illnesses among family members, particularly children and the elderly, increasing their care needs. Children and youth would be particularly impacted by relocation, which may lead to longer travel times to school and a loss of access to recreational facilities and community activities. A loss of employment or reduction in income of their parents will have consequences for the children of Kingstown as well. Their education and health may be affected because there may be no money to send them to school or to the doctor if they fall ill. If parents have to travel further to work due to relocation, there will be less time allocated to child care.

The young people in the area utilize both Victoria Park and the beach for recreation and NGOs, such as the Urban League conduct youth-oriented activities within the Rose Place community. The Youth Affairs Division has implemented several community-building sessions within the community and several young people in the area are involved in fishing¹⁸⁷. Homework assistance is also provided to the younger children by one of the female teenagers in the community. Relocation of young people will mean a loss of access to these opportunities and possible reduction in their quality of life.

Women are a vulnerable group. There was evidence of strong female representation as heads of households and leaders within the Rose Place community, as well as in SVG generally, with particularly vulnerable segments of the female population including those subject to lower levels of education, domestic violence, sexual manipulation and teen pregnancy. However, data indicates that the incidence of domestic violence and teen pregnancy are low within the Rose Place community. Female vendors in the Little Tokyo seawall area were also seen as equal to their male counterparts, as they engaged in similar subsistence activity and were owners of their own stalls. Any individual women who are already vulnerable will be made more so by impacts on their livelihood.

¹⁸⁷ Youth Affairs Division and Fisheries Division, SVG, 2018, personal communication

Female PWDs from Rose Place who sell in the streets of the Kingstown area will possibly be affected if they are included in the relocation or lose their livelihoods. One push cart operator from Kingstown in particular is already stigmatized by other cart operators, who steal his money, and customers, who pay him less than other operators, so that any further effect on his livelihood will be particularly detrimental¹⁸⁸. Transportation challenges of PWDs were discussed in Section 5.3.3.5.

Gender assessment: Vulnerable groups include both men and women as discussed above. Particular attention and mitigation must be afforded to these groups to ensure that negative impacts are minimised and benefits are maximised.

Impacts of Construction Works on Vulnerable Groups:

Nature: Negative, Direct

Magnitude: High

Duration: Short to Long term

Probability: Likely

Significance (before mitigation): High

5.2.3.8 Community and Lifestyle

Relocation of the local community sometimes causes ethnic, cultural, or religious conflicts with local people. Industrialization and modernization may change the cultural traditions of the local community although in this instance the community is already familiar with coexistence with the port. However, the port will be expanded into their immediate surroundings and the required security fence will alter the community from both a functional and social perspective. Community members will lose “the only piece of beach that we have access to in Kingstown.” Community members believe that their community should be modernized as well as the port¹⁸⁹.

Community effects will also include loss of social networks (i.e. interactions and mutual help with family members and others in the community), residential stability, informal conflict resolution mechanisms and concerns about social well-being. There is a strong sense of community and place in Rose Place, particularly among women who feel they need to be mentally and emotionally prepared to deal with issues of relocation. There is a fear of the unknown and leaving behind familiar people and memories¹⁹⁰. Residents also think that “Rose Place will not be Rose Place anymore.” Disruption in communities when similar projects were undertaken in other parts of the world has resulted in increased social tension and gender-based violence.

Potential relocation of affected households into surrounding villages will break up communities with definite patterns of interactions, behavior, and social support, both in the affected community and the receiving community. They may be relocated to environments where their productive skills may be less applicable and the competition for resources greater. There is a

¹⁸⁸ National Society for Person with Disabilities (NSPD), SVG, 2018, semi-structured interview

¹⁸⁹ Public Consultation, SVG, 2018

¹⁹⁰ Women’s Meeting, SVG, 2018

high degree of expectation that the project will bring local, as well as national level benefits, in particular employment opportunities. There is a possibility of unmet expectations in the local communities if these benefits are not realized. The presence of the project construction crews represents a significant factor in the socioeconomic environment and may impact community cohesion, create tensions with local communities, and change social relationships, if locals are not adequately recruited. Impacts, or perceived impacts, of inequitable distribution of benefits and on other community resources, may increase stress of change and of interacting within the community and with the project.

Gender assessment: Women, in particular, have strong ties to their community and will be more greatly affected, in terms of community and lifestyle, by relocation than men. This tends to have disproportionate impacts on women, who may be dealing with a range of other impacts such as increased financial dependence on men, household conflict and violence.

Impacts of Construction Works on Community and Lifestyle:

Nature: Negative, Direct

Magnitude: High

Duration: Short to long term

Probability: Likely

Significance (before mitigation): High

5.2.3.9 Gender Relations and Equity

Globally, the benefits from development projects tend to accrue more to men whereas the negative impacts affect women more than men. Impacts are gender differentiated primarily because women and men play different roles in households and communities in almost all societies. They have access to different resources and control of different assets, as well as different rights and responsibilities. Even among women in a community, roles, positions and status vary according to age and income. Consequently, women's capacity to seize the opportunities provided by large-scale projects such as the port project vary, as do their abilities to cope with the impacts from this development. Women and men experience poverty and insecurity differently. Security vulnerabilities also vary along social and economic sectors.

Women typically have primary responsibility of care for children and the elderly, as is the case in SVG. This means that any work outside the home represents a double burden of work for females. Loss of livelihoods or having to travel further away from home to access work (due to relocation) can lead to an increase in women's workload because they have to work further from home but still maintain the accustomed level of care. In addition, as was indicated during the discussions with the Rose Place community, women participate in the informal employment sector by working out of their homes (vending, food preparation etc.), partly to continue to take care of their children who are too young to attend school. If their traditional livelihoods are no longer available or viable, and they are unable to access alternative work due to a lack of skills or opportunity, women will face a significant decrease in income.

Changing women's jobs, increasing skills and time spent outside the home has the potential to change gender relations in a positive way but may also cause conflict in homes. Any interventions to increase employment levels and participation in the formal labour market by females must be approached with acknowledgement of this childcare/household role so that increased burdens of work do not affect health and well-being of women and children. Additional outreach may be required to encourage males in the sharing of these roles. Such strategies need to be accompanied by intervention with males so that they better understand the benefits, such as improved quality of life and conditions. Programmes already exist and are implemented by the Gender Affairs Division.

Loss of jobs by males (vendors, fisher folk), in households with both males and females, could also shift gender relations as men may perceive that they have diminished status from loss of income. Men also more frequently gain employment in construction projects and if the women no longer have an income there will be increased economic dependence on men, disempowering them and deteriorating any existing inequalities. This reduces their decision-making power within households.

This can eventually lead to the loss of traditional values and way of life, which can then diminish women's traditional status in society and undermine their productive and leadership roles.

Gender-based violence, although currently at a low level of reported cases in Rose Place, may also increase as the inter- and intra-household changes lead to gender equity shifts or frustration occurs because of a changed income level for both men and women. For example, disputes over control of new houses/property or access to financial benefits paid to affected households could increase domestic violence as existing inequalities could be exacerbated. There are several female heads of households in Rose Place so care must be taken to ensure that negotiations and compensation are addressed to the correct person on behalf of the household so that women are not disempowered or disadvantaged.

Impacts of Construction Works on Gender Relations and Equity:

Nature: Negative, Direct and Indirect

Magnitude: Moderate

Duration: Short to long term

Probability: Likely

Significance (before mitigation): Medium

5.2.4 Operational Impacts

Impacts that could potentially occur during operation of the modernised Port Kingstown are discussed in the following sections.

5.2.4.1 Population / Demographic Movement

The previous influx of construction workers will be reversed as temporary construction jobs are no longer needed and operations will not require new workers but rather will utilize existing staff. Any workers that may have moved into the Kingstown area to be nearer to the hub of work activity and other economic opportunities will most probably leave the area and return to their original home base. This is the usual trend seen with such large scale projects but the situation may differ if other sources of employment/income are found. In addition, due to the phased nature of this project, workers may stay in the area after each phase in the hope of being hired for the next phase of construction. Although generally seen as positive, this outflow may negatively affect any small-scale food/drink vendors who took the opportunity of the temporarily increased population to earn an income.

Gender assessment: Similar to the assessment for the inflow of workers, the departing population would be primarily male.

Impacts of Port Operations on Population / Demographic Movement:

Nature: Positive, Direct

Magnitude: Low

Duration: Short term

Probability: Rare

Significance (before mitigation): Low

5.2.4.2 Economic and Material Well-being

The project will have significant positive economic benefits on a national level through increased economic sustainability and stimulation, as well as increased government revenue; in particular, in the area of increased agricultural product shipments to the UK. The expanded and modernised Port Kingstown will position the country to increase its share of regional transshipment with other OECS countries, the wider Caribbean region and Latin America. In addition, increased investment in the local economy could create direct and indirect employment. Details of economic benefits can be found in the Economic and Financial Analysis for this project.

Employment

The existing number of employees at both Campden Park Container Port (CPCP) and Port Kingstown, as indicated by the SVGPA, is 256 and with the reduction in operations from both ports to Port Kingstown only, this number is expected to be reduced. Three transit sheds are

expected to be reduced to either two or one, and the number of required forklift and cranes (and hence operators) will also be reduced¹⁹¹.

Based on discussions with the SVGPA, there will be an as yet unknown number of displaced workers who may be afforded new skills development opportunities offered by SVGPA. This assessment will need to be revisited and possibly revised once these final numbers are determined.

At CPCP, any workers that are being retained will need to either move to Kingstown or travel there. This is not considered a significant impact since these workers originate from several areas in SVG, and have previously faced the reverse situation when container operations were moved from Kingstown to Campden Park.

Gender assessment: This impact will affect both male and female employees based on the proportion of males and females employed or vending at Campden Park. There will be differential impact related to commuting times, transportation requirements, redundancies in the case of downsizing, and general treatment between male and female employees. Given that at the national level there are higher rates of unemployment, unpaid work and informal employment for women, loss of jobs would exacerbate this situation for both female vendors and female employees at Campden Park.

Impacts of Port Operations on Employment:

Nature: Negative, Direct

Magnitude: Moderate

Duration: Short term

Probability: High

Significance (before mitigation): High

Economic Activity at Campden Park and Kingstown

Upon completion of the modernised and expanded Port Kingstown, CPCP will no longer be part of the day-to-day operations of the SVGPA. This means that all current economic activity, primarily industrial, at CPCP will be affected. This impact will be both positive and negative. There are several trade advantages of the new port for SVG industries as there will be expanded trading/shipping opportunities. Container shipping for imports and distribution will be in close proximity to Kingstown businesses, which will be an advantage for them¹⁹².

The majority of the cargo that is currently shipped through CPCP is transferred to businesses and warehousing in and around Kingstown. Centralization of all shipping operations to Kingstown will reduce this container traffic from Campden Park. Conversely, the industries that operate out of the Campden Park area, such as ECEG, will need to now transport their goods to Kingstown via container. The balance of the difference between these two flows of container traffic has not yet been analyzed so did not factor into the assessment of this impact. However,

¹⁹¹ SVGPA, SVG, 2018, semi-structured interview

¹⁹² Correias, SVG, 2018, semi-structured interview

there will now be an added cost to the companies at Campden Park, who are already operating with small profit margins, to transport their goods to Kingstown.

Impacts of Port Operations on Economic Activity:

Nature: Positive and Negative, Direct and Indirect

Magnitude: Low

Duration: Long term

Probability: High

Significance (before mitigation): Medium

Tourism

The expansion of operations at Port Kingstown is intended to encourage greater numbers of cruise ship passengers. The inter-island ferry terminal, when completed, is also expected to eventually serve as a regional terminal for visitors from other islands within the Caribbean, such as Martinique. Local tourists may also increase in number due to the attraction of a modernised port with its associated amenities. These increased numbers of regional and international tourists will contribute to the increased revenue and improved economy of SVG. Other services within the tourism sector, such as hotels, tour operators and taxis will accrue economic benefits from this increased number of tourists as well.

Gender assessment: Port Kingstown already has a well-established tourism industry, including cruise ship arrivals, so that port modernisation and increases in numbers of passengers are not expected to significantly increase crime rates or other anti-social behaviours (sex work, human trafficking, etc.). Nevertheless, sexual exploitation and human trafficking, connected to tourism or not, is a serious concern throughout the Caribbean and St. Vincent is no exception and such cases are investigated by the Royal SVG Police Force.

Tourism is known to have differential impacts on men and women due to their roles and responsibilities in supporting the industry. Women tend to be employed in the tourism industry, more than men, in the tour, accommodation/food services and air transport sectors. However, women are represented more in the lower-skilled and lower paid (typically 10% to 15% less than men) service areas, such as housekeeping and customer services, than men; replicating societal gender segregation. This affects pay, access to training and, hence, to better paid work. Women in the tourism industry are also subject to greater levels of sexual harassment than men¹⁹³.

Impacts of Port Operations on Tourism:

Nature: Positive, Indirect

Magnitude: Moderate

Duration: Long term

Probability: Likely

¹⁹³ Gender in Tourism (European Institute for Gender Equality, 2016)

Significance (before mitigation): Beneficial

5.2.4.3 Livelihood Activities and Assets

Ancillary services at Campden Park will also be affected. Service providers (handlers etc.) and vendors who currently operate at CPCP will have a reduced income and possibly lose their livelihood. Other industries operate in the Campden Park area so they could potentially offer their services to these companies instead. The future use of CPCP is as yet unknown so that these services may be required and they can resume their normal activities.

There will be increased opportunity for small-scale operations and/or individuals at Port Kingstown who may not be directly employed with the SVGPA but are rather contracted by the SVGPA for the provision of required services, or are employed by these contractors. There will be a canteen that can be operated by a small business and car park that will need a management company and staff. Other vendors may be required and the provision of uniforms to port staff is currently outsourced from Trinidad; local companies or NGOs could develop capacity to provide these. Other services may be required that will be clarified when final design details are available.

Gender assessment: The persons whose livelihoods would be affected are expected to be both male and female but the numbers of each are as yet unknown. We can expect differential impacts on female vendors due to the potential of limited mobility (family responsibilities or economic constraints), safety concerns, or other socio-cultural factors that might inhibit women's participation equally in competitive process for food vending opportunities.

Impacts of Port Operations on Livelihood Activities and Assets:

Nature: Negative and Positive, Direct and Indirect

Magnitude: Moderate

Duration: Short term

Probability: Likely

Significance (before mitigation): Medium

5.2.4.4 Public / Community Health and Safety

During port operations, there will be increased traffic, relative to current baseline conditions, from containers, trucks, and taxis for increased numbers of tourists. This increase may give rise to an increased number of accidents that can negatively affect the public. Emergency situations that occur at the port, such as fuel leaks or marine accidents may also affect public health and safety only if they extend beyond the boundaries of port operations.

Gender assessment: This impact, if it occurs will affect men and women equally.

Impacts of Port Operations on Public / Community Health and Safety:

Nature: Negative, Indirect

Magnitude: Low

Duration: Long term

Probability: Rare

Significance (before mitigation): Low

5.2.4.5 Vulnerable Groups

At present, PWDs are not employed at the port due to lack of access into the older buildings that make up the port areas. There is an increased opportunity for employment of PWDs in the modernised port, if training is provided and there is universal access incorporated into its design. Women and youth may also benefit from increased training opportunities and potential livelihood benefits described previously in the section on livelihood activities and assets.

Gender assessment: The relationship of this impact with the gender dimension will not be known until final design of the port and the associated services required are completed.

Impacts of Port Operations on Vulnerable Groups:

Nature: Direct

Magnitude: Moderate

Duration: Long term

Probability: Likely

Significance: Beneficial

5.2.4.6 Community and Lifestyle

The Kingstown and Rose Place residents have already integrated into, and are accustomed to, port activity in relatively close proximity to their residences and places of business/work. However, the port will essentially be moving closer to all activities as it extends in a northwest direction and reclaims additional land. Rose Place in particular will be immediately adjacent to the Inter-island Ferry Terminal when it is completed. The dynamics of this community's relationship with the port will be altered due to this new proximity.

Residents may choose to alter their livelihoods to take advantage of the presence of ferry passengers nearer to their community than before. Youths from the community, for example, may decide to become push-cart operators or others may set up vending stalls. These increased opportunities may have a positive effect on the community if their lifestyle and cohesion is not negatively affected. Other Kingstown workers, such as push-cart operators and taxis will concentrate within the vicinity of the community, which may lead to conflict between the community and these workers. This impact should not be very significant since the relatively small size of Kingstown means that the community is accustomed to being in close proximity with others from the Kingstown area.

The characteristics of the community will also change with time due to its reduced population and removal of social connections with family and friends. However, after the initial impacts during the construction phase, there is opportunity for the community to be revitalized through restoration and improvement of the remaining buildings and community members. The

proximity to a modernised port could improve the outlook and sense of pride of residents in their community and country. This can bring positive transformation if resettlement is managed correctly.

There could also be effects on the Campden Park community as the SVGPA would assist them by dredging the river for example. This removal of community assistance due to the complete relocation of SVGPA's activities to Kingstown may have a negative effect on this community if it is not replaced with intervention from other sources.

Gender: This impact would affect men and women equally.

Impacts of Port Operations on Community and Lifestyle:

Nature: Positive and Negative, Indirect

Magnitude: Moderate

Duration: Long term

Probability: Rare

Significance (before mitigation): Low

5.2.5 Cumulative Impacts

Cumulative socioeconomic impacts were assessed based on the proposed project's additive and synergistic impacts when considered with any impacts from existing Port Kingstown operations, as well as other existing or proposed undertakings within the study area. There are no other major infrastructures or other large projects currently being conducted or proposed for the Kingstown area. Kingstown is already very heavily occupied, so capacity for such projects is very limited. Other existing activities in the vicinity of the project site that may contribute to cumulative effects include hardwares, supply stores, transportation facilities, Correas, Gibson's and other commercial enterprises.

5.2.5.1 Public/Community Health and Safety

Public health effects will be cumulative since there is already noise and dust emanating from existing commercial activities. Any additional effects of dust and noise on people's health will be detrimental. Traffic and risk of accidents are also cumulative safety impacts in the busy, traffic-filled capital city of Kingstown. There is already a high number of containers and other large transport vehicles moving in and around Kingstown. Increases in these levels will have cumulative consequences on public safety.

5.2.5.2 Multiple Displacement

The socioeconomic impacts of displacement required by the project could be compounded by past infrastructure projects that involved land acquisition or relocation of people. For example, some people who were relocated from Lowmans and moved in to Rose Place might again be affected by the proposed project. They have shared these experiences and impacts with others in Rose Place thus increasing negative perceptions, fears and stress. Since the number of

such multiple-displaced persons is small compared to the overall Rose Place population, mitigation through conventional compensation and resettlement should suffice.

5.2.5.3 Psycho-social Effects

Potential disputes can add to existing levels of stress of affected people; discussion of resettlement could lead to such disputes. Those who will be most affected by the project (Rose Place community, vendors, fisher folk) are already on the low income strata of the economy and, in particular, a high level of poverty exists in Rose Place. Any additional psycho-social effects such as stress and fear of the unknown will be additional to the existing stressors from people's financial and social concerns.

Combined Assessment of Cumulative Impacts:

Nature: Indirect

Magnitude: Moderate

Duration: Long term

Probability: Rare

Significance (before mitigation): High

A summary of the potential socioeconomic impacts that were analyzed above is provided in Table 25.

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

Table 25: Summary of Socioeconomic Impacts (Pre-Mitigation)

IMPACT CATEGORY	IMPACT SUMMARY	IMPACT SIGNIFICANCE
CONSTRUCTION		
Population/Demographic Movement	Physical displacement of households and/or population segments - Rose Place Community	High
	Influx of construction workers, job seekers and opportunists	Low
Economic and Material Well-being	Economic Benefits - national construction sector; compensation	Beneficial
	Employment - temporary construction workforce	Beneficial
	Economic Activity - Kingstown businesses in the vicinity of construction	Medium
Livelihood Activities and Assets	Segments of the Kingstown workforce will either lose their livelihoods, will experience alteration of their livelihood activity, or will need to seek alternative livelihoods	High
Community Organisations and Local Institutions	Additional burden will be placed on government institutions	Medium
Social Services and Infrastructure	Transportation, educational services and access to health and other social services will be affected	Medium
Public/Community Health and Safety	Noise, dust and accidents may affect the public	Low
Vulnerable Groups	PWDs, children, the elderly and women are particularly affected by any relocation of livelihood impacts	High
Community and Lifestyle	Social networks, community cohesion and sense of place will be affected by any required displacement	High
Gender Relations and Equity	Power relations, traditional status, leadership roles and gender-based violence may be affected	Medium
OPERATION		
Population/Demographic Movement;	Outflow of temporary workforce	Low
Economic and Material Well-being	Employment - Reduction in required workforce at modernised port	High
	Economic Activity - Container shipping relocated to Port Kingstown	Medium
	Tourism - Increased numbers of cruise ship passengers and other tourists in the long term	Beneficial
Livelihood Activities and Assets	Providers of support services at CPCP will experience reduced income	Medium
Public/Community Health and Safety	Accidents at the port may affect the public if the effects extend beyond the port boundary	Low
Vulnerable Groups	Opportunity exists for PWDs and women to benefit financially either directly or indirectly from the port	Beneficial
Community and Lifestyle	Presence of fence and increased visitors in closer proximity	Low
Cumulative Impacts	Previous displacement	High

6. MITIGATION / OPTIMISATION MEASURES

6.1 Mitigation of Environmental Impacts

The general policy for mitigating environmental impacts, in order of priority, is:

- Avoiding the potential impact to the maximum extent practicable by adopting suitable alternatives.
- Minimizing unavoidable impacts by taking appropriate and practicable measures, such as constraints on intensity of works operations (e.g. dredging rates) or timing of works operations.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Compensating the loss of important species and habitats by replacing or providing substitute resources or environments. Enhancement and other conservation measures should always be considered whenever possible.

6.1.1 Noise Impacts

6.1.1.1 Construction Noise

During the construction works, it is the responsibility of the contractor(s) to ensure that noise limits are monitored.

In general, the following operational noise levels should be observed:

Table 26: WHO Noise Limits

District	Noise Limit dB (A)	
	Day	Night
Residential quarters	45	35
Mixed area – residential and commercial	55	45
Mixed area – residential, commercial and industrial	60	50
Industrial area	65	55

Source: WHO¹⁹⁴

The port is considered industrial area. When planning new industrial sites, usually there should be a buffer zone between this land use and the closest residential area; this is not possible in Kingstown due to the limited space available.

Bay Street, the nearest inhabited area, is a mixed area (residential and commercial); noise levels therefore should ideally be limited to 55 dB (A) at daytime, and 45 dB (A) at night. As described in chapter 4.2.3, the baseline noise in Kingstown already exceeds standard values

¹⁹⁴ WHO World Health Organization, Geneva, 2007: Guidelines for Community Noise

during heavy traffic hours. Further exceedance, however, should be avoided and the limits for night time noise should be observed.

When starting construction works, it is recommended to perform noise monitoring to check the actual noise levels at the nearest sensitive receptors. If construction noise exceeds current values, the following measures should be taken:

- Fitting of noisy construction equipment and vehicles with mufflers and other suitable noise attenuation devices.
- All sound-reducing devices should be properly maintained.
- Avoiding any idling of equipment and vehicles when not in use.
- Scheduling noisy activities for daytimes only – in particular sheet piling should generally be carried out between 7:30 am and 6:00 pm, and not on Sundays.
- Provision of temporary movable acoustic shielding / barriers where necessary and practicable.

It is important to inform the residents of any noisy work on construction site. All residential units located close to the construction site should be sent a notice regarding the construction schedule of the project.

It is also recommended to post a sign at the construction site indicating the dates and duration of construction activities, including a telephone number where residents can inquire about the construction process and register complaints.

Occupational Noise Exposure

In order to protect the construction workers from excessive noise levels, noise should be monitored directly at construction site - a noise exposure level of 80 dB (A) should not be exceeded. If this level has been measured, the following should apply:

- Information of workers (before the limit is reached).
- Contractor has the responsibility to provide PPE / hearing protection to all workers exposed to noise, workers have the obligation to wear them.
- Arranging of preventive occupational medical care (mandatory, when the limit value is reached).
- Marking of noisy areas (when the noise limit is exceeded).
- Preparation of a noise reduction programme.

6.1.1.2 Operational Noise

Potential negative impacts associated with operational noise are rated high before mitigation. Mitigation measures include:

- Monitoring of noise directly at the terminal and at nearest sensitive receptor.
- Cargo handling equipment should be noise reduced, e.g. by good sound isolation, mufflers, exhaust silencers and other suitable noise reduction devices.
- Regular maintenance of all sound-reducing devices.
- Establishing an anti-idling policy for all trucks and for cargo handling equipment.
- Training of equipment operators on “soft” driving as lower driving speed gives lower engine and tire noise.
- Training of crane drivers on “soft” lowering of containers, general noise awareness training.
- Acquisition of a more silent machine fleet when investing in new machines, e.g. electrically-driven or hybrid machinery.
- Reduction of loud impulse noises generated by ferry ramps e.g. by putting rubber linings and insulations onto the ramps to eliminate the noise.
- Construction of noise walls or barriers to keep the noise under the limit values outside the port area, if necessary.

SVGPA should maintain good communication with residents; any complaints about noise disturbances should be resolved by implementing reasonable noise reduction measures.

Occupational Noise Exposure

In order to protect the port workers from excessive noise levels, noise should be monitored directly on the terminal - a noise exposure level of 80 dB (A) should not be exceeded. If this level has been measured, the following should apply:

- Informing workers (before the limit value is reached).
- Obligation to wear PPE / hearing protection.
- Arranging of preventive occupational medical care (mandatory, when the action value is reached).
- Marking of noisy areas (when the noise limit is exceeded).
- Preparation of a noise reduction programme (when the noise limit is exceeded).

6.1.1.3 Underwater Noise

Pile driving uses generally high-energy impact hammers, which can produce high sound levels in the surrounding waters (as well as in the air). There is a growing concern about the potential effect of construction-related underwater sounds on marine mammal and fish populations.

Examples of peak underwater sound pressure levels measured from impact pile driving are on the order of 220 dB at a range of ~10 m from 0.75-m-diameter piles, and on the order of 200 dB at a range of 300 m from piles that are 5 m in diameter.

Loud impulsive underwater sounds can potentially have physiological effects on fish and on marine mammals like whales and dolphins. At greater distances from the source or at lower sound levels, the potential effects include masking of biologically important sounds and/or the effects on behavior¹⁹⁵.

The German government issued a *Concept for the Protection of Harbour Porpoises from Sound Exposures during the Construction of Offshore Wind Farms in the German North Sea* (German Environmental Ministry, 2014) that states that it is plausible to assume that avoidance and flight behavior are likely to occur at exposure to a received sound level of 140 dB. Therefore, the German regulations further established noise induced injury prevention thresholds that call for sound levels not exceeding 160 dB and a peak-to-peak sound pressure level not to exceed 190 dB at a distance of 750 m from the pile.

Mitigation measures include:

- Installation of noise mitigation systems such as bubble curtains, screens, or cofferdams.
- Visual observation of marine mammals, monitoring of an exclusion zone around the pile to ensure the absence of marine mammals.
- Prohibition of piling in the seasons with the highest abundance of sensitive species.
- Deterrence of animals from the vicinity of the pile by applying acoustic deterrent devices before the actual start of the piling, or by a “soft start” of the pile driving at a lower hammer energy.
- Installation of rubber bumpers at the inside face of the lattice openings to prevent steel-to-steel contact.

¹⁹⁵ <https://acousticstoday.org/wp-content/uploads/2015/06/The-Underwater-Sound-Field-from-Impact-Pile-Driving-and-Its-Potential-Effects-on-Marine-Life-Peter-H.-Dahl-Christ-A.-F.-de-Jong-and-Arthur-N.-Popper.pdf>

6.1.2 Air Quality Impacts

6.1.2.1 Construction Air Impacts

Impacts on air quality during construction phase are temporary and reversible. They are directly linked to diesel exhaust which can cause serious environmental and health impacts, if not mitigated.

Impacts are rated moderate, provided that BEP is applied. This includes:

- Establishing an anti-idling policy for all construction equipment, including trucks and cargo handling equipment, or use automatic shut-down devices for vehicles and equipment that are on idle for more than 3 minutes.
- Retrofit existing diesel with pollution control technology (“after treatment” devices) to reduce emissions of PM, HC, CO and NOx. Technologies for on-road and non-road engines include:
 - Diesel Oxidation Catalyst
 - Diesel Particulate Matter Filter
 - Selective Catalytic Reduction (SCR).
- Training of workers on more environmentally conscious driving.
- Regular maintenance of all equipment.

6.1.2.2 Operational Air Quality Impacts

Mitigation measures as above.

Furthermore, an emissions inventory should be compiled by SVGPA which will provide a baseline for developing emission mitigation strategies and track performance over time.

Mitigation of impacts caused by vessel exhaust:

- Training of port environmental officers Port State Control Officers - The port must be able to monitor compliance of vessels with stricter emissions regulations by the MARPOL Convention from 2020.

6.1.3 Water Quality Impacts

6.1.3.1 Mitigation of Construction Impacts

Construction impacts on water quality are ranked high (before mitigation).

The Contractor shall ensure that all site run-offs arising from the reclaimed area and the construction site is avoided as far as possible.

Mitigation measures include:

- Prevention of storm water run-off by constructing bonds (earth bunds or sand bag barriers) and silt fences around bare areas.
- Minimizing of water flow where it has the potential to cause erosion from construction site.
- Construction of storm water basins / catch basins to collect and control run-off
- Containment around material stockpiles, in particular around hazardous material like oil, fuel, paint, etc. Always have a spill kit available for emergencies.
- On-going maintenance of sediment and erosion controls, coverage of exposed slope/soil surface.
- In order to prevent any significant turbulence during dredging it is recommended to conduct dredging works in dry season and/or to employ silt curtains.

General BEP on construction site includes:

- Collection of debris and rubbish generated on-site at least once per day, proper disposal to avoid being flushed or blown by wind into the sea.
- Stockpiles of construction material like cement should be kept covered when not being used.
- Provision of clean and convenient restroom facilities / portable toilets, at least one toilet and one urinal per 40 workers; disposal of waste and maintenance by a licensed contractor.

6.1.3.2 Mitigation of Operational Impacts

Water Quality Monitoring:

- SVGPA's HSE-Department should at least visually monitor the water quality around the port on a regular basis. Mooring areas and anchorages should regularly be checked for visible oil pollution / oily sheen.

Vessel control:

- Training of Port State Control Officers / Environmental Officers on vessel control with regard to compliance with MARPOL Annexes I, V and VI and with the BWC.
- Inspection of ships according to the number specified in the "Memorandum of Understanding on Port State Control in the Caribbean Region".

Handling and Storage of Dangerous Goods:

- Dangerous goods should not be stored inside the port; such cargo should be subject to direct delivery.
- If Dangerous Goods have to be stored, containers should be stored as described in Chapter 4.2.6.
- One or two mobile “spill trailers” (a container trailer equipped with a collecting tray that can be moved by terminal tractor to a place of damaged container) should be available as an emergency measure in case of a leaking container (see Figure 57 below).

Figure 57: "Spill Trailer"



Source: HPC

- Employees should be trained regularly (at least every two years) on handling and storage of Dangerous Goods in accordance with the IMDG Code.
- The actual version of the 2-volume IMDC Code plus supplements should be available on the terminal and in the operations office. Note that amendments are made to the IMDG Code on a two-year cycle.
- For incidents involving small spills, a spill kit should be available containing a range of spill clean-up tools like absorbents, over drums, drainage seals, drip trays and PPE for spill responders.
- For emergencies involving big spills, there should be a contingency plan at SVGPA in cooperation with NEMO and the local oil companies who possess sufficient equipment to control bigger oil spills.

Figure 58: Example of a Spill Response Kit



Source: HPC

6.1.4 Dredging and Reclamation Impacts

Dredging

Impacts resulting from the dredging works are predicted to be low and reversible, as the dredging site volume is small and the dredged area will soon be recolonized. Therefore, no special mitigation measures are recommended.

Reclamation

The source of material required to fill in the site has not yet been decided on. Therefore, the quality of material (dredged material or from quarries) is also not known.

- Dredged material will be filled in a basin to provide some retention time to allow the solid content of dredged material to settle and then can be used for backfilling. The water in the basin is discharged back to the sea.

Prior to discharging the water, adequate physical treatment like filtering is required to limit the solids content in the outflow to avoid turbidity.

- Material from quarries delivered by barge has the potential to generate dust and must be kept moist to avoid air/dust emission.

The loss of soft bottom flora and fauna within the reclamation area cannot be mitigated. It could be avoided by constructing the terminal on piles. This would also largely address sedimentation and erosion issues. Given the limited budget of the project¹⁹⁶, however, such a solution might be too costly.

Therefore, adequate compensation should be provided. When effectively designed, managed and executed by well trained and experienced personnel, the loss of sensitive habitats can be minimised.

Compensation measures could include participation of SVGPA in projects that would bring about a significant improvement in water quality, such as adequate wastewater treatment, which appears to be one of the most pressing environmental problems in St. Vincent, or other projects that should be developed in coordination with MOHWE and other authorities, e.g. CWSA, or the National Parks, Rivers and Beaches Authority.

The loss of the hard bottom fauna covering 380 m of rock revetment can at least partly be compensated by constructing rock revetment at the two sides of the terminal, 130 m each.

6.1.5 Coastal Impacts

Due to the east-western current in parallel to the coast sand will be deposited at the up-drift side of the terminals, while coastal and beach material will erode at the down-drift side. To avoid this, technical effort is necessary. The sand deposits must be dredged regularly, while on the eroded side sand has to be deposited.

It has to be ascertained whether the small piece of beach, which is still available after the construction of the terminals, should be preserved, because preservation is only possible with costly technical expenditure like artificial beach nourishment or by constructing groynes.

Due to the lack of mitigation options, compensation measures should be carried out as described in Chapter 6.1.4. above.

6.1.6 Visual Impact

The Consultant does not see any possible mitigation measures that could lessen the visual impact of the terminals, neither during construction nor during operation. The project area lacks space for measures that are otherwise often used, such as planting of trees. Also alternate color selection or attempts at camouflaging the cranes are unlikely to mitigate it; from most viewpoints the terminals would result in appreciable visual impact.

¹⁹⁶ Mott MacDonald, SVG Port Master Plan, Re-Scoping Study, Final Report, 09 June 2017

Light impact

- The light intensity on the terminal should be limited to the minimum safety, security and operational requirement.
- The lighting should be directional and full cut off – any glare and direct upward light, sky glow and glare should be avoided.
- It should be possible to switch off terminal light, lighting should be only applied at areas, where operation takes place, and unnecessary over lighting should be avoided.
- LED lighting is recommended for energy saving and for more stringent light control reducing light spills and light trespass.
- It should be avoided to work at night.

6.1.7 Dust Impacts

6.1.7.1 Mitigation of Construction Impacts

Construction best management practices used to minimize fugitive dust impacts include:

- When earthworks are carried out, water has to be sprayed to control dust.
- Street sweepers have to be used whenever sand and building material have reached the roads.
- If wind blows sand from the unpaved reclaimed area, wind fences must be installed to reduce the amount of windblown material leaving the site.
- To avoid dust from vehicles, an on-site speed limit for construction vehicles of twenty-five (25) km/hr should be imposed.
- Soil stockpiles should be covered.

Mitigation of Workers' Health Risks:

- Use of silica-free materials and abrasives.
- Use of water spray to dampen down dust clouds.
- Use of Respiratory Protective Equipment (RPE) adequate for the amount and type of dust.
- Limiting the number of people to be exposed to dust, e.g. by work rotation.
- Train workers to make sure they are carrying out the job in the correct way and are using the controls properly; they should:
 - Know about dust risks and how this can impact their health

- Know how to use the dust controls and check that they are working
- Know how to use and look after RPE and other personal protective equipment (PPE)
- Follow the correct work method.

6.1.7.2 Mitigation of Operational Impacts

Dust generation by port work is not expected as no dry bulk will be transshipped. Therefore, no mitigation measures are required.

6.1.8 Traffic Congestion and Accident Risks

6.1.8.1 Mitigation of Construction Impacts

Traffic management is essential. It can be assumed that the Foreshore road, on which the construction works will directly take place, will be closed to vehicle traffic.

- When roads have to be closed, the contractor has to give advance public notice to motorists of the nature, extent and duration of lane closings and detours.
- Detour signage has to be placed in strategic locations and appropriate warning signs have to be used.
- Construction vehicles should be scheduled during off-peak hours whenever feasible.
- For safety reasons, pedestrian access should be prohibited within the delineated construction area.

6.1.8.2 Mitigation of Operational Impacts

Truck traffic impacts on Kingstown's roads could be defused by the following measures:

- The port could promote (e.g. by offering incentives for) off-peak operations.
- Terminal gate hours could be extended beyond the regular schedule.

Such measures could reduce truck queuing, idling, and traffic congestion, increase flow and efficiency, and reduce also the impacts of diesel exhaust.

6.1.9 Waste Impacts

6.1.9.1 Mitigation of Construction Impacts

Each contractor has to manage the waste generated in its activities.

It is not anticipated that adverse waste related impacts would arise, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities include:

- Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.
- Training of site personnel in proper waste management and chemical handling procedures.
- Provision of sufficient waste disposal points and regular collection for disposal through a licensed waste hauler.
- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.
- Appropriate measures to minimise windblown litter by either covering trucks or by transporting wastes in enclosed containers.
- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.
- Careful planning and stocking of construction materials to avoid unnecessary generation of waste.

6.1.9.2 Mitigation of Operational Impacts

The new port has a separate solid waste reception facility and thus meets the requirements of Annex V of the MARPOL Convention.

Measures to mitigate impacts by port- and vessel-generated waste are general BEP-measures, like:

- Arranging for regular pickups of the garbage to avoid odour nuisance or infestation by vermin.
- The garbage should be collected by an approved carrier.
- Provision of color-coded waste containers for sorting and recycling - At present, recycling rates are low in SVG, all waste is generally landfilled. Considering the low landfill capacity it can be assumed that waste recycling will have to increase. Therefore, the port should be able to sort waste, which is best accomplished with standard, color-coded containers and simple, appropriate training programs.

SVGPA's EHS department should be trained to check ships for compliance with the obligation to dispose of waste. In this respect, there should also be close networking between all Caribbean ports.

6.2 Socioeconomic Mitigation Measures

Potential impacts were identified and assessed, after which mitigation measures were designed to address the key impacts to safeguard against socioeconomic and gender impacts. The proposed mitigation measures were designed to avoid adverse impacts upon groups that may be disadvantaged during the project by virtue of their age (children), ethnicity, religion, culture, gender, and disability.

Mitigation was based on the hierarchical approach:

- Avoidance – Measures to stop the negative impact from occurring,
- Reduction – Measures to minimize or reduce the negative impacts that could not be avoided, and
- Compensation – Measures to cover displacement/replacement costs and livelihood restoration where appropriate.

The main objective of the mitigation measures is to reduce the significance of the potential impacts to an acceptable level for all aspects of the project and interrelations with the socioeconomic environment. In addition to mitigating negative impacts, these measures are also designed to maximise the socioeconomic benefits of the project. They have been developed based on established industry practice, stakeholder recommendations and expert opinion. Mitigating measures and procedures for both construction and operation are grouped according to impact categories. An assessment of the residual impact remaining after implementation of the mitigation measures is also provided. The mitigation measures and residual impacts presented in this section are to be appropriately managed, if needed, according to the Environmental and Social Management Plan (ESMP) presented in Section 7 of this report. Table 27 summarises the mitigation measures determined for this project.

6.2.1 Construction

6.2.1.1 Population/Demographic Movement

Potential negative impacts associated with population/demographic movement ranged from low to high before mitigation. The recommended mitigation measures are:

Physical displacement of households and/or population segments

- Develop and implement a Resettlement Plan (RP) (Appendix 3) before project works start, in accordance with the GOSVG Resettlement Policy Framework, World Bank Operational Policy OP 4.12 and International Finance Corporation (IFC) Operational Directive, OD 4.30 that ensures relocation is done in a manner that causes minimal disruption to the displaced persons and their livelihood activities.
- Women and girls with limited access to education and employment would face greater risks during the resettlement process and, thus, would require ongoing attention and

support. Improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites taking into consideration specific needs women might have around safety and family.

- Develop and adopt a Stakeholder Engagement Plan (SEP) (Appendix 4) and a comprehensive public awareness communication and outreach campaign prior to construction, including the identification of Community Liaison Officers (CLOs) for continuous and transparent communication about displacement, resettlement and other project-related issues, thus ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected, in particular women and girls.
- Provide Livelihood Restoration Assistance to those whose livelihoods will be greatly affected. Ensure equal participation of women and men in livelihood restoration plans, specially addressing the increased vulnerability of women and girls as a result of loss of livelihood.
- Replace any social infrastructure that will be destroyed, or whose mode of functioning will be altered by the project.
- Set up a Grievance Mechanism (Appendix 5) to address complaints and prevention and compensation measures, as well as remedial measures.

Residual Impact: The impact after mitigation ranges from low to medium depending on characteristics of the individual/household being displaced, such as level of attachment to their homes and perception of location/community to which they will be relocated. Note that this impact will only be reduced from high significance if the Resettlement Plan and Stakeholder Engagement Plan are implemented as prescribed in these respective documents, and in an equitable, transparent, culturally sensitive manner.

Influx of construction workers, job seekers and opportunists

- Disseminate the project's strategy on local recruitment to help minimise the extent of in-migration, including through the SEP and via media announcements at national levels.
- Unskilled labour should be preferentially recruited from the Affected Community.
- Applications for employment will only be considered if submitted via the official application procedure.

Residual Impact: The implementation of the proposed mitigation measures will help to manage expectations of employment and reduce the number of in-migrants; thus, the residual impact remains at low significance.

6.2.1.2 Economic and Material Well-being

Potential impacts associated with economic and material well-being ranged from beneficial to medium before mitigation. The recommended mitigation measures are:

Economic Benefits

The positive effects of cash compensation need to be monitored as described in the RP to ensure that this positive impact is not negated by mismanagement of funds by recipients.

Employment

The expectation of employment during construction by the Affected Community is a positive impact but management measures described below should be implemented to ensure that maximum benefits are achieved:

- Seek to manage employment expectations by explaining the number and type of opportunities in advance to local communities via the SEP and by providing clear job descriptions in advance of recruitment; explaining the skills required for each post.
- Targets for local recruitment from the Affected Community should be agreed with the Contractor. Terms of Reference for the Contractor could explicitly state: “The Contractor will be required to present a plan for local employment, capacity building and/or skills transfer among skilled and unskilled workers on the Phase I and subsequent activities”.
- Ensure that women are given equal opportunity to apply for jobs, and participate in skills training, related to construction activities. This will require outreach and awareness building to familiarise females with these non-traditional employment options.
- A recruitment policy and process should be developed; the Contractor will explain the temporary nature of construction-related jobs during the recruitment process and explain to workers the need to prepare for losing jobs and to manage their income wisely while employed.
- Community Liaison Officers will monitor that persons from the Affected Community are given priority in recruitment and that recruitment is non-discriminatory.
- Job vacancies will be advertised through appropriate and accessible media.

Economic Activity

The affected businesses and other effects on economic activity such as disruption/relocation of transportation hubs should be mitigated by the following measures:

- Mitigation measures described in previous sections on environmental impacts to minimise traffic impacts will also apply to this impact.
- Project schedules should be discussed with affected businesses prior to construction and during construction, in order for affected people to time their activities to coincide with construction and not to unnecessarily suspend their activities.

- Relocation of businesses, if necessary, or diversion of traffic/customers around the buildings should be adequately explained to those affected at least two months prior to the commencement of project activity so necessary arrangements can be made.
- The project will seek to purchase goods and services from within the country and will monitor such purchases.

Residual Impact: Adequate warning and preparation of affected members of the business community for any negative effects during project activity will reduce this impact to low significance.

6.2.1.3 Livelihood Activities and Assets

Potential impacts associated with livelihood activities and assets are high before mitigation. The recommended mitigation measures are:

- Project schedules should be discussed prior to construction and during construction, in order for affected people to time their activities to coincide with construction and not to unnecessarily suspend their activities.
- Develop and adopt a Stakeholder Engagement Plan (SEP) (Appendix 4), including the identification of Community Liaison Officers (CLOs) for continuous and transparent communication about displacement, resettlement and other project-related issues.
- Provide information and answers to the community utilizing the measures outlined in the SEP.
- Accept and respond to complaints from affected or economically displaced persons via the Grievance Mechanism.
- Involve vendors and fisher folk who will be displaced in plans for relocation immediately and work with them to determine suitable alternative location(s).
- If suitable relocation is not possible, provide Livelihood Restoration Assistance to those vendors and fisher folk whose livelihoods will be greatly affected, with an aim to strengthening the livelihoods of project-affected people and households. The existing TVET initiative is one option for implementing skills training programmes; the GOSVG is committed to transforming TVET into a vehicle for building the strong skill base that the workforce requires to become more competitive.
- Monitor vendors, fisher folk and other economically displaced persons impacted by project-related relocation to ensure they are able to re-establish livelihoods.
- Give priority to community members and economically displaced vendors for unskilled labour during the project activity, especially females and youths; these groups need special consideration to improve their situation if possible.

- Ensure that there are linkages of affected people to the benefits and opportunities associated with the project, including supporting job skills training and employment readiness initiatives, in anticipation of project construction-related opportunities. This strategy is expected to have limited impact due to the short overall construction window but upgrading the skills of the community will be of long-term benefit for them as far as unemployment is concerned.
- Include economic displacement considerations in the RP (Appendix 3) to compensate for livelihoods, if necessary, to the affected persons.

Residual Impact: It is recognized that compensation alone may not guarantee restoration or improvement of living standards. Complementary livelihoods assistance and transitional support measures will be delivered as described above to ensure that all affected people, particularly those who may face exceptional or disproportionate challenge, can restore their livelihoods to pre-project levels. The possibility of people having to engage in alternate livelihoods, or be compensated for lost livelihoods, means that the impact will be reduced to low to medium after mitigation, depending on the individual's perception of acceptability of the measure applied. For example, fisher folk have stated that compensation may not be adequate if their entire way of life is changed so that maintenance of their livelihoods is the preferred option.

6.2.1.4 Community Organisations and Local Institutions

Potential negative impacts on community organisations and local institutions are medium before mitigation. The recommended mitigation measures are:

- Include additional community members on project board, including women and other vulnerable groups.
- Coordinate with government ministries to implement the project and assist where possible.
- Align project, where possible, with existing efforts of government agencies to reduce burden on the public sector.

Residual Impact: The mitigation measures prescribed will reduce this impact to low significance.

6.2.1.5 Social Services and Infrastructure

Potential negative impacts on social services and infrastructure are of medium significance before mitigation. The following measures will be taken to reduce any impacts on other infrastructure:

- Contractor will include measures to protect the integrity of the third-party services, which are acceptable to the SVGPA.

- Pre-entry agreements including reinstatement requirements will be agreed prior to work potentially affecting third party assets.
- Any damage to third-party services, such as electricity or water, is to be repaired promptly.
- Any planned diversion of services will be communicated to local authorities, affected communities and members of the public at least 72 hours in advance of the works.
- Relocation of transportation services (bus terminal), or diversion of traffic should be adequately explained to those affected at least two months prior to the commencement of project activity. In the case of members of the public, notice of relocation of the bus terminal and any other affected essential services must be placed in the media at least 72 hours in advance of works.

Residual Impacts: Unplanned damage or disruption to infrastructure and utility services as a result of construction activities is expected to be of temporary duration and with the mitigation measures described, the residual impact is considered to be of low significance. Further opportunities exist to improve services and infrastructure within the community as the project progresses.

6.2.1.6 Public/Community Health and Safety

The potential negative impact on public/community health and safety is considered to be low before mitigation. The recommended mitigation measures are:

- Review measures to mitigate community health and safety impacts regularly and consult community leaders every six months, informing them on the status of implementation and results and discussing any changes needed to SVGPA health and safety measures.
- Disclose information to community and members of the public regarding potential health and safety impacts and mitigations at a sufficient level of detail to help these stakeholders to fully understand current and expected risks and, as necessary, additional measures to be implemented.
- Construction traffic warning signs will be positioned at road crossings and other appropriate locations, for example along access routes, before they are used by construction traffic.
- Public space lighting, additional safety lighting and pedestrian walkways will be provided in and around the construction site to help improve public safety while traversing the area.
- CLOs will participate in, or deliver safety awareness training to, the local community, as necessary. Particular emphasis will be placed on talking to children and explaining the dangers of construction sites. This will include school children who commute daily between the inter-island ferry terminal and local secondary schools.

- Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency).
- A strict project area speed limit of 30 km/hr should be enforced for project vehicles.
- Night-time driving will be by exception only, as approved by the SVGPA, to minimise driving risk and disturbance to communities.
- Temporary traffic control (e.g. flag persons) and signs will be provided where necessary to improve safety and provide directions.
- Traffic control or careful selection of the exit from the working areas will be implemented with the aim of ensuring that vehicles join the road in a safe manner.
- At sensitive locations where project construction traffic will be using local roads, and particularly where schools and markets are close to the road, awareness of safety issues will be raised through the mechanisms described in the SEP.
- At locations where schools are very close to a road used by project-related traffic, the construction contractor will plan works to minimise the delivery of heavy loads at times when children are likely to be walking to and from school.
- Socioeconomic issues, such as community relations, local issues and sensitivities, will be included in workforce and visitor induction training.
- Fugitive dust should be managed by covering storage and handling areas, where practicable; installing dust suppression mechanisms (e.g., water spray); regularly sweeping docks and handling areas, truck and storage areas; minimizing dry cargo pile heights and containing piles with perimeter walls and/or wind break fencing; and covering transport vehicles.
- Measures to reduce noise as described in the environmental section.

Residual Impact: The residual impacts associated with public/community health and safety from noise, dust and traffic-related accidents are low after mitigation.

6.2.1.7 Vulnerable Groups

The potential negative impacts on vulnerable groups are considered to be of high significance. The recommended mitigation measures are:

- Give priority to community members for unskilled labour during project activities, especially females, PWDs and youth; these groups need special consideration to improve their situation if possible.
- Provide additional transitional support to vulnerable households and individuals who are at an elevated risk of hardship if they are affected by resettlement or loss of livelihood.

- Identify opportunities for new/expanded income-generating opportunities for vulnerable groups (e.g., poor, unskilled women, youth, and PWDs who may benefit from job opportunities that may become available).
- Provide Livelihood Restoration and Assistance, in particular, technical and vocational training that includes those mentioned by women and youth in the community: food preparation, hotel management, sewing, cookery, healthcare, childcare and trades, such as carpentry, electrical, bar-tending and cosmetology. Gender-specific examples in training materials and gender-sensitive methodologies will be used that enable active participation and learning by women in training programmes. The programmes' content, implementation, as well as delivery channels will be sensitive to women's time constraints, care burden and socioeconomic constraints. The programmes will be designed to reflect gender-specific needs and seek to close gaps between men and women around livelihood selection and decision-making. Skills training can be facilitated through the GOSVG's existing TVET initiative or through project-specific training programmes.
- Provide equitable access to land/housing, resettlement, alternative livelihoods and compensation.
- Ensure that these vulnerable groups benefit from any new or ongoing programmes that seek to provide physical/technical assistance.

Residual Impact: The implementation of mitigation measures will alleviate the impacts on the identified vulnerable groups. However, the nature of their inherent vulnerability to relocation and livelihood effects does not change even with mitigation. Therefore, the residual impact on these groups remains at a significance level of medium.

6.2.1.8 Community and Lifestyle

The potential negative impacts on community and lifestyle are high before mitigation. The mitigation measures are:

- Provide social support to the community especially with respect to community activities such as participation in fish nights.
- Develop an improved relationship with the community and the public through the implementation of the SEP.
- Maintain regular liaison with local communities before, during and after construction.
- Present final design concept to the community as soon as it is available so that they can understand the effects on their community.
- Implement the RP as prescribed to minimise loss of social cohesion.

Saint Vincent and the Grenadines Port Authority

Port Modernisation Project, Kingstown Saint Vincent Draft ESIA Report

- Explore possible measures to ease their community and lifestyle transition due to displacement, including community development projects that alleviate poverty and increase choices for women.
- Preserve traditions in the community with minimum loss and disturbance.
- Explore options for community improvement, modernisation and revival with the appropriate; government agencies, such as suggestions made by the community for a business complex in or near Rose Place to offset loss of vending opportunities.
- Work with the affected community to draw up community development plans.

Residual Impact: Implementation of these mitigation measures will reduce this impact from high to low as the community will feel less disempowered, and the relationship between SVGPA and the community will be improved.

6.2.1.9 Gender Relations and Equity

Potential negative impacts on gender relations and equity are medium before mitigation. The recommended mitigation measures are:

- Ensure that women benefit from any new or ongoing programmes that seek to provide physical/technical assistance.
- Implement vocational and job skills training, mentoring and apprenticeship programmes (including those targeted at women, youth and marginalised groups).
- Provide equitable access to land/housing, resettlement, alternative livelihoods and compensation.
- Support the culturally sensitive participation of women in decision-making in company-community decision-making forums, and address any potential safety risks that participation might pose to women.
- Provide training and awareness building to staff on sexual harassment, sexually transmitted diseases, HIV/AIDS, gender-based violence and the services available to both victims and perpetrators.
- Support the broader organisational environment to be gender responsive and eliminate gender stereotypes and roles within the workplace.
- Strengthen linkages with other programs in SVG working on gender issues.
- Ensure that the project's decision-making structures address both men's and women's needs.
- Support women's empowerment programs to increase understanding of women's multiple roles. For example, incorporating gender sensitive programs in schools can

change stereotypical attitudes towards the roles and responsibilities of women and men.

Residual Impact: The project is in a unique position to be proactive and help modernise attitudes to gender issues and increase women's income and raise their status. These opportunities when implemented will mitigate this impact to a low level of significance.

6.2.2 Port Operations

6.2.2.1 Population/Demographic Movement

This potential negative impact on population/demographic movement is low before mitigation so the only mitigation measure suggested is:

- Contractor will prepare a retrenchment plan, with the aim of reducing the impacts of cessation of employment contracts after construction.

Residual Impact: This impact is of low significance both before and after mitigation.

6.2.2.2 Economic and Material Well-being

The potential negative impacts on economic and material well-being during port operation range from medium to high before mitigation.

Employment

The potential impact on employment before mitigation is high. The mitigation measures are:

- On-the-job training will be provided to enable local employees to gain new and/or improved skills while working on the project so that they can fill new opportunities at the port for which the skills do not currently exist within the workforce.
- The workforce training programme will include refresher and induction training with the aim of ensuring that all employees have the necessary understanding and knowledge levels for each job, in particular with regard to HSE issues.
- Implement programmes that have been utilized before, during previous retrenchment at the port, to train affected workers in social work, security training etc., or retrain them for alternative employment at the port itself.
- Continue to give priority to community members for available employment during operations (if any arise), if skills exist or they have the capacity and willingness to be trained.
- If new jobs are created, provide clear job descriptions in advance of recruitment and explain the skills required for each post.

Residual Impact: Retraining of existing staff, as was previously done for 50 retrenched port employees, will reduce this impact to low significance after mitigation.

In addition to the mitigation measures above, SVGPA has the opportunity, through this project, to promote gender equality in its operations. Ports and shipping remains one of the most male-dominated industries in the world. The International Transport Workers' Federation (ITF) stated that women make up just 2% of the global maritime workforce, with the majority of female seafarers employed on cruise ships or passenger ferries. Although gender equality has not yet been achieved, progress has been made towards breaking down stereotypes in many parts of the world such as the UK and Australia¹⁹⁷. Measures that have been used internationally to promote women's interest and equitable inclusion in the port sector include:

- Upgrade recruitment, selection and progression processes, including revising skill requirements and using this to change recruitment and selection practices, and introducing aptitude testing for operational roles.
- Actively support women in the workplace, including establishing internal support networks; supporting membership to external support networks; and addressing unconscious bias in the workplace.
- Work with schools and colleges to ensure that women realise the opportunities in the port from an early age.
- Provide an inclusive culture, in and around the workplace; improve working conditions for female workers that operate in the sector whenever there are issues specific for women.
- Integrate the principles of equal opportunities and mainstreaming of gender issues in the work organisation and employment policy in the company.
- Ensure that men and women receive equal remuneration for equal work.
- Eliminate discrimination and harassment at the work place between men and women.
- Promote the port sector by presenting employment opportunities for men and women.
- Educate general public on existing careers in ports and tasks involved in such a career.
- Ensure that protection and safety equipment are adapted to both men and women.
- Ensure that sanitary and rest facilities are available for both men and women.
- Offer female employees the same training and professional development opportunities that are given to men.

These measures will contribute to women having the ability to influence their livelihood strategies by: increasing women in decision making; increasing women's livelihood selections; and ensuring access to skills building for selected livelihoods.

¹⁹⁷ <https://www.ship-technology.com/features/industry-views-addressing-gender-inequality-maritime-sector/>

Economic Activity

Potential impacts on economic activity during port operation are considered to be of medium significance before mitigation. The decision to move the container shipping operations from Campden Park to Kingstown has already been made, so there is little mitigation to be done. However, it is expected that companies that need to transport goods to Kingstown for shipping will adapt in the long term to this situation, as this was the arrangement in the past before container shipping was moved to Campden Park. In addition, negative impacts will be offset by benefits to those companies that are located in Kingstown and no longer have to transport their goods to Campden Park.

Residual Impact: The residual impact in the long term after the initial period of adjustment by companies located in Campden Park will be low.

6.2.2.3 Livelihood Activities and Assets

Potential negative impacts on livelihood activities and assets are of medium significance before mitigation. The mitigation measures are:

- Expand vending opportunities, where possible, so that the community members and vendors from Campden Park will have opportunities at the expanded Port Kingstown.
- Increased demands for food, beverages and other necessities will exist in areas around the expanded port, which can provide opportunities for both men and women if it is managed in a controlled manner by the Kingstown Town Board, to prevent ad hoc development, and if adequate space can be provided in the vicinity of the redesigned port.
- SVGPA will seek to purchase goods and services from within the country.
- Establish a regular process for assessing and monitoring programs for restoring the means of subsistence.
- Encourage revenue-generating initiatives (in collaboration with the GOSVG and national and international NGOs) such as agricultural training, local economic diversification (product processing, training in various trades according to identified needs).

Residual Impact: In addition to the mitigation measures, it is expected that within the medium to long term, the lease for Campden Park Port will be taken over by another company so that livelihood impacts will be reduced at that time. The residual impact is therefore expected to be low in the medium to long term.

6.2.2.4 Public/Community Health and Safety

Potential negative impacts on public / community health and safety during operations are low before mitigation since this impact will only occur in the event of an emergency situation or accident. The mitigation measures are:

- Continue to implement measures prescribed during construction, as necessary.
- Engage the community in emergency response drills and activities and provide classes to interested citizens in Kingstown to assist and respond as required during emergencies.

Residual Impact: The residual impact remains low after mitigation.

6.2.2.5 Vulnerable Groups

The project has the opportunity to be beneficial for PWDs. Currently access for PWDs is not possible at the existing port and cruise ship complex so that universal access should be provided at the new location. This should include accommodations for the blind, physically and hearing impaired. There is also a need for protection in the port area for PWD's, including signage and allocated parking. There are no PWDs working at the existing port due to lack of accessibility for PWDs in the older buildings. Recruitment procedures at the new port, if jobs are available, should be transparent, public and non-discriminatory and open with respect to ethnicity, religion, sexuality, disability or gender. Options for employing PWDs should be explored, for example, based on stakeholder feedback, PWDs could be baggage handlers and ticket sales operators. The operational port could also support women's employment in the project and/or hire businesses owned by women in its supply chain.

6.2.2.6 Community and Lifestyle

Potential impacts on community and lifestyle from port operation are of low significance. The mitigation measures are:

- Actively engage community groups, associations and student groups through port outreach programmes.
- Sponsor and participate in community events.
- Continue active community engagement according to the SEP and via CLOs.

Residual Impact: The mitigation measures will ensure that the significance of this impact remains low.

6.2.3 Cumulative Impacts

Cumulative impacts that could arise from public/community health and safety; multiple displacement; and psychosocial impacts, are of high significance. Mitigation measures implemented for discrete impacts as described above will ensure that cumulative impacts remain low. In particular, the relevant measures are:

- Implement the Resettlement Plan in a transparent, equitable manner.
- Assist with livelihood restoration, including training and compensation, as necessary.