

**National Telecommunications Regulatory Commission**

**St. Vincent and the Grenadines**

**(NTRC SVG)**



**National Broadband Plan**

**2015 - 2020**

Contents

- Index ..... ii**
- Introduction ..... 1**
  - What is Broadband?..... 1
  - What is a Broadband Plan? ..... 1
  - Why is Broadband important to St. Vincent and the Grenadines? ..... 2
- Fixed Broadband ..... 3**
  - Current Fixed Broadband Technology ..... 3
- Mobile Broadband ..... 4**
  - Current Mobile Communications Standard ..... 4
- Vision ..... 6**
  - Current Statistics..... 6
  - Aim ..... 14
    - Stage 1..... 14
    - Stage 2..... 15
- Implementation Strategy ..... 16**
  - Legislation ..... 16
    - Objectives..... 16
  - Infrastructure Projects ..... 17
    - Objectives..... 17
  - Adoption Projects ..... 18
    - Objectives..... 18
- Deliverables..... 19**
- Appendix ..... 20**
  - Bibliography ..... 20

# Index

## Relevant Terminology

ICT - Information and Communications Technology is often used as an extended synonym for Information Technology, but is a more specific term that refers to technologies that provide access to information through telecommunications.

Broadband - A high-capacity transmission technique which uses a wide range of technologies and frequencies to enable a large number of data to be communicated simultaneously.

Digital divide - The gap or discrepancy between the proportion of people who have ready access to the resources which encompass the use of Computers and the Internet and those who do not.

Digital literacy – Refers to the quality of having the skills, knowledge and abilities required to manipulate a range of technologies in ways to appropriate one’s needs.

Download Speed - The performance of an Internet connection quantified based on the number of bytes per second in which data travels from the internet to the user's device.

Upload Speed - The performance of an Internet connection quantified based on the number of bytes per second in which data travels from the user's device to the internet.

Kbps - An acronym for Kilobits per second. This is a measurement of peripheral data transfer or network transmission speed equivalent to 1000 bits per second.

Mbps - An acronym for Mega-bits per second. This is a measurement of peripheral data transfer or network transmission speed equivalent to 1,000,000 bits per second or 1000Kbps.

Gbps - An acronym for Giga-bits per second. This is a measurement of peripheral data transfer or network transmission speed equivalent to 1,000,000 bits per second or 1000Mbps.

Universal service - Universal service is an economic, legal and business term used mostly in regulated industries, referring to the practice of providing a baseline level of services to every resident of a country.

## **Introduction**

This National Broadband plan sets out to bridge the digital divide in St. Vincent and the Grenadines by advancing further into the promising digital age by delivering high-speed broadband throughout the country. Specifically, it will facilitate the use of broadband download speeds of 500Mbps and up with a minimum speed of 70Mbps to any subscriber of internet services. Also, for mobile broadband, the plan will facilitate 4G-LTE Advanced high-speed connection with speeds of 100Mbps and up island-wide. This Plan is projected to be implemented by the year 2020.

This Plan is intended to remove barriers hindering ICT and broadband development in St. Vincent and the Grenadines taking into consideration the various challenges and obstacles which exist. Ultimately, it is the contribution of public and private institutions which will drive the success of this Plan.

### **What is Broadband?**

The term broadband refers to the wide bandwidth characteristics of a transmission medium and its ability to transport multiple signals and traffic types simultaneously. Simply put, broadband describes a high-speed connection used to transfer data. The medium can be coaxial, optical fiber, twisted pair, DSL local telephone networks or wireless. As a means of reference for comparison purposes, any type of Broadband connection is usually many times faster than dial-up connection. The following are the four (4) types of broadband; Digital Subscriber Line (DSL), Cable, Satellite and Wireless, which can be used to provide these four (4) services; Fixed Line Phone, Mobile Phone, Internet and Television service.

### **What is a Broadband Plan?**

A Broadband Plan refers to a list of strategies and legislative framework approved by the government of a particular country which is intended to be used to increase the availability, quality and use of broadband in that country. A National Broadband Plan, given the realms of the current digital age seeks not only to promote growth in the ICT sector but also by extension in the country as a whole.

## **Why is Broadband important to St. Vincent and the Grenadines?**

It is expected that the growth in the demand for broadband access will be driven by the continuous evolution of communication and storage technologies, increasing device sophistication and the expanding role of the Internet and the applications which it powers. Ever increasing amounts of visual and audio data are being created, stored and accessed and it follows through that the networks providing access to these content areas are becoming ever more extensive.

As awareness of the possibilities offered by broadband grows among consumers, so too will their expectations. Video content which currently makes up about half of all Internet Traffic will continue increasing in quality owing to the next-generation, high-definition standards which will require even more bandwidth. More so as the devices that produce such content material become more affordable and popular it is expected that the amount of data produced will increase. Also with users taking advantage of share-enabling technology, whether on social networking sites or through cloud applications, the need for increased bandwidth will be necessary. Similarly, as the devices used to access such content (including laptops, tablets, cellular phones, etc) advance in mobile and wireless technology so to should the broadband network.

In addition, Broadband-enabled applications will also give residents the opportunity to increase their civic engagement and benefit from increased economic opportunities. Improved availability and access to information and public services will empower the individual thus allowing them to play a more active role in society. The increased availability of high-speed broadband will open up access to a number of opportunities that will no longer only be confined to benefit the selected few who are connected but will be the privilege afforded to all. High-speed, affordable and universal broadband will benefit businesses of all sizes and will also be conducive to the development of integrated e-services such as e-health which has the potential to provide more relevant and efficient medical care closer to patients' homes. These are just mere fractions of the numerous possibilities which will become available with access to high-speed universal broadband. The next five years will see new opportunities emerging as broadband continues to increasingly occupy an ever growing dominant role in our daily lives.

# Fixed Broadband

Fixed Broadband refers to high-speed data transmission to a fixed geographic location (such as homes, schools etc) using technologies such as FiOS, cable and DSL.

## Current Fixed Broadband Technology

### Cable:

Cable Internet access or cable modem access provides Internet access via hybrid fiber or coaxial wiring (originally developed to carry television signals). Either fiber-optic or coaxial copper cable may connect a node to a customer's location at a connection known as a cable drop. Download speeds can be as much as 400Mbps while upload speeds can be anywhere around 20Mbps.

### Digital Subscriber Line (DSL):

Digital Subscriber Line (DSL) service provides a connection to the Internet through a telephone network. Unlike dial-up, DSL can operate using a single phone line without preventing normal use of the telephone line for over the phone voice calls. DSL uses the high frequencies, while the low (audible) frequencies of the line are left free for regular telephone communication. Download speeds can be as much as 20Mbps while upload speeds can also be as much as 20Mbps.

### Very-high-bit-rate Digital Subscriber Line (VDSL / VHDSL):

This is a Digital Subscriber Line (DSL) standard that provides data rates of up to 52 Mbps download speed and 16 Mbps upload speed over copper wires and up to 85 Mbps download speed and upload speed on coaxial cable.

### Advantages of Fixed Broadband:

1. Faster speeds
2. Less expensive than mobile broadband
3. Connection is consistent

### Disadvantages of Fixed Broadband:

1. Fixed to one geographic location
2. Technical difficulties may be experienced due to faulty line or weather conditions
3. Line rental cost is high

# Mobile Broadband

Mobile Broadband is the marketing term used to describe the availability of Wireless Internet access through devices such as portable modems, mobile phones, USB wireless modems, tablets or other mobile devices which has the capacity to do so. The speeds are typically less than fixed broadband services (Cable, DSL and FiOS. However recent advances in Mobile Broadband technologies are lending towards its increasing competitiveness with DSL and Low Speed Cable.

## Current Mobile Communications Standard

### HSPA+ (Evolved High Speed Packet Access):

Evolved High-Speed Packet Access (HSPA+) is a standard for wireless, broadband telecommunication. HSPA+ enhances the widely used WCDMA (UMTS) based 3G networks with higher speeds for the end user that are comparable to the newer LTE networks. HSPA+ was first defined in the technical standard 3GPP release 7 and expanded further in later releases. The table below shows the peak download and peak upload speeds for HSPA+.

Speed	HSPA+
Peak Download	84Mbps
Peak Upload	10Mbps

### Mobile WiMAX (Worldwide Interoperability for Microwave Access):

This wireless communication standard is designed to provide 30 to 40 Mbps data rates (with the 2011 update) thus allowing up to 1 Gbps for stationary users. WiMAX is sometimes branded as '4G' and is described as "a standard-based technology which enables the delivery of last mile wireless broadband access as an alternative to cable and DSL". The table below shows the peak download and peak upload speeds for WiMAX.

Speed	WiMAX
Peak Download	128Mbps
Peak Upload	56Mbps

### 3GPP (4G) Long Term Evolution (LTE):

The pre-4G, 3GPP Long Term Evolution (LTE) technology often branded as "4G-LTE" was released in succession of 3G. In addition to the usual voice and other services of 3G, 4G LTE provides mobile ultra-broadband Internet access to a number of devices including laptops with USB wireless modems, smart phones and to other mobile devices. The table below shows the peak download and peak upload speeds for 4G LTE.

Speed	LTE
Peak Download	100Mbps
Peak Upload	50Mbps

### 3 GPP (4G) LTE Advanced:

The target of 3GPP LTE Advanced is to reach and surpass the ITU requirements. LTE Advanced is essentially an enhancement to LTE, it is not a new technology but rather an improvement on the existing LTE network. This upgrade path makes it more cost effective for vendors to offer LTE and then upgrade to LTE Advanced. The table below shows the peak download and peak upload speeds of 4G LTE Advanced.

Speed	LTE Advanced
Peak Download	1Gbps
Peak Upload	500Mbps

### Advantages of Mobile Broadband:

1. No physical landline required to transmit data
2. No Repetitive Software Installation
3. It can be used almost anywhere

### Disadvantages of Mobile Broadband:

1. More expensive than fixed broadband
2. Access is limited in remote areas
3. Slower connection



## Vision

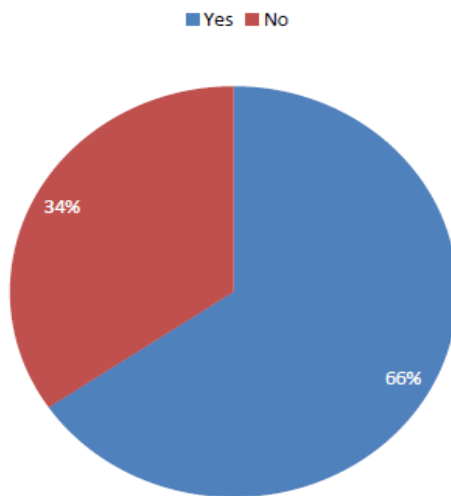
In today's digitally enhanced world, Broadband is a powerful tool which can be used to improve various aspects of life in a number of sectors relating to education, health, national security, emergency communications and of course the prospects of job opportunities etc. It also promotes personal growth of individuals which in turn has the ability to amplify the nation's progress and holistic development. That being said, St. Vincent and the Grenadines' vision is to be the leading Caribbean country in today's digital age by providing high-speed broadband services whether fixed or mobile, to all Vincentians and visitors alike at affordable costs.

Currently the broadband services offered in St. Vincent and the Grenadines is commendable but there is tremendous room for improvement if consumers are to truly take advantage of and experience the unlimited benefits which broadband promises. In turn, this results in the shortage of jobs in the field, deficient connectivity with the world and decreased local, online content.

### Current Statistics

In 2013, the Universal Service Fund (USF) conducted a survey to ascertain the status of telecommunication in St. Vincent and the Grenadines. This study was conducted over an approximate sample range of 2016 households which forms a comparable representative of the typical household. After thorough analysis of the results, the survey revealed that a considerably large percentage of Vincentians did not have ready access to the internet in their homes. This information is represented in Figure 1 depicted below.

#### Do you use the internet at home?



*Fig 1. Shows data from the USF operating plan of 2013*

However despite this, there has been an increase in broadband subscribers over the past five (5) years, as shown in Figure 2 below. This simply reiterates the fact that although St. Vincent and the Grenadines generally seems to be heading in the right direction there is evidently room for considerable improvements where Broadband Usage and Development is concerned.

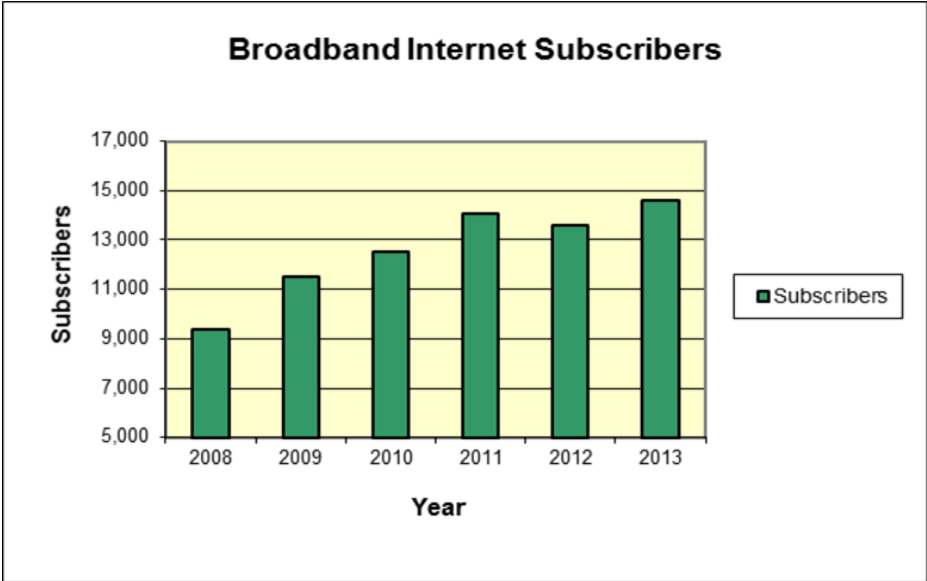


Fig 2. Shows data from the USF Operating Plan 2014

There is no doubt that our main aim is to improve various aspects of Broadband development in St. Vincent and the Grenadines but in order to do so we must be very cognoscente of the barriers which exist to hinder this movement in order to surpass them on our ultimate path to achieve progressive development. Figure 3 below outlines some of these barriers as deduced from the Telecommunications survey which was conducted by the NTRC.

### What would you say is your level of computer literacy?

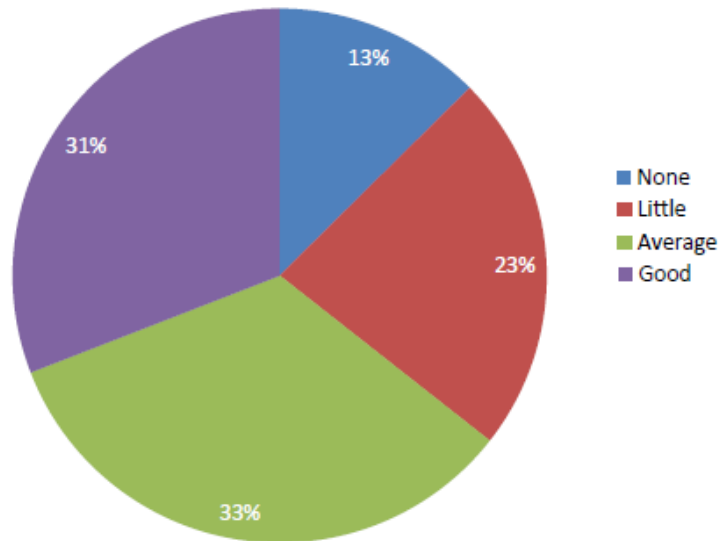


Fig 3. Shows data from the USF operating plan of 2013

### If you do not have internet in your home, what is the reason for this?

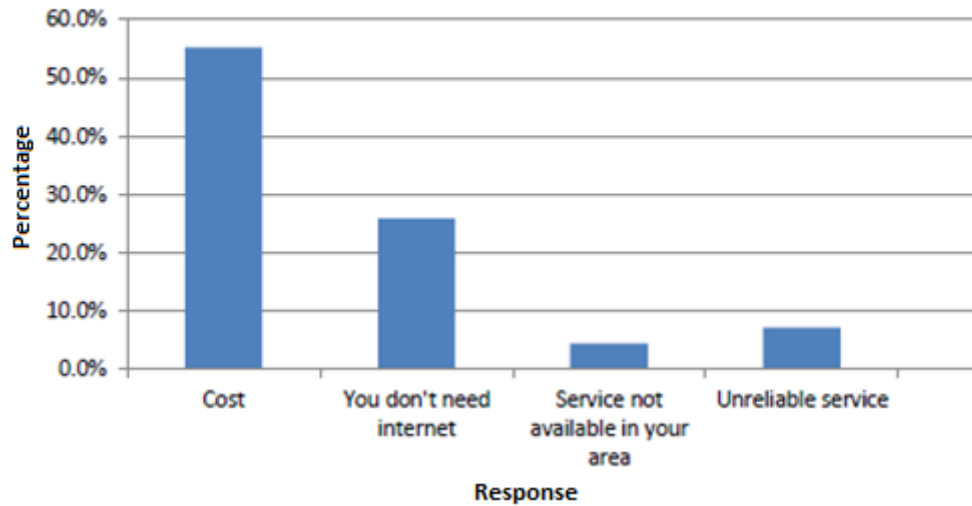
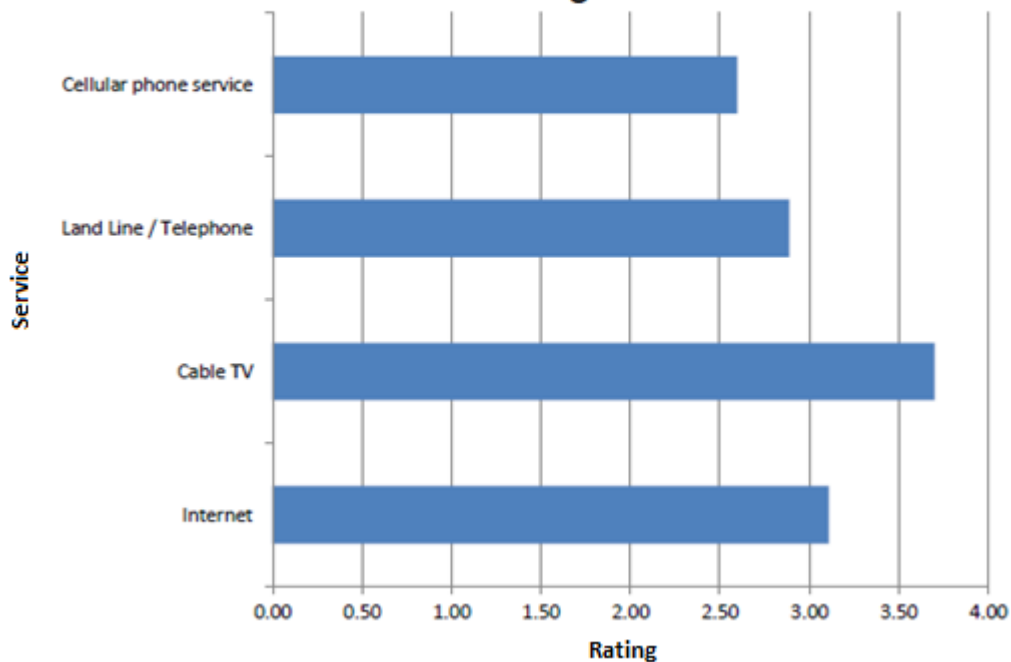


Fig 4. Shows data from the USF operating plan of 2013

**Which of the following services are you satisfied with on a scale of 1 - 5, with 1 being very satisfied and 5 being not satisfied.**



*Fig 5. Shows data from the USF operating plan of 2013*

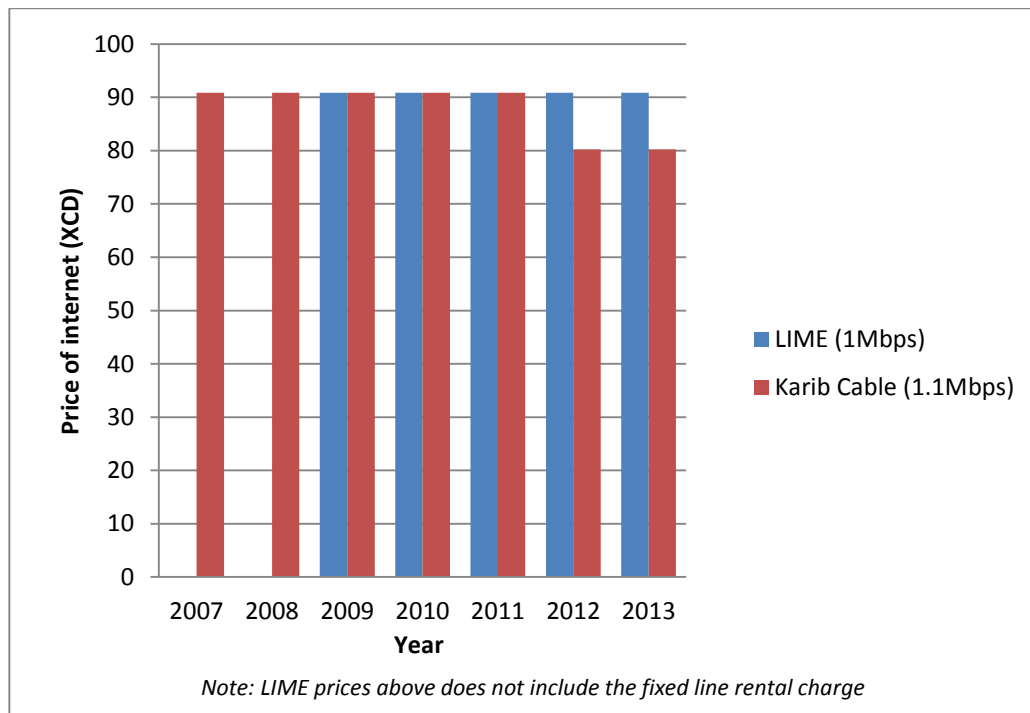
It is quite evident from the surveys carried out by the NTRC that the computer illiteracy, cost of broadband internet and individual's perception of internet as being unnecessary in their circumstance (the need for internet) are the main barriers hindering broadband development. It is without a doubt that the internet and its resources is an absolute necessity in the current technologically advancing era which features as an integrative part in almost every aspect of our daily lives with a rapidly increasing rate too. However according to the survey conducted and displayed in Figure 6, the cost of broadband internet has been rather high over the past seven (7) years in St. Vincent and the Grenadines. Naturally this is a detouring factor and is limiting the extent to which the benefits associated with broadband internet can be experienced.

Note that LIME services require a fixed line. The fixed line rental charges (VAT inclusive) for LIME are as follows:

Type of application	Monthly rent / XCD
Approved Charities	\$33.35
Business	\$55.20
Residential	\$23.46

*This table shows the line rental charges for LIME.*

### Price of basic broadband internet during the past seven years in St. Vincent and the Grenadines



*Fig 6. Shows the price of broadband internet over the past seven years*

The speed and quality of broadband internet has been rather stagnant since the introduction of broadband internet services in St. Vincent and the Grenadines in 2007. However, recently there have been notable improvements in broadband speeds and quality which shows that St. Vincent and the Grenadines is already making significant headway in making our Broadband Development Vision a reality. This is represented in Figure 7 below.

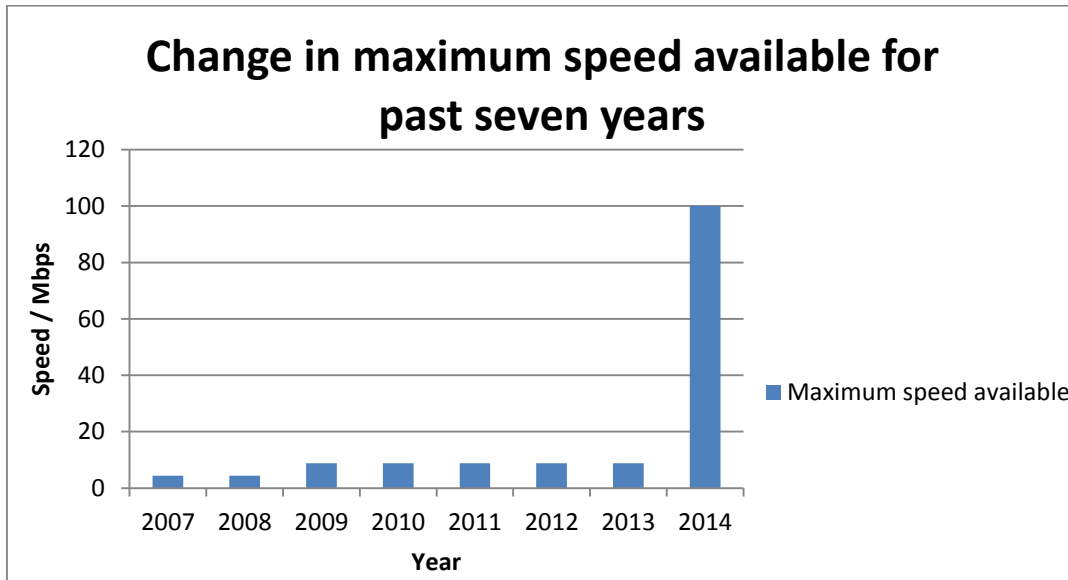


Fig 7. Shows the change in the maximum broadband speed available in SVG.

Fig 8 shows the cost of 10Mbps download speed in countries in the region as well as developed countries elsewhere in comparison to St. Vincent and the Grenadines. As shown in the graph, S.V.G is not too far behind the other Caribbean countries.

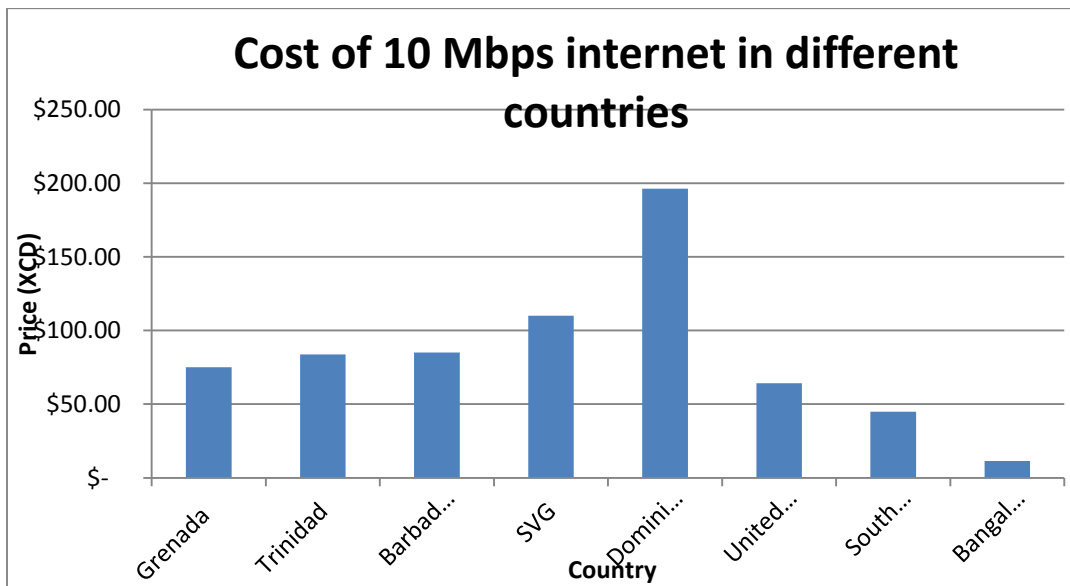


Fig 8. Shows the price of 10 Mbps internet in the region and developed countries

## Fastest internet speeds available throughout the Caribbean Region

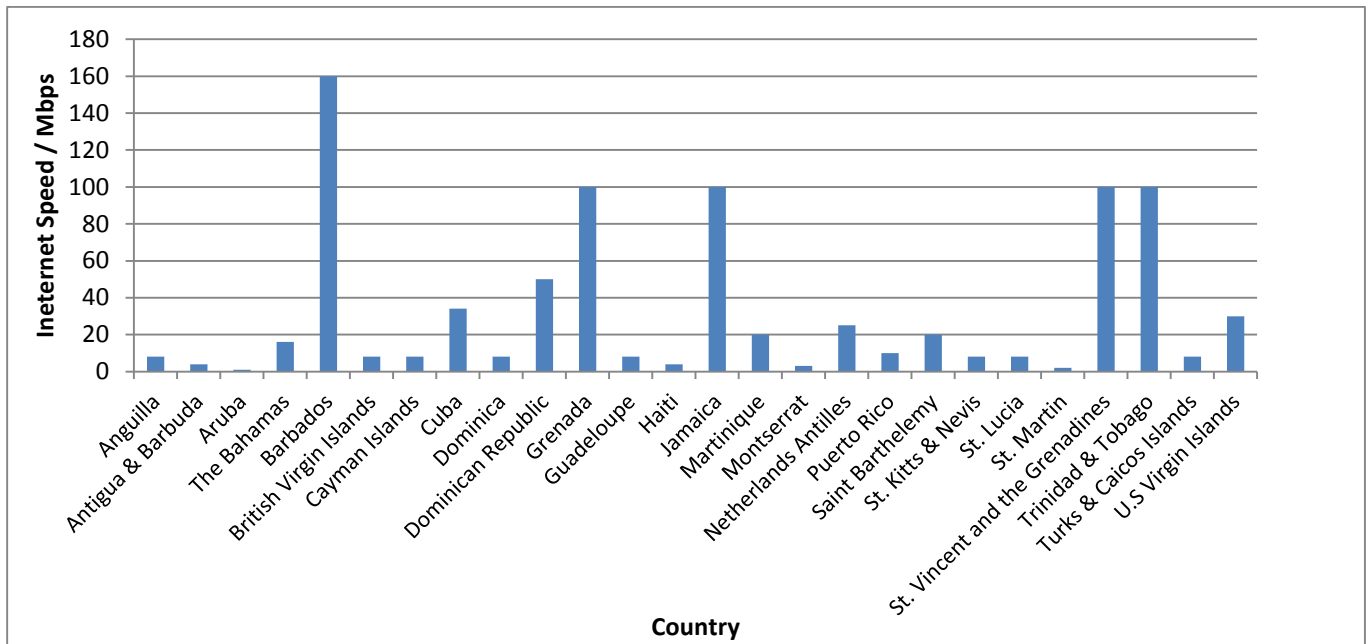


Fig 9. Shows the highest internet speeds available throughout the Caribbean

Figure 9 above shows broadband internet services in the Caribbean region ranging from as low as 256Kbps to 160Mbps with the majority of the countries providing less than 20Mbps compared with speeds of up to 1Gbps available in other parts of the world like America and India. This clearly shows that the Caribbean on a whole is behind where broadband technology development is concerned. The targets set out in this Plan will allow St. Vincent and the Grenadines to not only take the first step in broadband advancement but also to lead the way, bringing not only itself but the Caribbean further into the digital age to experience the advantages of its lucrative promises.

ICT and broadband are increasingly becoming more important in the Education sector and Development on a whole around the world. In recent research conducted by the NTRC SVG several Caribbean countries were studied to determine the extent of the availability of internet in their schools. It was discovered that all public schools were provided with internet access with speeds ranging between 256Kbps to 100Mbps, with some of the internet speeds in countries unknown as showing in Figure 10. Most of the speeds provided to schools in the different countries are insufficient if ICT and broadband are to be used to facilitate the proper growth of the education curriculum in the Caribbean. As it relates to our circumstance in St. Vincent and the Grenadines this Proposed Broadband Plan has been designed to target the Educational Sector in the efforts to ensure that top of the line broadband is accessible in schools for the proper resource availability, educational development and support of students which will in time lead to a more diverse career pool and economy.

<b>Country</b>	<b>Internet Accessibility in Schools</b>
Anguilla	All public schools have internet access. The speed is unknown and there was no centrally controlled management system for the internet service.
Antigua & Barbuda	All public schools have internet access. The speed is unknown and there was no centrally controlled management system for the internet service.
Barbados	All public schools have internet access. The speed is up to 50 Mbps and there is a centrally controlled management system in place.
British Virgin Islands	All public schools have internet access. The speed is unknown and there is no centrally controlled management system for the internet service.
Cayman Islands	All public schools have internet access. The speed is unknown and there is no centrally controlled management system for the internet service.
Dominica	All public schools have internet access. The speed is 2Mbps and there is no centrally controlled management system for the internet service.
Grenada	All public schools have internet access. The speed is 1.4Mbps and there is no centrally controlled management system for the internet service.
Jamaica	All public schools have internet access. The speed is up to 100Mbps in certain parts of the island and there is no centrally controlled management system for the internet service.
Montserrat	All public schools have internet access. The speed is from 256Kbps up and there is no centrally controlled management system for the internet service.
St. Kitts & Nevis	All public schools have internet access. The speed is from 256Kbps up and there is no centrally controlled management system for the internet service.
St. Lucia	All public schools have internet access. The speed ranges between 2Mbps to 4Mbps and there is no centrally controlled management system for the internet service.
St. Vincent and the Grenadines	All public schools have internet access. The speed is up to 20Mbps and there is a centrally controlled management system in place.
Trinidad & Tobago	All public schools have internet access. The speed is unknown and there is no centrally controlled management system for the internet service.
U.S Virgin Islands	All public schools have internet access. The speed is 45Mbps average and there is no centrally controlled management system for the internet service.

*Fig 10. Shows the availability of internet in school throughout sever countries in the region.*

In order for St. Vincent and the Grenadines to become a leading broadband economy in the Caribbean, we must be able to overcome the barriers to ICT and broadband development previously mentioned. This Plan not only seeks to break down these barriers but also to build a solid foundation in which ICT and Broadband development can flourish in the near and distant future.



## Aim

The current broadband services available in St. Vincent and the Grenadines for are shown below.

### Fixed broadband

Provider	Technology used	Maximum download speed (Mbps)	Maximum upload speed (Mbps)
LIME	DSL	12	.768
Flow	Cable	100	15

### Mobile broadband

Provider	Mobile communication standard used	Download speeds up to (Mbps)	Upload speeds up to (Mbps)
LIME	HSPA+	4	4
Digicel	HSPA+	9	3

This Plan's overall objective is to support and facilitate broadband development for both fixed and mobile broadband. This entails providing high-speed broadband services to all thus addressing the human, social, economic and environmental development of St. Vincent and the Grenadines for the benefit of both the country and its residents.

The National Broadband Plan describes a set of action areas each containing short-term and long-term cross-sector policy actions, whose implementation will be crucial to achieving the Plan's overall objective. To track the fulfillment of these initiatives and to provide a catalyst for their achievement the following is proposed:

#### Stage 1

This stage of the plan is scheduled to be completed by the year 2017.

#### Fixed Broadband

- 1. To provide a basic broadband service of 50Mbps effective download and 20Mbps effective upload speeds which is available for all consumers of broadband.**
- 2. Eighty to ninety percent (80-90%) of households should have access to high-speed broadband service of 200Mbps and up.**
- 3. All schools, health centers and government institutions should be outfitted with high-speed broadband access of 500Mbps.**
- 4. Digital literacy should be an option extended to all of the population in conjunction with guarantees of the user's digital privacy, protection of personal data and freedom of opinion and expression.**
- 5. Measures should be adopted to make Computers and Laptops more accessible and affordable.**

## **Mobile Broadband**

- 1. 4G LTE high-speed connection with speeds of 30Mbps and up should be available throughout St. Vincent and the Grenadines.**
- 2. Measures should be adopted to make Mobile smartphones and tablets more accessible and affordable.**

## **Stage 2**

This stage of the plan is scheduled to be completed by the year 2020.

## **Fixed Broadband**

- 1. To provide a basic broadband service of 70Mbps effective download and 30Mbps effective upload speeds which is available for all consumers of broadband.**
- 2. Ninety to one hundred percent (90-100%) of households should have access high-speed broadband service of 500Mbps and up.**
- 3. All schools, health centers and government institutions should be outfitted with high-speed broadband access up to 1Gbps.**

## **Mobile Broadband**

- 1. 4G LTE Advanced high-speed connection with speeds of 100Mbps and up should be available throughout St. Vincent and the Grenadines.**

It is important that the service providers are all onboard with the plan. This will positively advocate our efforts in ensuring that the targets listed are met with utmost enthusiasm while maintaining the primary objective of the plan to increase the availability, quality and affordability of broadband serviced in St. Vincent and the Grenadines. A High Level Implementation Group will should be formed by the Government of St. Vincent and the Grenadines to enforce the execution of this plan and to carefully monitor its implementation. This group will be managed by the Ministry of Telecommunication. In the event of any unfortunate setbacks, this implementation group will have the responsibility of adjusting any aspect of the plan's execution in order to achieve the targets set out by this broadband plan.

***If both of the stages above are complete within the allotted timeframe, the broadband plan proposal would have been successful. Upon completion of the plan, a new broadband plan for St. Vincent and the Grenadines will be formulated so that it does not come to a standstill in this ever advancing digital age. This gives us some measure of constant alignment with the ultimate view of keeping up with, establishing and maintaining global standards.***

## Implementation Strategy

The targets set in the National Broadband Plan are ambitious but nonetheless quite attainable. It is therefore essential that the necessary stakeholders start acting immediately by displaying the required commitment to successfully implementing this Plan. To ensure that these targets are met, the high level implementation group will be selected by the Government of St. Vincent and the Grenadines and managed by the Ministry of Telecommunications to work along with the relevant entities (service providers, various elements of the private sector, etc) as the plan is being implemented to ensure that the plan's execution is both swift, accurate and according to the standards outlined. The group will have three working areas which are crucial to the implementation of this plan and they are as follows:

### Legislation

The introduction of the National Broadband Plan will require new/updated legislation to be implemented which will be necessary for the development and expansion of broadband in St. Vincent and the Grenadines. Some of the legislation required for the successful implementation of this plan is already in place but need amendments to encourage broadband development. The group would need to first create new legislations or amend current legislations and have them enacted so that the roll out of the plan can commence. Below is a list of objectives which needs to be accomplished.

### Objectives

#### **New legislations to be created:**

1. Put legislative framework in the Telecommunication act No. 1 of 2001 to introduce a monetary contribution payable by all telecommunication providers in a country implementing a National Broadband Plan. These contributions will be used in the upgrading and rollout of equipment for the telecommunication providers and also towards funding the plan in part.

#### **Old legislations to be amended:**

2. The current legislative framework in the Customs Duties Act No. 25 of 2008 where it relates to the table outlining all Tariff Descriptions and Payable Tax and Duties should be amended to introduce new tariff descriptions for smartphones, tablets, smart watches and any other internet compatible devices. The import duty, excise duty and EPA rate should be 0 for these tariffs.

#### **Current legislations to be drafted:**

3. Draft the legislative framework in the Duties and Taxes - Exemption in the Public Interest Act No. 6 of 1980 where it states "Cabinet may, having regard to the public interest, if satisfied that the public

would stand to benefit thereby, grant exemption from duties or taxes, or all of them, to any person or class or category of persons either generally or, in relation to any particular transactions or event or obligation.”. In order to attain duty free concession on equipment to be use in the roll out of the broadband plan.

4. Draft the legislative framework in the Saint Vincent and the Grenadines Telecommunications Act NO.1 of 2001 where it states “The Minister may, on the recommendation of ECTEL, include as a condition in the license of a telecommunications provider a requirement to provide universal service, except that such requirement shall be carried out in a transparent, non-discriminatory and competitively neutral manner.” In order to modify the license agreement to increase the universal service available to all.

## **Infrastructure Projects**

The implementation of this National Broadband Plan will encompass the building of new infrastructure and the roll out of other resources which will be used to improve the current broadband services available in St. Vincent and the Grenadines. The group will be required to work along with service providers to ensure that the implementation of the new equipment and infrastructure is done according to plan in the most efficient manner possible. Below is a list of objectives which is required to be accomplished.

### **Objectives**

1. Develop an infrastructure blueprint to ensure that the equipment is deployed in the most efficient manner possible. This will allow for accessibility to each home in S.V.G with proper usage of funds and time.
2. Roll out the upgraded network/system equipment to improve broadband speeds, reliability and availability throughout St. Vincent and the Grenadines.
3. Ensure that emergency access points for the equipment are put in place so that in the event of an emergency or failure all components are easily accessible by technicians. This would also prove to be useful in the event that one wishes to upgrade the current system.

## Adoption Projects

The delivery of high-speed broadband alone will not be enough to achieve the overall aim of this National Broadband Plan. The group will need to put projects in place which will allow the public to embrace the implementation of the Plan in order to achieve the desired broadband penetration. This will play a huge role in the implementation of the plan. Below are a list of objectives which would need to be accomplished.

### Objectives

1. To promote the development of local and relevant broadband services that meets the needs and expectations of consumers by making the necessary resources available to prospective developers.
2. To provide all teachers with the proper training to equip them with the necessary skills to teach their curriculum via computers and other relevant electronic devices by hosting workshops.
3. To ensure that sufficient broadband connection (outlined in the aim) is available for all schools, health centers, community centers and government buildings alike.
4. To promote digital literacy throughout St. Vincent and the Grenadines by hosting learning sessions and workshops in various communities to increase the number of potential users of internet services. These sessions can also be used to educate the public on the objective of the Broadband Plan.
5. To promote the adoption of relevant IT and ICT courses in schools so as to increase education and career opportunities for the younger emerging population of St. Vincent and the Grenadines. The revision of the current curriculum to encompass this ICT initiative in schools will be a good facilitator of this object and also needs to be done.
6. To ensure that aspiring ICT entrepreneurs have the support they need to develop their ideas into entrepreneurial value by investing in their plausible ideas.

The successful execution of this plan will be dependent on the strategy employed to achieve the plan's overall goal which is to support and promote Broadband development throughout St. Vincent and the Grenadines. The implementation group will meet at the beginning of the timeline to discuss the execution of the broadband plan. The strategy to execute this plan is both effective and flexible, so that the targets set out in this plan can be achieved and in the event that any unfortunate mishap occurs the strategy can be modified accordingly. At the end of every month the implementation group will meet to discuss what has been done in the previous month to ensure the plan stays on schedule. In the event that the plan has fallen behind schedule or has come to a standstill, the implementation group can step in and alter the original strategy of the plan.

## Deliverables

The future is difficult to predict. However, one certainty that prevails is that broadband plays a central role in everyone's daily life, vastly improving their wellbeing. What's more is that the measureable influence which Broadband availability has is rapidly increasing. Recognizing this is the first step in making St. Vincent and the Grenadines a leading broadband economy in the Caribbean. After the implementation of this National Broadband Plan, it can be expected that by 2020, the targets set out in this Plan would have been achieved or are near achievement.

The targets set out by the plan include:

- Provision of a basic broadband service of 70Mbps effective download and 30Mbps effective upload speeds.
- To have high-speed broadband services of 500Mbps (and up) download and upload speeds available to all upon request.
- A reduction in the price of broadband services compared to the current cost in St. Vincent and the Grenadines.
- All schools, health centers, community centers and government buildings should have access to a minimum of 1Gbps effective download and 50Mbps effective upload internet speeds.
- Aim to expand the scope of Digital literacy to all of the population in conjunction with guarantees of the user's digital privacy, protection of personal data and freedom of opinion and expression.
- To have 4G LTE Advanced mobile wireless connection at download speeds of 50Mbps (and up) available island wide.
- Adopting measures which allows Broadband compatible electronic devices to be more abundant, attainable and affordable.

The achievement of the goals set out in this plan will be a milestone and this is a complex and lengthy process. However, the outcomes and benefits of the goals to the nation are immeasurable. Telecommunications is a rapidly evolving sector and this Plan will need to be reviewed in light of technical, regulatory, policy and market developments. The High Level Implementation Group will be carefully monitoring the implementation of this Plan and if any unfortunate mishaps arise, the methods used will need to be revised to ensure the successful implementation of the plan in the most effective manner. This Plan will be implemented by the Government of St. Vincent and the Grenadines utilizing services and human resources of Government departments and various stake holders. The collective goal is to deliver the full benefits of a digitally enabled society, an aim which can only be achieved where the essential underlying infrastructure is available to all.

This Plan will be reviewed on an ongoing basis to take account of new developments at all levels of broadband connectivity (international, backhaul and local access). Developments will be monitored to identifying and address any potential issues.

# Appendix

## Bibliography

Before the conception of this National Broadband Plan for St. Vincent and the Grenadines, research was conducted which included the study of other countries who have implemented seemingly successful National Broadband Plans. This research provides the foundation on which our Plan was built on. A total of ten (10) Broadband Plans were researched, they are as follow:

- Ireland's Broadband Strategy
- National Broadband Plan for the state of Qatar
- Connecting America: The National Broadband Plan
- Puerto Rico Broadband Strategic Plan
- Nigeria's National Broadband Plan
- Plano Nacional de Banda Larga / National Broadband Plan (Brazil)
- MISR Broadband Plan (Egypt)
- Broadband for India
- Nemzeti Szélessávú Stratégia / National Broadband Strategy (Hungary)
- UK Broadband Strategy.

Several websites were also used in the research phase of creating the National Broadband Plan. The websites used are as follow:

- <http://www.internetworldstats.com/>
- <https://www.wikipedia.org/>
- <http://www.broadbandcommission.org/Documents/NationalBBPolicies.pdf>

Several documents were used to accumulate the information displayed by the graphs used in this National Broadband Plan. They are as follow:

- USF Operating Plan 2013
- USF Operating Plan 2014
- USF Annual Report 2013