2016

SMART HOSPITAL

SAFE + GREEN = SMART

Town Hall Meeting, Chateaubelair, St Vincent and the Grenadines

KNOWLEDGE, ATTITUDES AND PRACTICES STUDY: BASELINE

for the SMART Health Care Facilities in the Eastern Caribbean Project –Phase II

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FOREWORD

This report on the Knowledge, Attitudes and Practices (KAP) Study in the four Eastern Caribbean Islands is an essential element in the implementation of the SMART Health Care Facilities in the Caribbean Project; multi-million investment by the UK government through the Department for International Development (UKaid DFID).

PAHO has designed the SMART concept as a strategic platform for integrating disaster risk reduction, climate change, environmental protection and conservation initiatives to enhance safety standards, reduce downtime, lower operational costs and improve capacity building within a health facility.

The research carried out through the application of the KAP tool provides valuable insights into the current levels of knowledge, attitudes and practices among community members served by the health facilities targeted for retrofitting in the four Eastern Caribbean Islands of Grenada, St. Vincent and the Grenadines, Saint Lucia and Dominica. It provides a guide for improving capacity building as well as the public relations activities that are designed to impact how people perceive safety and "greening" actions. These KAP survey tools have also allowed for the capture of essential data and information that will provide benchmarks for monitoring and evaluation of the project activities.

It is our intention to use the results of this research to identify areas in need of further attention and to develop approaches to capitalize on the gains in behaviours and practices that currently exist within the communities that would support the application of the SMART approach.

We see great potential for the SMART concepts to be applied not only within health facilities but in other institutions and sectors and ultimately throughout entire communities.

At the conclusion of the project the study will be reapplied to determine the level of changes that occurred as a result of the full roll out of all components of the project, ultimately allowing us to capture SMART practices and lessons.

This baseline KAP report has illustrated that the level of awareness of this relatively new concept (SMART = Safe + Green) is embryonic at best. A number of positive and negative attitudes have been identified that need to be addressed within the short-term to enhance awareness of the project and climate smart practices.

As the SMART Health Care Facilities in the Caribbean project now expands to include Jamaica, Guyana and Belize we have an opportunity to adjust our implementation plans and to capitalize on the momentum that has been established in the Eastern Caribbean Islands. Our intention is to apply the KAP survey in various communities in these countries as well and to upscale our efforts to improve knowledge, attitudes and practices towards the SMART concepts.

The goal of the project is not just to focus on the physical retrofitting works but to ensure that we are contributing to safer, healthier and greener communities throughout the Caribbean.

Sincerely
Dr. Dana van Alphen
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ACKNOWLEDGMENTS

ACRONYMS

BVI	British Virgin Islands
CC	Climate Change
CCA	Climate Change Adaptation
DDM	Department of Disaster Management (BVI)
DRR	Disaster Risk Reduction
HSI	Hospital Safety Index
KAP	Knowledge, Attitudes and Practices
PAHO	Pan American Health Organization
PR	Public Relations
REACH	Center for Research and Outreach (University of Minnesota)
WHO	World Health Organization

EXECUTIVE SUMMARY

INTRODUCTION

The Knowledge, Attitudes and Practice (KAP) study was conducted between May and August 2016 in the six Eastern Caribbean locations namely Dominica, Grenada and Carriacou, Saint Lucia as well as St Vincent and the Grenadines

PURPOSE

The baseline KAP study sought to

- Support project monitoring and evaluation on the target audience's awareness levels
- Enhance the project's public information strategy and communication messaging
- Identify gaps in knowledge about climate smart health care facilities within the target countries

METHOD

The study utilized a qualitative descriptive design with data collected from 2,355 respondents using a combination of a paper and pencil survey instrument and an online Survey Monkey questionnaire.

KEY RESULTS

Almost all persons in the six locations heard about climate change and believed that more should be done by governments to address the impact of hazards and the effects of climate effects on the health sector in their respective counties. Conversely with less than one third of the respondents understanding this new concept of climate smart buildings, there is an urgent need to enhance the public awareness element of the project interventions to ensure that the SMART=Safe +Green concept trickles down from the policy level to the persons within the community who are the principal users of the health care facilities. Based on the analysis of the findings, the average KAP respondent:

- Was a female, single person with a secondary level education, who is very concerned about climate change but does not think anything is being done about it in the health sector or the country

- Described a climate smart building as one that is SAFE and GREEN and feels that sea level rise, power outage and water shortages are the major issues affecting health care facilities
- Did not perceive health care facilities to be SAFE and would not feel comfortable in one during a storm/hurricane
- Believed the government is responsible for making facilities SAFE and Green
- Occasionally read, listened to and watched information about SAFE health care facilities
- Felt that increasing knowledge is key to making facilities SAFE and Green and preferred to get their information from the Internet, television, Facebook and newspapers

WAY FORWARD

The KAP baseline study has shown that as at August 2016, although knowledge of climate change and adaptation measures that could be undertaken by individuals was high, general awareness of the SMART Health Care Facilities Project and SMART Hospital was low. To capitalize on the momentum from the KAP study, the following recommendations should be considered:

- Enhancing the PR Strategy and supporting resources to ensure that the public is educated about the SMART concept, its impact on making health care facilities safer and green as well as the role governments, donors, and individuals play in implementing projects and sustaining the initiative
- Developing targeted multi-modal public awareness campaigns with products that are suitable for airing on television and radio, printing in the newspaper and posted on the Internet and Facebook.
- Fostering partnerships with the Government Information Service Departments, national disaster offices and key radio/television stations in each of the countries to get the unified and consistent message on what is being done to enhance resiliency.

Knowledge, Attitudes and Practices (KAP) Baseline Study for the SMART Health Care Facilities in the Eastern Caribbean Project –Phase II

1.0 INTRODUCTION

1.1 Background

The SMART Hospital Project is an innovative demonstrative type project and Phase I was the first of its kind to be implemented in the region in St Vincent and the Grenadines as well as St Kitts-Nevis. One of the key lessons learned from this pilot was the need to properly educate the community prior to commencement of work so that SMART concepts are more accepted by the public   Strong community buy-in and understanding of the project will also contribute to the long-term sustainability of the project interventions undertaken at the targeted healthcare facilities.

During Phase I of the project, which was implemented during the period 2012-2015, community buy-in was illustrated in one of the target countries through the following:

a. Participation in the Town Hall session and identification of key community groups and individuals within the community

b. Involvement of the Friends of the Hospital Group and several community businesses who provided financial support for the retrofitted hospital

c. Commitment of the community members who monitored and provide reports to the PAHO team on the progress of work being undertaken at the hospital

d. Rebranding of the hospital to include the SMART in the hospital's name

Active engagement of community members in the Cost-Benefit Analysis survey allowed for connectivity between the project implementation team and residents while supporting project awareness.

Capitalizing on the highly successful pilot initiative during Phase I at the Georgetown Hospital in St. Vincent and the Grenadines and the Pogson Hospital in St. Kitts and Nevis, PAHO made an official announcement of the implementation of Phase II in May 2015. At the time the support from UKAID was 8.2 million pounds. The aim of the project is to support the governments of the selected countries (Grenada, Saint Vincent and the Grenadines, Saint Lucia and Dominica) in assessing and prioritizing vulnerability reduction investments in health facilities to ensure that they are safe and are incorporating green practices that allow them to adapt to the effects of climate change and become resilient to the effects of hazards that impact the region. The funding was expected to support retrofitting works for 12 health facilities across the selected countries.

1.2   Rationale and Significance

Knowledge, Attitudes and Practices (KAP) studies provide a mechanism for collecting information on what is known, believed and done in relation to a particular topic — in this case, climate smart health care facilities. The World Health Organization (WHO) in its guide to developing KAP survey noted that these studies can be used to identify knowledge gaps, cultural beliefs, or behavioural patterns that may facilitate understanding and action. They can also assess communication processes and sources that are critical to defining effective activities as well as highlight issues and barriers in programme delivery, and solutions for improving quality and accessibility of services. KAP data provide the ministries of health in the target countries with fundamental information that can be used to make strategic decisions and is a critical component in the project monitoring and evaluation framework already in place.

The aim of KAP studies is to conduct pre and post surveys for project monitoring and evaluation purposes on the target audience's awareness levels of the SMART Health Care Facilities Project and of the associated public information activities being developed and rolled out in the six locations. It will also identify gaps in knowledge about smart health care facilities within the target countries as well as describe the socio demographic makeup of the individuals who reside and/or work in the catchment areas.

The baseline KAP study, which is a requirement outlined in the project's logical framework, will generate information that will be used to enhance the project's public information strategy and communication messaging for the identified target groups. These include healthcare workers, users of the healthcare facilities, climate change practitioners, technical stakeholders in construction, engineering, architecture and planning as well as national, regional and international media.

The Public Relations strategy (as defined in the project's log frame) will be used to plan and implement advocacy, communication and social mobilization activities in order to increase knowledge and utilization of climate smart health care facilities within the target countries and the wider Caribbean. The results of the endline KAP study will be compared to those from the baseline KAP study and the final project evaluation to determine the effectiveness and impact of the SMART Health Care Facilities in the Eastern Caribbean Project.

2.0   MATERIALS AND METHODS

The KAP baseline study was facilitated by the Virgin Islands Department of Disaster Management (DDM) as the regional champions for adaptation of the SMART concept given their experience with adapting the SMART Hospitals concept for the Virgin Islands educational facilities (SMART School) and the community in general (SMART Community).

In addition to the experience with adapting and rolling out national and community-level programming based on the adaptation of the SMART Hospitals concept, DDM utilized the KAP approach to help define its 2014-2018 Comprehensive Disaster Management Strategy and Programming Framework.

2.1   Study Population

Study participants were individuals 18 years and older who resided or worked in the catchment areas served by the health care health facilities detailed in Table 1. Details on the healthcare facility and the scores each facility received from the application of the Hospital Safety Index (HSI) and the Green Checklist are also provided in Table 1.

Persons visiting the catchment and those under the age of 18 years old were excluded from the process. A combined sample size of 2,264 was determined using the population statistics from the ministries of health in the target countries; a confidence level 95%, margin of error 5% and a response distribution was utilized.   The sample size for the KAP surveys was calculated using the Raosoft calculator.

2.2   Survey Instrument

A 35-item self-designed survey instrument was developed and used for the KAP baseline study (Annex I). This instrument consisted primarily of close-ended questions with open-ended options included for respondents to provide additional information on their perceptions, practices and experiences. The survey items were arranged in four sections namely demographics, knowledge, attitudes and practices.

Table 1 – Sample size disaggregation by location

Health Care Facility	HSI Index Score	Green Checklist Score	Estimated population for catchment area
DOMINICA			
Portsmouth	43B	47	10,700
Grand Bay	47B	41	5,500
La Plaine	51B	40	3,036
Roseau	35C	28	38,000
Total Population - 57,236		**Sample Size - 382**	
ST. VINCENT			
Chateaubelair Hospital	50B	26	8,240
Georgetown Health Center	42B	22	10,000
Barroullie	37B	36	7,470
Total Population – 25,710		**Sample Size - 379**	
THE GRENADINES			
Clifton HC Union Hospital	41B	49	3,000
Mayreau HC	34C	41	330
Port Elizabeth Hospital Bequia	79B	51	4,300
Total Population - 7,630		**Sample Size - 366**	
SAINT LUCIA			
Vieux Fort Polyclinic	31C	40	14,021
Gros Islet	39C	28	10,879
Mongouge	27C	33	2,435
La Croix	25C	55	5,551
La Clery	27C	30	7,374
Total Population – 40,260		**Sample Size - 381**	
GRENADA			
Princess Alice Hospital	42B	44	35,000
Grand Anse	31C	34	10,000
Sauteurs	33C	42	8,000
Total Population – 53,000		**Sample Size - 382**	
CARRIACOU			
Hillsborough	29C	30	3000
Princess Royal	34C	50	10000
Total Population – 13,000		**Sample Size - 374**	

2.3   Data Collection

The primary means of communicating information about the KAP study was word-of-mouth from the enumerators who were selected to administer the survey.

Enumerators with prior data collection experience were selected who were familiar with the health care facilities and had intimate knowledge of the catchment areas. Briefing sessions were conducted for all the enumerators to ensure consistency in data collection and entry into Survey Monkey. Survey Monkey was selected because it was cost-effective, easy to use and allowed for effective monitoring of data entry. Work plans were prepared by each enumerator and approved by the KAP facilitators in consultation with PAHO. Data was collected using paper and pencil instruments and entered into Survey Monkey by the enumerators between 9 May and 25 August 2016. Monitoring of entries via Survey Monkey and weekly updates on progress were provided to PAHO and each enumerator. A virtual meeting with enumerators was held on 18th July to review the process and identify challenges and successes.

The preliminary findings were presented at the Technical Implementation Team meeting held in Barbados during the period 15-18 August 2016.

2.4   Data Analysis

Statistical analysis of the data collected from the online Survey Monkey and pencil and paper survey instruments was conducted using version 22 of the International Business Machines Statistical Package for Social Sciences (IBM SPSS). Frequencies were run to explore missing responses and out-of-range values for each of the demographic variables as well as those used for the main analysis. Nominal demographic variables were analyzed and reported using frequencies, counts and valid percentages. The Shapiro-Wilk test ($p<.05$) was used to determine normality of ratio level demographic variables. For normally distributed demographic variables, the mean and SD were reported with the minimum/maximum being reported for the non-normally distributed variables.

Valid percentages and frequencies distribution were used to describe the sample demographic data and the factors that influence the respondents' knowledge, attitudes and practices concerning climate change and the SMART Health Care Facilities Project. Cross-tabs were used to highlight differences between male and female respondents as well as provide sex-disaggregated statistics.

3.0   SUMMARY OF FINDINGS

3.1   *Socio-demographic characteristics*

A total of 2,355 individuals who resided in Carriacou, Dominica, Grenada, Saint Lucia, St Vincent and the Grenadines completed the survey instrument. Table 1 provides an analysis of the self-reported demographics of the sample.   In Carriacou the catchment areas had to be expanded as the previously defined communities were too restrictive given the preference of residents to use Medical Stations in their districts which were not captured in the survey instrument.

Table 1 - *Demographic Characteristics of Respondents (n=2355)*

Characteristics	*n*	%
Age		
M = 35.42 (*SD* = 15.07)		
Sex[a]		
Male	1025	43.5
Female	1302	55.3
Educational level of the respondent[b]		
Primary school	399	17.4
Secondary school	1020	44.6
College graduate	817	35.7
Vocational and professional qualifications	5	0.22
Postgraduate education	474	2.05
Occupation of respondent		
Construction Worker	141	6.0
Craft & Related Trades Workers	67	2.8
Unemployed	518	22.0
Elementary Occupation (Vendor, Cleaner, Gardener etc)	178	7.6
Health Care Worker	105	4.5
Media Worker	10	.4
Other	8	.3
Professional (Engineer, Architect, Planner, Doctor, etc)	114	4.8
Retired	47	2.0
Senior Officer/Manager/Lawmaker/Member of Parliament	76	3.2
Service and Sales Workers	363	15.4
Skilled Agricultural, Forestry & Fishery Workers	101	4.3
Student	192	8.2
Teacher	205	8.7
Technicians and Associate Professionals	78	3.3
Island of residence		
Carriacou (General)	279	11.8
Hillsborough, Carriacou	102	4.3
Portsmouth, Dominica	73	3.1
Roseau, Dominica	261	11.1

La Plaine, Dominica	20	.8
Grand Bay, Dominica	37	1.6
Dominica (Other)	28	1.2
Sauteurs, Grenada	59	2.5
St Andrew's, Grenada	252	10.7
Grand Anse, Grenada	71	3.0
Barroullie, St Vincent	112	4.8
Chateaubelair, St Vincent	127	5.4
Georgetown, St Vincent	142	6.0
St Vincent (Other)	19	.8
Mayreau, Grenadines	18	.8
Port Elizabeth, Grenadines	206	8.7
Clifton, Grenadines	144	6.1
Gros Islet, Saint Lucia	105	4.5
La Clery, Saint Lucia	79	3.4
La Croix, Saint Lucia	58	2.5
Mongouge, Saint Lucia	25	1.1
Vieux Fort, Saint Lucia	135	5.7
Saint Lucia (Other)	3	.1
Years living in community[c]		
1 – 10 years	331	
11 – 20 years	525	
21 - 30 years	578	
31 - 40 years	301	
40+ years	316	
Marital status[d]		
Single	1231	
Divorced	78	
Married	579	
Widowed	54	
Separated	40	
Other	279	
Preferred not to answer	47	
Number of children under 12 years in household[e]		
No children	242	
1 – 3 children	1334	
4 – 6 children	234	
7 – 9 children	33	
More than 9 children	3	
Number of individuals over 18 years in household[f]		
No individuals over 18 years	8	
1 – 3 individuals over 18 years	1429	
4 – 6 individuals over 18 years	716	
7 – 9 individuals over 18 years	83	
More than 9 persons	18	

Notes. [a] n = 2327. [b] n = 2288. [c] n = 2051. [d] n = 2308. [e] n = 1846. [f] n = 2254

Although the original combined sample size for the six locations was 2,264, an additional 4% (n-91) participated in the study with the highest number of additional respondents (n=37; 9.6%) being recorded in Dominica (Figure 1).

Respondents by Location

	Saint Lucia	Dominica	Grenadines	St Vincent	Grenada	Carriacou
■ Respondents - Actual	405	419	368	400	382	381
■ Respondents - Required	381	382	368	379	382	374
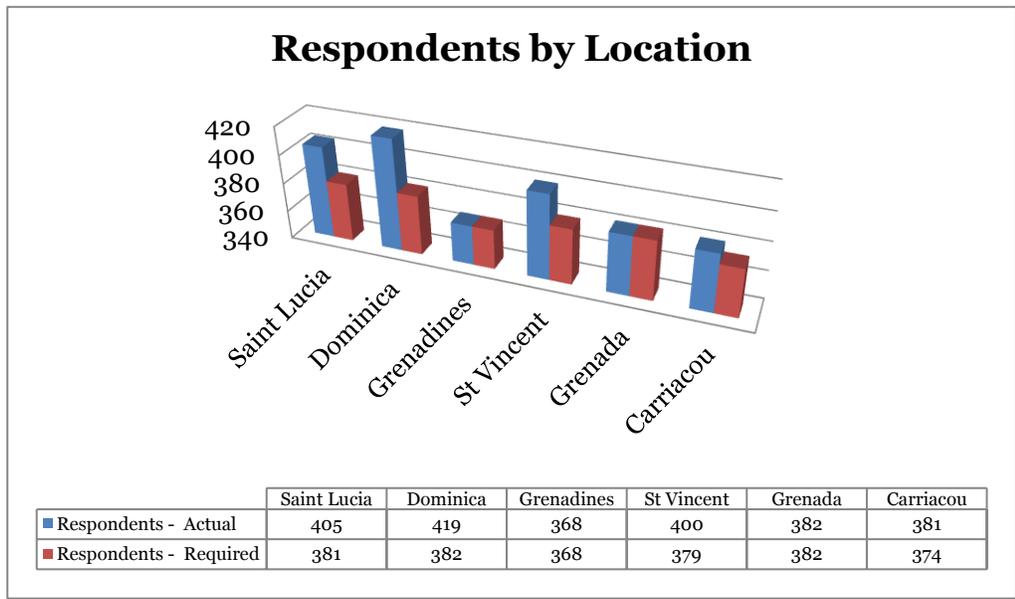
Figure 1: Distribution of Sample Population by location

Figure 2 provides a sex disaggregated summary of respondents for each of the six locations. Of the 2,327 respondents to this demographic questions, 55.3% (n-1,302) were females and 43.5% (n=1,025) were males. There was a consistent small variance in the sex-disaggregated demographics across the six locations with The Grenadines and Saint Lucia reporting respective differences of 17% and 15% between male and female respondents.

Respondents by Sex

	Saint Lucia	Grenada	Dominica	St Vincent	Grenadines	Carriacou
■ Female	235	208	230	215	210	204
■ Male	167	173	177	181	153	174
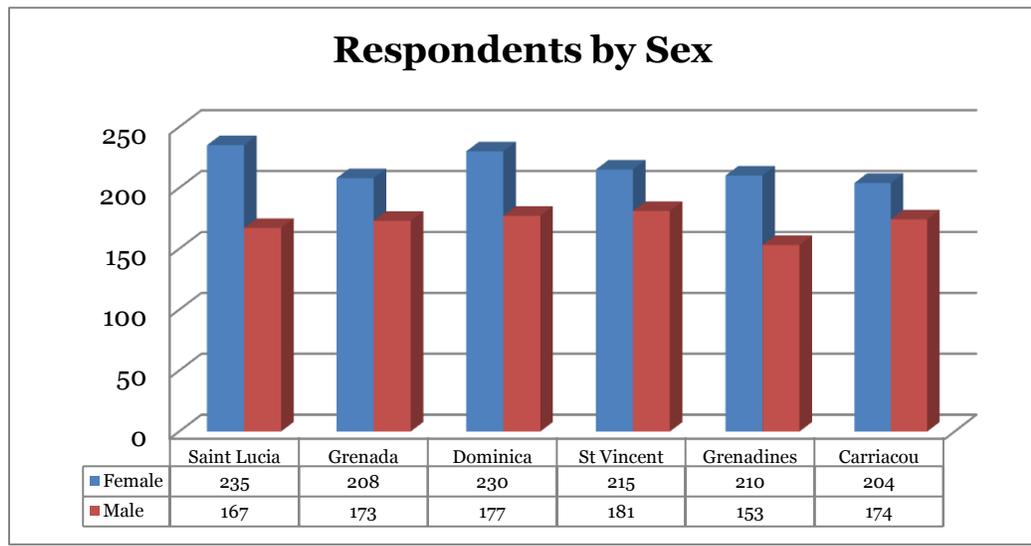
Figure 2: Sex-disaggregated distribution of Sample Population

Table 2 provides details on the respondents who work in the various communities in the six locations. In Carriacou, Grenada, St Vincent and Saint Lucia less than 50% of the respondents worked in the catchments areas whereas in the small community of Mayrea in the Grenadines, more than 70% of the respondents work in the catchment areas.

Table 2: Distribution of respondents who work in catchment areas

Community	Number of individuals who work in the community	Percentage of respondents
Carriacou		
Carriacou (General)	52	19%
Hillsborough	40	39%
Grenada		
Grand Anse	25	35%
Sauteurs	26	44%
St Andrew's	51	20%
Dominica		
Grand Bay	14	38%
La Plaine	14	70%
Portsmouth	34	47%
Roseau	53	20%
Dominica (Other)	5	18%
St Vincent		
Barroullie	22	20%
Chateaubelair	47	37%
Georgetown	43	30%
St Vincent (Other)	3	16%
Grenadines		
Clifton	53	37%
Mayreau	13	72%
Port Elizabeth	76	37%
Saint Lucia		
Gros Islet	15	14%
La Clery	13	16%
La Croix	8	14%
Mongouge	7	28%
Vieux Fort	43	32%
Saint Lucia (Other)	1	33%

3.2 Knowledge and Awareness

Survey items in the second section of the questionnaire assessed respondents' awareness and knowledge about climate change, climate smart buildings, hazard risk and potential impact on the health sector and health care facilities.

3.2.1 Knowledge about climate change and Climate SMART buildings

Eighty-three percent (n=1953) of the sample population indicated that they heard about climate change with 56% (n=1,102) being female and 42% (n=828) being male. Although 83% knew about climate change less than a third of the sample (n=646; 27%) heard the term "climate-smart building". The results show a small variance in knowledge about climate-smart building between males and females with 54% (n=346) for females and 44% (n=290) for males (Figure 3).

Knowledge about Climate Change vs Climate SMART Building

■ Heard about climate change   ■ Heard about Climate SMART building

Location	Heard about climate change	Heard about Climate SMART building
Saint Lucia	342	85
Grenada	328	88
Dominica	338	157
St Vincent	301	92
Grenadines	335	180
Carriacou	309	44
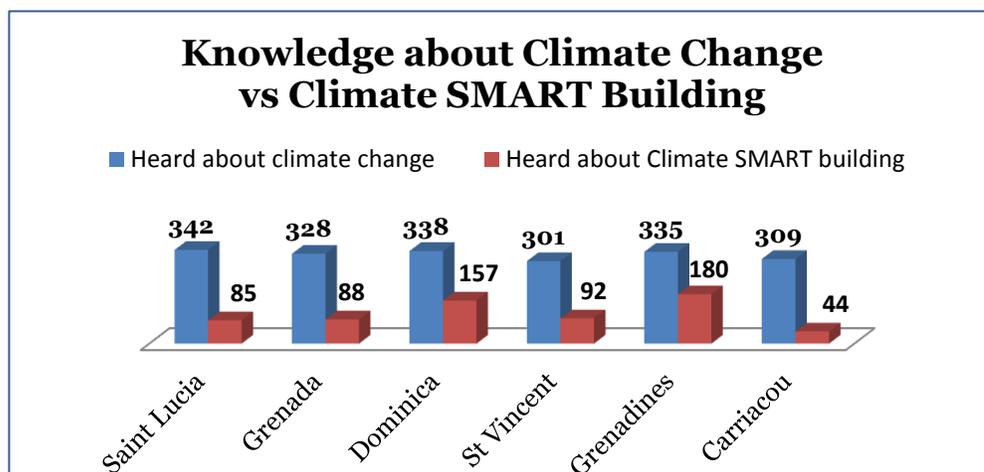
Figure 3: Distribution of Sample Population by knowledge of climate change and climate SMART building

Of the 646 respondents who heard about climate smart buildings, 83% (n=537) described it as Safe and Green (Figure 4).

Description of Climate SMART Building

■ Respondents

Description	Respondents
Hitech and Automated or Online	159
Safe + Green	537
Safe	376
Green	369
Energy efficient or Energy Secure	368
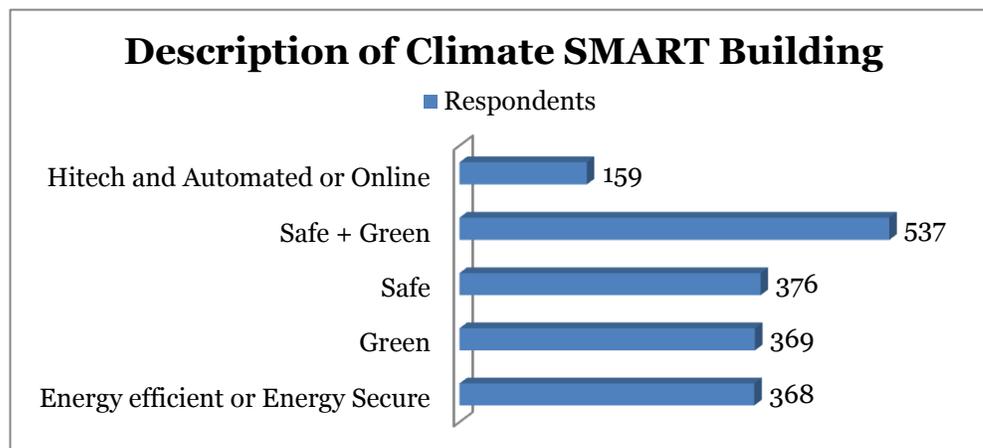
Figure 4: Respondents' description of Climate SMART building

Figure 5 provides details on the respondents' description of a climate smart building by location. Sixty-nine (69%) percent of the Carriacou respondents were able to accurately describe SMART as Safe and Green.

Description of Climate Smart Building (by location)

	Saint Lucia	Dominica	Grenadines	St Vincent	Grenada	Carriacou
SMART = Energy Efficient or Energy Secure	22%	11%	19%	33%	14%	67%
SMART = Green	19%	28%	23%	29%	9%	49%
SMART = Safe	20%	29%	21%	29%	8%	44%
SMART = Safe + Green	31%	29%	25%	29%	22%	69%
SMART = Hitech and Automated or Online	7%	4%	12%	13%	2%	31%
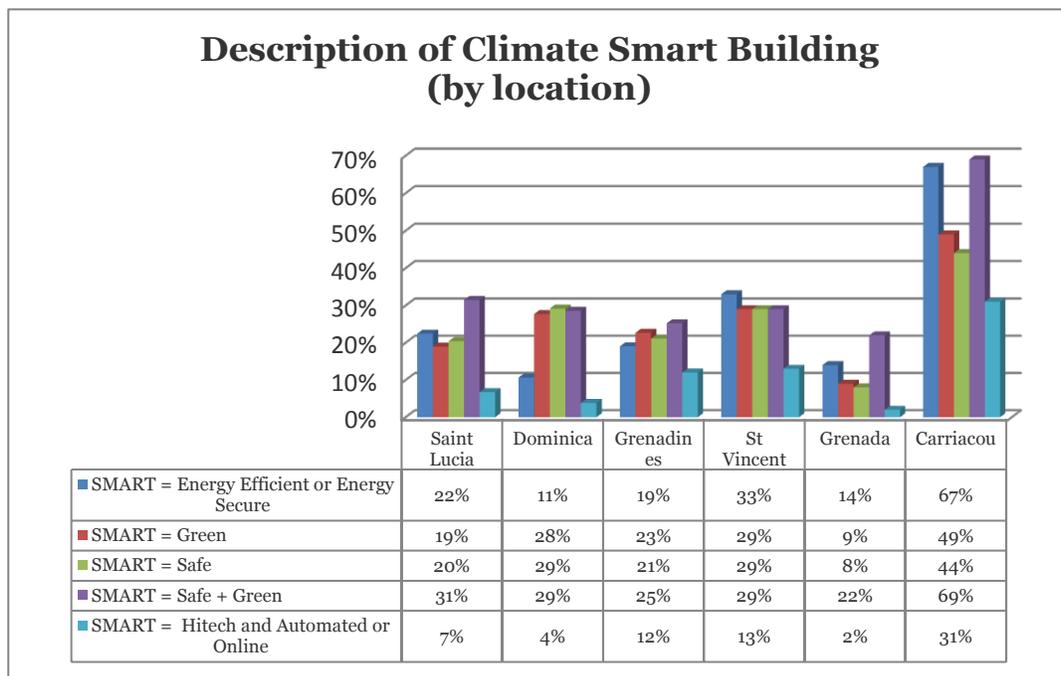
Figure 5: Respondents' description of Climate SMART building by location

3.3   *Perceptions and Beliefs*

The following items sought to assess the respondents' perceptions about the hazards that affect the health sector as well as what is being done to address climate change in the country and more specifically in the health sector.

3.3.1   Climate change being addressed in health sector and country

The majority of respondents felt that nothing was being done about climate change in the health sector (n=1,256; 53%) or in their country (n=1,070; 45%).

Forty-one percent (n=332) of the respondents who felt that initiatives were being undertaken to address climate change in the health sector lived in Port Elizabeth, Bequia in the Grenadines (n=169; 21%) and Roseau, Dominica (n=163; 20%).

Climate Change being addressed in Health Sector vs Country

■ Climate Change being addressed in Health Sector
■ Climate Change being addressed in country

	Saint Lucia	Grenada	Dominica	St Vincent	Grenadines	Carriacou
Health Sector	21%	31%	63%	30%	46%	15%
Country	29%	35%	54%	36%	63%	32%
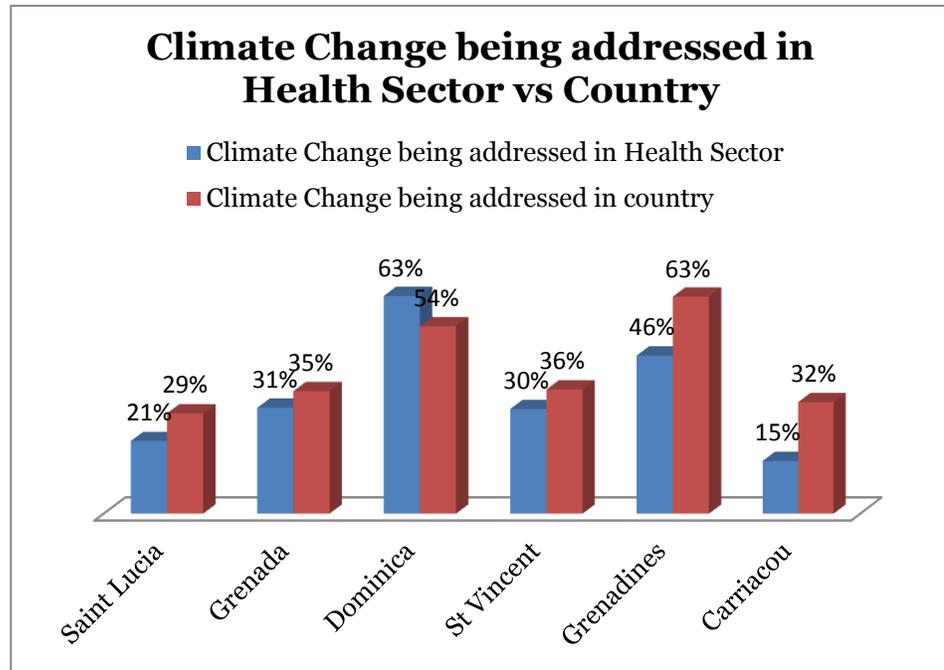
Figure 6: Distribution of Sample Population perceptions about Climate Change issues being addressed

3.3.2 Main events and hazards affecting the health sector

Ninety-eight percent (n=2,327) of the sample identified the top three events and hazards that are likely to affect the health sector (Figure 7). The majority (n=367; 16%) listed these as (i) more intense cyclonic events, (ii) more droughts (n=313; 13%) and (iii) mosquito proliferation (n=286; 12%). Health epidemics (n=276; 12%) were also identified as one of the more hazards affecting the health sector. Figure 8 provides details on the responses disaggregated by sex.

Volcanoes (n=1,228; 58%) and tsunamis (n=1,201; 51%) were perceived by respondents as the hazards least likely to affect the health sector. Consistent with their beliefs about the hazards that affect the health sector, respondents attributed climate change to the increasing number of hurricanes and storms (n=1,713), droughts and floods (n=1725). Eight-one percent (n=1,901) expressed concern about the impact climate change will have on health care facilities with a small variance between reported by females (n=1,072; 46%) and males (n=829; 35%).

Main events or hazards to affect the health sector

	Saint Lucia	Dominica	Grenadines	St Vincent	Grenada	Carriacou
■ More drought	315	199	360	258	259	203
■ More intense storms/hurricanes	306	336	288	295	352	314
■ Health epidemics	330	297	334	309	365	290
■ Mosquito proliferation	326	303	330	294	371	203
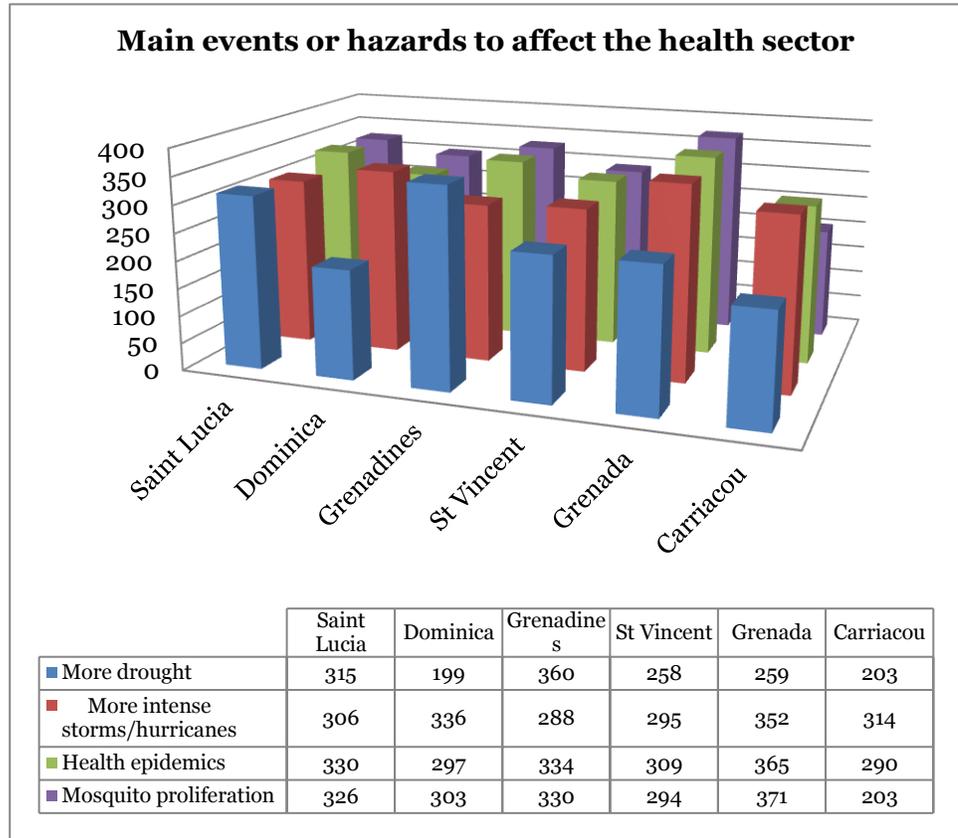
Figure 7: Hazards events most likely to affect health sector

Hazards/Events most likely to affect Health Sector

■ Females ■ Males
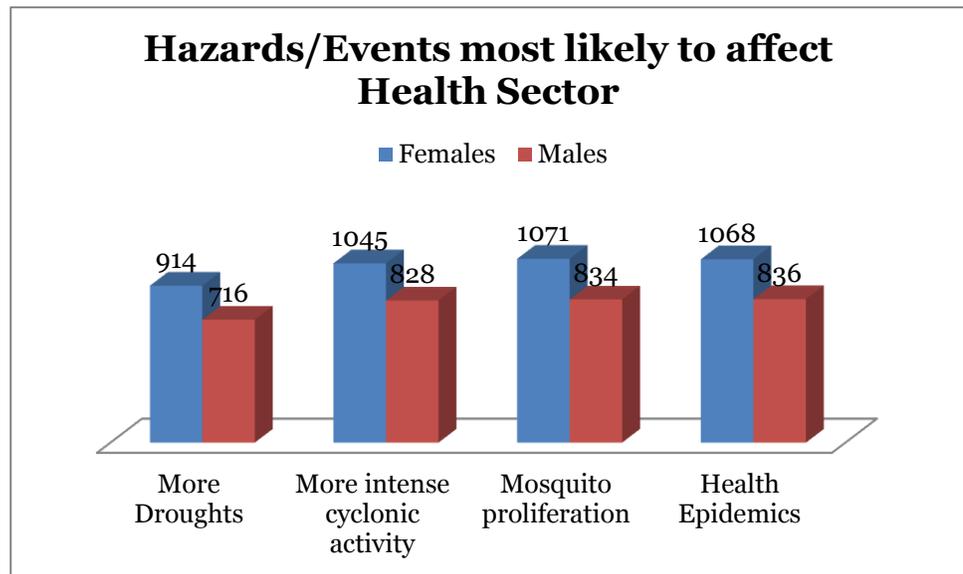
Figure 8: Hazard events most likely to affect the health sector disaggregated by sex

3.3.3 <u>Safety of health facilities</u>

Fifty-seven percent (n=1,335) of the sample population perceived health care facilities in their communities to be unsafe and 41% (n-967) indicated that they would not feel safe in the facility during a hurricane.

Although 57% felt the health care facilities were unsafe, 67% (n=1,567; 55% females and 45% males) believed that governments were primarily responsible for making the facilities in their communities safer and greener (Figure 9).

Responsible for SMARTing Health Care Facilities

	Governments	Donors	Businesses
■ Female	856	48	144
■ Male	698	37	105
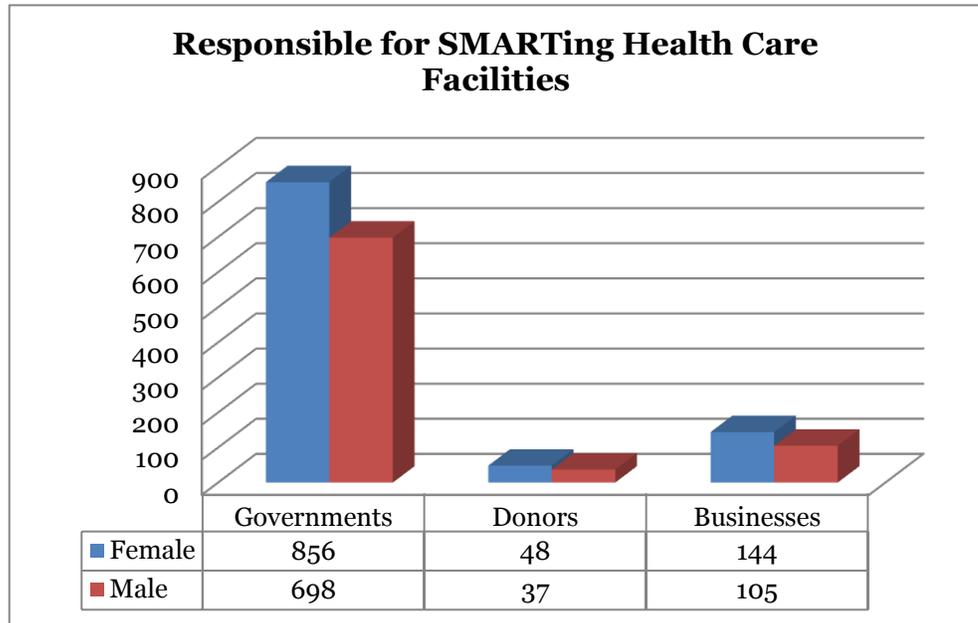
3.4 Behaviours and Practices

3.4.1 Use of public health facilities

Ninety-six percent (n=1,988) respondents indicated that they use public health facilities with the majority of persons choosing to use those located in or in close proximity of their communities. On Carriacou, individuals use Hillsborough Health Center but they preferred to stay within their communities and attend the medical stations in the districts.

3.4.2 Frequency of accessing awareness information on safer health facilities

Seventy-four percent (n=1,745) of the sample population indicated that they read, listen and watch stories on greening, disaster safety measures and climate change while 71% (n=1,694) accessed information on safer health facilities (Figure 10). Of the 571 respondents (255) who frequently access CCA, DRR and safe health facilities information, 53% (n=304) were females and 45% (n=257) were males. Dominica (n=251; 22%) and Grenada (n=236; 21%) had the highest number of residents who routinely sought information on DRR and climate change. The lowest number of respondents accessing this information was in St Vincent (n=133; 11%). Dominica had the highest number of respondents who frequently accessed this type of information (n=149) whereas St Vincent had the least (n-21).

Access information on DRR, Greening or Climate Change

■ Frequently ■ Occasionally
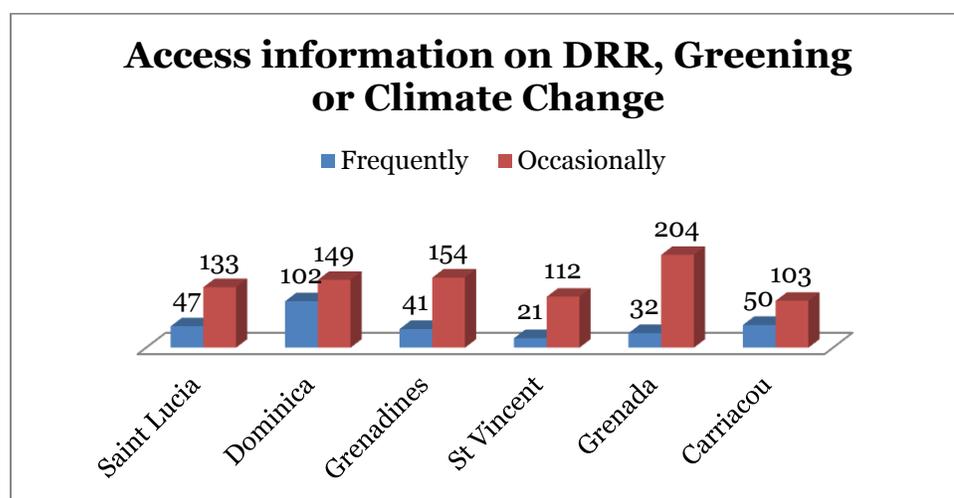
Figure 10: Sample Distribution based on accessing DRR and CC information

3.4.3 Household behavioural practices

Respondents identified several behaviours that they practice at home that can help to reduce the carbon footprint of their countries and enhance overall resiliency. Energy conservation behaviours were practiced most as indicated by:

- 2,140 (934 males and 1,206 females) turning off lights or unplugging appliances when not in use
- 1,845 (814 males and 1,031 females) using energy saving bulbs
- 1,302 (563 males and 739 females) using energy saving appliances
- 1,707 (768 males and 939 females) sorting and recycling waste

	Turning off lights or unused appliances	Sorting and recycling waste	Using energy saving bulbs and appliances	Harvesting rainwater	Installing solar panels/water heaters
Male	934	768	1377	681	275
Female	1206	939	1770	846	317
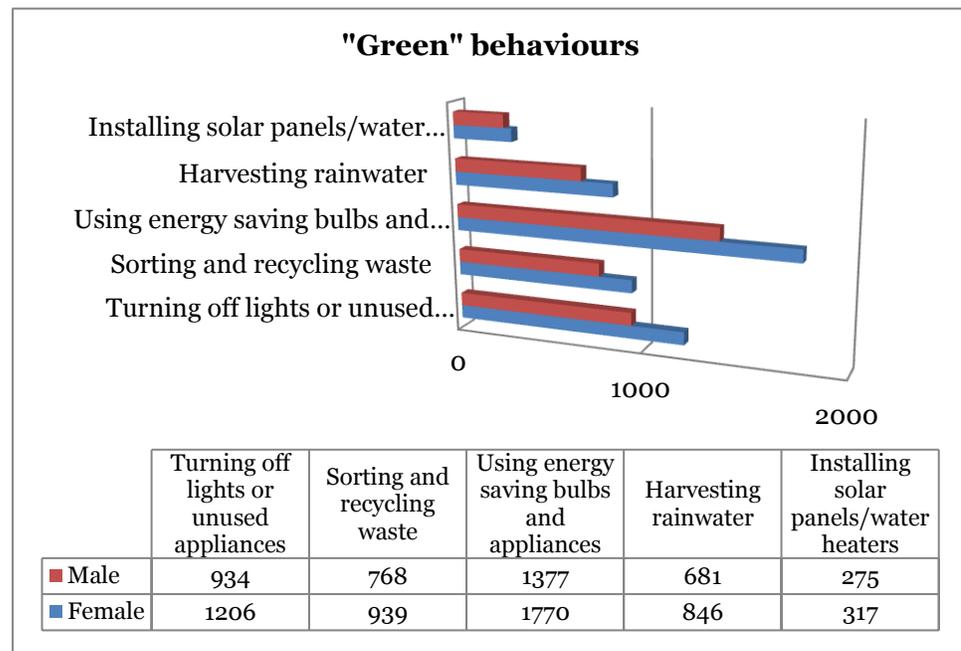
Figure 11: Sample Distribution based on "Green" behaviours and practices

3.5 Information Channels and Sources

3.5.1 Sources of information on greening, disaster safety measures and climate change

Six channels were identified by respondents as the channels used to access DRR and CC information. The diversity of the sample population's responses is provided in Figure 12. The Internet was identified as the one of the main sources in Saint Lucia (n=251) and Grenada (n=179) whereas television was listed as the primary information channel in St Vincent (n=257), Grenada (n=318) and Carriacou (n=259). Friends and family were listed as the main source of information in Dominica (n=194).

Main Information Sources

	Saint Lucia	Dominica	Grenadines	St Vincent	Grenada	Carriacou
■ Websites/Internet	251	188	179	159	259	137
■ Social Media - Facebook	147	115	166	180	156	103
■ Friends/family	122	194	173	80	115	202
■ Television	190		161	257	318	259
■ Newspaper	105		133	210	239	220
■ Radio	148		138	143	161	82
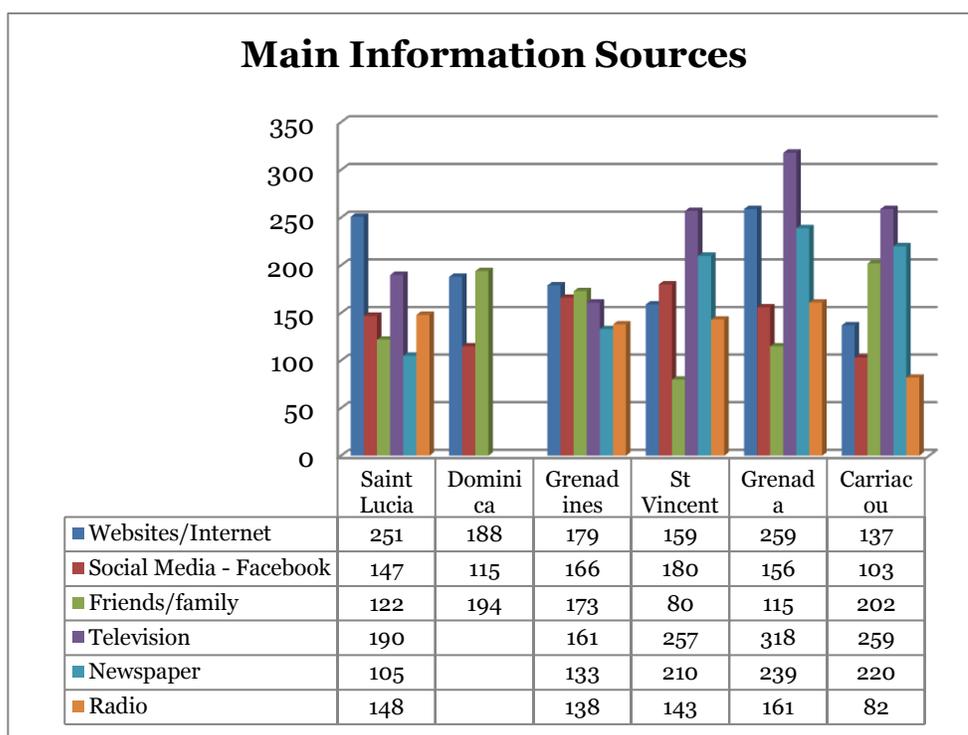
Figure 12: Sample Distribution of main information sources (by location)

Figure 13 provides sex-disaggregated data for the top three information sources used by respondents to get information on DRR and CC. Although Facebook was listed as the third choice for DRR and CC information, the greatest variance was reported in its use by males and females with 57% more females than males using Facebook.

Top 3 Information Source by gender distribution

	Television	Internet	FaceBook
Female	476	327	196
Male	368	284	125
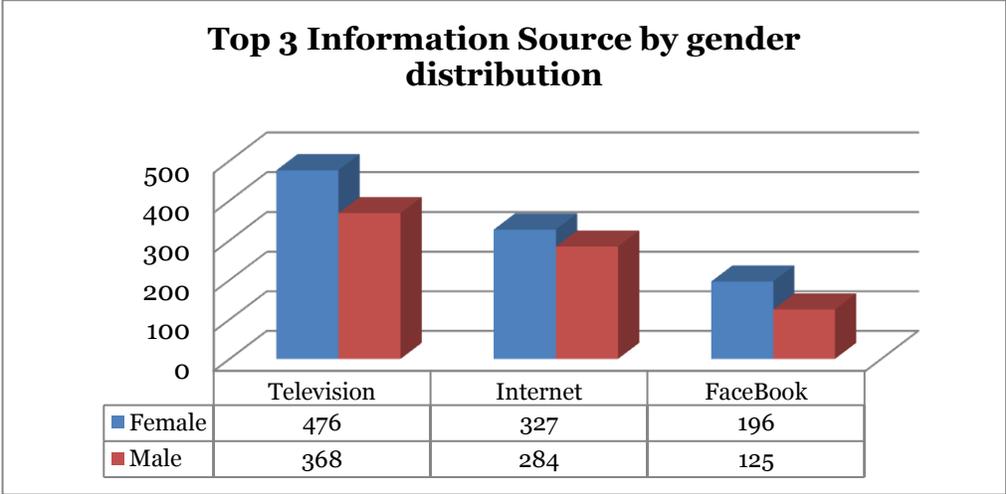
Figure 13: Sex disaggregated data for top 3 information sources

4.0   ANALYSIS OF FINDINGS

Results from the baseline KAP study showed that community members had a good knowledge of the main hazards that affect their community as well as those that frequently impact the health sector and health care facilities. On the contrast however, awareness of Climate SMART buildings, including SMART Healthcare facilities, was very limited and was consistent in the responses from both males and females.

Within the sample population those individuals who could accurately describe the components of a SMART healthcare facility lived primarily on Carriacou. This suggested that significant work must be done urgently to ensure that awareness of the project moves from the policy level to be more community focused where the facilities are located. Such an approach allows residents to embrace the benefits of the project and meaningfully contribute to protecting and sustaining the investment.

Respondents' perceptions on how climate change is generally being addressed in their respective countries and the health sector in particular send a signal to the entities responsible for health at the national level of the need to both increase the number of initiatives as well as enhance public awareness of the existing interventions. Residents generally felt that although initiatives were implemented within the country not enough was being done in the health sector or for health care facilities. This was reflected in the belief that health care facilities were unsafe and that governments were primarily responsible for ensuring that health care facilities were safe and green.

Juxtapose the residents' beliefs that governments are responsible for climate smarting the health care facilities in the communities with the behavioural practices that they already undertake in their homes and their commitment to reduce the country's carbon footprint is evident. Efforts should be taken to capitalize on these behaviours especially those related to energy conservation, recycling and rainwater harvesting.

The Center for Research and Outreach (REACH) from the University of Minnesota (2015) noted that targeted multiple public awareness campaign messages and multiple communication modalities contribute to the effectiveness of public awareness campaigns especially those aimed at changing individual behavous and social norms.   The responses from the sample population give credence to the assertion from REACH given the number of information channels identified by respondents as sources where they accessed DRR and CC information. Although six different information sources were listed there was such diversity within the sample that no one-size fits all standardized public awareness campaign can be used.

4.1   Implications of findings

The results suggest that respondents related the emerging concept of SMART to energy conservation which could be attributed to the work being done in the country by the Energy Units and interest by Eastern Caribbean countries in exploring thermal energy options. To maximize on the project intervention, reduce possible duplication of effort and to enhance the return on investment, there is a need to develop and/or strengthen collaboration with Ministry of Health, Climate Change Focal Points, National Disaster Officers and Energy Units.

With an enhancement of the public relations element of the project and the start of the retrofitting works at the health facilities, awareness of this relatively new concept of "SMART = Safe + Green" will be increased.

There is also an opportunity for possible adaptation by sectors other than health. Such efforts have already been initiated in The Virgin Islands with the Department of Disaster Management and the Ministry of Education using the concept to create a SMART School programme. This initiative allows students to receive a holistic student-centered education in a safe and resilient environment that can withstand the impact of hazards and climate change while keeping operational costs to a minimum.

A resilient health care and education sector is vital to the functioning of society in the face emergencies and disasters caused by natural and human-induced hazards. In a region that is prone to natural hazards, these critical sectors will need to be prepared to function under adverse conditions and all must be done to promote and educate the population of the need to incorporate safe, healthy and green practices in their everyday lifestyle activities.

Considering the resilience building work being done in other sectors such as agriculture in Barbados, financial services in the Cayman Islands and tourism in Anguilla, there is potential for national consultations to be held in these countries to expand the ongoing sectoral work to include various elements of the SMART concept.

4.2   Limitations of the study

Consecutive sampling was used for this study as it allowed all available participants, who meet the inclusion criteria, to be included in the study. Possible self-selection bias was the major limitation because the factors that drive persons to participate in the study are unknown

4.3   Recommendations for enhancing the project's public awareness strategy

The public relations strategy for the project targeted interventions at four main groups namely health care workers, users of the facilities, climate change and sector stakeholders as well as technical stakeholders who would assist retrofitting the facilities.

Specific public awareness/education interventions included:

1. Health care facility user awareness and occupancy survey
2. Web publications and press releases
3. Case studies
4. HSI and Green Checklists training
5. Contingency Planning for Small and Medium health care facilities
6. Energy conservation public awareness products
7. Training for contractor on PAHO's procurement process and bid preparation

Although these interventions saw some measure of success within the specific target groups, the KAP results revealed that information on the project has not tickled down to the community and hence more needs to be done at the community level. Community specific interventions will ensure that residents are not only aware of the project but can provide input into the retrofitting needs of the health care facilities.

A targeted multi-modal public awareness campaign should be developed with products that are suitable for airing on television and radio, printing in the newspaper and posted on the Internet and Facebook. The messaging must be creative in design and bold in execution to persuade behaviour changes and promote smart practices.

Although not included in the KAP questionnaire as an information source, information on the project can be displayed on screens mounted at the various health care facilities and billboards. Additionally footage from the town hall meetings should be formatted to be aired on television, radio and for posting on Facebook and YouTube.

The use of Facebook to promote the project should be continued and an evaluation if its reach and effectiveness should be done within the short-term. Efforts are needed to increase the number of persons viewing the page.

Enveloping the multi-modal public awareness campaign is the need for partnerships to be fostered with the Government Information Service Department, national disaster offices and key radio/television stations in each of the countries to get the unified and consistent message on what is being done to enhance resiliency.

The existing PR strategy should be expanded to include activities that specifically target residents as the KAP study methodology allowed for one-on-one contact with residents. Initiatives that provide opportunities for individuals to have direct face-to-face interaction with the project personnel, government and ministry of health officials should be undertaken as soon as possible to capitalize on the momentum from the KAP study.

An update on the implementation status of the PR strategy is provided in Appendix II.

4.4   Recommendations for future studies

In conducting future studies, consideration should be given to reducing the number of items on the survey instrument and modifying the structure of some of the questions. These adjustments will reduce the burden on the respondents and enhance the response rate.

Health care facilities to be retrofitted must be selected and approved before the KAP study is conducted. Early agreement on the facilities will increase the generalizability of the results so that the finding will be reflective of the catchment areas.

The results of this study should be published for sharing with entities involved in the design and implementation of DRR and CCA interventions in the Caribbean region.

5.0   WAY FORWARD

The findings from KAP baseline study should be presented at the national level to key stakeholders from the ministries of health, national disaster offices and non-government entities involved in disaster risk reduction and climate change, energy units and climate change focal points.   In addition to sharing the findings at the national level, the baseline findings should also be incorporated in the project's monitoring and evaluation framework.

Publishing of the results will also increase visibility of the project and the KAP study findings as the published document would be available and can be accessed through different platforms, international archives and digital repositories.

	SMART HOSPITALS PROJECT KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) SURVEY		
#	**Questions**		**Coding Categories**
Q1	Interview number		
Q2	Interviewer initials		
Q3	Location	Community Name:_____ District:_____	
Q4	Date of Interview (DD/MM/YY)		--- ---/--- ---/ --- --- DD MM YY
Q5	Interview start time (Circle AM or PM)		HOUR: _____MIN: _____AM/PM
	READ: Hello I am working on a study for the Pan American Health Organization (PAHO) SMART Hospital Project. The purpose of the study is to collect information that will help to strengthen health facilities. I would like to ask you some questions about what you know or have observed. Your answers are confidential and cannot be linked back to you. Your participation is completely voluntary and you may decline to answer any specific question or completely refuse to participate. The interview should take about 20 minutes of your time and you will not be contacted in the future. We would greatly appreciate your help in responding to these questions.		
Q6	Are you willing to answer these questions? *IF NO, STOP INTERVIEW		YES 1 NO 2
	DEMOGRAPHICS		
Q7	What is your sex?		MALE 1 FEMALE 2 YES/NO
Q8	Do you have a disability?		YES 1 NO 2
Q9	a. How old were you on your last birthday? b. In what year were you born		AGE IN YEARS: _____ YEAR OF BIRTH: _____ YYYY
Q10	What is your current marital status?		SINGLE 1 COMMON-LAW 2 MARRIED 3 DIVORCED 4 WIDOWED 5 SEPARATED 6 NOT STATED 7 OTHER (SPECIFY):_____ 8
Q11	What occupation **best** describes the main type of work you currently do for a living		SENIOR OFFICER/MANAGER/ LAWMAKER/MEMBER OF PARLIAMENT 1 PROFESSIONAL (ENGINEER, ARCHITECT, PLANNER, DOCTOR, etc.) 2 TECHNICIANS AND ASSOCIATE PROFESSIONALS 3 CLERICAL SUPPORT WORKERS 4 SERVICE AND SALES WORKERS 5 SKILLED AGRICULTURAL, FORESTRY & FISHERY WORKERS 6 CRAFT & RELATED TRADES WORKERS 7 CONSTRUCTION WORKER 8 ELEMENTARY OCCUPATION (VENDOR, CLEANER, GARDENER etc.) 9 HEALTHCARE WORKER 10 TEACHER 11 STUDENT 12 CURRENTLY UNEMPLOYED 13 MEDIA WORKER 14 OTHER (SPECIFY):_____15

Q12	***SKIP THIS IF ANSWER TO Q11 = "CURRENTLY UNEMPLOYED"*** a. Is your job or school located in the community where you currently live?	YES 1 NO 2
Q13	b. How many years have your lived in this community (Give an approximate figure)	_____YEARS
Q14	What is your highest level of education completed	PRIMARY SCHOOL 1 SECONDARY SCHOOL 2 ASSOCIATE/A LEVELS 3 BACHELOR'S DEGREE 4 MASTERS DEGREE OR HIGHER 5 OTHER (SPECIFY) 6
Q15	How many individuals living in your household, including you, are adults (>18yrs) and how many are children (i.e. persons 12 years and under)?	ADULT (S)_____ CHILD(REN) _____
Q16	Which public health facility/facilities do you use?	

KNOWLEDGE

Q17	Have you ever heard the term "Climate Change?" **IF No, proceed to Q20**	YES 1 NO 2

Q18a Which of the following activities do you think contribute to global warming and climate change?

Activity	Yes (1)	No (0)	Not sure (X)
Energy use and power sources			
Agricultural production			
Industrial activities/factories			
Polluting the atmosphere (eg. burning garbage)			
Traffic/motor vehicles			
Deforestation (cutting down trees)			
Carbon dioxide			
Methane			

Q18b Which of the following statements do you think are true about climate change?

Statement	Yes (1)	No (0)	Not sure (X)
It affects weather and climate globally			
It is responsible for more hurricanes and storms			
It causes more drought or flood conditions			
It only affects some places			
It will change temperature and rainfall now and in the future			
It will bring snow to the Caribbean			
It causes coastal erosion and sea level rise			

Q19a	Do you think anything is being done about Climate Change in the a) health sector b) country	Health sector : YES 1 NO 2 Country: YES 1 NO : 2
Q19b	If YES to Q17a, how much do you know about what is being done in the health sector in response to i) Climate Change or ii) natural disasters?	i) A GREAT DEAL 5 A FAIR AMOUNT 4 NOT MUCH 3 ii) A GREAT DEAL 5 A FAIR AMOUNT 4 NOT MUCH 3

		HARDLY ANYTHING 2 DON'T KNOW 1	HARDLY ANYTHING 2 DON'T KNOW 1
Q20	How much do you know about the health sector's risk associated with i) climate change or ii) natural disasters?	A GREAT DEAL 5 A FAIR AMOUNT 4 NOT MUCH 3 HARDLY ANYTHING 2 DON'T KNOW 1	A GREAT DEAL 5 A FAIR AMOUNT 4 NOT MUCH 3 HARDLY ANYTHING 2 DON'T KNOW 1

Q21	Have you ever heard of the term – 'climate smart' building YES 1/ NO 2 **If no proceed to Q23a**

Q22	Which of the following do you think best describes a 'climate smart' building

Statement	**Yes** (1)	**No** (0)	**Not sure** (X)
SMART = ENERGY EFFICIENT or ENERGY SECURE			
SMART = GREEN			
SMART = SAFE			
SMART = SAFE + GREEN			
SMART = HITECH and AUTOMATED OR ONLINE			

			YES likely	**Not likely**	**DON'T KNOW**
Q23a	What events or hazards are likely to affect the health sector?	Increase in Rainfall More drought More intense tropical storms/hurricanes Rising tides/seas Temperature increase/decrease More landslides More flooding Increase in insect pests Health epidemics Mosquito proliferation Earthquakes Volcanoes Tsunami Strong winds Other_____(please specify)			
Q23b	Have you noticed any of the effects listed on Q23a occurring in the last 10 years?		YES 1 NO 2 If yes, list	
Q23c	What do you think poses the greatest risk from list above (choose top 3) to your hospital, polyclinic or health centre?			List

			YES likely	**Not likely**	**DON'T KNOW**
Q24	What do you think will be the most likely impact on the health facility in your community following an extreme disaster event or hazard?	POWER OUTAGE WATER RATIONING or SHORTAGE ROOF DAMAGE BUILDING COLLAPSE FLOODING EXPLOSION OR FIRE CLOSURE			
Q25	Do you think that the health facilities in			YES 1	

	your community are safe from hazards or disasters? Would you feel comfortable in the clinic/facility during a tropical storm or hurricane?	NO 2
Q25a	If YES, what makes them safe?	
Q25b	If NO, what makes them unsafe?	

ATTITUDE		
Q26	**Do not answer this question if answered no to Q17** How concerned are you about the impact of Climate Change on health facilities?	VERY CONCERNED 1 MODERATELY CONCERNED 2 NOT CONCERNED AT ALL 3 DON'T KNOW/NOT SURE 4

			Not important	Moderately important/	Very important	Don't know
Q27	Do you think any of the following will help health facilities to deal with current or increasing disaster risks?	• Reduction in energy usage • Energy efficient measures • Generators • Increased public awareness • Improved pest management • Increased surveillance • Early warning systems • Water harvesting • Public Education • Improved storage • Observing building codes • Hurricane straps • Financial resources • Insurance • Disaster Management Plans				

Q28	State your level of agreement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't Know
	Health facilities need to <u>urgently</u> be made safer to withstand the impact of hazards						
	I am willing to pay a little more to support safer and greener health facilities						
	There is nothing we can do about climate change or disasters because it is an act of God.						
	There is nothing we can do to make health facilities safer						
	There are new job opportunities to help deal with safety or green improvements in buildings?						

Q29	Who in your opinion is mainly responsible for making health facilities Safer or greener?	GOVERNMENT 1 BUSINESSESES/INDUSTRY 2 PRIVATE CITIZENS 3 INDUSTRIALIZED COUNTRIES 4 DONORS 5 ALL OF THE ABOVE 6 OTHER (SPECIFY) _____ 7

Q30	What can be done in your opinion to make the Health Facilities safer or greener?	Factor	Yes (1)	No (0)	Not sure

				(X)
	Increase in knowledge			
	Greater commitment/Interest from authorities			
	Increase in external assistance			
	Greater support from community members			
	Other-specify:			

PRACTICES

Q31	Which of the following do you practice at home or which actions have you taken in your household?			
	Behaviour	**Yes** (1)	**No** (0)	**Not sure** (X)
	Turn lights off when not in use/unplug unused appliances			
	Manage waste by sorting			
	Recycling waste			
	Car pooling			
	Taking bus rather than driving to work			
	Using fluorescent/energy saving light bulbs			
	Using low energy appliances			
	Rainwater harvesting			
	Using hurricane straps			
	Installing hurricane shutters			
	Installing solar water heater/panels			
	Preparing a family disaster plan			
	Installing a disability access ramp			
	Installing fire extinguishers or getting them serviced			

Q31	What has been done to **prevent** or **lessen** the risks on health facilities in your country from damage or operation after a disaster? 1. By you 2. By your Community 3.By your Government	
Q32	How often do you read/listen to/watch stories on 'greening' or disaster safety measures or climate change?	FREQUENTLY 1 OCCASIONALLY 2 INFREQUENTLY 3 NEVER 4 DON'T KNOW/NOT SURE 5
Q33	How often do you read/listen to/watch stories on safer health facilities?	FREQUENTLY 1 OCCASIONALLY 2 INFREQUENTLY 3 NEVER 4 DON'T KNOW/NOT SURE 5
Q34	Where do you get your information from?	TELEVISION 1 RADIO 1 NEWSPAPERS 1 WEBSITES/INTERNET 1 SOCIAL MEDIA – TWITTER 1 SOCIAL MEDIA – FACEBOOK 1 SOCIAL MEDIA – INSTAGRAM 1 COMMUNITY GROUPS 1 LECTURES/WORKSHOPS 1 PAMPHLETS/BROCHURES 1

		POSTERS	1
		VIDEOS	1
		SCHOOLS	1
		FRIENDS/FAMILY	1
		FAITH-BASED ORGANIZATIONS	1
		GOVERNMENT	1
		MAILINGS	1
		CELL PHONES/SMART PHONES	1
		I GET NO INFORMATION	1
Q35	Which of the following do you consider the top three for providing information to you on smart (safety and green) buildings?	TELEVISION	1
		RADIO	1
		NEWSPAPERS	1
		WEBSITES/INTERNET	1
		SOCIAL MEDIA – TWITTER	1
		SOCIAL MEDIA – FACEBOOK	1
		SOCIAL MEDIA – INSTAGRAM	1
		COMMUNITY GROUPS	1
		LECTURES/WORKSHOPS	1
		PAMPHLETS/BROCHURES	1
		POSTERS	1
		VIDEOS	1
		SCHOOLS	1
		FRIENDS/FAMILY	1
		FAITH-BASED ORGANIZATIONS	1
		GOVERNMENT	1
		MAILINGS	1
		CELL PHONES/SMART PHONES	1

PR PLAN UPDATE

TARGET GROUP	PROPOSED CAMPAIGN FOCUS AND ACTIVITIES	DELIVERY	STATUS
a) health workers and users of the facilities	To support baseline data collection	HSI and Green Checklist Training 1. SVG: 11-13 November, 2015 2. Grenada: 16-18 September, 2015 3. Saint Lucia: 4-6 November, 2015 4. Dominica: 7 – 9 Dec 2015 5. Guyana: 29th August – 1st September, 2016 6. Belize: 13-16 August, 2016 7. Jamaica: 11-14 October, 2016	Training has been completed in all countries except Kingston, Jamaica scheduled for end of November 2016
	To improve the Functional Scores identified in the HSI – Development of a course on Contingency Planning for Small and Medium Sized Health Care Facilities	The pilot course was held in SVG from 22-24 August, 2016 and there were 22 participants present. At least 2 representatives from each of the 8 facilities. Planned Courses: 1. November 21st – 23rd in Saint Lucia 2. November 29th to December 1st in Dominica 3. December 5th to 7th in Grenada	All 8 plans have been developed and submitted to the MOH in SVG and are now being reviewed. It is expected that with the training offered, the plan development, the awareness brought about as a result of the workshop and the interaction with the project staff the Functional scores will increase significantly in all health care facilities
	Satisfaction Surveys	Administration of Surveys by CS for all facilities to be retrofitted	Surveys have been applied in all Showcase Facilities to date. The results indicate that there are some aspects of the design that are best captured from consultation with the users of the facility, especially issues related to functionality, air quality and access.
b) other sectors and climate change platforms or programmes;	Preparation of PR Products on Energy Conservation and training with regional partners.	OECS developed energy conservation posters for use by the project stakeholders. Training in Conservation Plan development was also delivered by the OECS Team for participants in Saint Lucia Draft Energy and Water Conservation Templates developed and applied for the showcase facilities Town Hall Meeting: the first meeting is expected to be held in SVG at the Chateaubelair Hospital on 21st October, 2016	Posters have been shared and are available on the project Facebook page for download The training provided by OECS has allowed for the development conservation templates which are now being populated for the showcase facilities.

TARGET GROUP	PROPOSED CAMPAIGN FOCUS AND ACTIVITIES	DELIVERY	STATUS
c) technical stakeholders (construction, engineering; architects etc)		To introduce the project and to expose them to the PAHO procurement rules and guidelines and to encourage them to express their interest in participating as a contractors for the retrofitting phase of the project. Local Contractors Training: SVG – 13-14 May2016 Grenada – 10 – 11 June 2016 Saint Lucia – 24 – 25 June 2016 Dominica – 3 -4 June 2016	The training offered to the contractors has allowed for them to become aware of the project scope and has encouraged their enrollment in the United Nations Global Marketplace (UNGM) to support the design and construction aspects.
d) national, regional and international media	Poster, banner, image for t-shirts (uniforms for project staff) and flyers Social Media Articles/Press Releases Case Studies	PR products: 1. Poster – Project image, aim and expected results 2. Poster – Save Energy: Ventilation and Cooling (supported by OECS) 3. Poster – the SMART Standard 4. Poster – Save Energy: Lighting (supported by OECS) 5. Standing banner - Providing safer, greener health facilities to deliver care in disasters 6. Flier – Project description 7. T-shirts (produced in Phase I) 8. Town Hall Meeting promotions – flyers, audio, video and print promotions Press Releases: 1. PAHO Announces start of Phase II of SMART Health Care Facilities Project 2. Baseline Assess and Training Commences in Priority Countries through the SMART Hospitals Project 3. PAHO seals agreement with UKAID for addition funding to make health facilities SMART Articles on the SMART project were included in the 2015 edition of the BVI DDM Disaster Digest magazine. The titles of the articles are as follows: • 10 Years After Ivan: Grenada Focuses on Making its Hospitals Safer • A Study of the Caribbean Health Services Resilient to Impact of Emergencies and Disasters Project in Grenada and St. Lucia • Addressing Vulnerabilities in the Health Care Sector • PAHO Enters Phase II of Smart Health Care Facilities Project	The project is being promoted nationally, regionally and internationally and has increased awareness about the project, its goals and the expected outcomes. It has also allowed for the adaptation of the concepts into the Education Sector and interest by other countries.

TARGET GROUP	PROPOSED CAMPAIGN FOCUS AND ACTIVITIES	DELIVERY	STATUS	
		• SMART: An approach to Integrating CDM into the Accommodation and Food Services Sector Several online stories promote the Project including the Dr. Etienne's recent visit to the Georgetown Smart Hospital in February. Dedicated Facebook Page established to promote the project A display booth was set up at the CDEMA CDM Conference in the Bahamas in December 2015. The display won 3rd place. Case study on the SMART Concept application in the Education Sector in the BVI		