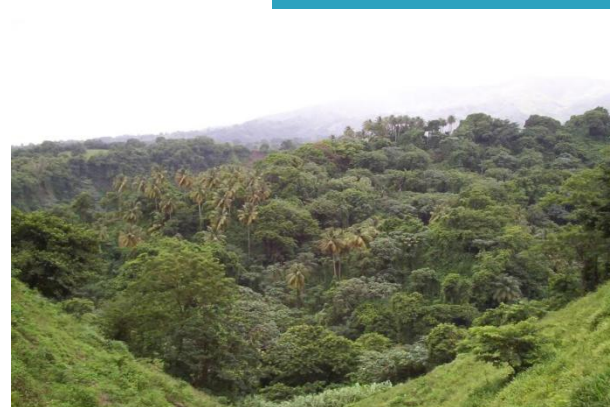




## ST. VINCENT AND THE GRENADINES

# 2010 Environmental Statistics Report



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St. Vincent & the Grenadines

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**CONVERSION BETWEEN IMPERIAL & METRIC SYSTEMS**

**IMPERIAL****METRIC****LENGTH**

1 inch (in)	2.54 cm
1 foot (ft) / 12 in	0.3048 m
1 yard (yd) / 3 ft	0.9144 m
1 mile / 1760 yd	1.6093 km
1 Nautical mile / 2025.4 yd	1.853 km

**AREA**

1 sq inch (in <sup>2</sup> )	6.4516 cm <sup>2</sup>
1 sq foot (ft <sup>2</sup> ) / 144 in <sup>2</sup>	0.0929 m <sup>2</sup>
1 sq yard (yd <sup>2</sup> ) / 9 ft <sup>2</sup>	0.8361 m <sup>2</sup>
1 acre / 4840 yd <sup>2</sup>	4046.9 m <sup>2</sup>
1 sq mile (mile <sup>2</sup> ) / 640 acres	2.59 km <sup>2</sup>
1 hectare (ha)	0.01 km <sup>2</sup>

**VOLUME**

1 cubic inch (in <sup>3</sup> )	16.387 cm <sup>3</sup>
1 cubic foot (ft <sup>3</sup> ) / 1,728 in <sup>3</sup>	0.0283 m <sup>3</sup>
1 fluid ounce (fl oz)	28.413 ml
1 pint (pt) / 20 fl oz	0.5683 l
1 gallon (gal)	4.5461 l

**MASS**

1 ounce (oz) / 437.5 grain	28.35 g
1 pound (lb) / 16 oz	0.4536 kg
1 stone / 14 lb	6.3503 kg
1 hundred weight (cwt) / 112 lb	50.802 kg
1 long ton (uk) / 20 cwt	1.016 t

## *PREFACE*

The *ENVIRONMENTAL STATISTICS REPORT* is prepared and published by the Statistical Office, Central Planning Division, Ministry of Finance and Economic Planning. This is the second issue of the publication.

The Environmental Statistics Report aims at the widest possible subject coverage consistent with timeliness in publication. New subject areas will be included from time to time as long as the relevant information is available.

Notification of errors, omissions and suggestions for the improvement in the format and content of future publications will be appreciated.

The Statistical Office wishes to say a heartfelt thank you to those individuals in both the Public and Private sectors who have so willingly assisted us with the provision of data. Without their cooperation, this edition would not have been possible.

*Gatlin Roberts*

Chief Statistician

The Statistical Office

Central Planning Division

Ministry of Finance and Planning

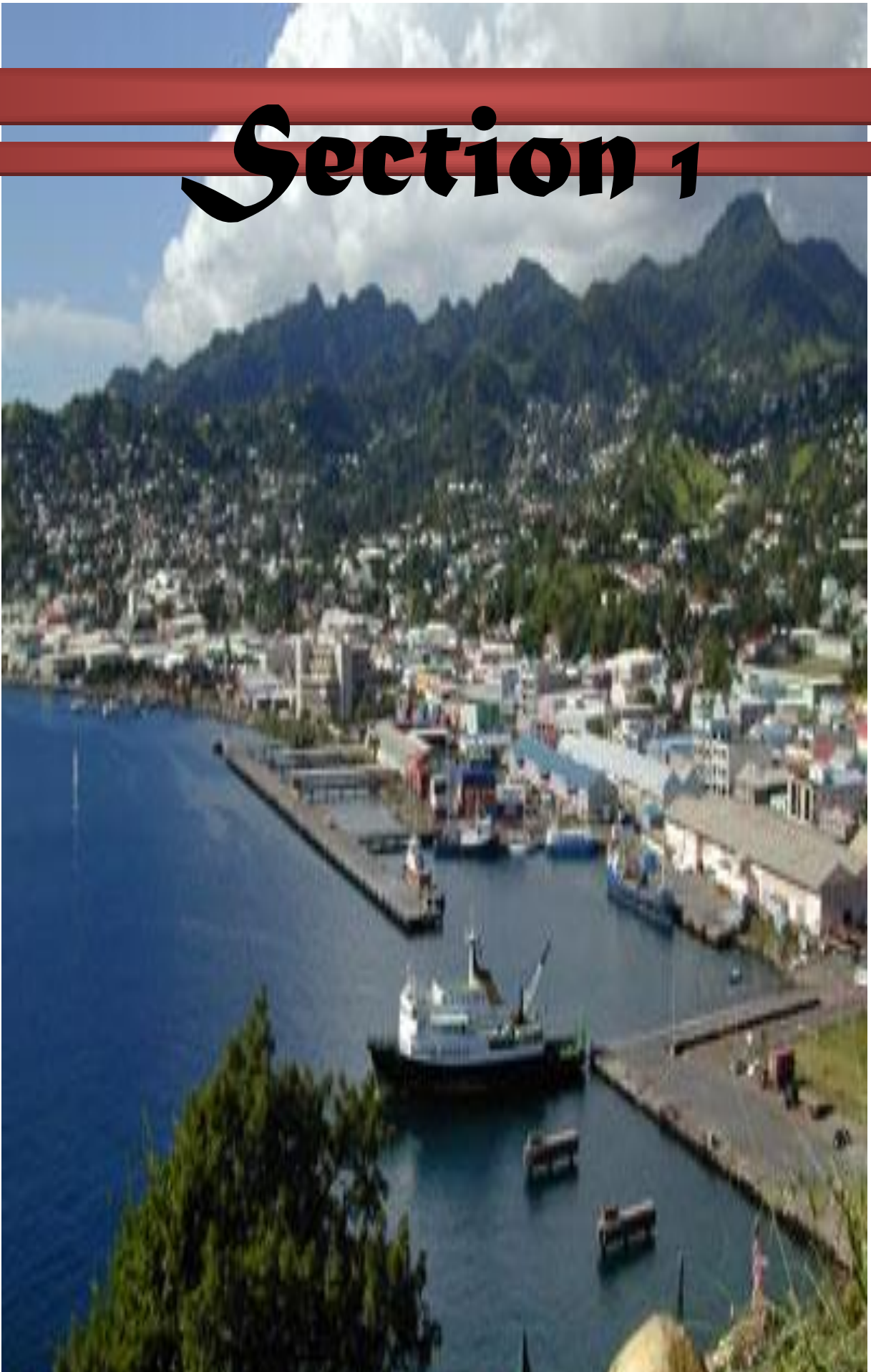
Kingstown

ST. VINCENT AND THE GRENADINES

September 2011

# Section 1

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# 2010 Environmental Statistics Report

Table 1

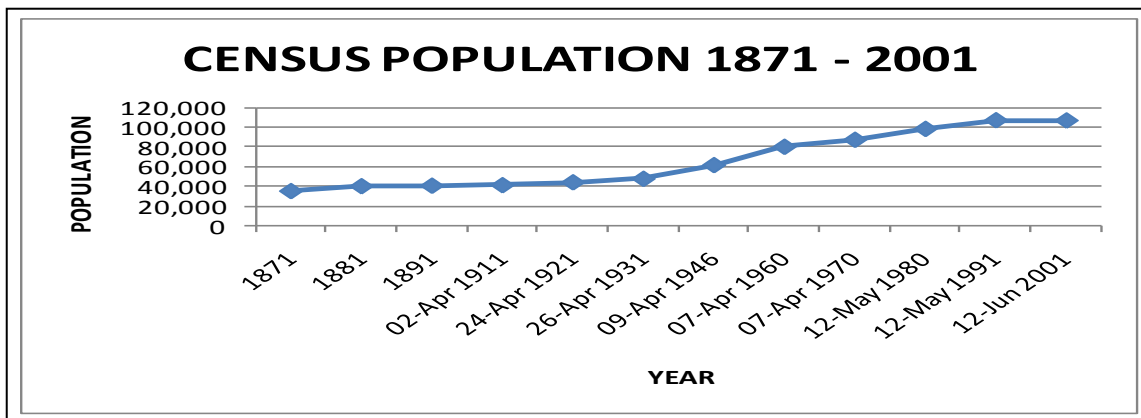
POPULATION SIZE AND GROWTH 1871 - 2001.

Census Date	Male	Female	Total	Sex Ratio	Average Annual Increase	Population increase (%)	Geometric Growth Rate (% change per annum)	Exponential Growth Rate (% change per annum)
1871	16,865	18,823	35,688	0.90				
1881	19,047	21,501	40,548	0.89	486	13.6	1.28	1.28
1891	18,780	22,274	41,054	0.85	51	1.2	0.12	0.12
02-Apr 1911	18,345	23,532	41,577	0.78	82	1.3	0.06	0.06
24-Apr 1921	19,155	25,292	44,447	0.76	257	6.9	0.67	0.67
26-Apr 1931	21,208	26,753	47,961	0.79	351	7.9	0.76	0.76
09-Apr 1946	27,901	33,746	61,647	0.83	1,369	28.5	1.69	1.67
07-Apr 1960	37,561	42,387	79,948	0.89	1,830	29.7	1.87	1.86
07-Apr 1970	41,150	45,794	86,944	0.90	700	8.8	0.84	0.84
12-May 1980	47,409	50,436	97,845	0.94	1,090	12.5	1.19	1.18
12-May 1991	53,165	53,334	106,499	1.00	787	8.8	0.77	0.77
12-Jun 2001	53,626	52,627	106,253	1.02	-25	-0.2	-0.02	-0.02

Source: 2001 Population and Housing Census

Prior to the 1991 Census, the sex ratio in St. Vincent and the Grenadines was always below 1.0, suggesting that there were always more females in the population than males. However, this changed in the 1991 and 2001 Censuses where the sex ratio was 1.00 and 1.02 respectively. Over the history of censuses in St. Vincent and the Grenadines, population change has been positive until the 2001 census. Though the population may not be increasing at an alarming rate, or not at all, populations as a whole put strain on the environment to provide the population with food, waste disposal and habitat.

Chart 1





# 2010 Environmental Statistics Report

Table 1.1

POPULATION AND PERCENTAGE DISTRIBUTION BY CENSUS DIVISION, 1991 & 2001

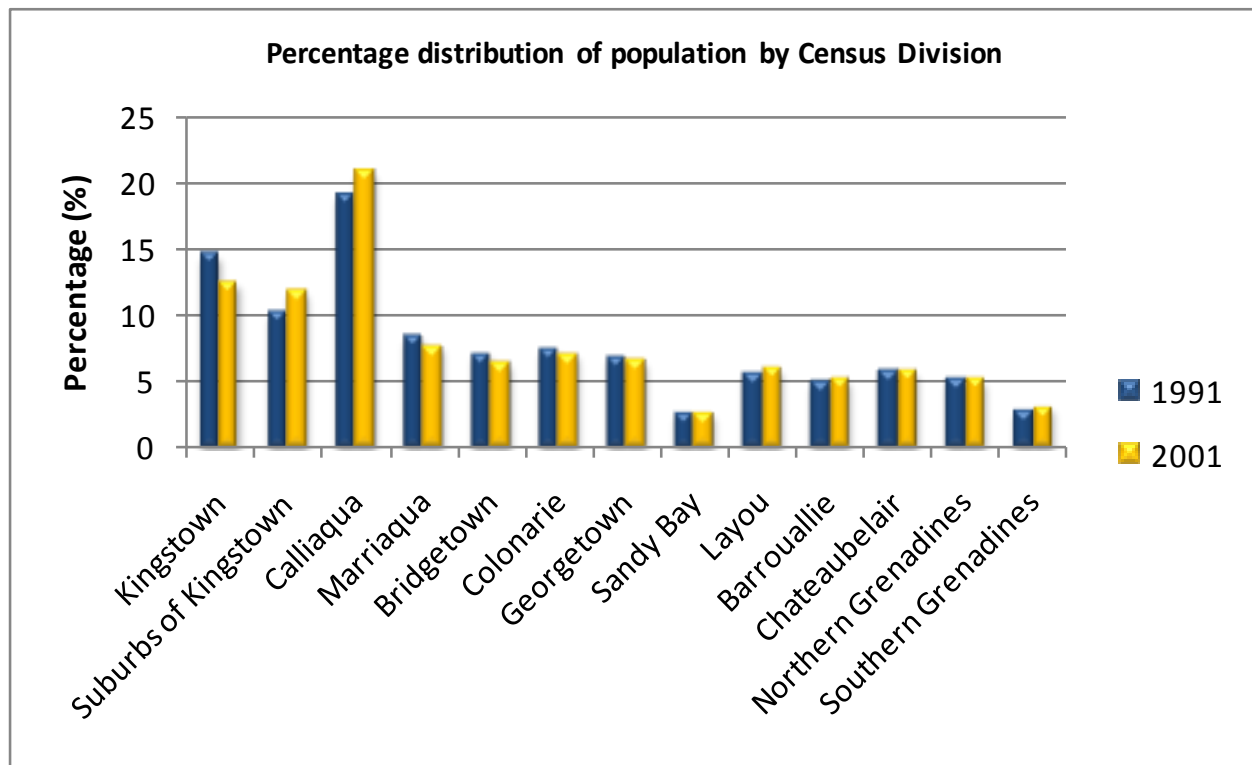
CENSUS DIVISION	1991	% of Total Population	2001	% of Total Population	Population Percentage Change
Kingstown	15,466	14.52	13,212	12.43	-14.57
Suburbs of Kingstown	10,757	10.10	12,508	11.77	16.28
Calliaqua	20,290	19.05	22,095	20.79	8.90
Marriaqua	8,864	8.32	8,145	7.67	-8.11
Bridgetown	7,532	7.07	6,754	6.36	-10.33
Colonarie	7,890	7.41	7,482	7.04	-5.17
Georgetown	7,303	6.86	6,914	6.51	-5.33
Sandy Bay	2,793	2.62	2,716	2.56	-2.76
Layou	5,993	5.63	6,303	5.93	5.17
Barrouallie	5,199	4.88	5,422	5.10	4.29
Chateaubelair	6,045	5.68	6,087	5.73	0.69
<b>TOTAL (MAINLAND)</b>	<b>98,132</b>	<b>92.14</b>	<b>97,638</b>	<b>91.89</b>	<b>-0.5</b>
Northern Grenadines	5,514	5.18	5,389	5.07	-2.27
Southern Grenadines	2,853	2.68	3,226	3.04	13.07
<b>TOTAL (COUNTRY)</b>	<b>106,499</b>	<b>100</b>	<b>106,253</b>	<b>100</b>	

Source: 2001 Population and Housing Census.

Seven of the thirteen Census Divisions have shown negative percentage growth in their total population between the 1991 and 2001 censuses (Table 1.1). However, only three of the thirteen have shown a percentage change in their share of the total population of 1% or more. The Kingstown Census Division has the largest percentage change in terms of the country's population, moving from 14.52% in 1991 to 12.43% in 2001. The Suburbs of Kingstown Census Division changed from 10.10% in 1991 to 11.77% in 2001. In 1991, the Census Division of Calliaqua constituted 19.05% of the country's population compared to 20.79% in 2001. Increases in the population of a census division have negative effects on its environment, by increasing the strain on the carry capacity of this census division's environment.

# 2010 Environmental Statistics Report

Chart 2



# 2010 Environmental Statistics Report

Table 1.2

## POPULATION DENSITY BY CENSUS DIVISION

MAJOR CENSUS DIVISION	AREA (Sq. Miles)	POPULATION		DENSITY (Persons per square mile)	
		1991	2001	1991	2001
Kingstown	1.90	15,466	13,212	8,140	6,954
Suburbs of Kingstown	6.40	10,757	12,508	1,681	1,954
Calliaqua	11.80	20,290	22,095	1,719	1,872
Marriaqua	9.40	8,864	8,145	943	866
Bridgetown	7.20	7,532	6,754	1,046	938
Colonarie	13.40	7,890	7,482	589	558
Georgetown	22.20	7,303	6,914	329	311
Sandy Bay	5.30	2,793	2,716	527	512
Layout	11.10	5,993	6,303	540	568
Barrouallie	14.20	5,199	5,422	366	382
Chateaubelair	30.90	6,045	6,087	196	197
<b>TOTAL (MAINLAND)</b>	<b>133.80</b>	<b>98,132</b>	<b>97,638</b>	<b>733</b>	<b>730</b>
Northern Grenadines	9.00	5,514	5,389	613	599
Southern Grenadines	7.50	2,853	3,226	380	430
<b>TOTAL (COUNTRY)</b>	<b>150.30</b>	<b>106,499</b>	<b>106,253</b>	<b>709</b>	<b>707</b>

Source: 2001 Population and Housing Census.

Changes in the population density of a country as a whole and changes in the population density of the Census Divisions within that country, can and do affect the environment. In 2001, St. Vincent and the Grenadines had a population density of 707 persons per square mile. This is a reduction of two persons per square mile from the year 1991 which had a population density of 709. In 2001, there were five census divisions with a population density above the national average. Kingstown had a population density of 6,954 persons per square mile, Suburbs of Kingstown 1,954 persons per square mile, Calliaqua 1,872 persons per square mile, Marriaqua 866 person per square mile and Bridgetown, 938 persons per square mile.

The Kingstown census division was more than three times as densely populated than the second most densely populated census division. This puts significant strain on the environment through the production of vast quantities of sewage and solid waste, its demand for fuel and power, and its use of almost every available space of land for the construction and improvement of new and existing infrastructure that benefits the population.

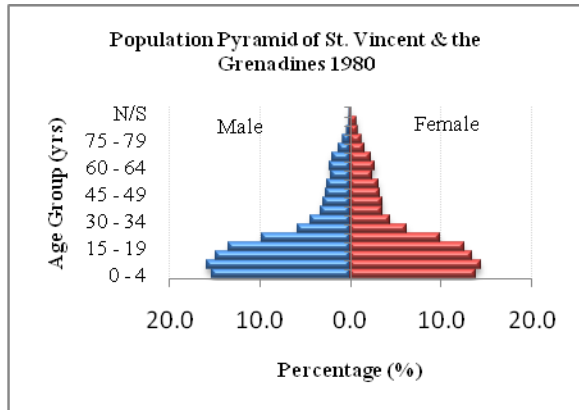
Although population density in the Northern Grenadines has decreased from 613 to 599 persons per square mile in 2001, the Southern Grenadines' population density increased by 50 persons per square mile in 2001. This may be as a result of an increase in the number of hotels and other service related industries

which provide increased employment opportunities for persons. However, this increase in population density also exerts enormous strain on the already fragile ecosystems present on and around those islands.

Appendix I, maps 6 to 11 shows the building footprints of the main islands of the country. These building footprints help to show the population distribution and concentration.

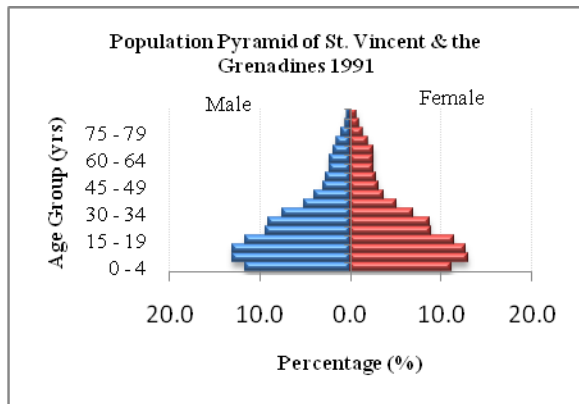
# 2010 Environmental Statistics Report

Chart 3



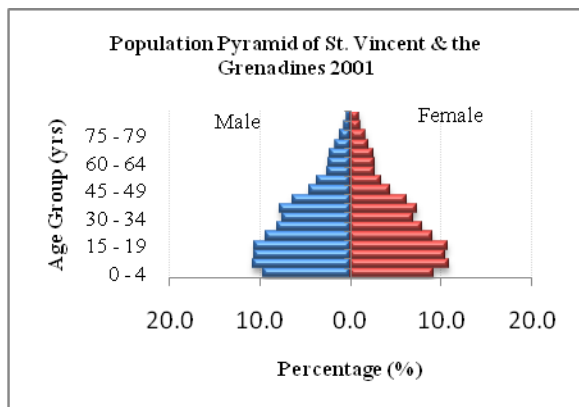
Source: 1980 Population and Housing Census.

Chart 4.



Source: 1991 Population and Housing Census.

Chart 5.



Source: 2001 Population and Housing Census.

The Population age structure reflected in the Population Pyramids for the census years 1980 and 1991 suggest that the vast majority of the population is in the pre reproductive age groups. These pyramids indicate high levels of birth and death rates. The 1980 pyramid, had an extremely broad base and almost vertical middle and upper sections as compared to the 1991 pyramid which had a slightly less broad base and a thicker middle and upper section. However, these two pyramids display attributes of a population with a high growth rate.

Between 1991 and 2001, significant changes took place in the country's population age structure, with the 2001 pyramid having a narrower base than that of 1991. The 2001 pyramid also has a thicker middle and upper section with less steep gradients than the pyramids for the two previous census years. The difference in shape between the 1991 and the 2001 pyramids shows a transformation from a rapidly growing population with high birth and death rates and low life expectancy, to a less moderately growing population with lower fertility rates and higher life expectancy.

The 2001 pyramid has a more equitable distribution of the population between the pre reproductive and reproductive ages. It reflects a growing proportion of the population which is elderly. This increased life expectancy puts a greater strain on the environment which has to provide more food, living space and other resources for an increased number of people for a longer period of time.

# Section 2

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# 2010 Environmental Statistics Report

Table 2

MEAN RECORDED TEMPERATURE AND HUMIDITY  
2006 - 2010

YEAR	QUARTER	MEAN TEMP. (°C)	TEMPERATURE (°C)				MEAN RELATIVE HUMIDITY %
			MEAN MAX	MEAN MIN	EXTREME MAX	EXTREME MIN	
2006	Mar.	26.6	29.4	24.4	30.2	23.0	69.0
	Jun.	26.6	30.2	24.3	31.9	21.3	75.0
	Sept.	28.6	30.9	26.0	32.7	24.4	77.0
	Dec.	26.9	30.0	24.3	31.2	22.5	74.0
2007	Mar.	26.5	29.4	24.3	30.5	22.5	75.0
	Jun.	28.2	30.4	25.8	32.2	24.1	78.0
	Sept.	27.9	30.9	25.6	32.3	23.5	71.0
	Dec.	26.5	29.5	23.8	31.1	21.5	76.0
2008	Mar.	26.0	29.4	23.2	30.5	21.5	68.0
	Jun.	27.4	29.6	25.3	31.2	23.6	76.0
	Sept.	28.0	28.5	25.8	32.5	23.5	78.0
	Dec.	27.4	30.6	24.3	32.2	22.5	70.0
2009	Mar.	25.8	31.2	20.3	31.2	30.3	67.0
	Jun.	27.7	31.9	23.5	31.9	23.5	77.0
	Sept.	28.5	33.0	23.9	33.0	23.9	79.0
	Dec.	27.4	31.7	23.0	31.6	23.1	67.0
2010	Mar.	28.3	32.2	24.4	N/A	N/A	77.0
	Jun.	28.1	32.6	23.6	N/A	N/A	77.0
	Sept.	28.2	32.9	23.5	N/A	N/A	82.0
	Dec.	26.9	31.2	22.5	N/A	N/A	77.0

Source: Ministry of Agriculture, Rural transformation, Forestry and Fisheries and The Meteorological office

During the period 2006 - 2010, the average temperature ranged between 25.8°C and 28.6°C. However, over the five year period the average relative humidity ranged between 67% and 82% (see Table 2). The lowest recorded temperature was 21.3°C in the second quarter of 2006, while the highest was 33.0°C in the third quarter of 2009. St Vincent and the Grenadines consistently recorded its highest temperatures during the third quarter which is the beginning of the summer, rainy and hurricane seasons. Coincidentally, it is this high temperature which warms the surrounding waters providing energy for hurricanes as they pass.

# 2010 Environmental Statistics Report

Table 2.1

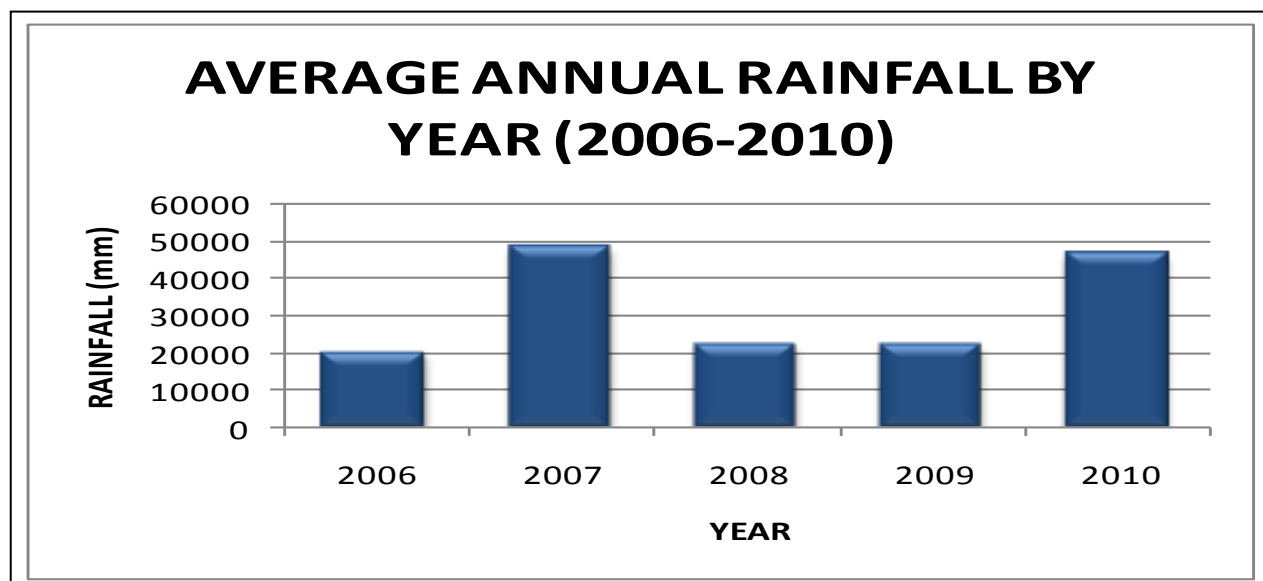
AVERAGE ANNUAL RAINFALL (mm)  
2006 – 2010

YEAR	RAINFALL
2006	19,814.29
2007	48,036.48
2008	21,884.64
2009	21,769.83
2010	46,123.86

Source: The Meteorological office

St. Vincent and the Grenadines' dry season occurs between the months of January to May, while the wet season occurs between June and December. The annual rainfall ranged from a minimum of 19,814.29 mm in 2006 to a maximum of 48,036.48 mm in 2007. Rainfall recorded for 2008 and 2009 remained fairly stable with an average of 21,884.64 and 21,769.83 respectively. The year 2010 was the most peculiar of the five year period. In the first half of the year the country experienced drought, however, by the end of the year, the average annual rainfall was more than twice that of the two preceding years. Such large amounts of rainfall are beneficial for the replenishing of water reserves. However, it may have a negative effect on the environment. If large amounts of rain fall over a short period this may result in floods, landslides, etc, which negatively affect not only the environment but the population.

Chart 6.





# 2010 Environmental Statistics Report

Table 2.2

RAINFALL AS RECORDED AT SELECTED AGRICULTURAL STATIONS (mm)  
2006 – 2010

YEAR	PERIOD	DUMBARTON	RABACCA	MET OFFICE	RICHMOND	RIVULET
2006	Jan - Mar	356.1	334.5	472.7	1,056.6	314.7
	Apr - Jun	324.8	296.4	400.3	658.4	297.4
	Jul - Sep	578.1	525.0	1,062.5	1,213.6	526.8
	Oct - Dec	278.6	740.9	719.3	1,594.8	677.4
	<b>TOTAL</b>	<b>1,537.6</b>	<b>1,896.9</b>	<b>2,654.9</b>	<b>4,523.4</b>	<b>1,816.4</b>
2007	Jan - Mar	363.4	371.9	314.8	686.1	283.3
	Apr - Jun	394.7	383.8	242.3	697.4	294.6
	Jul - Sep	743.6	559.6	755.3	1,063.2	566.0
	Oct - Dec	924.4	387.8	698.4	1,189.9	621.7
	<b>TOTAL</b>	<b>2,426.1</b>	<b>1,703.1</b>	<b>2,010.8</b>	<b>3,636.5</b>	<b>1,765.7</b>
2008	Jan - Mar	188.1	*81.4	200.7	1,087.7	165.8
	Apr - Jun	363.4	*187.0	371.6	2,388.1	282.4
	Jul - Sep	845.1	*23.4	661.7	4,700.6	601.9
	Oct - Dec	1,366.2	*396.0	718.1	5,709.1	771.0
	<b>TOTAL</b>	<b>2,762.8</b>	<b>687.4</b>	<b>1,952.1</b>	<b>13,885.5</b>	<b>1,821.1</b>
2009	Jan - Mar	463.8	298.4	445.8	615.7	370.4
	Apr - Jun	749.0	549.6	522.3	920.4	473.1
	Jul - Sep	912.0	421.9	869.9	929.7	723.0
	Oct - Dec	308.4	183.8	651.2	620.4	256.5
	<b>TOTAL</b>	<b>2,433.2</b>	<b>1,453.7</b>	<b>2,489.2</b>	<b>3,086.2</b>	<b>1,823.0</b>
2010	Jan - Mar	463.9	112.6	445.8	*115.7	370.4
	Apr - Jun	856.3	444.7	522.3	969.7	473.1
	Jul - Sep	1,259.9	508.0	869.9	1,186.9	723.0
	Oct - Dec	1,727.9	359.4	351.2	1,126.9	256.5
	<b>TOTAL</b>	<b>4,308.0</b>	<b>1,424.7</b>	<b>2,189.2</b>	<b>3,283.5</b>	<b>1,823.0</b>

\* Rainfall for a month or some months in the quarter not available

Source: Statistical Unit, Ministry of Agriculture Rural transformation, Forestry and Fisheries

The highest measured rainfall is collected at those stations that are in the more forested and elevated areas such as: Dumbarton, Rabacca and Richmond. A significant amount of rain still falls in the lower lying more populated areas where the stations of the Meteorological Office and Rivulet are located. For all stations, their lowest recorded rainfall is in the first quarter or half of the year which is the start of the dry season. However, those measurements are lower for the first quarter of 2010 for most stations due to the drought which the country experienced.

# 2010 Environmental Statistics Report

Table 2.3

SUMMARY OF GREEN HOUSE GAS EMISSION 2004

GHG Source	Emissions (Gg)						
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOC	SO <sub>2</sub>
<b>Energy</b>							
A. Fuel Combustion	217.377	0.04	0.002	1.346	7.903	1.41	0.456
1. Energy Industries	94.057	0.004	0.001	0.257	0.019	0.006	0.292
2. Manufacturing Industries and Construction	3.15	0	0	0.018	0.001	0	0.01
3. Transport	107.936	0.02	0.001	1.045	7.398	1.396	0.154
4. Other Sectors	12.234	0.016	0	0.026	0.485	0.008	0
B. Fugitive Emissions from Fuels	0	0	0	0	0	0	0
1. Solid Fuels	0	0	0	0	0	0	0
2. Oil and Natural Gas	0	0	0	0	0	0	0
<b>Industrial Processes</b>							
A. Mineral Products	0				0	3.666	0
B. Chemical Industry	0	0	0	0	0	0	0
C. Metal Production	0	0	0	0	0	0	0
D. Other Production	0	0	0	0	0	0.146	0
E. Production of Halocarbons and Sulphur Hexafluoride	0	0	0	0	0	0	0
F. Consumption of Halocarbons and Sulphur Hexafluoride	0	0	0	0	0	0	0
<b>Solvent and Other Product Use</b>							
A. Solvent and other product use	0	0	0.005	0	0	0	0.965

Source: National Greenhouse Gas Inventory for St. Vincent & the Grenadines 2004

# 2010 Environmental Statistics Report

Table 2.3 (cont'd)

## SUMMARY OF GREEN HOUSE GAS EMISSION 2004

GHG Source	Emissions (Gg)						
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
<b>Agriculture</b>							
A. Enteric Fermentation	0	0.224	0	0	0	0	0
B. Manure Management	0	0.019	0.012	0	0	0	0
C. Rice Cultivation	0	0		0	0	0	0
D. Agricultural Soils	0		0.167	0	0	0	0
E. Prescribed Burning of Savannas	0	0	0	0	0	0	0
F. Field Burning of Agricultural Residues	0	0	0	0	0	0	0
<b>Land Use Change &amp; Forestry</b>							
A. Changes in Forests and other Woody Biomass Stocks	0	0	0	0	0	0	0
B. Forest and Grassland Conversion	20.888	0	0.022	0	0.005	0.188	0
C. Abandonment of Managed Lands	0	0	0	0	0	0	0
D. CO <sub>2</sub> Emissions and Removals	0	0	0	0	0	0	0
<b>Waste</b>							
A. Solid Waste Disposal on Land		2.62	0	0	0	0	0
B. Waste Handling		0.277	0.007	0	0	0	0
C. Waste Incineration	0.037	0	0	0	0	0	0
<b>Other</b>							
A. International Bunkers	0.723	0	0	0.003	0.001	0.001	0
1. Aviation	0.723	0	0	0.003	0.001	0.001	0
2. Marine	0	0	0	0	0	0	0
CO <sub>2</sub> Emissions from Biomass	7.526	0	0	0	0	0	0

Source: National Greenhouse Gas Inventory for St. Vincent & the Grenadines 2004

# Section 3

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# 2010 Environmental Statistics Report

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Table 3

**PRODUCTION OF MAIN AGRICULTURAL CROPS  
2006 – 2010**

COMMODITY	ESTIMATED PRODUCTION (000 lbs)				
	2006	2007	2008	2009	2010
Sweet Potatoes	3,950	3,620	3,210	4,150	5,600
Yams	4,470	4,544	4,356	4,693	4,453
Tannias	1,330	566	1,200	1,215	1,100
Eddoes, Dasheen	13,730	15,650	12,500	13,810	15,000
Arrowroot	942,500	N/A	N/A	548,350	484,036
Bananas	47,127	48,512	44,599	38,867	22,051
Nutmegs	650	850	856	825	630
Ginger	1,956	2,000	1,900	2,091	2,360
Peanuts	790	772	600	600	560
Plantains	7,100	7,500	6,200	6,600	5,780

Source: Ministry of Agriculture , Rural transformation, Forestry & Fisheries

During the five year period 2006 to 2010, root crops have been the major agricultural commodity produced in the country, accounting for three quarters of agricultural production, while plantation crops such as banana, plantain and nutmeg account for just about one quarter. Crops such as banana and plantain require large amounts of fertilizers and pesticides because they are prone to many diseases. These fertilizers and pesticides can drain into rivers and streams and also aid in soil leaching if not properly applied. The topography of the country also means that most of the farms and plantations are located on steep hillsides. Therefore, improper farming practices can lead to environmental degradation. Although production in the two major crops has fallen over the five years, it is the location of the farms and these improper farming practices that cause the most harm.

# 2010 Environmental Statistics Report

Table 3.1

## IMPORTATION OF FERTILIZERS 2006-2010

Year	Value & Weight	Ammonia Nitrate	Urea	Phosphorus & Potassium	Nitrogen, Phosphorus & Potassium	Other Fertilizers	Total
2006	EC\$	0	3,869	310	2,808,295	129,167	2,941,641
	kg	0	1,573	3	2,614,523	13,324	2,629,423
2007	EC\$	40,821	6,855	3,855	2,111,770	1,129,486	3,292,787
	kg	10,341	2,039	664	2,043,722	883,884	2,940,650
2008	EC\$	0	31,515	8,281	4,001,857	905,499	4,947,152
	kg	0	5,299	1,222	2,465,818	105,181	2,577,520
2009	EC\$	205,828	167,925	174,383	3,269,724	2,085,899	5,903,759
	kg	41,038	100,163	50,592	1,738,122	973,057	2,902,972
2010	EC\$	0	174,160	17,088	4,004,559	168,475	4,364,282
	kg	0	100,000	30	2,262,342	10,782	2,373,154

Source: Statistical Office

In St. Vincent and the Grenadines fertilizers are not produced, as a result, large quantities of fertilizers are imported into the country. An average of just over 2.6 million kilograms of fertilizer was imported between 2006 and 2010. The government has encouraged and enabled increased development and production in the agricultural sector in order to reduce the country's food import bill. Hence, increased production means increased importation of fertilizer. However, there is no specific system in place to monitor and measure the amount and location of the fertilizer used in the country. Fertilizer drains into rivers and streams, slowly contaminating them, and by extension our drinking water which is sourced from these rivers and streams. Contamination of the rivers and streams can also cause the disappearance of some species of animals. Excessive use of fertilizer may also result in soil leaching, depleting the soil of its nutrients and moisture, and as a result render it useless.

# 2010 Environmental Statistics Report

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Table 3.2

## OUTPUT OF LIVESTOCK PRODUCTS 2006-2010

LIVESTOCK PRODUCTS	QUANTITY (LBS)				
	2006	2007	2008	2009	2010
<b>Beef</b>	80,894	54,418	68,090	65,490	60,777
<b>Pork</b>	49,079	30,252	36,758	37,264	36,341
<b>Mutton</b>	12,288	7,184	8,370	12,535	16,632

Source: Kingstown Fish & Meat Market.

Beef production was at its highest level in 2006 at 80,894 lbs. However, in 2007, there was a drop in production to 54,418. By 2008, production increased to 68,090 lbs. Since then there has been a slight decline in beef production. Generally, beef production has fluctuated over the five year period.

Similarly, pork production was at its highest in 2006, with 49,079 lbs being produced. Thereafter, there was a drastic decline in production in 2007 to 30,252 lbs. Subsequent years had fairly consistent production of over 36,000 lbs. This sudden drop in production in 2007 may be due to the passage of Hurricane Dean which may have destroyed some feeding grounds for these animals. Also, most livestock in St. Vincent and the Grenadines is grass fed especially cow, goats and sheep. With limited areas for grazing, the population of these animals have a finite number. Hence, the limited land space can only support a limited number of these animals.

# 2010 Environmental Statistics Report

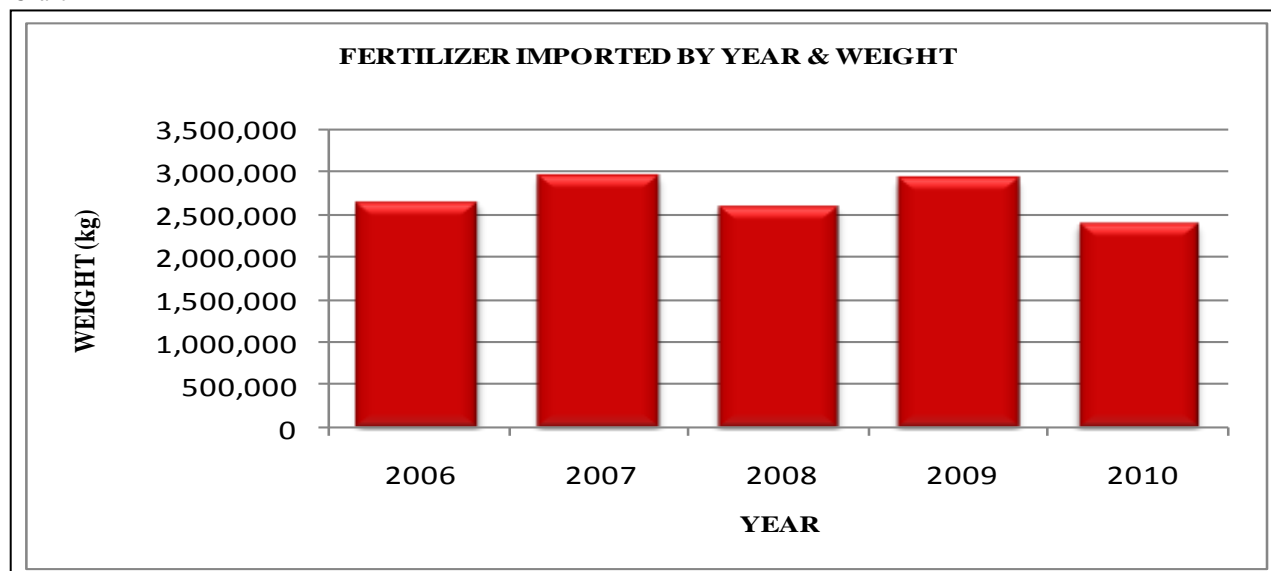
Table 3.3

## IMPORTATION OF PESTICIDES (kg) 2006-2010

	2006	2007	2008	2009	2010
Insecticides	187,119	145,605	226,638	223,793	274,754
Fungicides	126,383	111,558	91,149	44,692	7,248
Herbicides	82,040	155,652	126,348	99,414	96,947
Disinfectants	971,882	47,302	46,382	65,019	43,959
Rodenticides	11,281	9,425	11,863	3,463	16,030
Anti sprouting products	0	30	117	63	161
Plant growth regulators	32,094	275	660	240	1,055
Other pesticides	13,034	20,616	16,493	25,256	12,043
<b>Total</b>	<b>1,423,833</b>	<b>490,463</b>	<b>519,650</b>	<b>461,940</b>	<b>452,198</b>

Source: Statistical Office

Chart 7





# 2010 Environmental Statistics Report

Table 3.4

## DESIGNATED AND PROPOSED PROTECTED TERRESTRIAL AREAS IN ST. VINCENT AND THE GRENADINES

Area Name	Size (ha)	Size (km <sup>2</sup> )	Status
Chateaubelair Islet Marine Park ***	7.0	0.070	Designated
King's Hill Forest Reserve	24.4	0.244	Designated
Mt. Pleasant Forest Reserve ***	1,250.8	12.508	Designated
Colonarie Forest Reserve) ***	1,700.3	17.003	Designated
Frigate Island	8.2	0.082	Designated
Cumberland Forest Reserve	1,075.9	10.759	Designated
Miligan Island	2.6	0.026	Designated
Young Island Wildlife Reserve	5.4	0.054	Designated
West Cay Wildlife Reserve	0.7	0.007	Designated
Big Cay Wildlife Reserve	0.8	0.008	Designated
Pigeon Island Wildlife Reserve	8.9	0.089	Designated
Battowia Island Wildlife Reserve	65.9	0.659	Designated
Allwash Island Wildlife Reserve	3.7	0.037	Designated
Savan Island Wildlife Reserve	10.5	0.105	Designated
Petit Canouan Wildlife Reserve	19.2	0.192	Designated
Sail Rock Wildlife Reserve	0.9	0.009	Designated
Catholic Rocks Wildlife Reserve(1)	0.2	0.002	Designated
Catholic Rocks Wildlife Reserve (2)	0.2	0.002	Designated
Parrot Reserve/Dalaway Forest Reserve	617.9	6.179	Designated
Parrot Reserve/Richmond Forest Reserve	1,171.2	11.712	Designated
Catholic Island Wildlife Reserve	4.9	0.049	Designated
La Soufriere National Park	5,269.7	52.697	Proposed
Kingstown Forest Reserve	876.1	8.761	Proposed
Campden Park Forest Reserve	5.3	0.053	Proposed
Balliceaux Island	142.1	1.421	Proposed
<b>Total Area Designated and Protected by law</b>	<b>12,272.7</b>	<b>122.7</b>	

Source: National Parks, Rivers and Beaches Authority

( \*\*\* Proposed redesignation )

There are 26 designated and proposed protected areas in the country totalling 12,272.7 ha or 31.53% of the country's land area. These include the La Soufriere National Park, the largest at 5,269.7 ha and the Catholic Rocks Reserve, the smallest at 0.2 ha. Some of these areas are protected for their forest or as part of the country's water table, while others are habitats for endemic species such as the national bird, the Amazona Guildingii. The protected areas of the country can be seen on Map 5, Appendix I. Although the most protected areas are protected for their Flora and Fauna, others like Balliceaux Island

## 2010 Environmental Statistics Report

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are protected because of their cultural significance to the people of the country. The presence of these protected areas provides protection and sustainability to the environment.

# Section 4

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# 2010 Environmental Statistics Report

Table 4

## REGISTRATION OF FISHING VESSELS AND FISHERMEN (2006-2010)

	2006	2007	2008	2009	2010	TOTAL
FISHERMEN	127	28	35	45	19	254
FISHING VESSEL	32	16	20	18	16	102

Source: Ministry of Agriculture, Rural transformation, Forestry & Fisheries

Table 4.1

## ESTIMATED FISH LANDED AND MARKETED (2006-2010)

TYPE	2006		2007		2008		2009		2010	
	QTY (lbs.)	VALUE (\$EC)	QTY (lbs.)	VALUE (\$EC)	QTY (lbs.)	VALUE (\$EC)	QTY (lbs.)	VALUE (\$EC)	QTY (lbs.)	VALUE (\$EC)
Conch	7,907	74,978	23,668	158,676	32,786	82,714	38,597	317,388	55,901	475,494
Lobster	31,774	374,507	19,365	255,519	7,156	132,836	29,478	470,625	15,656	246,024
Turtle	1,501	7,628	2,118	11,630	207	636	560	3,014	644	3,275
Whale	900	2,000	9,900	30,100	509	2,060	675	1,715	0	0
Shark	6,723	29,277	16,981	82,285	8,120	42,369	10,051	58,283	15,769	88,511
Balahoo	75,712	75,879	100,333	100,914	86,098	122,528	129,644	258,490	93,931	184,803
Bonito	35,787	193,079	50,479	291,326	58,493	391,284	32,698	219,253	12,270	88,776
Cavalli	33,167	195,653	28,869	181,307	46,635	324,657	20,260	137,653	6,518	198,284
Dolphin	165,873	1,106,125	297,829	2,110,230	200,203	1,518,749	244,601	1,753,129	134,068	1,072,745
Jacks	116,509	368,272	445,948	1,273,874	60,487	228,069	309,289	4,794	197,032	649,772
Kingfish	88,710	620,536	80,770	574,899	52,145	404,831	69,165	456,263	80,221	642,214
Porpoise	2,200	10,800	7,269	29,734	4,370	19,120	1,690	8,130	880	4,740
Red Hind	50,599	321,128	121,285	736,823	127,865	940,947	119,751	844,269	96,982	735,066
Red Snapper	30,435	230,005	24,874	176,028	13,154	103,388	9,157	73,261	9,331	78,312
Robin	131,197	419,237	332,938	1,117,216	253,005	1,011,156	520,466	1,723,059	360,458	1,122,021
Skip Jack	324,407	985,916	192,924	730,266	182,285	935,050	114,475	629,700	53,949	352,046
Other Species	594,330	2,925,296	408,803	2,304,844	268,217	1,921,088	485,671	6,959,026	257,402	1,481,418
<b>TOTAL</b>	<b>1,697,731</b>	<b>7,940,316</b>	<b>2,164,353</b>	<b>10,165,671</b>	<b>1,401,735</b>	<b>8,181,482</b>	<b>2,136,228</b>	<b>3,563,477</b>	<b>1,391,012</b>	<b>7,423,501</b>

Source: Ministry of Agriculture, Rural transformation, Forestry & Fisheries.

## 2010 Environmental Statistics Report

The waters around St. Vincent and the Grenadines have always been a major source of food and revenue. However, as with all fisheries and fish populations, over fishing and mismanagement could diminish the productive powers of these waters by reducing the quantity and diversity available to the country.

Since 2007, over 20,000 lbs of conch has been caught annually, while the quantity of lobster caught has witnessed fluctuating movements over the five year period. Although these two shell fish have a specified hunting season there is still a lot of fishing done out of season. The total quantity of fish landed over the five year period has fluctuated, reaching a minimum of 1,391,012 lbs and a maximum of 2,164,353 lbs in 2010 and 2007 respectively. This suggests that the industry has to be regulated to ensure sustainability.

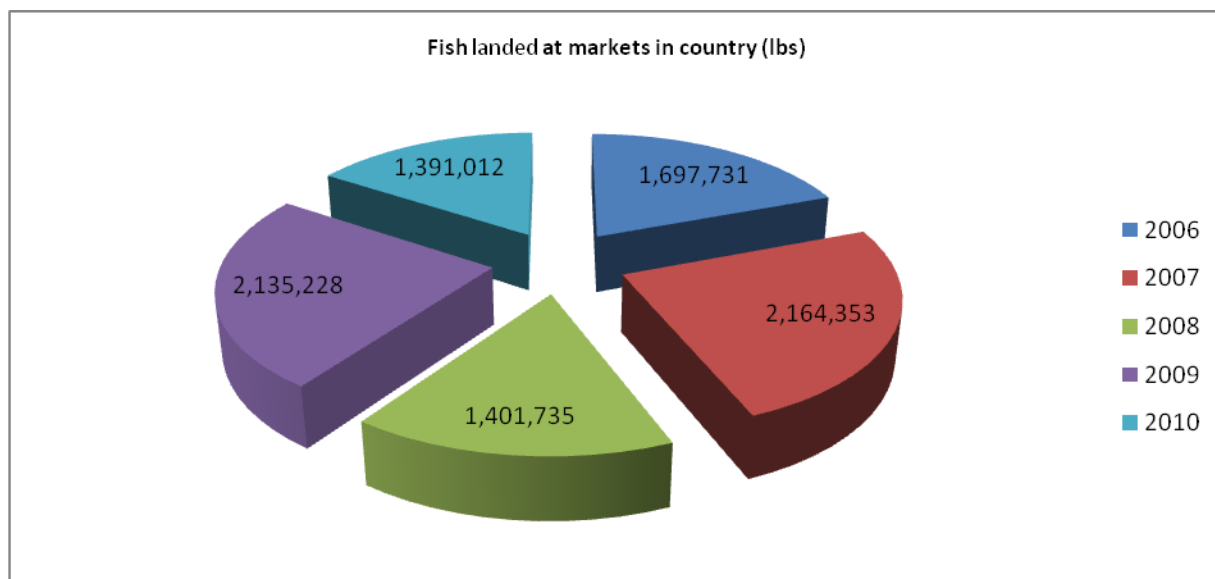
Table 4.2

FISH LANDED AT MARKETS  
(2006-2010)

YEAR	Quantity Landed (lbs)	Value (\$EC)
2006	1,697,731	7,940,316
2007	2,164,353	10,165,671
2008	1,401,735	8,181,482
2009	2,135,228	3,563,477
2010	1,391,012	7,423,501

Source: Ministry of Agriculture, Rural transformation, Forestry & Fisheries.

Chart 8



# 2010 Environmental Statistics Report

Table 4.3

## PROTECTED MARINE AREA

Area Name	Area (ha)	Area (Km <sup>2</sup> )	Status
Bequia Marine Conservation Area	367.5	3.7	Designated
Isle Quatre Marine Reserve	332.3	3.3	Designated
Mustique Marine Reserve	652.8	6.5	Designated
Canouan Marine Reserve	1,250.7	12.5	Designated
Tobago Cays-Mayreau	5,468.5	54.7	Designated
Union-Palm Island Marine Conservation Area	1,359.6	13.6	Designated
Petit St. Vincent Wildlife Reserve	121.0	1.2	Designated
South Coast Marine Park ***	272.0	2.7	Proposed
<b>Total Marine Protected Area</b>	<b>9,824.4</b>	<b>98.2</b>	

Source: National Parks, Rivers and Beaches Authority

\*\*\* Proposed redesignation

St. Vincent and the Grenadines has a marine area of 9,824.4 ha under protection in the form of Marine Parks and wild life reserves, both on the mainland and in the Grenadines. The Tobago Cays – Mayreau reserve is the largest at 5,468.5 ha and the Petite St. Vincent Wildlife Reserve the smallest at 121 ha. A minuscule 0.36% of the waters in our Exclusive Economic Zone (EEZ) are protected. These marine reserves help to protect many fish, coral and bird species located in and around them. Though fishing is prohibited in these areas, there is still some illegal fishing taking place. These reserves are also popular tourist destination, which if not properly managed, their sustainability could have an adverse effect on these reserves because of the heavy human and boat traffic and increased pollution.

Table 4.4

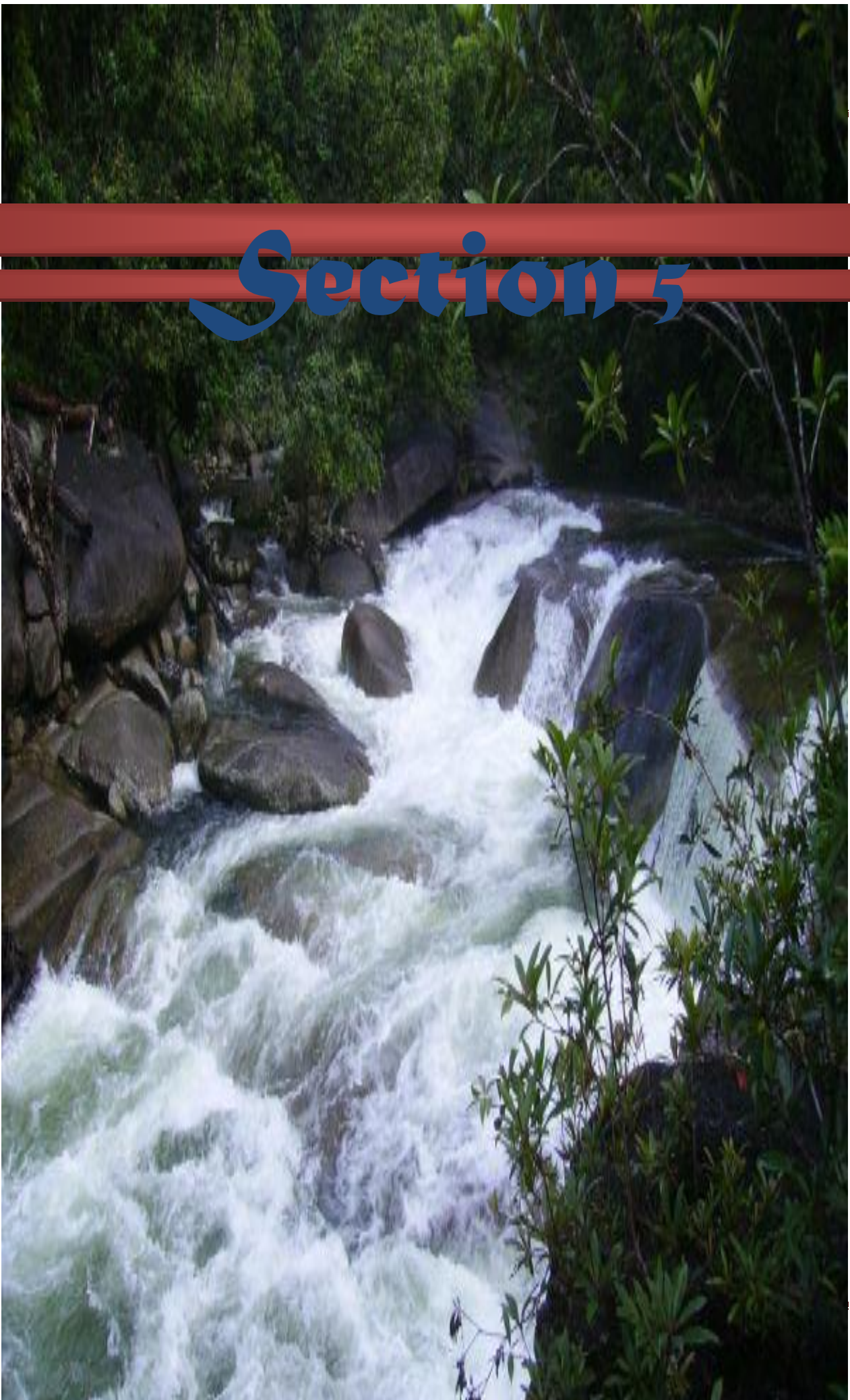
## MARINE STATISTICS

Marine statistics of St. Vincent and the Grenadines	Size/Area
Marine Area (Exclusive Economic Zone)	27,533 km <sup>2</sup>
Shelf Area	78,000 km <sup>2</sup>
Length of Coastline	84 km
Marine area under protection	98.2 km <sup>2</sup>
Proportion of Marine area under protection	0.36%

Source: Ministry of Agriculture, Rural transformation, Forestry & Fisheries

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# 2010 Environmental Statistics Report

Table 5.

## WATER ABSTRACTION BY CATCHMENT AREA

2006- 2009

WATER SOURCE	Water abstraction (million gallons)			
	2006/07	2007/08	2008/09	2009/2010
Dalaway 12"	814	788	...	
Dalaway 8"	-	...	733	890
Diamonds	12	12	...	
Fancy	114	117	10	5
Greggs	256	235	...	
Hermitage	-	...	216	233
Jennings				204
Lauders	55	54	...	
Layout	286	305	66	56
Majorca	341	274	319	309
Montreal	18	16	286	287
Owia	-	...	16	16
Perseverance				124
Rabacca	49	43	...	
Sandy Bay	-	...	51	50
South Rivers	162	180	...	
<b>Total</b>	<b>2,107</b>	<b>2,024</b>	<b>1,697</b>	<b>2,174</b>

Source: Central Water & Sewage Authority (CWSA)

During the period 2006/07 to 2009/10, water production/abstraction in St. Vincent and the Grenadines was done at an annual average of 2,000.5 million Gallons. During this period, the maximum abstraction of water was done in 2010 with 2,174 million gallons of water being abstracted from our waterways, while 2008 had the lowest abstraction amount of 1,697 million gallons. As seen in table 5, the Dalaway water system, the catchment area where the largest amount of water was extracted, had an annual average of 806 million gallons. Of the millions of gallons of water extracted annually during the period, 1,413.1 million gallons of this water was consumed on average annually. The year 2008 recorded the highest water consumption level of 1,516.9 million gallons although it has the lowest extraction level of 1,697 million gallons (see Table 5.1). Although extra strain is put on water resources through population growth, the construction industry, increased visitor arrivals and changes in the lifestyle of people, the water resources could remain sustainable if water abstraction does not exceed the capability of the system to renew itself.



# 2010 Environmental Statistics Report

Table 5.1

## POTABLE WATER CONSUMPTION AND DISTRIBUTION

2006- 2010

DISTRIBUTION	2006	2007	2008	2009	2010
<b>DOMESTIC</b>					
Metered - Number	30,343	29,851	n.a	n.a	n.a
Consumption – (million gallons)	960	1,010	1,006	1,040	1,050
Non-Metered - Number	n.a	n.a			n.a
<b>INDUSTRIAL(Ships)</b>					
Metered - Number	22	22	n.a	n.a	n.a
Consumption – (million gallons)	6	9	7	8	6
<b>COMMERCIAL(Industrial)</b>					
Metered - Number	1,321	1,343	n.a	n.a	n.a
Consumption – (million gallons)	140	146.5	144.98	149	136
<b>GOVERNMENT</b>					
Metered - Number	408	408	n.a	n.a	n.a
Consumption – (million gallons)	350	151	358.9	166	172
<b>Total consumption (million gallons)</b>	<b>1,456.0</b>	<b>1,316.5</b>	<b>1,516.9</b>	<b>1,363.0</b>	<b>1,364.0</b>

Source: Central Water and Sewerage Authority (CWSA)

# 2010 Environmental Statistics Report

Chart 9.

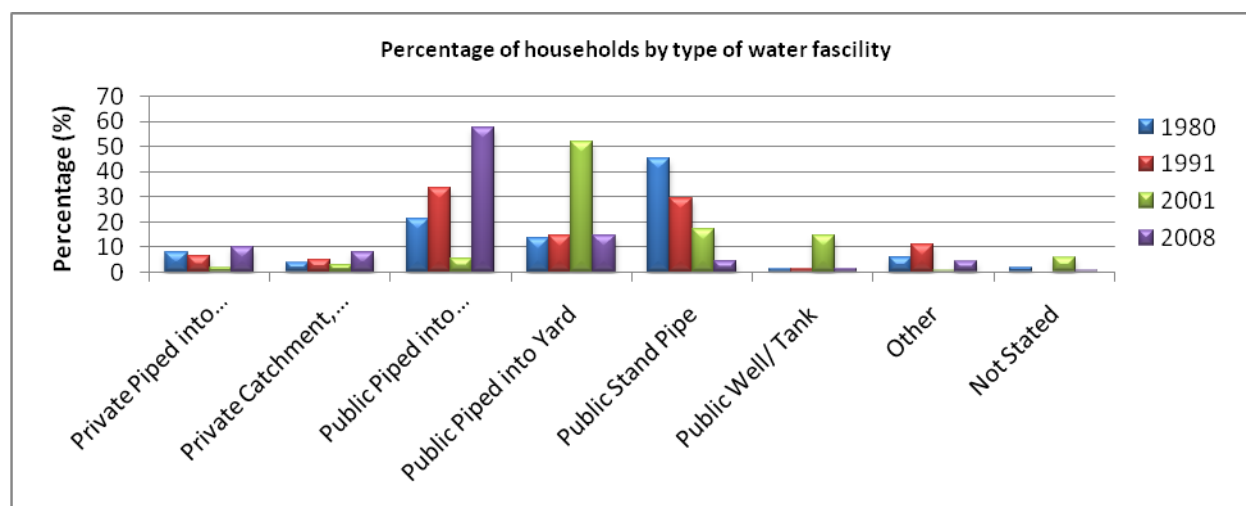


Table 5.2

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY TYPE OF WATER FACILITY

TYPE	1980		1991		2001		2008	
	NO.	%	NO.	%	NO.	%	NO.	%
Private Piped into Dwelling	1,605	7.9	1,681	6.2	550	1.8	3,021	10.1
Private Catchment, Piped & Not Piped	744	3.7	1,346	5	874	2.9	2,339	7.8
Public Piped into Dwelling	4,337	21.4	8,984	33.3	1,622	5.3	17,112	57.4
Public Piped into Yard	2,690	13.3	3,864	14.3	15,936	52.2	4,382	14.7
Public Stand Pipe	9,197	45.3	7,934	29.4	5,194	17.1	1,270	4.3
Public Well/ Tank	260	1.3	279	1	4,455	14.6	379	1.3
Other	1,158	5.7	2,914	10.8	167	0.5	1,244	4.2
Not Stated	299	1.5	...	...	1,720	5.6	59	0.2
<b>Total</b>	<b>20,290</b>	<b>100</b>	<b>27,002</b>	<b>100</b>	<b>30,518</b>	<b>100</b>	<b>29,805</b>	<b>100</b>

Source: 1991 Population and Housing Census Report Vol.2, 2001 Population and Housing Census & 2007/08 Country Poverty Assessment report

There was an increase in the percentage of households that use an improved source of water supply. Households that have public water source piped to dwelling moved from 21.4% in 1980 to 57.4% in 2008. The Country Poverty Assessment conducted in 2008 revealed that 95.6% of the households had access to an improved source of drinking water compared to 93.9% in 2001 and 89.2% in 1991.

This aids in the sustainable management of our water supply because these households are connected to a source that has a metering system where you are charged based on the amount of water you use. In this way the Central Water and Sewage Authority (CWSA) is aware of and is able to manage the distribution of most of our water supply. The results of the Poverty Survey further revealed that there was a drop in the percentage of households that use stand pipes, moving from 45.3% in 1980 to 4.3% in 2008. This is also a sign of more sustainable management of our water source, without meters on them they are very difficult to manage and there is a larger amount of water wasted.

A photograph of a utility tower with two workers climbing it, overlaid with a red horizontal bar. The workers are wearing safety harnesses and are positioned on the tower's structure. The background is a cloudy sky. The text 'Section 6' is written in blue, stylized font across the red bar.

# Section 6

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# 2010 Environmental Statistics Report

Table 6

## ELECTRICITY GENERATION, DISTRIBUTION AND NUMBER OF CONSUMERS

2006-2010

DESCRIPTION	2006	2007	2008	2009	2010
<b>GENERATION (KWH)</b>					
Hydro	23,193,142	22,713,780	23,673,460	26,107,890	24,505,990
Diesel	107,875,869	118,378,885	115,455,782	116,104,891	115,481,699
<b>Total</b>	<b>131,069,011</b>	<b>141,092,665</b>	<b>139,129,242</b>	<b>142,212,781</b>	<b>139,987,689</b>
Fuel used in Generation (gals)	6,349,969	6,617,784	6,427,744	6,500,186	6,472,254
<b>DISTRIBUTION (KWH)</b>					
Domestic	54,627,352	56,494,832	55,532,302	57,854,242	61,162,470
Commercial	44,736,885	49,294,575	58,280,375	49,887,661	44,558,969
Industry	6,586,653	6,832,412	6,183,035	6,600,486	6,735,589
Street Lighting	2,936,597	2,930,481	2,929,342	2,934,957	2,979,159
Public Authorities	9,637,661	9,899,412	9,800,312	9,171,025	10,046,769
Other Company Needs	3,857,201	3,764,827	5,003,096	4,957,984	4,706,254
Loss in Transmission	10,500,000	10,430,637	11,201,092	10,741,712	9,798,488
<b>CONSUMERS AT THE YEAR END</b>					
Domestic	32,710	33,705	34,495	35,218	35,571
Commercial	4,055	4,147	4,208	4,239	4,264
Industrial	28	28	27	26	24
Street Lighting	47	47	48	48	48
<b>Total</b>	<b>36,840</b>	<b>37,927</b>	<b>38,778</b>	<b>39,531</b>	<b>39,907</b>

Source: St. Vincent Electricity Service (VINLEC)

Most of the electricity produced in St. Vincent and the Grenadines is done using diesel powered turbines. In fact, since 2006, over 82% of the electricity production was done from diesel powered engines. Over the five year period between 82% - 84% of the electricity was produced using diesel power, the remainder was hydroelectric production. Increasing the amount of electricity produced by water power will reduce the amount of fuel that has to be imported into the country as well as the amount of carbon rich exhaust that is produced by these diesel engines. However, using more of our rivers to produce electricity not only affects the life of the people living near these rivers but also the wild life that will be killed after the river has been diverted for use in the hydroelectric plant.

# 2010 Environmental Statistics Report

Over the five year period, there has been an increase in the quantity of electricity used for domestic purposes. In 2006, there was a total usage of 54,627,352 KWh, whereas in 2010 total usage was 61,162,470 KWH. Electricity usage for commercial purposes fluctuated during the period under review. Over 9,000,000 KWH was lost during transmission making it the third highest way in which electricity is lost or used after Domestic and Commercial usage.

The number of consumers increased over the five year period moving from 36,840 in 2007 to 39,907 in 2010. This increase is due to an increase in domestic customers which increased from 32,710 in 2006 to 35,571 in 2010. This increase in demand causes an increase in production which then equates to an increase in the importation and burning of fossil fuels (Diesel). Since alternative sources of renewable energy are not used sufficiently to reduce dependence on fossil fuels, burning these fossil fuels to aid in electricity production helps to increase air pollution in the country.

Table 6.1

## IMPORTATION OF FUEL BY QUANTITY AND VALUE

YEAR	DIESOLINE		GASOLINE		KEROSENE		LPG	
	Quantity (000 Kg)	Value (000 EC\$)	Quantity (000 Kg)	Value (000 EC\$)	Quantity (Kg)	Value (EC\$)	Quantity (000 Kg)	Value (000 EC\$)
2006	54,969	62,774	26,229	29,360	271,681	390,383	4,074	9,118
2007	64,870	83,932	32,630	37,185	176,113	256,187	4,510	11,008
2008	37,041	75,502	21,799	45,179	571,498	1,092	2,601	21,241
2009	63,178	92,437	46,419	46,419	152,019	249,961	5,548	17,401
2010	45,350	76,439	23,238	39,057	178,271	104,447	4,048	13,256

Source: Statistical Office

Table 6.2

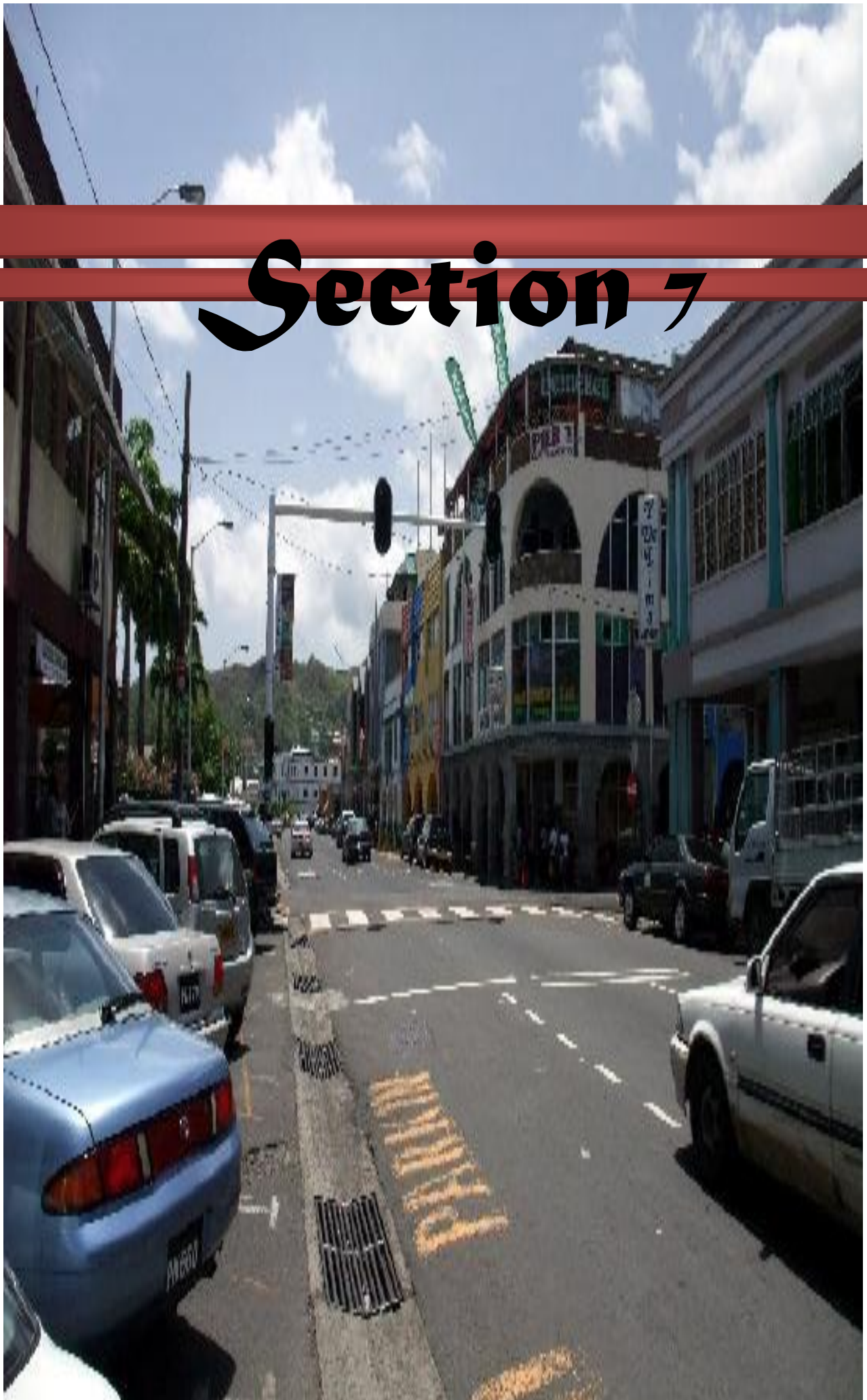
## NUMBER OF HOUSEHOLDS BY COOKING FUEL USED

Type of cooking fuel	1991	% Households	2001	% Households	2008	% Households
Coal	3,108	11.5	1,192	3.9	230	0.8
Wood	2,361	8.7	929	3.0	284	1.0
Gas/LPG	20,273	75.1	27,505	90.1	28,652	96.1
Kerosene	891	3.3	127	0.4	26	0.1
Electricity	147	0.5	335	1.1	78	0.3
No Cooking	n/a		n/a		337	1.1
Other	222	0.8	430	1.4	105	0.4
Not Stated	0	0.0	0	0.0	93	0.3
<b>Total</b>	<b>27,002</b>	<b>100</b>	<b>30,518</b>	<b>100</b>	<b>29,805</b>	<b>100</b>

Source: 1991, 2001 Population & Housing census and 2007/08 Country poverty Assessment

# Section 7

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# 2010 Environmental Statistics Report

Table 7

## NEW REGISTRATION OF VEHICLES BY TYPE

2006 - 2010

TYPE OF VEHICLE	NUMBER OF VEHICLES				
	2006	2007	2008	2009	2010
Private Cars	2,366	2,454	2,373	2,361	2,306
Private Tricycle	-	-	-		1
Private Cycle	152	142	138	135	110
Goods Vehicle - < 2 tons	208	201	203	153	164
Goods Vehicle - 2 tons but < 3tons	70	81	76	53	56
Goods Vehicle - 3 tons and over	214	229	166	113	94
Trailer	2	7	6	10	6
Tractor	1	2	1	2	9
Hire Motor Vehicle	31	45	38	46	28
Rental Motor Vehicle	218	232	166	138	149
Hire Motor Bus	239	194	235	243	201
Rental Motor Bus	-	-	4	5	1
Government Vehicle	16	44	79	60	22
Farmers Motor Vehicle	7	15	12	8	6
LC Motor Vehicle	4	1	2	3	-
Diplomat Vehicle	2	4	8	4	2
Special Vehicle	0	-	-	2	1
<b>TOTAL</b>	<b>3,530</b>	<b>3,651</b>	<b>3,507</b>	<b>3,336</b>	<b>3,156</b>

Source: Licensing Office, Inland Revenue Department



# 2010 Environmental Statistics Report

Table 7.1

## IMPORTATION OF VEHICLES BY TYPE

2006 – 2010

TYPE OF VEHICLE	2006 – 2010				
	2006	2007	2008	2009	2010
8701: Tractor	21	27	2	5	13
8702: Public Transport type - public motor vehicle	41	26	39	30	16
8703: Motor Cars	1,274	806	1048	1,119	1,157
8704: Motor Vehicles for transport of goods	316	295	301	181	156
8705: Special purpose Motor Vehicles	25	18	32	25	40
<b>TOTAL</b>	<b>1,677</b>	<b>1,172</b>	<b>1,422</b>	<b>1,360</b>	<b>1,382</b>

Source: Statistical Office

Table 7.2

## AIRCRAFT MOVEMENTS

2006 – 2010

AIRPORTS	2006 – 2010				
	2006	2007	2008	2009	2010
E.T. JOSHUA	29,138	23,708	23,317	19,950	19,682
CANOUAN	8,730	8,940	8,114	6,538	5,348
J.F MITCHELL	3,978	3,930	3,564	3,019	2,969
MUSTIQUE	8,274	8,873	8,518	7,014	6,514
UNION ISLAND	8,250	8,048	7,320	5,820	5,871
<b>TOTAL</b>	<b>58,370</b>	<b>53,499</b>	<b>50,833</b>	<b>42,341</b>	<b>40,384</b>

Source: E.T Joshua Airport



# Section 8

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Table 8

## SELECTED VISITOR STATISTICS

	2006	2007	2008	2009	2010
<b>Total Tourist arrivals</b>	<b>306,578</b>	<b>327,609</b>	<b>249,868</b>	<b>270,952</b>	<b>231,121</b>
Cruise Ship Passengers	106,474	144,455	116,709	149,462	110,954
Stay over visitors	97,432	89,637	84,101	75,446	72,478
Yacht passengers	93,638	86,718	43,277	40,859	42,603
Same day visitors	9,034	6,799	5,781	5,185	5,086
Average length of stay	12.3	12.3	11.7	11.7	11.7
Cruise Ship calls	263	279	172	164	131

Source: St Vincent & the Grenadines Tourism Authority

During the review period, the tourist arrivals to St. Vincent and the Grenadines fluctuated from a high of 306,578 tourist arrivals to a low of 231,121 in 2010. There has also been a constant decrease in the number of stay over visitors which moved from 97,432 in 2006 to 72,478 in 2010. There were also decreases in the number of yacht passengers and same day visitors (see Table 8). Although there were decreases in those categories, there was an increase in the number of cruise ship visitors which increased from 106,474 in 2006 to 149,462 in 2009. This decrease in the number of yacht passengers and stay over visitors also helps to reduce the amount of waste produced in the country, especially plastic waste from wrappings and bottles that are sometimes found around tourist sites. This reduction in visitor arrival may cause a reduction in the amount of revenue generated by tourism and a reduction in the amount of money available to the government for spending in sectors such as the environment. The reduction in tourist arrivals may also see a reduction in the damaging ways in which a large number of tourists affect the environment.

# 2010 Environmental Statistics Report

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TABLE 8.1

## STAY-OVER VISITORS BY PLACE OF STAY 2006 – 2010

YEAR	HOTELS	APARTMENTS	GUEST HOUSES	RESORTS & VILLAS	PRIVATE HOMES	OTHER/ NOT STATED	TOTAL
2006	13,537	4,002	975	12,727	41,079	25,112	97,432
2007	13,574	2,630	791	14,781	35,608	22,253	89,637
2008	12,499	2,582	723	15,114	43,604	9,579	84,101
2009	12,077	2,461	1,034	13,181	39,878	6,815	75,446
2010	11,509	2,326	1,008	11,863	39,258	6,514	72,478

Source: St Vincent & the Grenadines Tourism Authority

TABLE 8.2

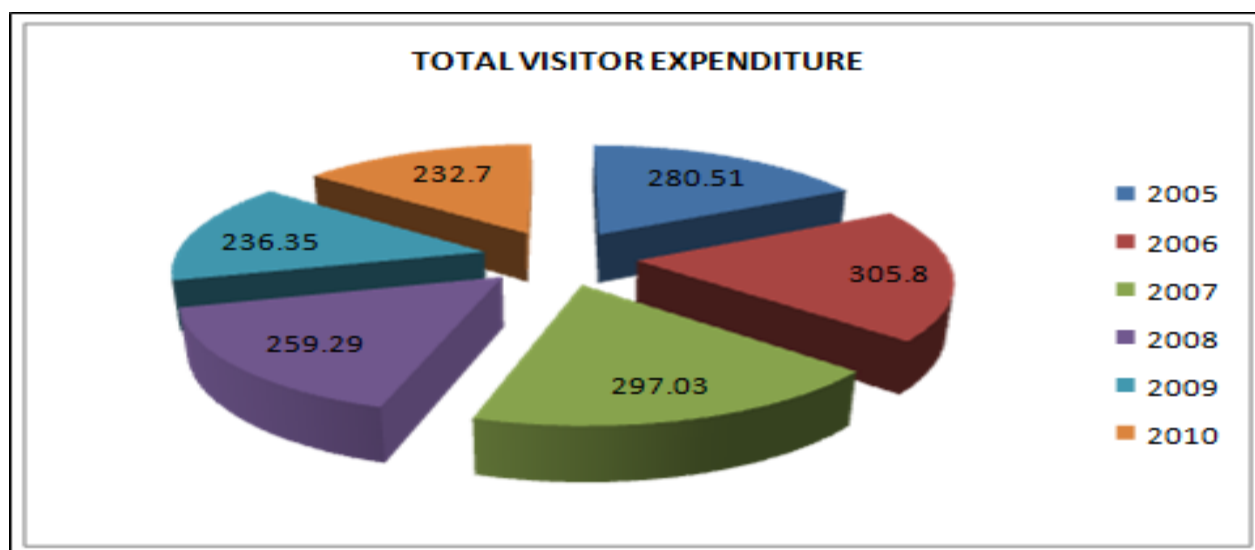
## TOTAL VISITOR EXPENDITURE

YEAR	EC \$M
2005	280.51
2006	305.80
2007	297.03
2008	259.29
2009	236.35
2010	232.70

Source: Statistical Office

# 2010 Environmental Statistics Report

Chart 10



Although there has been a reduction in the different categories of tourists except cruise ship passengers, there has not been a drastic change in the amount of money tourist spend in the country (Table 8.2). The reduction in the number of tourist has also reduced the tourist penetration ratio of the country. The tourist penetration ratio measures the number of tourist per 1000 inhabitants and their effects on the country at a given time. It gives an indication of crowding and the carrying capacity of the environment. Since 2007, the tourist penetration ratio of the country has remained consistent at 0.1% from 2006 to 2010, (Table 8.3).

Table 8.3

TOURIST PENETRATION RATIO AND TOURIST INTENSITY 2006-2010

YEAR	Total Visitors	Mid-year Population	Average Length of Stay	Penetration Ratio (%)	Tourist intensity (%)
2006	306,578	101,402	12.3	0.1	26.5
2007	327,609	100,130	12.3	0.1	28.4
2008	249,868	99,086	11.7	0.1	20.6
2009	270,952	100,181	11.7	0.1	22.3
2010	231,121	101,352	11.7	0.1	19.0

Source: St Vincent & the Grenadines Tourism Authority

# Section 9

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# 2010 Environmental Statistics Report

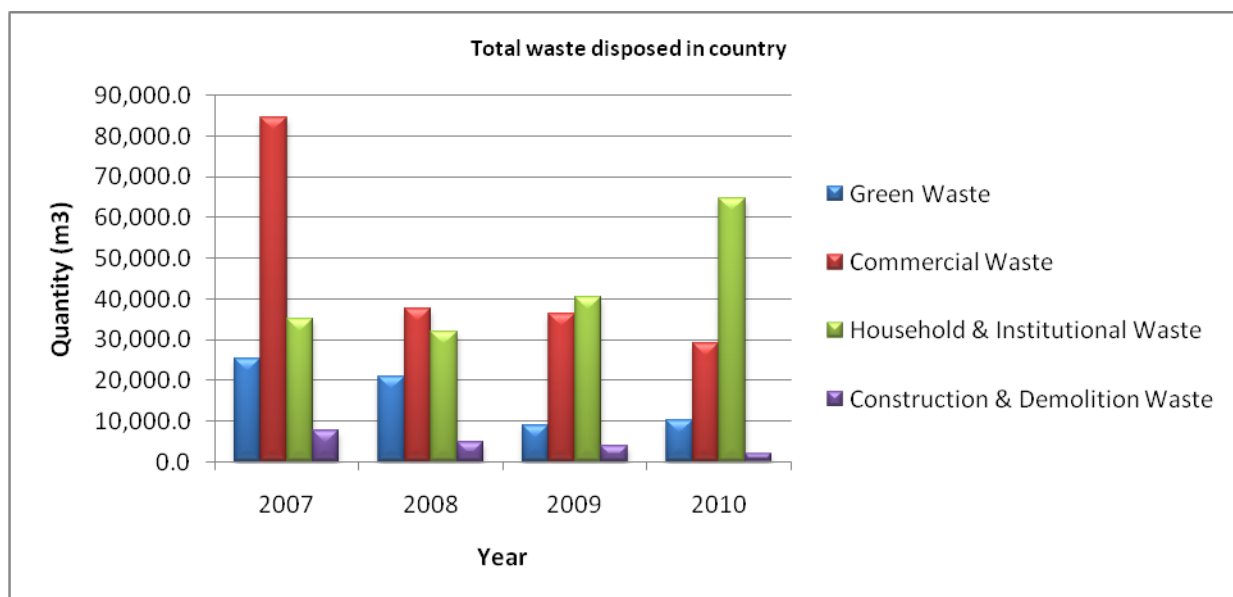
Table 9

TOTAL WASTE DISPOSED IN ST. VINCENT & THE GRENADINES FOR 2007 - 2010

Waste Category	Quantity (Cubic meters)				TOTAL
	2007	2008	2009	2010	
Green Waste	25,190.7	20,960.7	8,813.9	10,236.2	65,201.5
Commercial Waste	84,706.8	37,479.6	36,285.2	29,201.7	187,673.2
Household & Institutional Waste	35,111.5	31,820.3	40,350.0	64,724.0	172,005.7
Construction & Demolition Waste	7,578.0	4,786.5	3,972.3	1,932.3	18,269.1
<b>TOTAL</b>	<b>152,586.9</b>	<b>95,047.0</b>	<b>89,421.4</b>	<b>106,094.1</b>	<b>443,149.4</b>

Source: Solid Waste Management Unit, CWSA.

Chart 11



During the review period, waste generated as Commercial, Household and Institutional were the categories in which the largest quantity of waste were disposed. In 2007, the quantity of waste disposed of as commercial waste was more than doubled that disposed of as Household and Institutional waste. However, in 2010, the opposite was true. In fact, the quantity of waste disposed of in these two categories individually over the review period is more than double the quantity disposed of in the other two categories combined, namely; Green waste and Construction & Demolition waste.

# 2010 Environmental Statistics Report

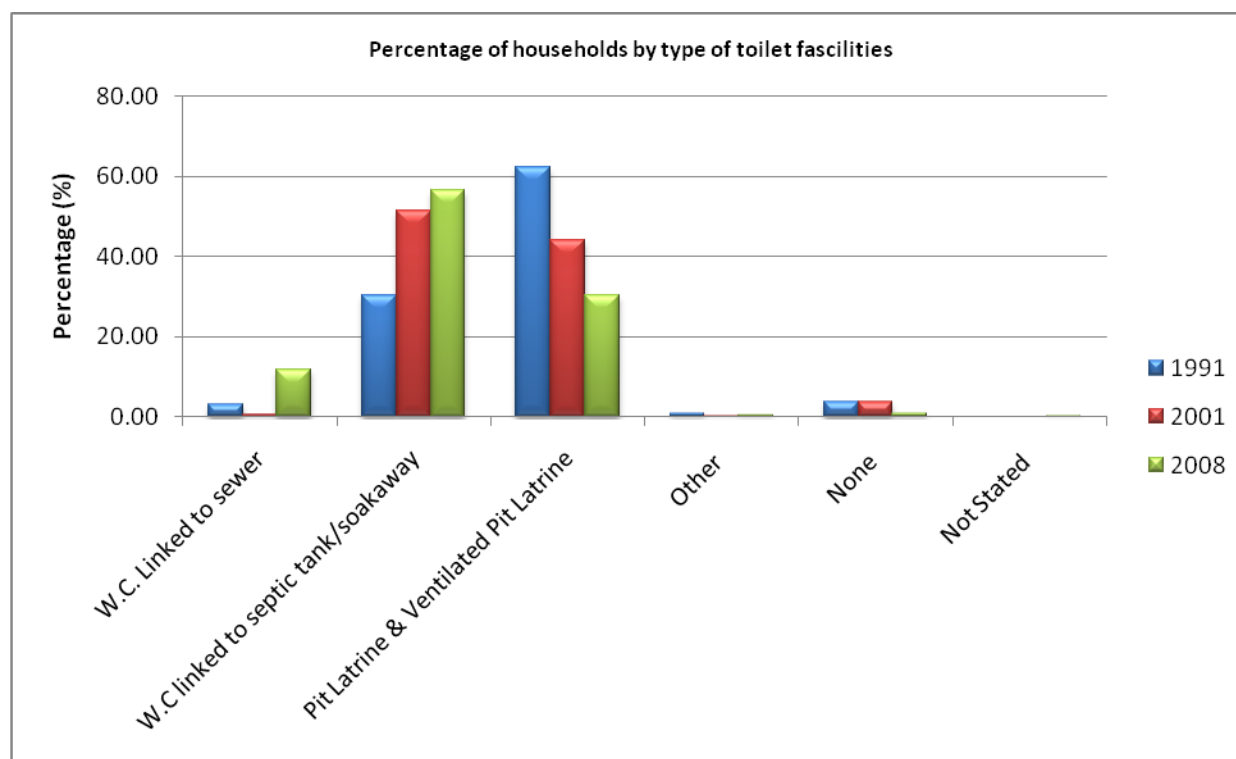
Table 9.1

## HOUSEHOLDS BY TOILET FACILITIES

TOILET FACILITIES	1991		2001		2007/2008	
	No. of Households	% of total Households	No. of Households	% of total Households	No. of Households	% of total Households
W.C. Linked to sewer	829	3.07	193	0.63	3,472	11.65
W.C linked to septic tank/soak away	8,141	30.15	15,691	51.42	16,858	56.56
Pit Latrine & Ventilated Pit Latrine	16,815	62.27	13,484	44.18	9,031	30.3
Other	215	0.8	73	0.24	125	0.42
None	1,002	3.71	1,077	3.53	259	0.87
Not Stated	...		...		59	0.2
<b>TOTAL</b>	<b>27,002</b>	<b>100</b>	<b>30,518</b>	<b>100</b>	<b>29,804</b>	<b>100</b>

Source: 1991, 2001 Population & Housing Census, 07/08 Country Poverty Assessment.

Chart 12



Between 1991 and 2008, the number of households that used W.C. linked to septic tank or soak away more than doubled. Also the number of households using a W.C. linked to sewer system quadrupled. More than two thirds of the households in the country use either septic tank/soak away or sewer. In 2008, 98.5% of the households used an improved sanitation facility, compared to 96.2% in 2001 and 95.5% in 1991. This helps to reduce the amount of raw sewage that is released into the surrounding environment.



# Section 10

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# 2010 Environmental Statistics Report

Table 10

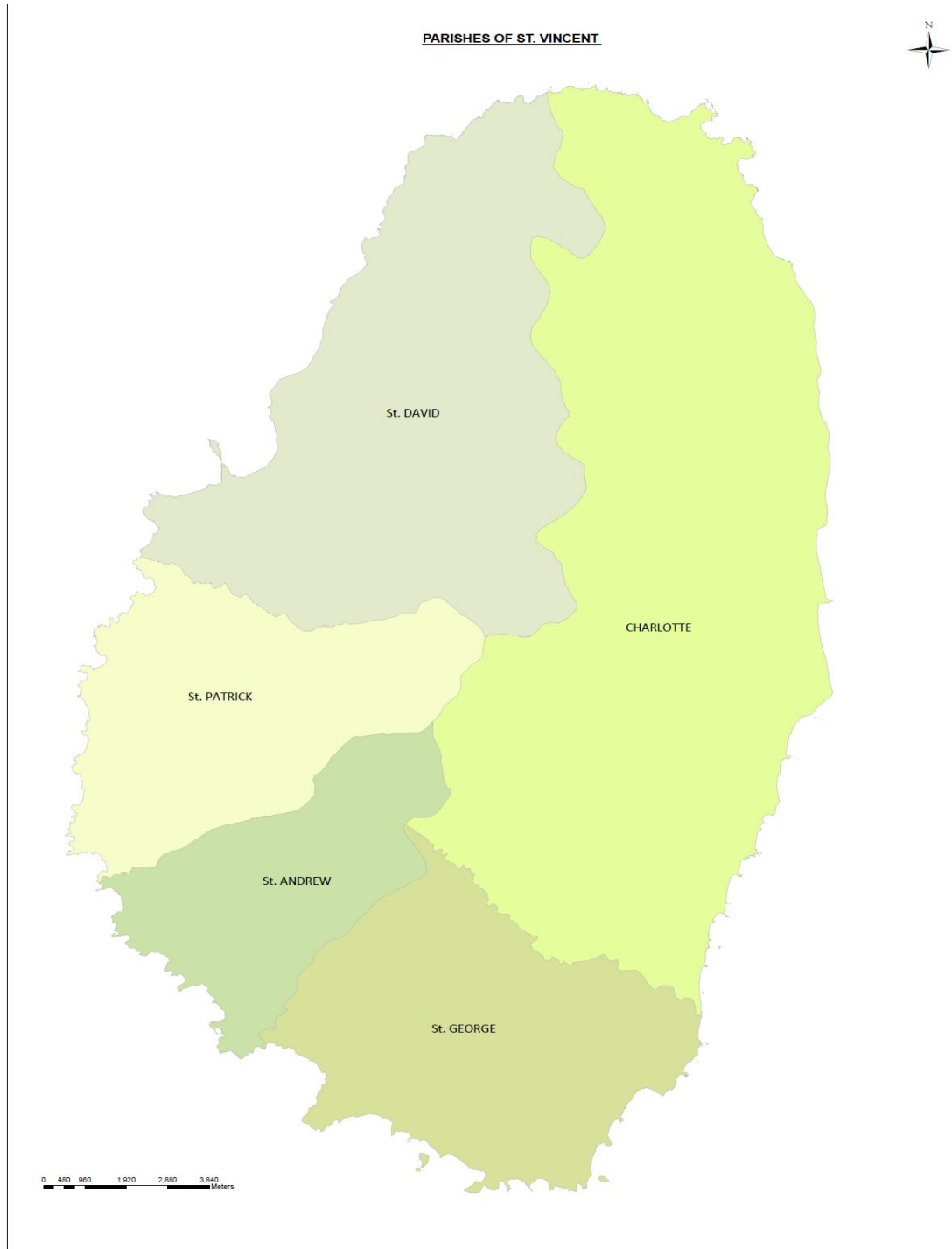
## NATURAL DISASTERS OCCURRING IN ST. VINCENT & THE GRENADINES 2002 - 2010

YEAR	NATURAL DISASTER	FREQUENCY AND TYPE	ECONOMIC LOSS (EC\$M)	HUMAN LOSS	SOCIAL IMPACT	COMMENTS
2002	Tropical Storm Lili		EC\$978,000	4	24 houses completely destroyed 10,000 affected	
2004	Hurricane Ivan		EC\$M100		56 houses completely destroyed	Over 400 families earmarked for relocation along the Eastern coast
2005	Landslide (Bequia)			2		
	Hurricane Emily and landslides		EC\$M 10	1	533 houses severely damaged, 18 houses completely destroyed.	
2007	Hurricane Dean		EC\$M 2.2			10% banana crops destroyed, 7 houses destroyed, 6 fishing boats destroyed, extreme costal inundation
2008	Heavy rains			1	1,000 affected	
	Landslide and Hurricane Omar/storm surge	Storm Surge	EC\$M 5.6			30 boats destroyed
2010	Landslides	Heavy rains	N/A		50 affected	shutting down of schools and disruption of transportation
	Hurricane Tomas	Wind Damage	EC\$130M		250 homes affected	

Source: National Emergency Management Organization (NEMO)

Since 2002, St. Vincent and the Grenadines has experienced 5 Hurricanes, 1 Tropical Storm and periods of excessive rainfall which cause landslides and flooding. These storms blow down forests, cause coastal inundation and erosion through wave action and the destruction of buildings and other structures all of which affect the environment negatively. Periods of excessive rainfall, though not always caused by the passage of storms have also caused rivers to over flow their banks. Flooding and landslides have also caused millions of dollars worth of damage to infrastructure, while also changing permanently landscapes.

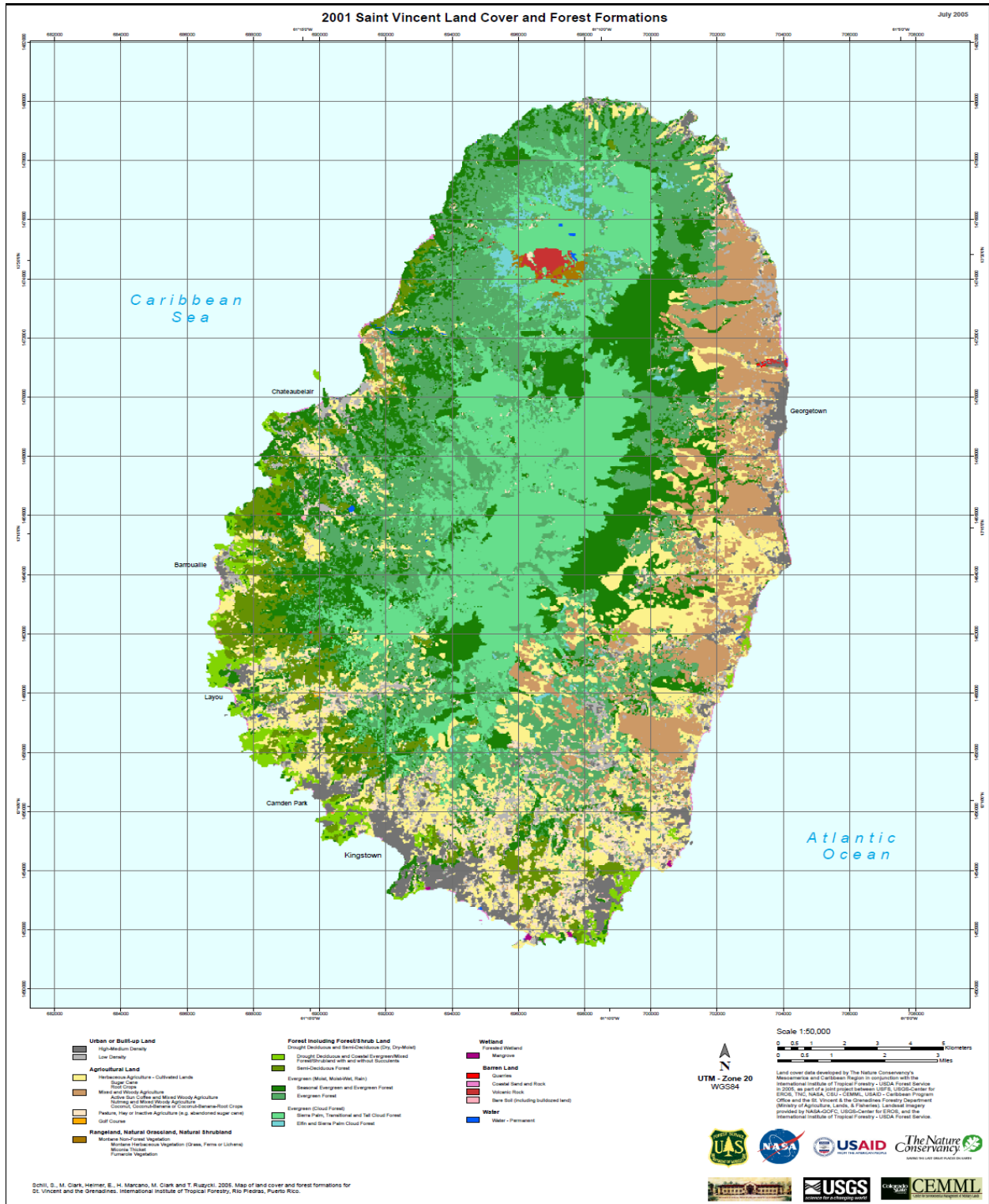
MAP 1



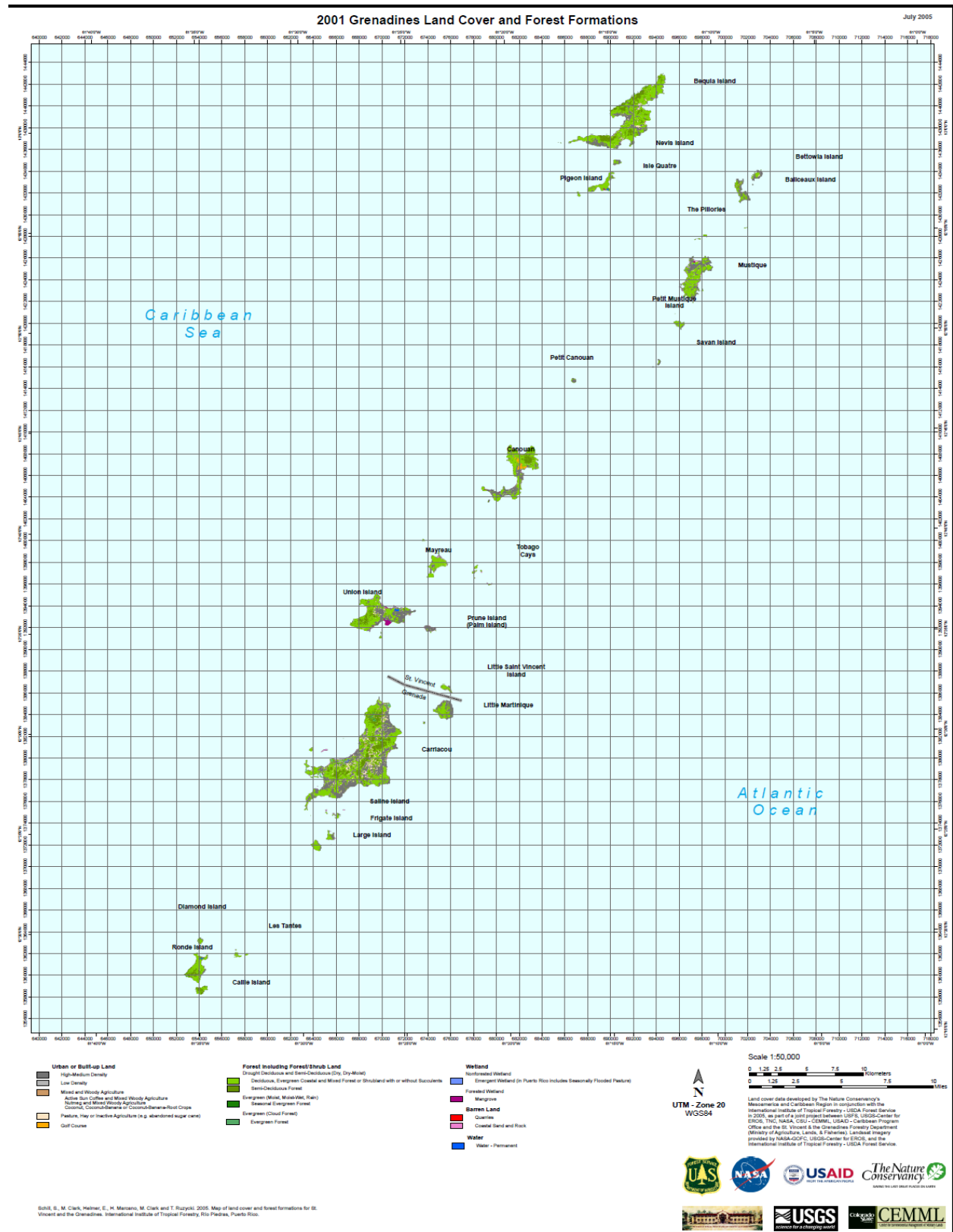
MAP 2



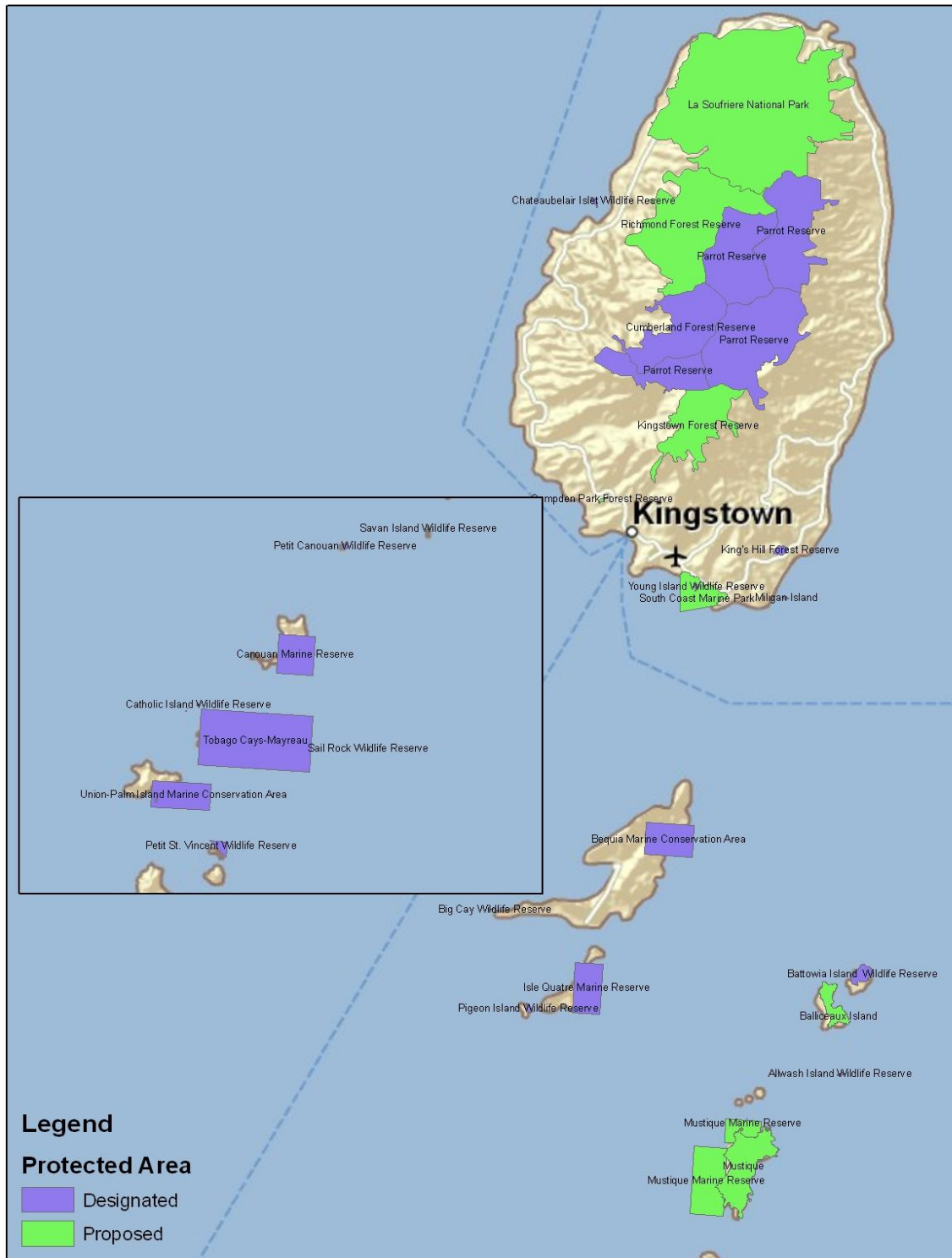
Map 3



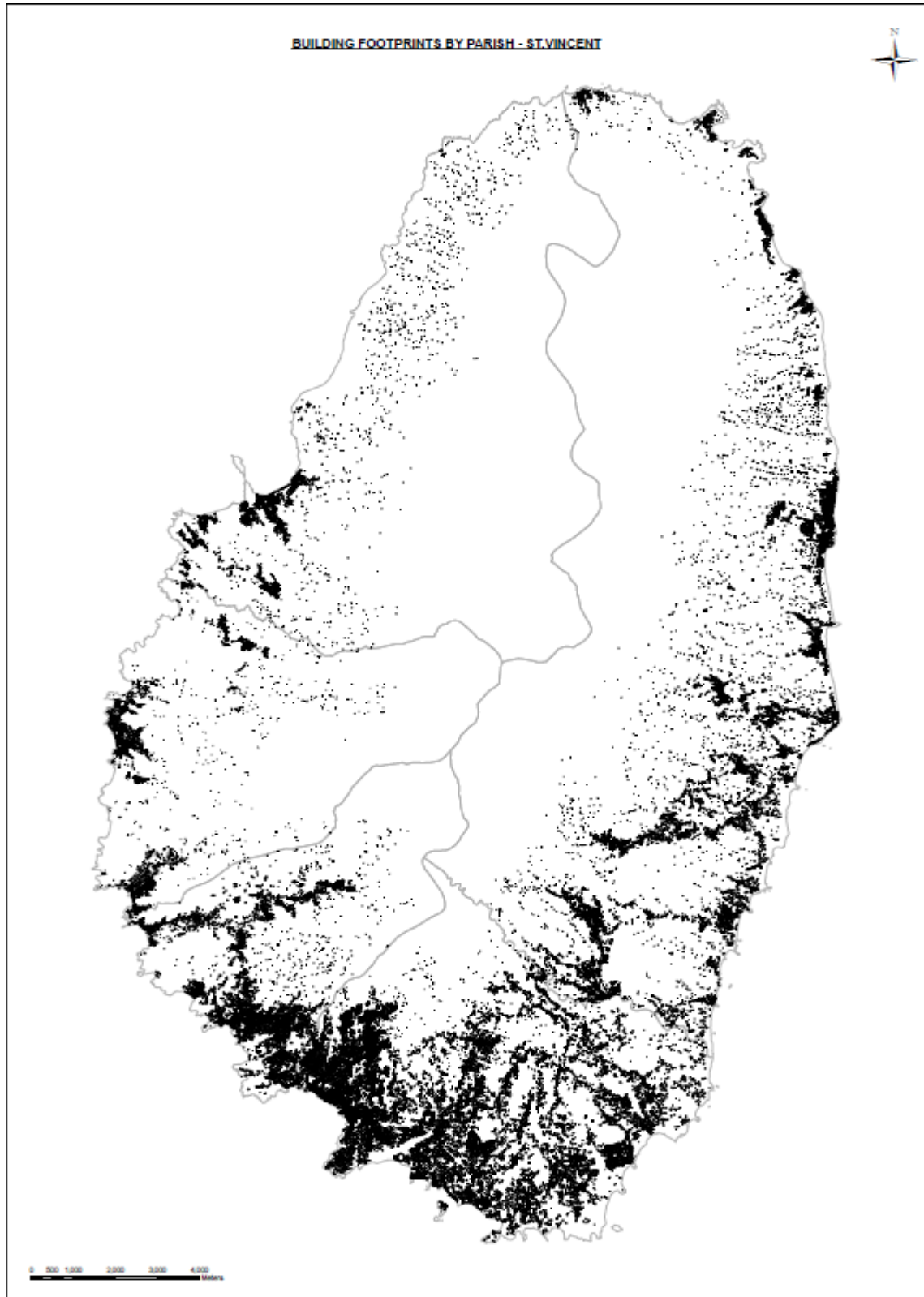
## Map 4



Map 5 Map of Protected Areas in St. Vincent and the Grenadines

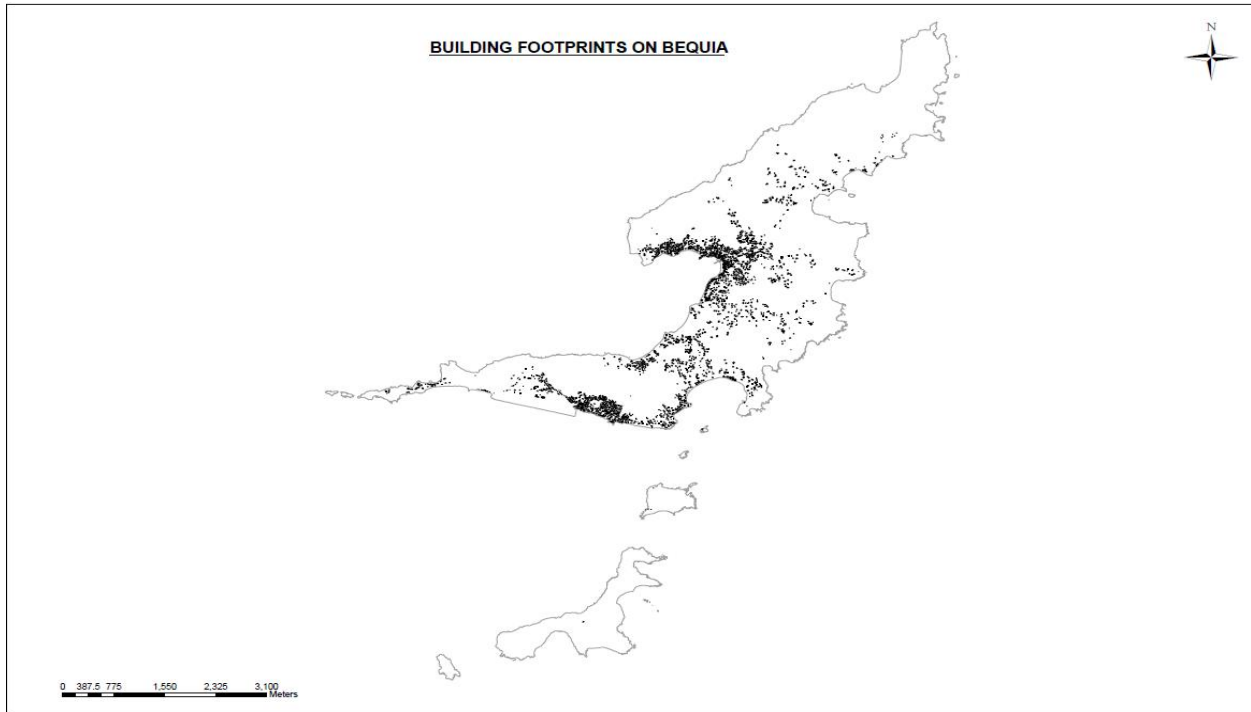


Map 6

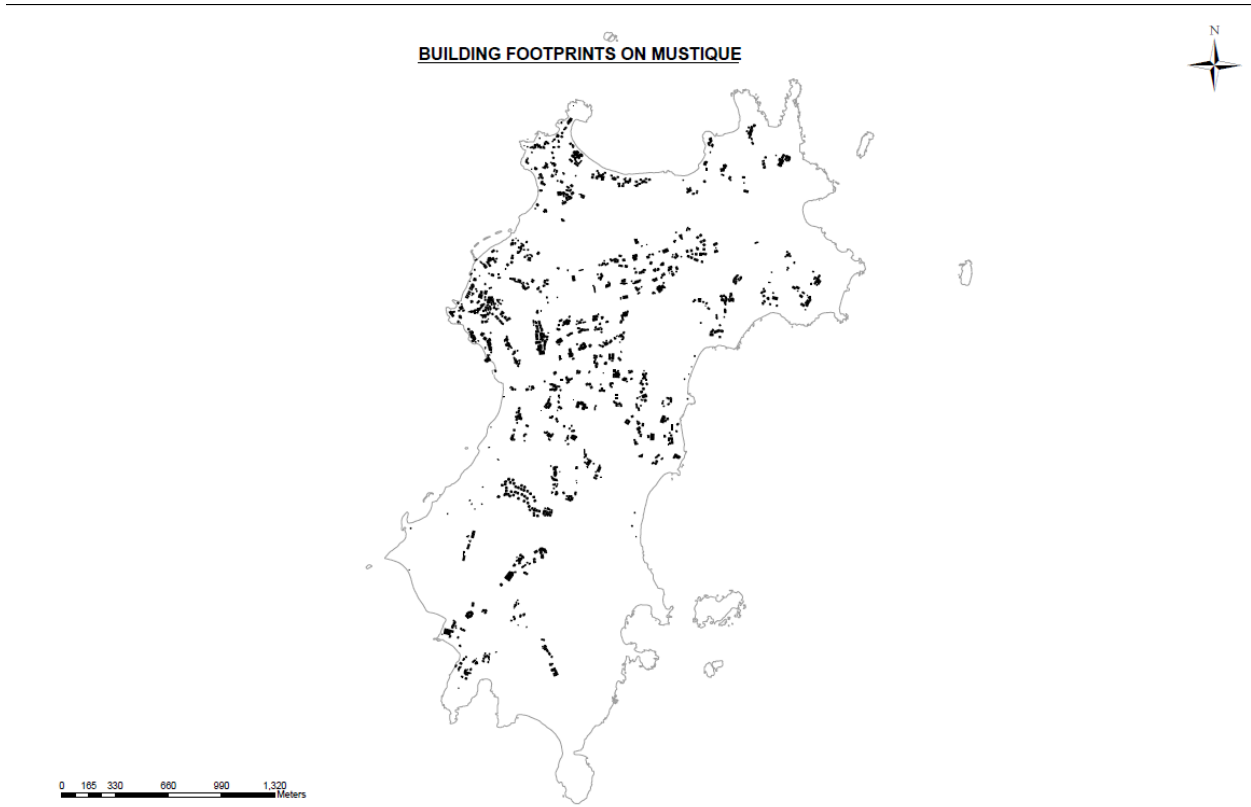




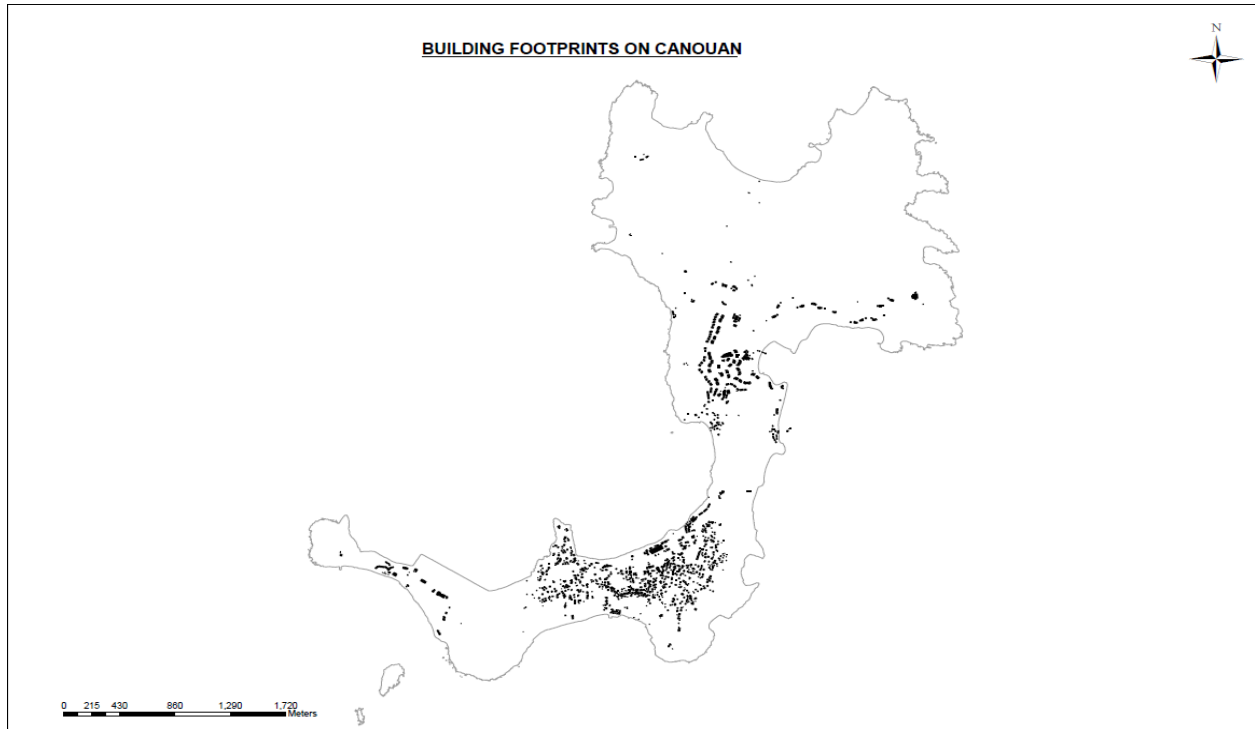
Map 7



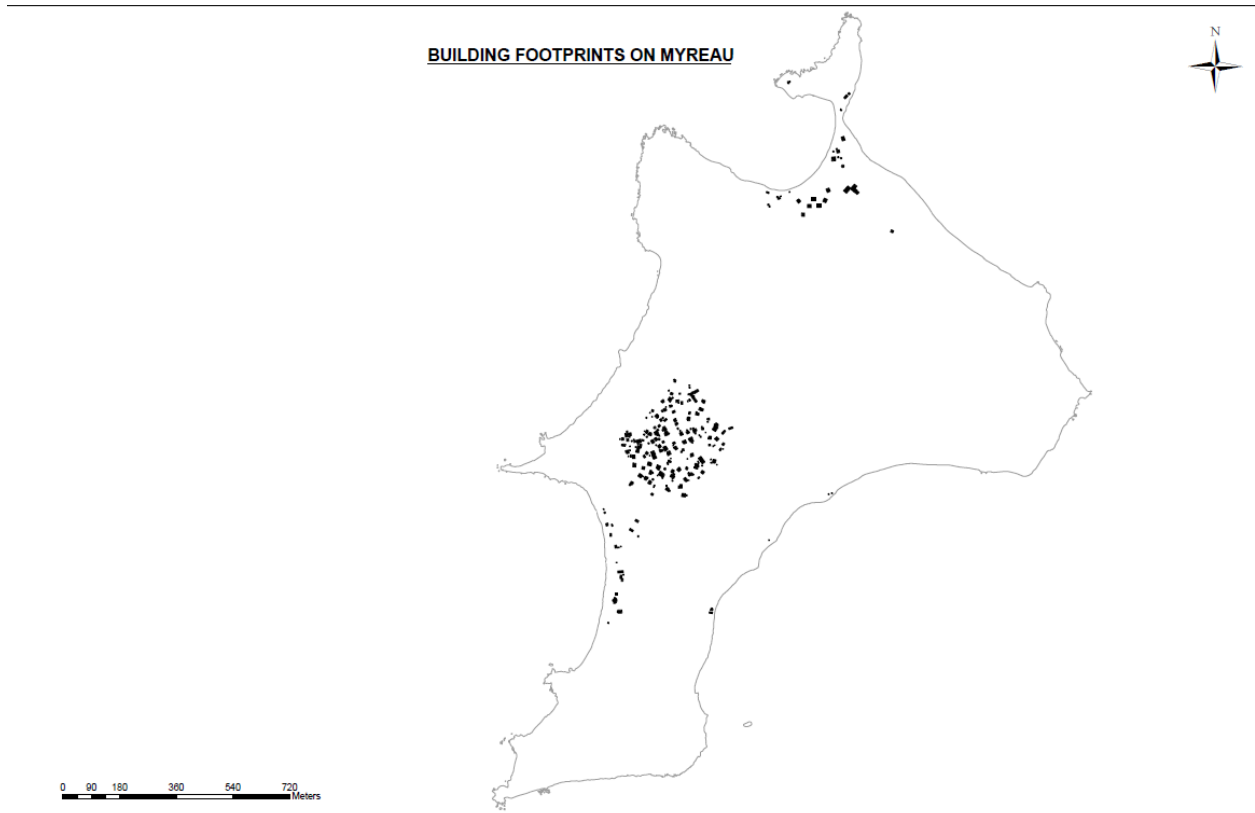
Map 8



Map 9



Map 10



Map 11

