



Climate Change Issues Paper

Towards the development of a Climate Change Policy, Strategy and Implementation Plan for Saint Vincent and the Grenadines

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Climate Change Issues Paper: Towards the Development of a Climate Change Policy, Strategy and Implementation Plan for Saint Vincent and the Grenadines

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Acronyms

CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community
Cartagena Convention	Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region
CBD	United Nations Convention on Biodiversity
CCA	Climate Change Adaptation
CCCCC	Caribbean Community Climate Change Centre
CCI	Caribbean Challenge Initiative
CCORAL	Caribbean Climate Online Risk and Adaptation Tool
CCRF	Code of Conduct for Responsible Fisheries
CDEMA	Caribbean Disaster Emergency Management Agency
CEP	Caribbean Environment Programme under the United Nations Environment Programme
CPACC	Caribbean Planning for Adaptation to Climate Change Project
CWSA	Central Water and Sewage Agency
ECROP	Eastern Caribbean Regional Ocean Policy
EIA	Environmental Impact Assessment
EPSDD	Economic Planning and Sustainable Development Division
DRR	Disaster Risk Reduction
GCF	Green Climate Fund
GDP	Global Domestic Product
GHG	Greenhouse Gas
GoSVG	Government of Saint Vincent and the Grenadines
IICA	InterAmerican Institute for Cooperation on Agriculture
IPCC	Intergovernmental Panel on Climate Change
INDCs	Intended Nationally Determined Contributions (to the reduction of greenhouse gas emissions under the UNFCCC Paris Agreement)
INC	Initial National Communication on Climate Change
MARPOL	International Convention for the Prevention of Pollution from Ships
MEA	Multilateral Environmental Agreements
NAP	National Adaptation Plan
NDA	National Designated Authority
NBSAP	National Biodiversity Strategy and Action Plan
NEAP	National Energy Action Plan
NES	National Environmental Summary
NESDP	National Economic and Social Development Plan
NPDP	National Physical Development Plan
OECS	Organisation of Eastern Caribbean States
RDVRP	Regional Disaster Vulnerability Reduction Project
SAMOA Pathway	Small Island Developing States Accelerated Modalities of Action Pathway
SDGs	Sustainable Development Goals
SFDRR	Sendai Framework for Disaster Risk Reduction
SIDS	Small Island Developing State
SLR	Sea Level Rise
SNC	Second National Communication on Climate Change
SPACC	Special Programme on Adaptation to Climate Change Project
SST	Sea Surface Temperature
SVG	Saint Vincent and the Grenadines
SWMU	Solid Waste Management Unit
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction
VINLEC	St. Vincent Electricity Company
WSP	Water Safety Plan

1. Executive Summary

The Caribbean Natural Resources Institute (CANARI) has been contracted to provide technical assistance to the Government of Saint Vincent and the Grenadines, Ministry of Finance, Economic Planning, Sustainable Development and Information Technology for the '[Development of a Climate Change Policy, Strategy and Implementation Plan](#)' from July 2018 to May 2019. This technical assistance project is one component of the Organisation for Eastern Caribbean States (OECS) **Regional Disaster Vulnerability Reduction Project** funded by the World Bank and the Climate Investment Fund's Pilot Program for Climate Resilience.

To inform the policy development process, this Issues Paper presents a synthesis of major concerns relevant in addressing climate change in Saint Vincent and the Grenadines (SVG) to serve as basis for discussions at stakeholder consultations. It outlines the policy context for climate change, including existing national and sectoral policies and plans, legislation and multilateral environmental agreements to which SVG is signatory. It also identifies key gaps, needs, opportunities and challenges related to climate change adaptation, mitigation and loss and damage.

Key concerns identified for the development of a Climate Change Policy, Strategy and Implementation Plan for SVG include:

- Strengthening of institutional frameworks is needed, especially via updating existing legislation, policies and plans to include climate change considerations.
- There are limited mechanisms for intersectoral coordination and enabling wide stakeholder participation.
- Technical and organisational capacity building to support climate change mainstreaming in sectors is critical.
- A comprehensive system of research, monitoring and knowledge management is needed, including databases and decision support tools to help provide reliable data for decision-making.
- Limited funding is available through the Government to support the added responsibilities and measures needed to address climate change, and additional financing will need to be identified and mobilised to enable climate change adaptation and mitigation.

The process for development of the Climate Change Policy, Strategy and Implementation Plan for SVG therefore must focus on addressing these key cross-cutting issues and other specific sectoral issues.

Synergies between the policy development process and other key climate change initiatives, including the development of a National Adaptation Plan (NAP) and the Green Climate Fund (GCF) readiness process intended to strengthen the National Designated Authority in SVG, also need to be leveraged to ensure that each build on findings and lessons learned from the other processes and ensure policy coherence.

2. Introduction

The Government of Saint Vincent and the Grenadines has identified the need to strengthen institutional frameworks to encourage climate change adaptation (CCA), mitigation and disaster risk reduction (DRR). Currently, Saint Vincent and the Grenadines (SVG) lacks a comprehensive policy and the institutional arrangements to guide national climate change and DRR efforts and has yet to identify clear priorities and appropriate measures to address the impacts of climate change and related disasters. A suitable climate change policy, strategy and implementation plan are needed to provide this enabling institutional environment for action on climate change and enhance sustainable development.

The Caribbean Natural Resources Institute (CANARI) has been contracted to provide technical assistance to the Government of Saint Vincent and the Grenadines, Ministry of Finance, Economic Planning, Sustainable Development and Information Technology for the '[Development of a Climate Change Policy, Strategy and Implementation Plan](#)', in support of mainstreaming climate change resilience into development planning in SVG. This technical assistance project is one component of the OECS **Regional Disaster Vulnerability Reduction Project** funded by the World Bank and the Climate Investment Fund's Pilot Program for Climate Resilience.

The key deliverables under this project include:

- **Issues paper**, which outlines the policy context, gaps and needs, opportunities and challenges in addressing climate change in SVG, to serve as basis for discussion at stakeholder consultations.
- **Climate Change Policy** to provide overarching guidance on national priorities, measures for climate change adaptation and mitigation and the institutional framework for climate change planning, implementation and financing
- **Climate Change Strategy and Implementation Plan**, which will operationalise the policy and include a Monitoring and Evaluation Plan to enable identification of key lessons, outcomes, opportunities and barriers in implementation.

The approach to this technical assistance project includes a comprehensive desk review, targeted interviews and a series of in-country consultations for stakeholder inputs into the policy development process. This will be coupled with provision of technical support to the Ministry of Finance, Economic Planning, Sustainable Development and Information Technology to facilitate the Cabinet's review and approval of the climate change policy, strategy and implementation plan. A key emphasis will be on ensuring the meaningful engagement and input of a wide range of stakeholders from government, civil society and the private sector, including typically underrepresented and vulnerable groups.

3. Purpose and Scope of the Issues Paper

The purpose of the Issues Paper is:

- to provide a synthesis of major concerns relevant to mainstreaming of climate change resilience in SVG; and
- to serve as the basis for discussions and analysis in the first round of stakeholder consultations to inform development of a Climate Change Policy and accompanying Climate Change Strategy and Implementation Plan. These consultations will then inform the priorities and final design of these deliverables.

The Issues Paper provides an overview of the policy and institutional context, including existing national and sectoral policies and plans, legislation and regional and international environmental agreements to which SVG is a signatory. It then identifies key needs and gaps, opportunities and challenges to determine relevant national priorities and actions to address climate change, including those related to adaptation, mitigation and loss and damage. It includes recommendations for effective development of the Climate Change Policy, including an analysis of financial and capacity building implications and any proposed changes to existing institutional frameworks that may be necessary within SVG.

The Issues Paper is written in laypersons language to facilitate the engagement of a broad range of stakeholders in the policy development process. Too often, limited participation of non-government stakeholders in decisions and policy making results in weak policies, strategies and laws which are not supported, implemented or enforced. It is hoped that through the wide and deep consultation and participation in this policy development process there will be greater buy-in, support and uptake of the Climate Change Policy, Strategy and Implementation Plan produced.

4. Methodology

CANARI conducted a comprehensive desk review and targeted interviews with key stakeholders to understand the policy and institutional context and analyse existing policies, plans and initiatives at the global, regional, national and sectoral levels to identify key needs, opportunities and challenges relevant to climate change.

Key steps in generating the Issues Paper were:

- **Collection of relevant regional and national documents**, including legislation, policies, strategies and sectoral plans.
- **Desk review** of existing national and sectoral policies and plans relevant to climate change adaptation and mitigation in SVG and the wider policy context, including regional policies and initiatives and multilateral environmental agreements that have been signed by the country.
- Conduct of **targeted preliminary interviews** with key stakeholders, including the Ministry of Finance, Economic Planning, Sustainable Development and Information Technology and other key government agencies, civil society and private sector actors, to understand the context and key issues for development of the Climate Change Policy, Strategy and Implementation Plan. Discussions were held virtually via telephone and skype.
- **Documentation of the findings**, including from desk review and interviews, and development of the Issues Paper.

The climate change screening tool, the Caribbean Community Climate Change Centre's Caribbean Climate Online Risk and Adaptation tool (CCORAL), was also used to inform the analysis of key needs and gaps and provide preliminary recommendations to inform development of the Climate Change Policy, Strategy and Implementation Plan.

5. Country Overview: Saint Vincent & the Grenadines

5.1 Overview of country context

Saint Vincent and the Grenadines is an archipelagic State in the Eastern Caribbean comprised of a chain of 32 islands and cays. The main island of Saint Vincent is volcanic in origin with an active volcano, La Soufrière. The island is characterised by rugged, mountainous terrain with valleys that drain to the narrow coastal area, as well as wet upland forests, numerous rivers, and fertile soils (MHE, 2000). The Grenadines extend 75km to the southwest of Saint Vincent and are smaller islets and cays which are less rugged and nearly entirely dependent on groundwater for their freshwater supply. Only seven are inhabited – Bequia, Mustique, Canouan, Mayreau, Union Island, Palm Island and Petit St. Vincent. The country experiences a tropical climate with an average monthly temperature of 27 degrees Celsius and a distinct wet and dry season.

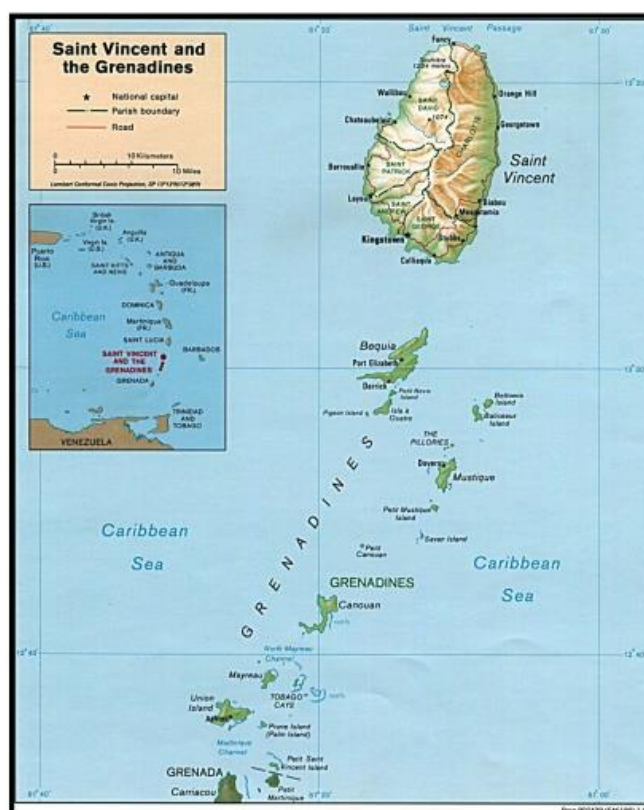


Figure 1: Location of Saint Vincent & the Grenadines

The population according to the 2012 Population and Housing Census is approximately 109,991 inhabitants, with 24.3% living in the capital, Kingstown and its suburbs and 9.4% on the Grenadines. Approximately 85% of SVG's population lives in the coastal zone which is less than 5m above sea level. The majority of infrastructure (estimated more than 90%), including roads, utilities – telephone, electricity and water lines, airports and hotels are also located in the coastal zone (SNC 2015).

The country has a small open economy which is highly susceptible to external shocks and natural hazards. Employment and incomes are mainly dependent on tourism and tourism-derived activity (on the rise), export agriculture (declining), and offshore business services (UNDP SGF Country Programme Strategy 2014). On the main island, agricultural activities are the main economic and employment activity, while in the Grenadines tourism is the main source of employment and income.

5.2 Climate change trends, impacts and vulnerabilities

As a small island developing state (SIDS), the geography, geology and socio-economic circumstances of St. Vincent and the Grenadines make it inherently vulnerable to a number of climate-related impacts, with potential implications for human welfare, national economic activities, and natural resources in country. The country lies within the Atlantic hurricane belt and has experienced significant impacts in the past, including from Hurricane Ivan in 2004 and Hurricane Tomas in 2010. On the main island, the narrow, low lying coastline where most activity is concentrated is at risk to sea level rise (SLR), storm surges and coastal erosion, while the steep terrain also adds risks of landslides and flash flooding. An increase in severe weather events is expected to result in significant expenditures, which will further constrain St. Vincent and the Grenadines' social and economic growth (GoSVG INDC, 2015).

In the Grenadines islands which include low lying coralline islets, vulnerability to storm surges, SLR and coral bleaching is high, with potentially significant impacts expected for culturally, economically and ecologically important marine protected areas such as the Tobago Cays. The Grenadines also experience water stress as they receive significantly less rainfall and are prone to drought and saltwater intrusion.

Across the board, it is expected that climate change will exacerbate already existing environmental concerns related to natural hazards, biodiversity loss, deforestation and land degradation, poor waste management (burning and illegal dumping) and pollution, and put increased stress on water availability, coastal investments, national infrastructure and livelihoods.

Climate models project the following trends for SVG¹:

- an increase in average air temperature;
- reduced average (annual) rainfall;
- increased sea surface temperatures (SST);
- potential for an increase in the intensity of tropical storms and hurricanes;
- SLR of 0.5 to 0.6 metres by 2100 across the insular Caribbean²; and
- ocean acidification will continue as carbon dioxide is absorbed into ocean, affecting calcification of shellfish and formation of coral reefs.

Notably, results from the SLR modelling work conducted for SVG in 2011³ indicate that 1 metre SLR places 10% of the major tourism properties at risk, along with 1% of road networks, 50% of airports and 67% of sea ports (NDC, 2015).

SVG is already experiencing some of the effects of climate variability and change, noticeable through damage from severe weather and other extreme events, and as well as more subtle changes in temperature and rainfall patterns (Simpson et al. 2012). In addition, the effects of rising sea levels on exposed coastlines and development are already evident in many parts of the country including beach areas important for tourism. Key observed climate change trends and impacts include overall warmer days and nights, reduced and unpredictable rainfall (resulting in related hydrometeorological hazards - flooding, landslides, higher intensity hurricanes, coral bleaching with rising ocean temperatures, increased prevalence of pests and diseases, and coastal erosion. Some of the more recent notable events⁴ that have been associated with the changing climate include:

- A period of prolonged drought in 2009-2010 and 2014 which resulted in severe water shortages, impacted the agricultural sector and fuelled further land degradation and loss of forest cover due to increased incidence of fires.
- Hurricane Tomas in November 2010 - the latest recorded tropical cyclone in a calendar year to strike the Windward Islands, brought heavy rains and high winds which caused flooding, loss and destruction to several buildings, agricultural plots, livestock and the natural landscape, and resulted in displacement of persons from their homes.
- Severe weather event bringing heavy rainfall during April 11-12, 2011 resulted in riverine and flash-flooding as well as landslides in the north-eastern parts of St. Vincent.
- The 2013 Christmas Eve trough which resulted in heavy rainfall and led to intense flooding across the island. This resulted in widespread damage to road infrastructure, electricity and water infrastructure, housing as well as public and private buildings. There were 9 confirmed deaths and 3 persons noted as missing.

The estimated total loss to the country from these events over the period 2010-2014 was in excess of US\$600 million, equating to approximately 35% of the Gross Domestic Product (GDP) (NDC, 2015).

Sectors noted as particularly vulnerable to climate change⁵ include agriculture, fisheries and tourism⁶, which are identified as key economic sectors in the National Economic and Social Development Plan (NESDP) 2013-2025. Water and energy security are also of particular concern in SVG and will need to be addressed from both an adaptation and mitigation perspective (SNC, 2015). Deeper sectoral assessment of key issues and challenges are explored in Section 7.

¹ Simpson, M. et al. (2012). CARIBSAVE Climate Change Risk Atlas (CCRA) - Profile for St. Vincent and the Grenadines. Summary Document, March 2012:

https://www.researchgate.net/profile/Mark_New/publication/272791668_Climate_Change_Risk_Profile_for_Saint_Vincent_and_the_Grenadines/links/55fa74f708ae07629e007648/Climate-Change-Risk-Profile-for-Saint-Vincent-and-the-Grenadines.pdf

² Nurse, L. et al. (2014). Small Islands. In: *Climate Change 2014: Impacts, Adaptation and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. [Field, C., Barros, V., Dokken, D., Mach, K., Mastrandrea, M., et al. (eds.).] Cambridge University Press.

http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap29_FINAL.pdf

³ CARIBSAVE (2012) CARIBSAVE Climate Change Risk Profile for St. Vincent and the Grenadines: Summary Document. CARIBSAVE: Barbados.

⁴ Murray, R. (2014). Disaster Risk Reduction Country Profile: Saint Vincent and the Grenadines, 2014. NEMO – Kingstown, Saint Vincent and the Grenadines. Accessed at: <http://dipecholac.net/docs/files/789-cd-svg.pdf>

⁵ Several publications have assessed vulnerability of SVG to climate change including to outline sectoral impacts: the Initial and Second National Communication on Climate Change to the UNFCCC; Strategic Programme for Climate Resilience (SPCR, 2011); St. Vincent and the Grenadines National Economic and Social Development Plan 2013-2025, the CARIBSAVE Climate Change Risk Profile for St. Vincent and the Grenadines, St. Vincent and Grenadines Climate Assessment and Intergovernmental Panel on Climate Change (IPCC) Fourth and Fifth Assessment Reports.

⁶ SVG is shifting its economy towards tourism. This industry interacts with, and is supported by, other sectors such as: energy, health, agriculture, social development, housing and the environment. Thus, the impacts of climate change on tourism are, therefore, the cumulative impacts on these sectors (SNC, 2015)

6. Policy and Institutional Context

6.1 Regional and International Context

Although SVG's contribution to global greenhouse gas (GHG) emissions is minimal, like other SIDS, the impacts of a changing climate are recognised as potentially dire if no meaningful action is taken. This section outlines the policy and institutional context for taking action on climate change and mainstreaming resilience into development planning in SVG.

SVG is an independent state and an active member of the Caribbean Community (CARICOM) and the Organisation of East Caribbean States (OECS). It is part of the Caribbean SIDS region and shares common development challenges with other SIDS, including geographic and economic isolation, limited resources, environmental fragility, high costs of transportation and energy, and vulnerability to climate change and natural disasters.

Additionally, the withering influence of small island agriculture in the global market has given rise to tourism intensive economies. Coupled with general low economic diversity and significant natural resource dependence, this shift has meant that SVG and its CARICOM and OECS neighbours have faced limited economic growth since the global economic recession of 2008. These countries have also had to cope with several natural disasters leading to further economic stress. The regional dependence on external food markets and fuel imports further increases the region's economic vulnerability.

Key regional agencies such as the Caribbean Community Climate Change Centre (CCCC) and Caribbean Disaster Emergency Management Agency (CDEMA) have been spearheading a number of coordinated efforts aimed at reducing vulnerability and promoting climate resilient development. Notably, within the regional cooperation agenda, attention to the integration of climate change and DRR considerations has grown in prominence. DRR is not seen as an issue separate from climate change, but rather as a mechanism for coping with its effects. This crosscutting approach is reflected in the Regional Climate Change Strategic Framework and its Implementation Plan for Development Resilient to Climate Change⁷ and in the regional Comprehensive Disaster Management Strategy 2014-2024⁸.

At the sub-regional level, the OECS Commission has been driving efforts to design a comprehensive resilience framework. An Eastern Caribbean Regional Climate Change Implementation Plan is currently under development and there have been several initiatives geared towards addressing the impacts of climate change, including the OECS Regional Disaster Vulnerability Reduction Project (RDVRP), under which this project falls. Participants at the recent OECS 5th Council of Ministers of Environment and Sustainability (COMES5) Meeting held under the theme 'Building Resilience on the Frontlines of Climate Change', emphasised the need for a collective approach to climate change in the region. Several areas for greater collaboration and unified climate change action across the region were highlighted, such as the need for unlocking the potential of the blue economy, diversifying the energy portfolio, addressing the sargassum influx and tackling pollution and poor waste management that threaten the resilience of ecosystems and dependent livelihoods.

The SVG policy context is also shaped significantly by commitments under international conventions and frameworks. In particular, the three post-2015 agendas for action – the Paris Agreement, the 2030 Agenda for Sustainable Development and the Sendai Framework for Disaster Risk Reduction – are collectively seen to provide the foundation for sustainable, low-carbon and resilient development. SVG and the wider Caribbean region have broadly recognised and subscribed to these frameworks as a means to strategically and coherently address what are considered the key issues of our time and to more effectively leverage financial resources and partnerships. Amid these global directions and the recent 2017 hurricane season with the passing of Hurricanes Irma and Maria, the need for building climate resilience is clear. The following tables summarise the major international, regional and sub-regional frameworks that SVG ascribes to, and the policy implications:

⁷ Documentation found here: <http://www.caribbeanclimate.bz/the-regional-climate-change-strategic-framework-and-its-implementation-plan-for-development-resilient-to-climate-change-us2800000/>

⁸ Regional Comprehensive Disaster Management Strategy and Programming Framework 2014-2024 <https://www.cdema.org/CDMStrategy2014-2024.pdf>

Table 1: Summary of major international environment and development agreements, guidelines and frameworks to which SVG is signatory

International convention/ framework	Summary	Implications for the Climate Change Policy, Strategy and Implementation Plan
<p>UN Framework Convention on Climate Change (UNFCCC)</p>	<p>Caribbean climate challenges include sea level rise, decreasing precipitation, increased intensity of hurricanes and overall higher temperatures. Signatories to UNFCCC have committed to working towards stabilising greenhouse gas concentrations towards minimising impacts to the climate system. More recently Caribbean nations have contributed significantly to drafting of the Paris Agreement at the UNFCCC Conference of Parties in 2015 (COP 21). The Paris agreement subsequently came into force in November 2016. Of critical importance to the region is the fact the Paris Agreement specifically recognises the needs of SIDS and provides support for attempts to cap global temperature increase at 1.5°C. Key agreements under the UNFCCC include:</p> <ul style="list-style-type: none"> • The Kyoto Protocol which proposes binding targets for the reduction of greenhouse gas emissions • The Cancun Agreements which address the long-term challenge of climate change over time and encourages countries to take concrete action to speed up the global response. The related Cancun Adaptation Framework seeks to enhance action on adaptation and the development of national adaptation plans. Other aspects of the Cancun Agreements address mitigation, financial, technology and capacity building support. • The Paris Agreement which came into force in November 2016, seeks to cap global temperature increase at 1.5°C. It promotes ambitious efforts to mitigate climate change and adapt to its impacts and addresses appropriate financial flows, a new technology framework and an enhanced capacity building framework to support action. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework. 	<p>The Paris Agreement has implications for the adaptation and mitigation targets to be outlined in the deliverables under this project.</p> <p>The Green Climate Fund, associated with the UNFCCC, was established following COP16 in Cancun, Mexico in 2010. It is an important funding source for all Caribbean countries including SVG and the other OECS countries. The GCF supports the efforts of developing countries to respond to the climate challenge through reducing their GHG emissions and adapting to climate change. It seeks to promote a paradigm shift to low emission and climate resilient development, taking into account the needs of SIDS particularly vulnerable to climate change impacts. This was emphasised during the 2nd Green Climate Fund Structured Dialogue in Grenada from November 6-9, 2018.</p> <p>Caribbean countries are also keen to utilise the Warsaw International Mechanism for Loss and Damage⁹ to realise its third function of enhancing action and support, including finance, to address the regional impacts on climate change being experienced and that are anticipated. This heavy emphasis on funding should be factored into any climate related deliverable under this initiative.</p>

⁹ The Warsaw International Mechanism for Loss and Damage has three functions:

1. enhancing knowledge and understanding of comprehensive risk management approaches to address loss and damage associated with the adverse effects of climate change, including slow onset impacts;
2. strengthening dialogue, coordination, coherence and synergies among relevant stakeholders; and
3. enhancing action and support, including finance, technology and capacity-building, to address loss and damage associated with the adverse effects of climate change.

International convention/ framework	Summary	Implications for the Climate Change Policy, Strategy and Implementation Plan
<p>The Vienna Convention for the Protection of the Ozone Layer (1985) & The Montreal Protocol on Substances that Deplete the Ozone Layer</p>	<p>The Vienna Convention acts as a framework for the international efforts to protect the ozone layer. It is accompanied by the Montreal Protocol that sets legally binding targets for the reduction of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), the main chemical agents causing ozone depletion. SVG acceded to the convention and the Montreal Protocol in 1993.</p> <p>With CFCs and HCFCs largely phased out, the Montreal Protocol was amended under the Kigali Amendment in 2016 to focus on controlling hydrofluorocarbons (HFCs), which are one of the replacements for CFCs and HCFCs and are a significant GHG contributing to global climate change. This amendment will enter into force on January 1 2019 as it was ratified by over 20 parties.</p>	<p>SVG has attained its agreed target for CFCs and HCFCs under the Montreal Protocol and is now in the process of ratifying the Kigali amendment on HFCs.</p> <p>These commitments will need to be factored into policy development.</p>
<p>Convention on Biodiversity (CBD)</p>	<p>The CBD, which was agreed in 1993, focuses on the conservation of global biodiversity including the sustainable use of its components and the equitable sharing of benefits arising from biodiversity resources. SVG is a party to CBD since 1996.</p> <p>The following plans and initiatives under the CBD are important to note:</p> <ul style="list-style-type: none"> • Countries are also expected to develop, and periodically update, National Biodiversity Strategies and Action Plans (NBSAPs) under the convention to address the mobilisation of financial resources, research, the regularisation and consolidation of legislation, public awareness, and use of traditional knowledge. • The Strategic Plan for Biodiversity 2011-2020 and 20 Aichi Biodiversity Targets were adopted under the CBD to guide efforts to conserve and build the resilience of biodiversity and natural ecosystems and related livelihoods and mainstream biodiversity conservation into different economic sectors by 2020. • New voluntary guidelines for the design and effective implementation of ecosystem-based approaches (EbA) to CCA and DRR were recently prepared and released in July 2018 by the CBD's Subsidiary Body on Scientific, Technical and Technological Advice. The guidelines include a primer for policymakers, a list of relevant tools for practitioners, and sectoral briefs to support integration of EbA into sectoral policies and plans.¹⁰ • The Nagoya Protocol on Access and Benefit Sharing to the CBD highlights the importance of civil society's rights and equity in using and sharing of genetic resources and benefits from biodiversity conservation. In a similar vein, the Mo'otz Kuxtal Voluntary Guidelines are geared towards Prior Informed Consent of indigenous peoples and local communities for using their traditional knowledge related to biodiversity and natural resources. • The Cartagena Protocol on Biosafety to the CBD aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biodiversity, taking into account risks to human health. This protocol was ratified by SVG in 2003. 	<p>These commitments, and the associated plans and initiatives, will be factored into policy development, especially with respect to the ecosystem-based adaptation and sustainable management of forest, coastal and marine resources to build resilience.</p> <p>The attention to indigenous rights is noteworthy and where possible and appropriate will be referenced in the production of the deliverables.</p>

¹⁰ Voluntary guidelines for the design and effective implementation of ecosystem-based approaches (EbA) to CCA and DRR – available at: <https://www.preventionweb.net/publications/view/59324>

International convention/ framework	Summary	Implications for the Climate Change Policy, Strategy and Implementation Plan
Convention to Combat Desertification and Land Degradation (UNCCD)	SVG acceded to the UNCCD in 1997 and regularly submits national reports. SVG faces issues a number of land degradation issues including deforestation and soil erosion leading to high rates of surface runoff of sediment laden water. Under UNCCD, Caribbean countries have developed their National Action Plans to address these issues, reinforced by national policies and legislation (including forest policies).	Like the CBD, UNCCD commitments should be factored into project deliverables.
Sustainable Development Goals (SDGs)	This is the international framework replacing the Millennium Development Goals. Established in 2015, the SDGs consist of 17 goals articulated through 169 indicators, to serve as “a plan of action for people, planet and prosperity.” Specific goals, including Goal 13 on taking urgent climate action, address climate change, clean energy, environmental management and resilient development.	Consideration of goals and targets relevant to SVG will be reflected in project deliverables. The implementation of the SDGs can be facilitated by national level policies. The streamlining of the 2030 Agenda for Sustainable Development into the Climate Change Policy, Strategy and Implementation Plan would clearly demonstrate the Government's commitment to advance the achievement of the respective SDGs by the year 2030. The extent to which successful implementation would facilitate the achievement of climate change-related SDGs should also be reflected in the project deliverables.
Small Island Developing States Accelerated Modalities of Action (SAMOA pathway)	The SAMOA pathway is the outcome and plan of action emanating from the 3rd Conference of Small Island Developing States, including Caribbean States. It builds on previous SIDS outcomes such as the Barbados Programme of Action (BPOA) from 1994. In 2019, a high-level review of progress made in addressing SIDS’ priorities through the implementation of the SAMOA Pathway will be held. A preparatory meeting for the Caribbean region was held in Belize, Aug 7-8.	The SAMOA pathway recognises the special circumstances and vulnerabilities of SIDS and emphasises actions for climate change and marine resource management issues which will be addressed in the project deliverables.
Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR)	The SFDRR aims to achieve the substantial reduction of disaster risk and impacts on lives, livelihoods, health and the economic, environmental, physical and sociocultural assets of countries, communities and individual persons and businesses over 15 years from 2015-2030. It outlines seven clear targets and four priorities for action to prevent new disaster risks and reduce existing risks, including understanding disaster risk, strengthening disaster risk governance to manage risks, investing in disaster risk reduction for resilience and enhancing disaster preparedness for effective response and to "build back better" in recovery. Climate change is considered a key cross cutting issue within the SFDRR.	Current thrust to integrate CCA and DRR concerns, as reflected in the SFDRR, will be addressed in the project deliverables.
United Nations Convention on the Law of the Sea (UNCLOS)¹¹:	UNCLOS, which was developed in 1982 and came into force in 1994, provides a framework agreement for the governance of maritime issues, including the delineation of maritime boundaries and the rights and responsibilities of nations in their use of the world's oceans, with the aim of lessening the risk of international conflict and enhancing stability and peace. It is a critically important framework in the Caribbean SIDS where island states are in close proximity to each other and where many economically important marine resources, including fish species, are	Commitments made to the Convention should be factored into the development of the deliverables, particularly as it relates to coastal and marine resources and the maritime services sector. Deliverables should take into account any revision in SVG’s legislation and

¹¹ See http://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm

International convention/ framework	Summary	Implications for the Climate Change Policy, Strategy and Implementation Plan
	<p>transboundary in nature. Under UNCLOS Article 63, countries that share fish stocks are also legally obligated to collaborate in its management.</p> <p>In April 2018, the International Maritime Organisation’s (IMO) adopted an Initial IMO Strategy on reduction of GHG emissions from ships, as a commitment to addressing global climate change. The Initial Strategy falls within a broader context of other existing instruments related to the law of the sea (including UNCLOS) and to climate change (including the UNFCCC and its related legal instruments such as the Paris Agreement).</p>	maritime policies related to new guidelines provided by the Initial Strategy on reduction of GHG emissions from ships
International Convention for the Prevention of Pollution from Ships (MARPOL)	SVG has ratified the International Convention for the Prevention of Pollution from Ships (MARPOL), which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. Under Annex VI, the IMO has adopted regulations to address the emission of air pollutants from ships and has adopted mandatory energy-efficiency measures to reduce emissions of greenhouse gases from international shipping.	Commitments made to the Convention should be factored into the development of the deliverables, particularly as it relates to coastal and marine resources and maritime services sector.
Code of Conduct for Responsible Fisheries (CCRF) & Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication¹² (SSF Guidelines)	The CCRF is a voluntary instrument which was established in 1995, to provide a comprehensive framework for promoting sustainable fisheries management and governance globally. The CCRF provides principles and standards applicable to the conservation, management and development of all fisheries with due respect for biodiversity and ecosystem services. It incorporates the entire fisheries value chain and covers the capture, processing and trade of fish and fishery products, fishing operations, aquaculture, fisheries research and the integration of fisheries into coastal zone management. Technical guidelines have been developed to support implementation of the CCRF, including on the ecosystem approach to fisheries (EAF) that integrates climate change and disaster considerations. The SSF Guidelines were developed as a complement to the CCRF and are the first internationally agreed instrument dedicated entirely to the small-scale fisheries sector.	The project deliverables especially as they relate to any fisheries sector targets, should consider the Code and Voluntary Guidelines

Table 2: Summary of major regional and sub-regional environment and development agreements to which SVG is signatory

Grouping/ organisation	Relevant policies, guidelines and frameworks	Implications for Climate Change Policy, Strategy and Implementation Plan
Caribbean Community (CARICOM)	<p>A key regional framework for addressing climate change is the CARICOM Liliendaal Declaration on Climate Change and Development that sets out key climate change related interests and aims of the member states. Building on the Liliendaal Declaration, the CARICOM Regional Framework for Achieving Development Resilient to Climate Change and its Implementation Plan (2011-2021) were developed to provide a roadmap for action by member states and regional organisations, spearheaded by the Caribbean Community Climate Change Centre (CCCCC).</p> <p>Other relevant environmental frameworks administered by the CARICOM Secretariat or technical agencies include:</p>	Deliverables will be aligned with provisions under the various CARICOM Frameworks.

¹² See <http://www.fao.org/3/a-i4356e.pdf>

Grouping/ organisation	Relevant policies, guidelines and frameworks	Implications for Climate Change Policy, Strategy and Implementation Plan
	<ul style="list-style-type: none"> • CARICOM Energy Policy • Caribbean Comprehensive Disaster Management Strategy (overseen by CDEMA) • Caribbean Community Common Fisheries Policy (CCCFP) (overseen by the CRFM) • Strategy and Action Plan on Disaster Risk Management and Climate Change Adaptation in Fisheries and Aquaculture in the CARICOM and Wider Caribbean Region¹³ (currently being finalised) • The CARICOM Common Natural Resources Policy Framework and CARICOM Biodiversity Strategy (currently in development) 	
Organisation of Eastern Caribbean States (OECS)	<p>The OECS has developed model policies and regional strategies pertinent to environmental issues. A key framework is the St. George’s Declaration of Principles of Environmental Sustainability in the OECS (2001) and the OECS Environmental Management Strategy. The St. George’s Declaration is an agreement grounded in the belief by OECS members that environmental resources must be effectively managed at all levels (locally, regionally and internationally), for sustainable social and economic development to be achieved. Principle 8 of the St. George’s Declaration addresses the causes and impacts of climate change, and a number of other topics related to energy efficiency, renewable energy and disaster risk reduction are included in its outcomes and targets. These two documents constitute the overarching framework outlining the OECS environmental approaches.</p> <p>More sector specific environmental guidelines include the Model Water Policy, Eastern Caribbean Regional Ocean Policy (ECROP)¹⁴ and the OECS Land Policy Guidelines. An Eastern Caribbean Regional Climate Change Implementation Plan¹⁵ is being developed to: 1) deliver large scale emission reductions; 2) accelerate green growth in the region; 3) deliver development co-benefits; and 4) improve resilience to climate change impacts.</p>	<p>Deliverables will be developed ensuring they are aligned with the regional frameworks.</p> <p>The recent COMES5 Meeting held under the theme ‘Building Resilience on the Frontlines of Climate Change’ emphasised the need for a need for collective approach to climate change in the region. Development of the deliverables will seek to align with Eastern Caribbean Regional Climate Change Implementation Plan and take into consideration other inter and intra-regional strategies and coordination mechanisms.</p>
UN-Environment-Caribbean Environment Programme (CEP)	<p>The CEP Regional Coordinating Unit administers the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention). This is the umbrella agreement protecting the Caribbean marine environment. The Cartagena Convention protocols are also important for biodiversity protection namely: the Protocol Concerning Pollution from Land-Based Sources and Activities, the Protocol Concerning Specially Protected Areas and Wildlife (SPA) and the Oil Spill protocol. The Regional Coordinating Unit through SPAW also coordinates activities and develops synergies with work under international conventions like the CBD and CITES.</p>	<p>As with the CARICOM frameworks this wider framework is also under consideration in the development of project outputs.</p>

¹³ This Strategy and Action Plan are intended to assist CARICOM member states to strengthen regional and national cooperation and develop capacity in addressing climate change impacts and disasters in the fisheries and aquaculture sectors with a focus on small-scale fisheries and small-scale aquaculture.

¹⁴ ECROP aims to promote and guide future sustainable use and development of the OECS region’s coastal and marine waters. It attempts to address the need to transition to a more integrated governance approach that requires all uses, users and values to be considered. The ECROP is meant to assist the OECS and its members in setting out basic principles, clarifying roles and responsibilities of different agencies and stakeholders, formulating basic plans and priorities and prescribing other basic matters concerning measures for ocean and marine resource management. It is anticipated that the policy will be complemented by the development of country-specific national ocean policies.

¹⁵ Report on the Eastern Caribbean Regional Climate Change Implementation Plan. Accessed at: https://www.preventionweb.net/files/58303_fcoeasterncaribbeanregionalclimatec.pdf

6.2 National Context

SVG has taken a number of steps to address climate change and build its resilience at the national level and meet its commitments under the regional and international agreements described above. As a signatory to the UNFCCC, SVG prepared its Initial National Communication (INC) on Climate Change in 2000 and a Second National Communication (SNC) in 2015. SVG has also participated in regional initiatives which address elements of climate change and DRR such as: the Caribbean Planning for Adaptation to Climate Change (CPACC) Project, Mainstreaming and Adaptation to Climate Change (MACC) Project, the Special Programme on Adaptation to Climate Change (SPACC) Project and the current OECS Regional Disaster Vulnerability Reduction Project (RDVRP) and Pilot Project on Climate Resilience (PPCR).

At present, the Nationally Determined Contribution (NDC, 2015) and SNC¹⁶ to the UNFCCC provide the latest strategic documentation on climate change and overarching guidance for the various sectoral issues, policies and plans that influence climate resilient development for SVG. A process to develop a National Adaptation Plan (NAP)¹⁷ and sectoral adaptation plans for the agriculture (crops, livestock and fisheries) and water sectors was also launched in 2017 and is due to be completed in 2019. The objective is to mainstream CCA into new and existing development planning and budgeting processes within all relevant sectors and at multiple levels.

The following targets for climate change mitigation and adaptation are notable within the approved NDC and SNC.

Mitigation

- SVG intends to ‘achieve an unconditional, economy-wide reduction in GHG emissions of **22% compared to its business as usual (BAU) scenario by 2025**’ based on its NDC.
- The **energy sector** was identified as the focus of mitigation activity, accounting for approximately 68% of SVG’s GHG emissions in 2010¹⁸ with projected further growth through to 2025. Within the sector, approximately 50% of emissions are attributed to energy generation and approximately 50% from transport.
- Key potential mitigation measures identified in the NDC include:
 - **Renewable energy:** This is focused on the development of geothermal power, renovating existing hydro power facilities to improve efficiency and generation capacity as well as enabling and encouraging the installation of small-scale photovoltaics (PV) in the private and public sectors
 - **Energy efficiency:** There is an objective to achieve a 15% reduction in national electricity consumption compared to a BAU scenario by 2025. Planned measures in this sector include the retrofitting of street lighting nationally, a new building code and an energy labelling scheme for appliances.
 - **Transport:** New policies to reduce the import duty paid on low emission vehicles and encourage GHG emission reductions from vehicles.

¹⁶ The SNC (2015) reports on National Circumstances; GHG Inventory, Mitigation Assessment, Vulnerability Assessment, Other information considered relevant to the achievement of the objective of the Convention, and Constraints and Gaps, and Related Financial, Technical and Capacity Needs.

¹⁷ SVG National Adaptation Plan (NAP) Approach <http://www.napglobalnetwork.org/wp-content/uploads/2018/02/Saint-Vincent-Grenadines-NAP-process-country-poster-April2018.pdf>

¹⁸ St. Vincent and the Grenadines 2010 Mitigation Assessment (forms part of the Second National Communication Report)

- **Land Use, Land Use Change and Forestry:** SVG intends to enhance its carbon sinks through reforestation, afforestation reduced deforestation and reduced forest degradation.

Adaptation

The following key sectors were identified as priorities for adaptation in the NDC and SNC, agriculture, forestry, fisheries, tourism, water resources, coastal zone and health. The NDC further recognises the link between adaptation and disaster management and DRR. No specific adaptation targets or recommendations are identified in the NDC. These are instead addressed in the SNC, and described further in the sectoral analysis provided in Section 7. Notably, the SNC identified the need for:

- targeted action to improve access to funds from donor agencies
- evidence-based decision making at the level of policy makers
- a sustained national effort to implement measures to mitigate and adapt to the adverse effects of climate change through:
 - capacity building;
 - systematic observation and research and data collection;
 - development and implementation of climate change related policies and strategy documents;
 - engendering a cooperative approach to policy implementation among stakeholders;
 - establishing a national climate change committee or other coordinating body for climate change; and
 - increased public awareness initiatives, including strengthening community-based natural resource management programmes.

Additionally, the government has also received financing from the Green Climate Fund (GCF)¹⁹ toward improving the readiness of SVG to access climate financing. The work will include strengthening the capacity of the National Designated Authority²⁰ (NDA) and developing a country strategic framework for engagement with the GCF.

A few other key country documents make reference to climate change and include climate related policy points or targets in addition to the NDC and SNC. The SVG’s National Economic and Social Development Plan (NESDP) 2013-2025, which is intended to be the primary document that will guide economic and social development in the country, calls for ‘Improving Physical Infrastructure, Preserving the Environment and Building Resilience to Climate Change’ (Goal 4). The National Physical Development Plan (NPDP) is currently being revised to include climate change considerations²¹ along with other planning instruments such as local area plans and building codes. Existing national legislation and policies that are relevant to climate change are noted below in Table 3.

Table 3: National legislation, policies and plans for SVG relevant to climate change

Legislation:	Policies and Plans:
<ul style="list-style-type: none"> • Central Water and Sewerage Authority Act, 1992 	<ul style="list-style-type: none"> • Comprehensive Disaster Management (CDM) Policy 2014

¹⁹ The GCF is the newest and largest global fund created through the Paris Agreement to support the efforts of developing countries to respond to the challenge of climate change. The readiness programme is only one area of support under the GCF mechanism which helps countries to establish needed institutional structures, national processes and project pipelines to ensure the development of climate proofed project proposals which are based on national priorities and an open stakeholder engagement process.

²⁰ Intended to be the Sustainable Development Unit (SDU) who will coordinate a National Climate Change Committee

²¹ Noted in interview with the Physical Planning Unit, September 26th, 2018.

Legislation:	Policies and Plans:
<ul style="list-style-type: none"> • Environmental Health Services Act, No 14, 1991 • Environmental Impact Assessment Regulations (Draft, 2009) • Environmental Management Act (Draft, 2009) • Environmental Services Act No. 15 of 1991²² • Fisheries Act, 1986 and Fisheries Regulations, 1987 • Marine Parks Act, 1991 and Marine Parks Regulations, 1998 • Maritime Areas Act (1983) – Act No. 15 of 1993 • National Emergency and Disaster Management Act 2006 • National Parks Act, 2002 and National Parks (Amendment) Act (No. 13, 2010) • Public Health Act (1977) • Saint Vincent and the Grenadines National Trust Act, 1969 and Amendment Act, 2007 • Shipping Act No. 11 of 2004 • Solid Waste Regulations No. 11 of 2005. • St. Vincent and the Grenadines Forest Resource Conservation Act, 1992 • Tobago Cays Marine Parks Act (1999) • Town and Country Planning Act No. 45 of 1992 • Waste Management Act (No.31, 2000) • Waste Management Act and Regulations, No. 31 of 2000 	<ul style="list-style-type: none"> • Draft National Forest Policy 1994 • Draft National Land Policy 2014 • Draft National Physical Development Plan (2001-2021) • Draft National Water Safety Plan (2013) • Draft Policy, Framework, and Strategic Plan for Agricultural Development 2010-2020 • Fisheries and Aquaculture Policy and Action Plan (Final draft) 2012 • Food and Nutrition Security Policy and Action Plan 2014 • Housing and Land Development Corporation Act, 1976 • Integrated watershed conservation and management policy and action plan (draft) • Marine Tourism Policy • Maritime Action Plan 2005 • National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020²³ • National Economic and Social Development Plan (NESDP) 2013-2025 • National Energy Policy (2009) and National Energy Action Plan (2010) • National Environmental Management Strategy and Action Plan (NEMS)²⁴ 2004-2006 • National Forest Resources Conservation Plan (1994-2003) • National Ocean Policy and Strategic Action Plan (2018) • National Parks and Protected Areas Policy 2010 • National Parks and Protected Areas System Plan 2009-2014

²² The Environmental Services Act No. 15 of 1991 makes provisions for the control of emissions and effluent discharge into water bodies. To date, no regulations are in place to assist with the enforcement of this Act.

²³ See <https://www.cbd.int/doc/world/vc/vc-nbsap-v2-en.pdf> for the National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020. This revised NBSAP mirrors the Strategic Plan for Biodiversity 2011-2020 however has been customized to account for the country's unique circumstances, as well as the National Economic and Social Development Plan (NESDP) (2013-2025), particularly NESDP Goal 4 which aims to improve physical infrastructure, preserve the environment and mitigate the impact of climate change.

²⁴ NEMS was intended to guide programmes in environmental management over the long-term but was designed with an initial 3year implementation period (2004- 2006) in consideration of ongoing funding cycles and public-sector investment programmes. The document's structure mirrors that of the St. George's Declaration of Principles for Environmental Sustainability in the OECS (SGD). NEMS implementation has been less than desirable and the document has not been updated since 2004.

Legislation:	Policies and Plans:
<ul style="list-style-type: none"> • Wildlife Conservation Act (1991) • Wildlife Protection Act, 1987 	<ul style="list-style-type: none"> • National Physical Development Plan, (Preliminary Methodological Framework Report) 2013 • National Tourism Policy 2003 • St. Vincent & the Grenadines National Tourism Sector Strategic Plan 2002-2006 • St. Vincent and the Grenadines Building Regulations 2005 & Building Guidelines • St. Vincent and the Grenadines National Disaster Plan 2005 • St. Vincent and the Grenadines National Parks and Protected Areas System Plan 2010-2014 • St. Vincent and the Grenadines Strategic Plan for Health 2007-2012 • St. Vincent’s Agricultural Policy Framework (1997-2006)

7. Key Issues and Challenges

This section outlines the key needs, opportunities and challenges in addressing climate change, including those related to adaptation, mitigation and loss and damage, and an analysis of financial and institutional implications. It focuses on sectoral issues and vulnerabilities, cross cutting issues, and financial analysis of impacts and policy options to address climate change.

7.1 Sectoral Issues and Vulnerabilities

The following outlines the key sectors likely to be impacted by climate change, including the main impacts, recommended strategies and potential challenges to implementation of these strategies.

Agriculture and Food Security (Farming, Forestry and Fishing)

Impacts: The agriculture sector is typically divided into three main sub-sectors: 1) farming (crops and livestock, 2) forestry and 3) fisheries. Agriculture is one of the most significant economic activities on St. Vincent, contributing to food security, rural employment and social stability. In the case of the forestry sector, it also contributes to important ecological services such as watershed and flood protection. In 2017, agriculture’s share of GDP in SVG was 6.92%²⁵. Climate variability and change will potentially threaten livelihoods, household income and food security through agricultural damage and increased food prices as well as resulting in psychosocial impacts among farmers and fishers (IICA, 2014). The specific impacts on the main sub-sectors are outlined below:

- **Crops and livestock:** The agriculture system is vulnerable to climate change and is especially sensitive to extended periods of drought, unevenly distributed rainfall and natural hazards when coupled with existing practices such as mono-cropping and poor soil and water management, and

²⁵ See <https://www.statista.com/statistics/731177/share-of-economic-sectors-in-gdp-in-st-vincent-and-the-grenadines/>

problems with pests and disease. Among the trends noted by the local farmers are longer dry periods, shorter and more intense rainfall patterns leading to floods and, change in fruiting patterns. Three extreme climatic events over a span of three years (droughts and tropical storm activity during 2009 – 2011 inclusive) highlighted the vulnerability in this sector. Drought conditions have led to water stress and heat stress in livestock, while flooding, landslides and accelerated soil erosion associated with severe weather resulted in loss of crops, livestock and agricultural infrastructure. Lower crop yields and increases in pests and diseases are also expected. The sector also contributes to GHG emissions from the digestive process of ruminant animals such as cattle, sheep and goats, manure waste management and the application of nitrogen fertilizers.

- **Forestry:** It has been estimated that SVG has about 31,500 acres (128 square km) of tropical forests representing approximately 29% of the land area. Natural forest constitutes about 70% of this area, with planted forest and agroforest representing about 25% and 5%, respectively. In the Grenadines, there are few areas of natural forest cover²⁶ due to encroachment for development in the coastal areas, bushfires and clearing of land for cultivation and other livelihood activities (including marijuana cultivation). The projected increase in temperature and decrease in precipitation could have dramatic consequences for the forests and overall biodiversity of SVG. There is concern climate variability and change will result in further changes to forest dynamics and delivery of ecosystems goods and services such as watershed protection, coastal protection, and soil stabilisation; salt water intrusion affecting coastal vegetation such as mangroves; and storm damage affecting integrity of the forest structure and canopy reducing its ecosystem functions and increasing risk of forest fires. Projected warming could result in displacement and ultimately complete loss of cloud forest. Reduced moisture will result in forests becoming much drier, potentially causing the wilting and death of epiphytes, which provide important habitat for birds, insects and reptiles.
- **Fisheries:** Fishing is an important part of the social, cultural and economic fabric of the country, especially in the islands of the Grenadines. Approximately 7% of the total labour force is engaged directly or indirectly in the fishing industry, which creates employment for an estimated 2,500 fishers and more than 500 others in supporting services (NBSAP, 2017). Impacts of climate variability and change include coral bleaching affecting habitats of some species of fish, changing catch and fishing seasons due to changes in sea temperatures and ocean currents resulting in increased fishing effort, damage to fishing gear and other coastal infrastructure and reduced fishing days due to bad weather, rough seas and sargassum influxes that block fish landing sites and damage boat engines and gear.

Recommended strategies to address the impacts of climate change gleaned from the IICA Vulnerability Assessment of the Agriculture Sector²⁷, the SNC, 2015 and available information from the NAP process broadly include:

- Promotion of a strong, viable agricultural base able to adapt to changing climatic conditions via agricultural reform, including reviewing and strengthening agricultural institutional, policy and

²⁶ GoSVG, Sustainable Development Unit 2017. Saint Vincent & the Grenadines Revised National Biodiversity Strategy and Action Plan 2015-2020

²⁷ IICA 2014. Vulnerability Assessment of Saint Vincent and the Grenadines Agricultural Sector. Accessed at: <https://richmondvale.org/images/PDF/Vulnerability%20Assessment.pdf>

legal frameworks and developing research facilities and technical resources for in situ seed-bank and tissue-culture centres for the preservation of plant genetic information²⁸.

- Ensuring sustainable use of land, forestry and fisheries and marine resources²⁹ and general climate proofing of the sector.
- Implementation of appropriate water management practices - promote water conservation and harvesting methods since water availability will be severely impacted, including improved rainwater harvesting for irrigation purposes, increasing the allocation of ground water recharge areas on the islands to support irrigation programmes, reforestation and soil conservation.
- Promotion of sustainable use of land resources including via a land management plan, updating zoning laws and strengthening systems to respond to natural hazards as well as institutionalisation of a Land Use Authority.
- Identification of crops that are productive under emerging climatic conditions and for which there is a ready market, development of stress tolerance varieties and adaptive farming measures (e.g. mixed farming using a combination of tree crops and vegetable or root crops).
- Helping livestock cope with increased heat stress via measures such as provision of shade in pastures through physical structures, enhanced nutrition and feeding programme and breeding programmes that improve animals' abilities to withstand heat.
- Promotion of risk transfer via insurance schemes and protection funds for fishers and farmers e.g. make crop insurance to provide start-up funds for farmers after storm damage as well as compensation for damage to crops.
- Implementation of programmes of afforestation, reforestation and agro-forestry - contributes to climate change mitigation by sequestering carbon (i.e. enhancing carbon sinks) and provides other significant co-benefits, such as environmentally sustainable harvesting of forest products.
- Strengthening soil conservation strategies to enhance the carbon sequestration function as well as reduce erosion.
- In the fisheries sub-sector, measures include increasing education and awareness on climate change impacts and issues, promotion of safety at sea, emergency readiness and response (e.g. via radio communications), provision of fish aggregation devices, and strengthening fisherfolk organisations to better coordinate and have a voice in decision-making and resource management.

Potential challenges to implementation of the above adaptation and resilience strategies include:

- Institutional fragmentation and poor coordination within the sector and across sectors. Various departments and divisions share responsibility for coastal zone management, natural resource management, biodiversity and physical infrastructure, often leading to a lack of coordination and integration and therefore inefficient management.
- Qualified staff in the Ministry of Agriculture but no clear adaptation agenda with which to engage (until recent NAP process).
- A general migration of the labour force out of agriculture and low levels of entry by youths, particularly those with the education and skill-set to transform the sector.
- Limited financial resources to support technological innovations.
- Limited research and data collection³⁰ including quantitative data on the impacts of climate change on the sector.

²⁸ <http://adaptation-undp.org/explore/caribbean/saint-vincent-and-grenadines>

²⁹ IICA Country Strategy 2014 - 2018: St. Vincent And the Grenadines

³⁰ Ministry of Agriculture does not collect specific climatic data or data on the impact of climate change. The majority of the data on climate change influences on the sector exists for the forestry and fisheries departments

- Limited extension capabilities of the line Ministry constrain its ability to respond to the many challenges faced by the sector.
- Lack of functioning participatory mechanisms to facilitate effective involvement of the fishing and farming community in policy formulation.
- Limited involvement of communities in forest resource management, weak institutional capacity, lack of an approved forestry policy framework, fragmented environmental management and limited awareness of the importance of forests to national development and the agriculture sector.

Coastal and Marine Zone

Impacts: Coastal and marine ecosystems in SVG, which include various beaches, seagrass beds and lagoons, mangroves and a variety of patch, fringing and bank barrier coral reefs, are of critical importance to sustainable development. Climate change will pose a significant risk to these habitats due to sea level rise; extreme weather and storm surges; increased sea surface temperatures resulting in coral bleaching; ocean acidification and increased incidence of invasive species. Many of the coastal protection ecosystems such as dunes, mangroves and reefs have been removed or are degraded, which exacerbate vulnerability of coastal infrastructure to storm and hurricane activity (particularly wind and storm surges). These coastal ecosystems are also impacted by resource management conflicts and coastal development activities including beachfront construction, sand mining and pollution.

Recommended strategies to address the impacts of climate change as outlined in the National Ocean Policy (draft), 2018, NBSAP, 2017 and National Environmental Summary, 2010 are:

- Strengthening conservation and environmental management legislation, regulations, policies and plans through integration of climate change and disaster risk reduction and management considerations into ecosystem-based management.
- Incorporating appropriate adaptation and resilience building strategies into sustainable development, conservation and governance actions to reduce risk of coastal hazards and climate change.
- Managing ecosystems, and relevant species, to reduce other threats that weaken their resilience, including through reducing/managing the spread of invasive species (e.g. Lionfish), deforestation and environmental degradation and unsustainable resource use.
- Establishing a comprehensive system of protected areas, including coastal and marine ecosystems, and a sustainable financing mechanism to support protected area management.
- Protecting and restoring natural coastal features such as coral reefs, mangroves and beaches to act as natural buffers to storm surges and to reduce wave damages from storms.
- Building the capacity of resource managers to ensure effective and participatory planning and management of natural resources, including protected areas.
- Establishing a coastal zone management unit and incentive-based criteria for coastal development that sends the right signals to the development community.
- Developing and maintaining coastal and marine systematic observation, research and information management systems to enable effective planning and monitoring, including mechanisms for monitoring changing sea levels, currents and sedimentation patterns and develop appropriate integrated coastal zone and shoreline management plans.

- Conducting baseline studies on carbon sequestration by various ecosystems (e.g. coastal wetlands and mangroves, seagrass and other marine ecosystems) and monitor ecosystem change and corresponding carbon sequestration changes to compile data to facilitate reporting on contributions to mitigation.

Potential challenges to implementation of the above strategies:

- Management of coastal and marine resources in SVG is fragmented i.e. there are 45 pieces of legislation implemented by 29 different agencies. This results in difficulties in establishing and implementing coordinated institutional arrangements for ecosystem-based management, including integrated coastal zone management and marine spatial planning and management across relevant sectors such as fisheries, tourism, transport, physical planning, health and environment and creating, where appropriate, partnerships between government, private sector and civil society.
- Limited enforcement of existing legislation and regulations for conservation and environmental management.
- There are challenges in maintaining an updated legislative framework that gives effect to international and regional obligations.
- Limited consideration of the environmental costs of ecosystem degradation and loss in national and sectoral budgets.
- There is inadequate data to gain a clear understanding of the impacts and potential adaptation strategies for ocean acidification and recent sargassum influxes.

Energy³¹

Impacts: SVG has an energy mix with approximately 81% petroleum base, 18% hydro power and about 1% geothermal³². SVG is heavily dependent on the importation of fossil fuels to supply the production, transformation, handling and consumption of energy commodities, with the transport sector in particular noted as a major consumer. Combustion of fossil fuels in the energy sector is the main source of carbon dioxide (CO₂) emissions, making it a key target in terms of climate change mitigation. Addressing energy security and efficiency are also priorities as heavy reliance on imported fossil fuels puts SVG at risk from fluctuations in global oil prices and makes the country vulnerable to disruptions in power supply when fuel importation is affected by extreme weather events. Climate change will compound these risks as more frequent and extreme weather events will lead to further disruptions in fossil fuel supplies while at the same time higher temperatures leads to a greater demand for energy to cool homes and businesses. While approximately 20% of current electricity demand is supplied by hydroelectricity, over the last ten years this amount has fluctuated significantly during the dry season causing an increase in the diesel consumption to meet the country's base demand.

Recommended strategies to address the impacts of climate change drawn from the SNC, 2015 and National Energy Policy and National Energy Action Plan (NEAP) include:

- Improving institutional arrangements that govern the sector, including via strengthening staff capacity to deal with energy policy issues and enhancing participation of the private sector.

³¹ Dr Vaughn Lewis, Saint Vincent Electricity Services (VINLEC), pers. comm.

³² Only St. Vincent has indigenous hydro resources, which are exploited for electricity generation. The other Grenadines islands are supplied by privately owned electricity systems on the basis of diesel plants (NEAP 2010)

- Diversifying energy sources and promoting the use of renewable energy technologies and related green technologies through:
 - Implementation of a program for the installation of grid-connected wind and PV power systems - encourage production of electricity from renewable sources (wind and photovoltaic power) by independent power producers.
 - Providing innovative financing mechanisms that encourage installation of solar water heaters in the commercial and residential sectors.
 - Assessment of the geothermal resource on St. Vincent in determine possibility of its development, for electricity generation.
- Promoting energy efficiency through:
 - Adoption of standards and guidelines for the construction of energy efficient buildings
 - Promoting energy audits for key energy consuming sectors, such as industries, hotels, restaurants and public buildings, to improve understanding of energy consumption patterns and inform the design of appropriate energy efficiency measures.
 - Setting energy performance standards for importation and sales of major energy consuming equipment and appliances (used by residential and commercial sectors).
 - Implementing education and awareness programmes to promote efficient energy use across all sectors of the economy.

Potential challenges to the above resilience strategies outlined in the National Energy Policy and NEAP, include:

- Limited availability of data (e.g. on sectoral consumption patterns for agriculture, land use, tourism, etc.) which are important source or sinks for GHGs and poor systems for data management and sharing such as databases and publication of annual energy statistics.
- Insufficient knowledge about the potential renewable energy technologies that are relevant for the SVG context.
- Limited technical expertise and relatively weak institutional structures that would allow public or private investors to tap such resources in a timely manner and secure environment.
- Limited financial commitment and support for renewable energies as well as insufficient private sector participation and investment.

Human health and well being

Impacts: Climate change could impact significantly on public health, including of residents and visitors to SVG, affecting economic productivity, livelihoods and wellbeing. Changing rainfall patterns and increases in temperature and humidity are likely to provide favourable conditions for vector-borne diseases such as dengue, malaria and leptospirosis. Additionally, the appearance of new mosquito-borne viruses, such as chikungunya and zika, are of considerable concern. The lower rainfall levels predicted for the Caribbean and subsequent reduction in the potable water supply will further impact on sanitation leading to the spread of diseases like gastro-enteritis and cholera. Dry spells can affect air quality and increase the likelihood of acute respiratory infections, influenza-like illnesses and asthma which are quite common among residents of SVG. Heat stress and related illnesses are projected to increase, particularly in the elderly and infirm, with increasing air temperatures. Extreme weather patterns also threaten to compromise sanitation systems and freshwater availability, with the potential for outbreaks of communicable diseases. In addition to the direct threat of injury or death from climate related natural hazards such as floods, physical and capital damage to health facilities may also arise, along with displacement of persons and loss of shelter and the associated

mental and physical impacts. Impacts on the agricultural sector may indirectly affect human health in terms of nutritional requirements and supply.

Recommended strategies to address climate change impacts drawn from the SNC, 2015 and CARIBSAVE Climate Change Risk profile, 2012, include:

- Mainstreaming climate change and disaster risk reduction and management considerations into health sector planning and programmes, with emphasis on vulnerable groups.
- Establishing a more robust vector control programme with surveillance for dengue and other forms of vector borne diseases that are climate sensitive, including “strengthening and equipping of the local vector-control unit to respond to expanding insect populations and the emergence or re-emergence of vector-borne diseases.” INC, 2000.
- Conducting further research to link the epidemiology of diseases with climate data in SVG. This research should be based on improved, peer reviewed data potentially collected and disseminated through a Caribbean data information centre or clearinghouse that includes temporal, environmental and climatological data.
- Establishing a water quality monitoring programme that takes into account floods, droughts and waste disposal into water bodies and a national solid waste management programme that prohibits open burning.
- Improving access to health services via provision of community health services with trained staff and equipment to perform primary health care and some degree of hospitalisation for asthma patients and persons suffering from heat stress. In addition, provision of a mobile health clinic that can treat emergency cases while transporting persons to appropriate treatment centre.
- Expanding national environmental education programmes to address climate change vulnerability and human health and safety, including conducting health education and promotion campaigns for both locals and visitors.
- Establishing a climate linked health early warning system so that people can take the necessary precautions in their day-to-day activities.

Further measures identified by the Environmental Health Division³³ include the need to engage social networks (e.g. church and other community groups) and incorporate local knowledge to change consumption practices and behaviour (e.g. more recycling, use of energy efficient appliances and home gardens to reduce carbon footprints) to address climate change.

Potential challenges in the implementation of these actions:

- A strategic plan (for the next 5 years) is currently being developed for the sector but climate change considerations not yet addressed in a concerted manner³⁴
- Limited financial and technical resources with staff shortages in the sector (partially filled by Cuban medical practitioners)
- Limited enforcement of Acts and laws including Litter Act 1991, Environmental Services Act 1991 and Public Health Act 1977.
- Political and social culture is a barrier to change.
- Limited research and lack of an effective data collection and monitoring system for understanding the linkages between disease and climate change (including the effects of newly emerging diseases, such as chikungunya and zika).

³³ Shared in interview with representative of Environmental Health Division on October 10, 2018.

³⁴ Ibid.

- Poor access to emergency services in the Grenadines islands, particularly due to transport and logistical issues.
- Concerns with waste from tourism activities particularly in the Grenadines.
- Poor drainage and lack of adequate toilet facilities especially in poorer communities.

Sustainable Land Management and Physical Development

Impacts: More than 90% of infrastructural development in SVG is concentrated in a narrow coastal belt less than eight meters above sea level. These include the island’s main communication, transport and emergency response structures - roads, airports, telecommunication, financial and technical support centres. Climate change poses a particularly high risk for this infrastructure due to sea level rise and more frequent and extreme weather, including flooding, hurricanes and storm surge. The effects of climate change are also projected to have major implications for future land use in SVG. It is estimated by the UNDP/ Caribsave (2010) that:

- 1% of SVG’s total land area would be lost.
- 2% of agricultural land would be lost.
- 1% of the population will be displaced.
- 10 % of tourism resorts damaged or lost, with beach assets lost or greatly degraded at many more tourism resorts.
- 3% of land and 7% of agricultural land affected by storm surge.

Recommended strategies to address the impacts of climate change based on information provided in the SVG Land Policy Issues Paper, 2013 and SVG National Physical Development Plan: Methodological Framework Report, 2013 are:

- Strengthening the enabling legislation, regulations and policies concerning physical development and land use zoning to address conflicts and gaps with regard to CCA.
- Harmonising physical development planning with other strategies for enhanced energy, food and water security, conservation and sustainable land management.
- Integrating climate change and disaster risk reduction and management considerations into physical development policies, plans and programmes.
- Integrating climate-proofing considerations in the design of new physical infrastructure and encourage the private sector and communities to retro-fit existing buildings through use of tax breaks and other incentives
- Adopting measures to protect vulnerable terrestrial and coastal and marine ecosystems from significant adverse impacts of projects, including through the effective use of environmental impact assessments (EIAs)
- Promoting adoption of a “ridge-to-reef” approach to landscape management to reduce the impacts of soil erosion, excessive run-off and siltation on coastal settlements and infrastructure.
- Conducting coastal and marine risk and vulnerability assessments as part of integrated coastal zone management planning processes, including modelling and mapping to determine priority for action on the coast (e.g. storm surge maps developed under the vulnerability assessments can identify resources at risk and inform early warning systems for coastal settlement and activities).
- Promoting relocation of settlements from unsafe coastal locations, where deemed necessary, development of sea defences, the revision and enforcement of building codes and strengthening of disaster reduction management capacity.

Potential challenges to implementation of the above adaptation and resilience strategies include:

- There are unclear policies and inadequate legislative frameworks, especially as it relates to regulations to accompany the laws. The existing draft National Physical Development Plan and other local area plans and building codes are not legally binding.
- The fragmented approach to addressing land issues, limited inter-agency coordination and overlapping roles and responsibilities limits effective land management and is a major drain on the limited state resources. Overlapping responsibilities related to legislation and agency functions result in duplication of efforts and inaction especially on enforcement matters.
- Limited institutional and organisational capacity to develop and implement sustainable land policies, including proper monitoring of land use practices.
- Development interventions are undertaken without appropriate measures taken to address negative environmental impacts.
- Inefficient land information and recording system which does not support land administration and management and limited interagency sharing of information
- Unsustainable land and resource use, limited access to land and insecure land tenure creates and intensifies pressure on the land, environment and biodiversity.
- Scarcity of land for housing especially near the urban centre where demand for housing is greatest.

Tourism

Impacts: Tourism is an important source of employment and revenue for SVG following the decline of the banana industry. The sector contributed 22.3% to GDP³⁵ in 2016, with further increases expected. Extreme climate events (e.g. heat waves, droughts, floods, tropical storms) as a result of climate change have and will continue to affect the tourism industry through infrastructure damage, degradation of coastal resources (e.g. coral reefs, reef fish and white sand), additional emergency preparedness requirements, higher operating expenses (e.g. insurance, backup water and power systems and evacuations) and business interruptions. In addition, sea level rise poses major threats to coastal development. Climate models from 2011 indicate that 1 metre SLR places 10% of the major tourism properties at risk, along with 1% of road networks, 50% of airports and 67% of sea ports (NDC, 2015). Water quality and supply, which is critical for tourism and related livelihoods, is also likely to be severely affected by climate change impacts.

Recommended strategies as noted in the SNC, 2015 include:

- Diversifying the tourism product through greater emphasis on heritage and eco-tourism to supplement beach tourism e.g. via promotion of small group tourism that fits well into the carrying capacity of the island amenity sites and regional tourism tied to cultural and island specific events.
- Pursuing renewable energy and energy efficiency programs in the hotel sector e.g. providing fiscal incentives for the import of energy-efficient appliances.
- Development of water management strategies for the sector, in line with government policies.
- Improvement of overall management of the tourism product through the National Parks, Rivers and Beaches Authority.

³⁵ World Travel & Tourism Council 2017. Travel and Tourism Economic Impact 2017, Saint Vincent and the Grenadines. World Travel & Tourism Council – London, UK. Accessed at: <https://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2017/stvincentandthegrenadines2017.pdf>

Potential challenges to achieving the above strategies include:

- Absence of an up to date tourism policy and/or strategy which outlines clear priorities for mainstreaming climate change and targets for CCA and mitigation for the sector.
- No specific strategies identified for addressing climate change as it relates to eco-tourism and marine tourism sub-sector – yachting, cruise, SCUBA, sportfishing – in policies or strategies including in the context of priorities for integrated coastal zone management.
- Weak linkages and general lack of cross-sectoral coordination between tourism and other sectors of the economy, especially those with relevance for tourism infrastructure and services such as physical planning, transport, waste, water, energy, health and agriculture.
- Increased dependence on the tourism sector and rapid growth which increases risk of overuse and pollution of freshwater resources, land and natural ecosystems, increases greenhouse gas emissions and exacerbates human health risks through spread of communicable diseases.
- Vulnerability to external shocks, such as financial markets, global oil prices and transport networks, that are beyond the control of the government and citizenry.

Transport

Impact: The transportation sector has the fastest growing demand for energy in SVG and contributes to GHG emissions through its heavy reliance on fossil fuel energy sources, including gasoline, diesel, avgas and lubricants (used domestically). The importation of used vehicles is a major concern, given their lower fuel operating efficiencies (NDC, 2015). SVG as a multi-island State depends heavily on sea transport for the intra-state movement of people and cargo. Maritime transport and ship registry are noted as significant activities from a sea-faring perspective, especially as ‘the main trends in the Caribbean maritime sector are the increasing vessel sizes and consolidation among shipping lines.’³⁶ Transport infrastructure (both land-based and marine) is also likely to be affected by climate change related hazards. The majority of road infrastructure is found within the narrow coastal zone as well as location of ports and small airports make them extremely vulnerable to sea level rise and storm surge associated with climate change. Storm activity in the past has also resulted in temporary flooding of the runway of the country’s international airport and damage to bridges and roads.

Recommended strategies to address the impacts of climate change as noted in the National Energy Action Plan (NEAP) include:

- Mainstreaming climate change considerations into the maritime affairs/services sector, including updating relevant legislation, regulations, policies and strategies. The National Ocean Policy was approved recently and an accompanying Shipping and Marine Pollution Bill is currently under development which incorporates MARPOL Annex 1-6.
- Improving fuel conservation for land and maritime sectors.
- Reducing fuel consumption of vehicles via providing guidance to public on fuel consumption of frequently imported car models, revising the car taxation system and subsidising the public transport sector to give incentives for the purchase and use of more fuel-efficient passenger cars and other vehicles

³⁶ See http://www.caribank.org/wp-content/uploads/2016/05/Study_Transformation-of-Caribbean-Maritime-Port-Services-Industry.pdf

- Development and implementation of a comprehensive long-term transport strategy, including studying the potential of introducing electric vehicles in the island, and other measures to increase ridership of public transportation, improve road conditions and traffic management.
- Exploring options to either import biofuels from countries, such as Brazil, or set up a national production chain.
- Addressing institutional requirements - defining responsible stakeholders with regard to energy issues, including for transport sector.
- Investment in transportation infrastructure and preventive maintenance and establishing formal requirements for new infrastructure design with respect to expected service life and disaster resilience requirements (e.g. survives 100, 200, 500 wind, flood, seismic event)³⁷
- Analysis and identification of the needs for periodic rehabilitation of public infrastructure in order to mitigate direct budget impacts of recurrent disaster events in the future.

Potential challenges to the above resilience strategies outlined in the National Energy Policy and National Energy Action Plan, include:

- Insufficient data and information on relevant policy options to address climate change within the maritime affairs and services sector.
- Limited capacity to record emissions data by the Maritime Administration and thus lack of evidence-based means to recommend appropriate mitigation measures³⁸.
- Lack of proper enforcement of maritime laws and fines.
- Current fuel subsidies geared at lowering fuel prices are a heavy burden on the state budget.
- Potential costliness of revising the import taxation system (depends on design, e.g., use of rebates, no or lower taxes for fuel efficient vehicles, etc.).
- Actions in maritime sector have potential impacts and implications on tourism reputation (e.g. introducing mandatory requirements for ships coming into SVG waters to submit carbon emissions and fuel consumption typically not well received)³⁹.

Waste Management

Impacts: SVG has a good waste collection system but indiscriminate and improper dumping of waste is an issue. The waste sector contributes emissions from non-energy sources, including emissions from landfills and wastewater. In SVG, solid waste disposal is limited to a small number of landfills. The disposal and treatment of industrial and municipal wastes by landfilling, recycling, incineration or waste-to-energy can produce emissions of GHGs (including CO₂, methane (CH₄), and non-methane volatile organic compounds (NMVOCs)) though small and not accounted for in the national inventory. Indirect nitrous oxide (N₂O) emissions can also result from the treatment of sewage sludge and incineration of medical wastes (SNC, 2015). Open burning of waste is prohibited, but it is estimated that approximately 15% of waste is disposed at unmanaged dump sites (SWMU, 2002). Climate impacts on the sector (e.g. from severe weather), can result in damage and loss of infrastructure, handicapping of waste management services and associated health implications for the country.

³⁷ Government of St Vincent and The Grenadines (GoSVG 2013) Rapid Damage and Loss Assessment (DaLA) December 24-25, 2013, Floods. https://reliefweb.int/sites/reliefweb.int/files/resources/SVG_Rapid_DaLA_Report.pdf

³⁸ Shared in interview with representative from Maritime Administration on October 11, 2018.

³⁹ Ibid.

Recommended strategies to address climate change impacts drawn from the SNC, 2015 and National Ocean Policy, 2018 include:

- Implementation of an integrated waste management regime which considers ‘reduce, reuse, recycle’ approach with regards to resource management⁴⁰. This includes exploring alternate methods of landfilling, white goods collection service and banning Styrofoam and single use plastic bags.
- Introduction of a composting programme for the commercial sector to address GHG emissions, including operating a central composting facility to handle organic waste and targeting the tourism sector and then expanding to other sectors.
- Conducting research and piloting initiatives related to waste-to-energy and disaster waste management (e.g. removing and safe disposal of large amounts of debris post-disaster).

Potential challenges to implementation of the above adaptation and resilience strategies include:

- Effectiveness of basic controlling legislation, including the Waste Management Act and Regulations, Act No.31 of 2000 and Solid Waste Regulations No. 11 of 2005, is affected by a lack of clear definition of areas of responsibility and authority in monitoring and enforcement, resulting in potential duplication of efforts and conflicts between agencies such as Public Health, CWSA and the Solid Waste Management Unit (SWMU) housed under it.
- Challenges in enforcing the waste management laws, specifically with regard to illegal dumping; enforcement is largely based on voluntary compliance of the citizens.
- Technical capacity exists but limited staff at SWMU (includes currently 2 technical staff and manager) to fully address all waste management issues.
- Despite a collection system, integrated waste management is lacking which can properly respond to the various forms of waste.
- Management and disposal of debris, which often includes mass construction type waste, can be challenging with currently limited capacity of landfills.
- Potentially high cost of composting services.
- Perception of the waste sector as a secondary concern, including by policy makers, which results in sector not being seen as a priority for investment.

Water

Impacts: Recent climate projections suggest that SVG is likely to become more water stressed in the future, as a result of climate-induced temperature increases, overall decrease in rainfall, lengthening of dry seasons, more intense rainfall events, more intense hurricanes and sea-level rise. Reduced rainfall would severely impact the water supply of rivers and streams and is of particular concern for the Grenadine islands which have a very high dependence on rainwater for freshwater supply and are already stressed during the dry season. Increases in the intensity of rainfall in fewer rain days means the country is vulnerable to droughts, but also to the secondary effects of torrential rains such as landslides and the contamination of water supplies. These will compound problems in watersheds already affected by land degradation due to squatting, poor agricultural practices, deforestation and excessive use of agrochemicals. It is expected there will be a negative impact on the generation of hydroelectricity and potable water as a result of adverse changes in the rainfall pattern, landslides and increased soil erosion.

⁴⁰ UNEP 2010. Natural Environmental Summary (NES) St. Vincent & the Grenadines.

Recommended strategies to address the impacts of climate change drawn from the SNC, 2015 and draft Water Safety Plan (WSP) for SVG include:

- Adoption of the Water Safety Plan approach and its implementation by the Central Water and Sewage Agency (CWSA) as a key contribution to SVG's climate change adaptation response.
- Formal adoption of a National Water Policy.
- Institutional arrangements for creation of a National Water Resources Management Agency.
- Enactment of water resources legislation and amendments to relevant existing legislation.
- Improvement of water security through implementation of rooftop rainwater harvesting systems and other technological innovations like the solar powered Reverse Osmosis desalination plant constructed in Bequia.
- Implementation of policy options like adjustments in water pricing and the development of water user groups.
- Protection of water-supply sources and improved harnessing and distribution systems to accommodate competing uses, given increasing water demand and water supply variability.
- Ground water exploitation to provide additional water supplies and enhance water security.
- Supporting irrigation for agricultural diversification and the use of greenhouses for vegetable farming.
- Formalisation of the national hydro-met data management system and improve data collection on the current system managed by CWSA. Improve interagency data sharing and archiving and formalise the establishment of a national hydro-met centre of expertise⁴¹.

Potential challenges to implementation of the above adaptation and resilience strategies include the following outlined in the draft WSP:

- A weak regulatory and institutional framework to enable establishment and action by proposed National Water Resources Management Agency to oversee an integrated approach to water resources in SVG.
- Poor coordination between the CWSA, St. Vincent Electricity Company (VINLEC) and the Ministry of Agriculture as the main water resource institutions. There is need for greater inter-agency collaboration and information sharing, especially on water quality issues.
- To date, no protected areas for the protection of water resources, been declared or regulated (under the provisions of the CWSA Act, Section 21, which authorises the Minister to set aside these areas to address water supply needs.⁴² Aged or insufficient water infrastructure also contributes to the vulnerability of the water supply in SVG.

7.2 Cross-cutting Issues

7.2.1 *Information management, research and monitoring (including key data gaps and needs)*

There is an overarching need to improve data collection, analysis and information management relevant to climate resilience. A comprehensive system of research, monitoring and knowledge management for climate change is needed to provide reliable data for decision-making and to foster experimentation and innovation. Currently, key baseline data is unavailable and, where data generation is taking place, there is limited dissemination of this information to other sectors. An effective system

⁴¹ Government of Saint Vincent and The Grenadines (2013) Rapid Damage and Loss Assessment (DaLA) December 24-25, 2013, Floods. https://reliefweb.int/sites/reliefweb.int/files/resources/SVG_Rapid_DaLA_Report.pdf

⁴² Noted in the National Parks and Protected Areas System Plan 2009-2014

to collect and report on data necessary to develop the GHG inventory and a clearing house mechanism to facilitate the exchange of information on climate change are lacking. There is currently no central repository for accessing or contributing available data and information, including by private sector who may be interested in investing in resilience measures, and civil society stakeholders who may be implementing on the ground projects. There is a critical need for databases (including for sectoral and national data) and decision support tools e.g. geographic information systems which can help support vulnerability mapping, modelling and analysis.

Interdisciplinary research is also important as impacts of climate change cuts across sectors. The SNC, 2015 notes that research should be accompanied by a systematic monitoring programme. Civil society and non-state actors need to be involved in these processes since government alone cannot effectively manage all national resource. Research and monitoring should include:

- Climate modelling and systematic observation systems to determine climate change trends and patterns and inform assessments of current and potential impacts in SVG.
- Vulnerability and capacity assessments to identify the key impacts of climate change and vulnerabilities for each of the priority sectors.
- Technologies and practices for climate-smart agriculture, energy efficiency and renewable energy, and water conservation and management.
- Surveys and assessments of species, habitats and ecosystem services within coastal, marine and terrestrial ecosystems to support conservation and natural resource management.
- Ecosystem-based management approaches, including watershed management, integrated water resources management and integrated coastal zone management, that are relevant to the small island context of St. Vincent and the Grenadines

7.2.2 Institutional and legislative constraints and gaps

The institutional and legislative framework for climate change is derived from the existing legislation, policies and plans discussed in previous sections. Overall, there is a need for comprehensive reviews of policies, plans and legislations to include climate change and DRR considerations (see Table 4 for results from rapid policy screening using CCORAL). In several instances, legislation and sectoral policies and plans remain in draft or need to be revised (e.g. national tourism policy, national agriculture policy, and draft water safety plan which are relevant to sectors consistently identified as priority in the literature and stakeholder interviews, as well as the national physical development plan and national environment strategy which have broader implications for shaping success of climate action in country). A lack of relevant regulations to support legislation and overall poor enforcement are other challenges. For example, there is no specific legislation or associated regulations to support climate change adaptation or mitigation. Notably, the governance structure to oversee climate change planning, implementation and financing or other mechanisms for coordinating sectoral stakeholders needs to be strengthened, and provide better support for the work of the climate change focal point, the Ministry of Finance, Economic Planning, Sustainable Development and Information Technology.

7.2.3 Intersectoral coordination

Overall responsibility for climate change adaptation is shared among several ministries and government agencies. Ensuring effective coordination and information sharing to support a cross-sectoral and integrative approach to climate change and building resilience is critical. This should include definition of key roles and responsibilities and clear communication of same including to the wider public, as far as possible. Coordination should also seek to factor in private sector and civil society given the lack of a participatory mechanism to consistently engage these stakeholders in climate dialogue. A cross-sectoral and multi-stakeholder approach will also be needed to enable ecosystem-based management,

integrated adaptation and disaster risk reduction and sustainable land management, all of which will be influential for successful implementation of the Climate Change Policy, Strategy and Implementation Plan. The proposed policy should therefore aim to create institutional arrangements that enable a cross-sectoral, multi-stakeholder approach, such as a National Climate Change Committee, as well as build institutional capacity.

Additionally, while a number of key sectoral policies and plans identify climate change as a major risk, they have not been informed by vulnerability assessments and do not provide a comprehensive set of actions and targets to mainstream climate change. See Table 4 which summarises the findings from screening sectoral policies and plans in SVG using CCORAL including gaps in terms of identification of climate change risks and vulnerabilities, identification of adaptation options, presence of institutional framework and budget for implementation, level of stakeholder engagement, and presence of monitoring and evaluation systems. Sectoral policies and plans will therefore need to be updated accordingly and where possible a strategy and/or action plan developed to operationalise them that takes into account measures in other related sectors and overarching priorities identified in the proposed Climate Change Policy and NAP.

7.2.4 Integration of adaptation, mitigation and disaster risk reduction

Climate change has the potential to exacerbate natural disasters, such as droughts, floods, landslides, hurricanes and storm surges, through changing rainfall patterns, more extreme weather and sea level rise. The impacts on lives, infrastructure and livelihoods in SVG will be significant given the small size of the islands and economic dependence on climate-sensitive sectors like agriculture and tourism. Increasing resilience to multiple hazards and disasters, including extreme climate events, will be critical to ensure the viability of the people and economy. Integrating disaster preparedness and risk reduction considerations into any adaptation projects and programmes for the various sectors will enhance capacity to manage multiple hazards and take advantage of synergies. Considerations should factor in the needs of vulnerable communities. Additionally, there needs to be investment in monitoring, forecasting and early warning systems for vulnerable communities and sectors to enable disaster risk reduction.

Relevant national policies, plans and institutions related to disaster risk management need to be updated to support climate change mainstreaming. The National Disaster Plan, 2005 and the National Emergency and Disaster Management Act, 2006 do not adequately address climate change concerns. SVG's Comprehensive Disaster Management Policy, 2014 more directly acknowledges climate change and notes integration as part of its goal, but more work is needed to identify and define actions for implementation.⁴³ While there are a number of committees (e.g. National Emergency Council, the Emergency Executive Committee, the National Sub-Committees and District and Community Disaster Committees), clarity is needed on who will directly be responsible for climate change mainstreaming in DRR policies and plans.

7.2.5 Investment and fiscal planning

⁴³ In August 2018, a recent workshop was held by the NEMO, with the support of the Caribbean Disaster Emergency Management Agency (CDEMA), and the United Nations International Strategy for Disaster Risk Reduction (UNISDR), to develop a country work programme (CWP) to formulate programmes and a plan of action to implement the national and regional priorities of the Comprehensive Disaster Management (CDM), Strategy, the Sendai Framework for Disaster Risk Reduction and the National Economic and Social Development Plan of Saint Vincent and the Grenadines 2013- 2026.

Limited funding is available through the Government to support the added responsibilities and measures needed to adapt to climate change or to explore some of the noted mitigation measures in the SNC, 2015. The majority of the funding for climate change planning and implementation is sourced through multi-lateral donors such as the Green Climate Fund under the UNFCCC and the World Bank’s Global Environmental Facility, through bi-lateral donors such as the European Union and North American governments, and through regional programmes with CCCCC and sub-regional programmes with the OECS. The ability to access and mobilise these donor funds in a timely manner, however, is a challenge. In many cases, loan conditions have proven to be counter-productive in the context of national-resource management because they fragment environment issues and initiatives (INC, 2000).

Additional mechanisms for financing key investments in climate change adaptation programmes and projects will need to be identified and developed. Preliminary policy screening using CCORAL shows no indication that in key sectors implementation frameworks and budgets have been developed to support adaptation and resilience building. Public-private partnerships and fiscal measures, such as subsidies and tax incentives, offer potential opportunities. Tax incentives and subsidies will be particularly useful in promoting climate-friendly and climate-proofing behaviours within communities and small businesses that will be facing increasing risks from climate change and need to be financially prepared.

7.2.6 Stakeholder capacity building

Limited human, financial and technical resources have been noted as a critical issue across various sectors. Capacity building aimed at different levels, including the local, sectoral and national levels, has consistently been highlighted as a key need for mainstreaming climate change in key sectors and effective planning and implementation. In particular, the EPSDD as the climate change focal point and agency coordinating the process for the Ministry of Finance, Economic Planning, Sustainable Development and Information Technology, needs to have the required capacities and staff to understand, coordinate and advocate on climate change, mobilise stakeholders and input into the Climate Change Policy, Strategy and Implementation Plan.

While civil society is implementing a number of on the ground projects related to CCA, challenges are noted in terms of organisational capacity and needs for strengthening CSOs, particularly related to legal and accounting expertise and sustainable financing. There are a few prominent CSOs (e.g. Sustainable Grenadines), but many smaller CSOs lack human resources and are not well organised or operating at a level to be effectively engaged. Private sector capacity to engage in policy development and implementation is also severely constrained by lack of human resources.

The SNC identified capacity building needs in key areas and related strategies/actions, which still appear relevant based on literature review and information gathered from interviews:

Key Areas	Strategies/Actions
Climate change coordination	Formulation of a climate change committee
Climate change education and awareness	Development and implementation of an integrated and sustained climate change education and awareness programme Establishment of a climate change information storage and exchange mechanism
National communication process	Enhance data collection, management and processing Establishing systems for enhanced exchange of information

	Building capacity to resolve issues regarding emissions factors and to better address land use, land-use change, and forestry computations ⁴⁴
Incorporation of climate change considerations into the national development planning process	Development of a national climate change framework as part of a larger national planning framework Development and implementation of a national physical development plan
Freshwater resources	Inventory of freshwater resources, and development and implementation of a National Water Resources Management Plan
Tourism	Development/Improvement of a regulatory framework with emphasis on enforcement
Management of coastal and marine resources	Review of existing coastal monitoring and data collection systems Development and implementation of integrated coastal zone management plan

The SNC also highlighted limited professional or technical expertise within SVG to support a number of the climate change measures and technologies. Technical capacity building needs across sectors, broadly included:

- data collection and management for inventories and vulnerability assessments;
- integrated planning;
- use of decision support tools such as GIS; and
- other technical/specialised areas such training in climate forecasting, energy efficiency and renewable energy technologies and hydrology.

Capacity building and training will need to target not only government staff but other technical specialists and sectoral experts, including in the civil society and private sector, and conversely also leverage their expertise. In addition to technical capacity building, organisational capacity building and institutional strengthening is needed to enable improved systems and procedures for mainstreaming climate change, including in budgeting and procurement systems and development planning.

⁴⁴ Climate scientists measure emissions and removals of carbon dioxide from land and forests separately from fossil fuel emissions.

Table 4: Caribbean Climate Online Risk and Adaptation Tool (CCORAL)⁴⁵ applied to key sectoral policies and plans in St. Vincent and the Grenadines

CCORAL Policy Screening Questions	National Economic and Social Development Plan 2013-2025	National Biodiversity Strategy & Action Plan 2015-2020	National Energy Policy 2009 and Action Plan 2010	National Physical Development Plan (Methodological Framework) ⁴⁶	St. Vincent and the Grenadines Agricultural Policy Framework 1997-2006 ^{47, 48}	Draft Water Safety Plan for St. Vincent and the Grenadines 2013	SVG Tourism Sector Strategic Plan 2002-2006	St. Vincent & the Grenadines National Ocean Policy 2018	St. Vincent & the Grenadines Environmental Management Strategy and Action Plan 2004-2006	Comprehensive Disaster Management Policy 2014
1. Do the objectives of policy/plan include addressing climate change?	✓	✓	✓	✓				✓	✓	✓
2. Has a vulnerability and risk assessment for climate change been undertaken and used to inform policy/plan?							✓			
3. Is there potential for the policy/plan to increase vulnerability to climate change?	✓			✓			✓			

⁴⁵ The Caribbean Climate Online Risk and Adaptation Tool (CCORAL) is an online support system and toolbox for climate resilient decision-making developed by the Caribbean Community Climate Change Centre (CCCCC). It includes tools for screening budgets, legislation, policies and projects/programmes using a climate change lens and identifying gaps and opportunities for adaptation and building resilience.

⁴⁶ The National Physical Development Plan Methodological Framework was reviewed; the draft Plan was not yet available. From interview with the Physical Planning Unit it was confirmed it is being updated with climate change considerations.

⁴⁷ IICA has done more recent and significant work to conduct a vulnerability assessment (2014) and develop a country strategy (2014-2018) for the sector

⁴⁸ The SNC, 2015 notes that Forest Management, Biodiversity and Land degradation related policy documents have attempted to integrate climate change considerations.

CCORAL Policy Screening Questions	National Economic and Social Development Plan 2013-2025	National Biodiversity Strategy & Action Plan 2015-2020	National Energy Policy 2009 and Action Plan 2010	National Physical Development Plan (Methodological Framework) ⁴⁶	St. Vincent and the Grenadines Agricultural Policy Framework 1997-2006 ^{47, 48}	Draft Water Safety Plan for St. Vincent and the Grenadines 2013	SVG Tourism Sector Strategic Plan 2002-2006	St. Vincent & the Grenadines National Ocean Policy 2018	St. Vincent & the Grenadines Environmental Management Strategy and Action Plan 2004-2006	Comprehensive Disaster Management Policy 2014
4. Does climate change present a significant risk to the sector?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5. Are adaptation options identified to manage risks?	✓	✓	✓	✓		✓		✓	✓	✓
6. Has stakeholder input and support been obtained for the policy/plan including mainstreaming climate resilience?	✓	✓	✓	✓				✓		✓
7. Has communications and public outreach programme been developed including climate change impacts on sector?										
8. Has an implementation framework and										

CCORAL Policy Screening Questions	National Economic and Social Development Plan 2013-2025	National Biodiversity Strategy & Action Plan 2015-2020	National Energy Policy 2009 and Action Plan 2010	National Physical Development Plan (Methodological Framework) ⁴⁶	St. Vincent and the Grenadines Agricultural Policy Framework 1997-2006 ^{47, 48}	Draft Water Safety Plan for St. Vincent and the Grenadines 2013	SVG Tourism Sector Strategic Plan 2002-2006	St. Vincent & the Grenadines National Ocean Policy 2018	St. Vincent & the Grenadines Environmental Management Strategy and Action Plan 2004-2006	Comprehensive Disaster Management Policy 2014
budget been developed to support adaptation and resilience building?										
9. Do the indicators of success enable stakeholders to track progress in addressing climate change?										
10. Are any changes to policy/plan required to respond to climate change risks and needs?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: Table 4 above summarises the findings from screening existing sectoral policies and plans using CCORAL and identifies opportunities and gaps for addressing climate change, including identification of climate change risks, impacts and vulnerabilities, identification of adaptation options, presence of institutional framework and budget for implementation, level of stakeholder engagement, and presence of monitoring and evaluation systems.

7.3 Financial analysis and implications

Effectively managing the impacts of climate change requires estimates of the costs of inaction, and the types of financing and benefits related to various options for adaptation and mitigation for SVG to guide the prioritisation of public and private investment. Some of this work has begun, but much more is required, especially along the lines of the strategic and policy responses identified for various sectors. Although there are currently few published estimates of the costs and benefits of climate change on the key sectors listed in 7.1, a number of key financial considerations from preliminary analyses are outlined below.

7.3.1 Financial analysis of climate change impacts and costs of inaction

With the increasing intensity of extreme climate events that are producing disasters of more widespread and extreme destruction, there is a recognition that these events will have substantial economic and financial implications. In April 2018, the Hon. Camillo Gonsalves, Minister of Finance, Economy Planning, Sustainable Development and Information Technology, Government of Saint Vincent and the Grenadines noted that “Adaptation costs are increasing; from 2010 to 2014, extreme weather events have resulted in a loss exceeding 35 percent of our GDP.”⁴⁹

Some Caribbean SIDS have had national disasters that cost more than the annual income of the country. In 2004, Hurricane Ivan’s damage to Grenada was estimated at twice the GDP, and in 2017, Hurricane Maria did even greater relative damage to Dominica. Beyond these costs, there are the gradually increasing costs to the economy over the course of the next several decades from slower onset changes such as sea level rise, and the associated investments in mitigation and adaptation to address climate change.

A study prepared for the FAO⁵⁰ has cited estimates⁵¹ of the impact of climate change on tourism and infrastructure for several Caribbean countries without concrete actions to adapt or mitigate GHG emissions (see Table 5). These estimates are based on the natural hazards, including hurricanes and storm surge, flooding, landslides, droughts and bush fires. The estimates suggest that the potential costs of climate change for SVG are close to the corresponding estimates for Saint Lucia, and both are greater than the estimates for the Caribbean average. Similarly, CARIBSAVE reported estimates of annual reductions in tourism’s contribution to SVG’s GDP due to beach loss of between US\$ 46 million by 2050 and US\$ 174 million by 2080 with SLR of about 2m (100m of erosion)⁵². This has major consequences for SVG’s economy as tourism’s current contribution to GDP is 22.3% and growing.

Table 5: High and Low Forecasted Cost of Inaction on Climate Change as a % of GDP in 2004

	Impact scenario	2025	2050	2075	2100
Caribbean	High Impact	6.8	13.0	19.5	26.3
	Low Impact	1.8	2.7	3.6	4.5
Saint Vincent and the Grenadines	High Impact	14.1	28.3	42.4	56.5
	Low Impact	2.3	4.7	7.0	9.3
Saint Lucia	High Impact	14.9	29.5	44.2	59.0
	Low Impact	2.8	5.2	7.6	10.0

Source: Ramon et al. 2008, Tables 1.1 and 1.2, p.24-27

While losses due to infrastructural damage and to tourism were estimated above, it is also necessary to account for the negative impacts on agriculture and other key sectors for SVG. Agriculture (farming, forestry and fisheries) is a key contributor to employment and food security, although it represents less

⁴⁹ St. Vincent and the Grenadines National Adaptation Planning, <http://napglobalnetwork.org/2018/04/saint-vincent-grenadines-national-adaptation-planning/>

⁵⁰ Ramasamy Selvarju, Climate Change and Agriculture in Jamaica: Agriculture Sector Support Analysis, FAO, 2013, p.44, <http://www.fao.org/3/a-i3417e.pdf>

⁵¹ Bueno, R., Herzfeld, C., Stanton, E. et al. 2008. The Caribbean and climate change: the costs of inaction. Report commissioned by Environmental Defense Fund. Stockholm Environment Institute-US Center.

⁵² Simpson et al. 2012. CARIBSAVE Climate Change Risk Atlas (CCCRA) - St. Vincent and the Grenadines. Summary Document. DFID, AusAID and The CARIBSAVE Partnership. Available at: https://www.researchgate.net/profile/Mark_New/publication/272791668_Climate_Change_Risk_Profile_for_Saint_Vincent_and_the_Grenadines/links/55fa74f708ae07629e007648/Climate-Change-Risk-Profile-for-Saint-Vincent-and-the-Grenadines.pdf

than 8% of GDP. The sector employs around 40% of the workforce in SVG and is critical to household income and subsistence⁵³. Losses due to climate-related disasters can be significant, such as damage to banana and plantain crops totalling EC\$ 35 million in 2010 from Hurricane Tomas⁵⁴. Key financial considerations in addressing climate change within the sector relate to the development of new varieties of crops, new approaches to minimizing heat stress on farm animals, access to insurance and new climate smart technologies to combat higher air and sea temperatures, alternating droughts and flooding, the projected increase in pests and diseases and the resulting decline in agricultural productivity. Investments in a regional approach to research and development for adaptation and mitigation in agriculture, including for farming, forestry and fisheries, will be more cost effective than stand-alone national programmes.

Climate change is also expected to increase the risk of heat-related illnesses and drive up the incidence of (air and water) vector-borne diseases as a result of shorter reproduction cycles and more pervasive breeding sites of vectors, and particularly mosquitoes. This, in turn, will drive up health costs for both households and the government. As temperatures rise, houses and commercial buildings will also have to use more energy for cooling, while retrofitting existing structures for increased air flows, and designing new buildings to maximize natural cooling. These costs will be borne primarily by households and private businesses, and ultimately will help to drive the imperative for the shift to locally-produced alternative energy sources and away from imported petroleum and related products.

7.3.2 Financial analysis of policy options to address climate change

The recommendations for addressing climate change highlighted in 7.1 and 7.2 range from filling knowledge and data gaps to strengthening institutional frameworks including legislation, sectoral policies and plans, building technical and organisational capacity and taking practical adaptation and mitigation actions. These range of recommendations will have to be driven, and therefore financed, by the government as well as by households, CSOs and the private sector.

The financial requirements for expanding and upgrading national statistical, research and monitoring capabilities to enable informed decision-making will be formidable. Along with the rest of the CARICOM member states, the GoSVG will benefit from innovative ways of data collection that are less expensive than conventional methods.

Institutional strengthening and capacity building will require significant investments of human and financial resources. While funding for consultancy services and project or programme staff can be accessed from international development partners and financing facilities, including the Adaptation Fund, GCF and Global Environment Facility, the public sector will also have to train existing staff and potentially hire and train new technical staff to effectively support mainstreaming of climate change in development planning. A new national governance structure, such as a National Climate Change Committee, will also likely need to be established to coordinate and implement climate change actions across multiple sectors and stakeholders.

Leveraging other sources of financing beyond the public sector and international financing facilities, including public-private partnerships and fiscal measures such as subsidies and tax incentives, will be key. Notably, a Climate Resilience Levy was recently established in June 2018, which requires visitors to pay an additional US\$3 per night per hotel room for the first 30 nights of their stay. The levy will go to SVG's Contingency Fund, and if appropriately allocated can provide a valuable source of financing for adaptation and mitigation measures. Estimates suggest that the rate of capitalisation of the fund at 0.5% of GDP in 2018 onwards will, however, fall short of what is needed annually to cover the costs of damage due to climate-related disasters and of climate proofing infrastructure and DRR⁵⁵.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ International Monetary Fund (IMF), 2017. St. Vincent and the Grenadines IMF Country Report No. 17/400. December 21, 2017. <https://www.imf.org/en/Publications/CR/Issues/2017/12/21/St-45509>

8. Recommendations

Recognising the need for an overarching institutional framework to support mainstreaming of climate change resilience into development planning in SVG, a Climate Change Policy is to be developed and an accompanying Climate Change Strategy and Implementation Plan. This section provides an overview of the approach, scope and potential outline for the policy taking into account the key needs, opportunities and challenges identified in earlier sections.

8.1 Approach

A participatory and multi-sectoral approach will be used to develop the National Climate Change Policy engaging all key stakeholders in defining the key priorities and strategies. Stakeholder consultations will seek to engage a wide range of stakeholders and sectors spanning government, private sector and civil society in the policy development process. Key sectors will include those identified as important for adaptation and reducing vulnerability and adaptation and for mitigation and reducing GHG emissions in SVG, including agriculture, coastal and marine zone, energy, health, physical development, tourism, transport, water and waste management. The consultations will include clarification of needs, challenges and opportunities and determination of stakeholder consensus on priorities and actions to guide development of the National Climate Change Policy. The information will also be later be linked to the Strategy and Implementation plan to operationalise the policy.

8.2 Scope

The National Climate Change Policy will seek to address both adaptation and mitigation concerns. It will provide overarching guidance on key adaptation priorities and actions that reduce vulnerability to specific impacts from climate change and build resilience over the long term in line with the NAP and sectoral adaptation plans for agriculture and water, which are currently under development. It will also provide guidance on mitigation priorities and actions to enable SVG to meet the targets set out in the NDC. Additionally, the policy will seek to provide co-benefits where possible, through prioritising measures that minimise GHG emissions and reduce vulnerability to the impacts of climate change. For example, measures that enhance natural ecosystems functioning as carbon sinks and coastal and flood protection such as mangroves and forests.

The policy will take into consideration the relevant sectoral policies at the national level and ensure SVG meets its international and regional commitments in ensuring climate-resilient development. The policy will further seek to address key gaps and limitations including in the governance structure and institutional arrangements, technical, financial and human resources and data gaps. Policy directives and objectives will then be operationalised via the Climate Change Strategy and Implementation Plan which will subsequently be developed.

8.3 Proposed framework and outline

The proposed framework and structure for the Climate Change Policy taking into account sectoral and cross-cutting issues is outlined below.

Possible structure for the draft policy:

1. Introduction

1.1 Background: Description of the local context and issues within SVG, including its geography, population, economy and governance at the community to national levels.

1.2 Climate change impacts and vulnerabilities: Overview of the current and potential impacts from climate change, including observed trends and future projections, in SVG. Analysis of vulnerability, including of key sectors and populations, to the current and potential impacts of climate change.

2. Policy and Institutional Context: Overview of the key policies and plans and relevant institutional structures at the national, regional and international levels relevant to addressing climate change in SVG.

3. Overview of the National Climate Change Policy: Description of its vision, strategic objectives and priorities for action related to mitigation and adaptation to climate change.

4. Formulating the National Climate Change Policy: Overview of the process used to formulate the policy.

5. National Climate Change Policy

5.1 Scope and approach: Scope and approach of the policy in terms of providing specific guidance on adaptation priorities and actions and linkage to the Strategy and Implementation Plan

5.2 Strategic objectives: The main strategic objectives identified based on desk review and stakeholder consultations.

5.3 Priority areas for mitigation and adaptation: Identification of the priority areas and sectors for mitigation and adaptation to climate change based on desk review and stakeholder consultations, including specific sub-objectives and actions for each area.

5.4 Cross-cutting issues: Overview and analysis of cross-cutting issues and strategies for mitigation and adaptation to climate change based on desk review and stakeholder consultations.

6. Implementation framework

6.1 Institutional arrangements: Overview of recommended institutional arrangements for oversight and implementation of the National Climate Change Policy (including governance structure) and analysis of potential stakeholder roles and responsibilities and institutional readiness.

6.2 Resource mobilisation: Overview and analysis of financing options and mechanisms to support implementation, monitoring and review of the National Climate Change Policy.

6.3 Strategy and Action Plan: Overview of and link to the Strategy and Implementation Plan which will provide specific approaches and the timeframe and actions required over the short term, medium term and long term to achieve the strategic objectives and sub-objectives for the priority areas for adaptation and mitigation.

7. Monitoring and evaluation: Guidance on system for monitoring and evaluation of the National Climate Change Policy to track progress in implementation across sectors and update priorities and actions to enable mitigation, and adaptation over the long term. Policy review process and timelines.

8.4 Further recommendations

In addition to the development of a Climate Change Policy, Strategy and Implementation Plan, there are a number of other measures that can be taken to support mainstreaming of climate change into development planning in SVG. These include:

- Once the Climate Change Policy is finalised, it is recommended that consideration be given to developing climate change legislation to operationalise the policy and provide a legal basis for effective planning, implementation and monitoring of adaptation and mitigation measures.
- An up-to-date institutional and capacity assessment is needed to identify key capacity needs and inform capacity building efforts, particularly focused on EPSDD as the SVG climate change focal point and other key implementing partners for the Climate Change Policy. This assessment can also inform the design of appropriate governance and institutional arrangements for mainstreaming climate change into development planning.
- Synergies between the policy development process and other key climate change initiatives, including the NAP process and GCF readiness process, need to be leveraged to ensure that each build on findings and lessons learned from the other processes and ensure policy coherence.

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10. Appendix – List of Participants for Targeted Interviews

List of stakeholders interviewed (September 26-October 12, 2018):

Nyasha Hamilton, Environmental Educator, and Yasa Belmar, Environmental Resource Analyst, Economic Planning and Sustainable Development Division
Neri James, Chief Environmental Health Officer, Environmental Health Division
Tyrone Ballah, Town Planner, Physical Planning Unit
Chevanev Charles, Legal Department, Maritime Administration
Winsbert Quow, Manager, Solid Waste Management Unit
Anthony Regisford, Executive Director, SVG Chamber of Commerce
Orisha Joseph – Executive Director, Sustainable Grenadines

