



KNOWLEDGE, ATTITUDES & PRACTICES STUDY
ON CLIMATE CHANGE ADAPTATION &
MITIGATION IN GUYANA



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BY DR STACY A. A. HOPE

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ACRONYMS

CARICOM – Caribbean Community

CI-Guyana – Conservation International Guyana

COP12 – 12th meeting of the Conference of the Parties to the Convention on Biological Diversity

CRSAP – Climate Resilience Strategy and Action

ERP – Emissions Reduction Programme

FGDs – Focus Group Discussions

GEA - Guyana Energy Agency

GOG – Government of Guyana

GOJ – Government of Japan

GWI – Guyana Water Incorporated

ITCZ – Inter-Tropical Convergence Zone

J-CCCP – Japan-Caribbean Climate Change Partnership

KAP/B – Knowledge, Attitudes and Practices/Behaviour

KII – Key Informant Interviews

LCDS – Low Carbon Development Strategy

REDD+ - Reducing Emissions from Deforestation and forest Degradation

NAMAs – Nationally Appropriate Mitigation Actions

NAPs - National Adaptation Plans

OCC – Office of Climate Change

PCN – Project Concept Notes

UNCSD - United Nations Commission on Sustainable Development

UNFCCC - United Nations Framework - Convention on Climate Change

UNDP – United Nations Development Programme

EXECUTIVE SUMMARY

INTRODUCTION

The overarching rationale behind this KAP Survey is to address climate change awareness and education. In addressing sustainable climate change adaptation, mitigation and disaster risk programming it is vital that where there are significant gaps in knowledge, attitude and behavioural practices amongst Guyanese, measures on how to instil best practice and understanding must be highlighted. Hence, this study hopes to

1. explore the Guyanese knowledge and perceptions of climate change;
2. identify the ways in which Guyanese explain the causes of their changing weather, and the impact that such changes have on their lives;
3. investigate the barriers to responding to climate change among individuals and communities and within local, provincial and national government;
4. assess respondents' media consumption patterns and preferences; and
5. inform recommendations on the best methods of communicating to the Guyanese public on climate change.

METHODOLOGY

This study was conducted using both qualitative and quantitative methodologies. However, the quantitative methodology provided the main instrument for this study.

For the quantitative component, two structured surveys were developed and administered in four of the ten administrative regions of Guyana over a fifteen-day period between 3 – 24 October 2016.

The study areas for this research were Regions 4, 5, 7, and 9. More specifically, the communities of Luisignan, Good Hope and Sophia in Region 4, Bushlot in Region 5, Bartica in Region 7 and Nappi and Parishara in Region 9 were surveyed on their knowledge, attitudes and practices towards climate change. A total of 714 questionnaires were administered, with 514 general surveys and 200 student surveys being compiled.

The qualitative research included interviews with key stakeholders within the discourse of climate change and focus groups comprising of members from the communities surveyed. The focus groups contained 6-10 respondents and were divided into general community members, women and girls, farmers and fishermen and businesses. There were a total of five focus groups across all four regions. There were some challenges encountered with the survey instrument. The coding of data from one software to the next posed unexpected problems due to compatibility. This meant that data had to be reentered into the statistical software, which proved time consuming. The length of the original survey meant that an appropriate sample would not be met, so a shorter survey was devised and administered instead.

FINDINGS

87 percent of respondents agreed to some degree that climate change was occurring. Whilst 12 percent had no opinion on the topic.

49 percent of respondents stated that they understood what climate change meant. More women stated 'yes' when asked if they understood climate change. Only 5 percent (n=24/514) stated that they did not understand.

505/514 respondents stated that they believed climate change existed. Only two attributed the changes to the environment to God, and seven women stated that they did not know the answer to the questions.

88 percent of respondents stated experiencing disasters within the last 15 years, with 77 percent attributing this experience to rainfall, 14 percent to rising sea levels and 15 percent to droughts.

80 percent of general respondents stated that they understood the causes of climate change, with 30% stating it is caused by deforestation, 26 percent attributed it to carbon emissions and 25 percent to the burning of fossil fuels.

In comparison, 73 percent of all students (N=200) attributed this to the burning of fossil fuels, 63 percent to carbon emissions and 43 percent to deforestation.

The most common effect of climate change cited was the increase in temperatures (84 percent).

Of respondents who experienced natural disasters (n=450), 74 percent experienced some type of loss. From this cross-section, 64 percent suffered damage to their property, 28 percent experienced loss of income, 19 percent lost agricultural production and 4 percent experienced loss of livestock.

Of members in the goods and services sector (n=228), 63 percent stated that they had damages to their property and 27 percent suffered loss of income.

56 percent of respondents were hopeful that something could be done about the impending threats posed by climate change, whereas 20 percent stated that they were fearful.

Amongst students, 49 percent stated that they were hopeful and 31 percent were fearful.

69 percent of general respondents stated they adapted in one or more ways to climate change.

Showing Regional Adaptation Activities to Climate Change

What have you done already to adapt to climate change?	Region 4	Region 5	Region 7	Region 9
planted mangroves	2%	1%	3%	0%
planted trees	15%	17%	14%	11%
stopped cutting mangroves and trees	2%	3%	1%	5%
maintained vegetation	13%	13%	14%	11%
built/fixed sea walls	0%	0%	1%	1%
built wells and other water resources	2%	1%	2%	31%
cleaned or helped to maintain public drainage systems from waste	26%	24%	23%	0%
turned off lights when not in use (energy efficiency)	8%	6%	7%	0%
turned off water when not in use	6%	5%	5%	0%
built or helped to build green spaces, such as parks or gardens	0%	0%	0%	12%
stopped/reduced time taking car or bus and walked or cycled	0%	0%	0%	0%
not litter even when bins are not available	6%	4%	8%	0%
nothing	21%	25%	20%	8%
I do not know/remember	0%	0%	0%	0%
other (specify)	0%	1%	0%	21%

Of the 355 respondents who stated that they adapted to a natural disaster, 74 percent (n=264) stated that they had to make their homes more resistant to floods.

Regions 4, 5 & 7, showed the same trend when looking at the most effective channels for delivering information. These were mobile phone for calls and text messaging, followed by the local television and then the radio. This is based on respondents using these technologies daily and/or 3-6 times a week.

In Region 9, however, as locals who have televisions rely on satellites from Brazil, more than half of the respondents from the region (57 percent) stated that they never watched local television. For the communities in this region the most effective channels for delivering information have been via radio (46 percent) and mobile phone (57 percent). 40 percent stated that they texted daily.

When asked the medium through which they have heard of climate change the majority of students (62 percent; n=61/98) in St Ignatius stated that they have learnt the most about the topic through school (62 percent), whereas 68 percent of Bartica Secondary students (n=19/28) and 60 percent of Three Miles Secondary students (n=44/74) stated the same. Around 69 percent of students attending Three Miles Secondary stated that they had learnt this through the television.

RECOMMENDATIONS

A recommendations matrix was devised to highlight those actions needed to be taken to develop a sustainable climate change awareness strategy. The table below summarises the Consultant's recommendations.

Context	Recommendation
There is relative understanding of climate change, however respondents asked for more access to information	Increase communication tools for helping public understand climate change
Engage Media in appropriate communication strategies for communicating climate change.	Increase understanding of the scientific basis for global climate change
Increase access to vulnerable and marginal populations	Open access to information on global climate change to non-English speakers
	Improve public communication
	Improve children's understanding on climate change
Most respondents experienced at least one extreme weather event, yet more than a third did not receive information prior to it occurring. Respondents stated that they would use information to prepare themselves	Increase the number of people receiving information before the event
Lack of technology for immediate alerts	Develop technology to facilitate alerts on unusual weather patterns, and risks to communities
Students felt that they were left out of the discourse of climate change and felt that they could be part of the dissemination and culture change process	Increase number of programmes for students to engage with and disseminate information on climate change
National initiative that remains a constant within Guyana climate change agenda	Public Awareness Day
People are uncertain whether the changes to weather are long term. 37% of students stated that climate change would affect Guyana in the future, whilst 19% stated that it would affect both now and in the future, whereas 39% stated that climate change was something we had to worry about now. Their comments suggest that there needs to be more understanding as to the long-term impacts, and not just the short-term measures.	Increase awareness that climate change has both long- and short-term impacts
Key informants from industry, NGOs and national government have indicated that successful responses to climate change have been developed and implemented (e.g. Green Bartica Climate Change Awareness)	Build on success stories of national awareness strategies as it pertains to climate change.
Giving Guyanese ownership of the technologies that they use to adapt to climate change has the potential to provoke cultural change.	Promote green technologies, inventions and responses developed by Guyanese for Guyanese
As many respondents depended on local community members for information on the goings-on within their community, it appears that these very influential individuals could play a key role in not only the dissemination of information, but also in communicating adaptation strategies.	Capitalise on local celebrities and influential figures
Key stakeholders highlighted that in understanding how they could work towards climate change adaptation they needed to understand what were some of the best practices.	Showcase diversity of issues across the country and globally

<p>During the focus group discussions, a common theme as to why information on climate change had not been retained had to do with how unfamiliar a lot of the terms were. They felt that if people communicated information on climate change in a way that was not only familiar but innovative (and exciting) they would retain the information more.</p>	<p>Ensure information on climate change and adaptation strategies offer familiar messages and imagery.</p>
<p>Most of the respondents in flooded zones who only stated that the rise in temperatures is the future effect of climate change in Guyana might have stated this due to the present dry season. If it were the rainy season, one might assume that their response would've been that they the future effect was more rains and flooding. As climate change issues are most likely to be raised in people's minds during times of extreme weather, it is important to utilise the seasons to communicate seasonal events.</p>	<p>Alongside year-round campaigns, focus on seasonal weather events during specific seasons</p>
<p>The Survey showed that respondents of Region 9 were interested in having pamphlets and posters (45%) to help them address climate change issues.</p>	<p>Develop Pamphlets and Posters</p>



INTRODUCTION

Background

The Caribbean has endured the mounting threat of climate change for the last several years. With low defences, Caribbean countries have become vulnerable to significant coastal damage, such as beach erosion and infrastructure damage caused by rising sea levels and the raging surfs of hurricanes and tropical storms. Inadvertently, other threats become evident such as loss of biodiversity, degradation of forests and farmlands, and lack of viable water resources (Scott 2012). At the same time, these Caribbean states are working towards adaptation, mitigation and disaster risk reduction spurred on by climate change. However, the region has been marred by significant problems, which has prevented Caribbean nations from making steady progress.

As Caribbean economies are reliant on natural resources, such as agriculture and tourism, they become much more vulnerable to the temperament of global economic shifts, natural disasters and environmental risks (IIED 2013: 8). However, with limited and overexploited resources, Caribbean nations must endure further economic and development volatility which governments are struggling to address.

In a bid to combat the potential irreversible damage climate change can inflict upon vulnerable countries, the Government of Japan has delivered development assistance from October 2009 to December 2012 for mitigation and adaptation to the total of \$17.6 billion. As the Government of Japan intends to continue its endeavours, they see it important to move forth by establishing a new regional assistance programme to help Small Island Developing States within the Caribbean/CARICOM region in the area of climate change under the framework of the Partnership for Peace, Development and Prosperity between Japan and the Member States of the Caribbean Community (CARICOM)¹.

One such partnership is the Japan-Caribbean Climate Change Partnership, which is being implemented by the United Nations Development Programme (UNDP) and funded by the Government of Japan (GoJ). This partnership aims to implement climate initiatives to support the beneficiary countries in designing and implementing climate initiatives. Eight CARICOM countries are poised to benefit from the Partnership: namely Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, and Suriname. The Partnership document between the GoJ and the CARICOM was signed on the margins of the first ever Japan-CARICOM summit in July 2014.

The main objective of the Japan-Caribbean Climate Change Partnership is to “support countries in advancing the process of low-emission risk-resilient development by improving energy security and integrating medium to long-term planning for adaptation to climate change.”² In the pursuit of this objective, the initiative will support policy innovation through the development of a number of Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Plans (NAPs) that will help guide Caribbean countries towards a green, low-emission and climate-resilient development pathway. The initiative will also encourage policy innovation for climate technology incubation and diffusion. By doing so, the Partnership aims to ensure that barriers to the implementation of climate-resilient technologies are addressed and overcome in a participatory and efficient manner. As a result, concrete mitigation and adaptation will be implemented on the ground, in line with the countries’ long-term strategies. The programme will strengthen institutional and technical capacities in selected countries for iterative development of comprehensive NAMAs and NAPs that are country-driven, and based on existing national/sub-national development priorities, strategies and processes. Each

1 http://www.mofa.go.jp/region/latin/caricom/mc_1009/psp.html

2 Taken from the J-CCCP.2016 TOR See Annex 1

country will be able to tailor the specific assistance it will receive as informed by its priorities and needs.

Guyana Context

Guyana is located within the equatorial trough zone, which causes its climate to be predominately determined by the seasonal variance of the Inter-Tropical Convergence Zone (ITCZ)³. As a result, rainfall patterns traditionally occur across a four season weather pattern, which are divided into wet and dry seasons. In a calendar year the wet seasons occur between April to July and November to January, whereas the dry seasons occur February to April and July to November. However, in recent years these changes in season are not as predictable as they once were.

There are many weather systems that influence Guyana's climate beyond the ITCZ, which is determined by the Northeast and Southeast Trade Winds. The country is also affected by tropical waves during hurricane season in the Caribbean, which causes an increase in the amount of rainfall, often causing the first wet season to be pushed into the second dry season (ibid. 14).

With a population of approximately 767,000, Guyana's inhabitants mostly inhabit the coastal region which is approximately 0.5 to 1 metre below mean sea level, and which is the most vulnerable to the impacts of heavy rainfall. The drainage system, which uses a gravity based system, is under increasing pressure and as the sea level rises the system's ability to cope with the heavy rainfall the region experiences flooding.

It is also in this region that the majority of the country's economic activities—namely agriculture and services—operates, with approximately 90 percent of the country's 25,000 farm households working 140,000 ha. In 2015, agriculture, mining, forestry, and fishing accounted for 28 percent of Guyana's GDP, with sugar, rice, gold, bauxite and timber accounting for 83 percent of exports (Ministry of Finance, 2016). Agriculture, gold and bauxite, and the country's gross domestic product (GDP) reflecting this, with sugar, rice, mining, primarily gold and bauxite, and timber. These sectors, along with the growing services industry, have also contributing to the significant rise in GDP per capita from US\$1,905.56 in 2006 to US\$4,090 in 2015 (World Bank 2016).⁴ However, although the economy grew, the real GDP growth decelerated due to a collapse in commodity prices, as well as risks posed to the agricultural sector by droughts.

With most of Guyana's agriculture, 75 percent of the main economic activities and more than 90 percent of Guyana's residents concentrated along the coastland, the country is particularly vulnerable to sea-level change and extreme weather-related events, most notably to flooding, which caused severe disruption in 2005 when the country experienced the highest level of rainfall since 1888 (Nachmany 2015: 3). The 2005 flood, which was concentrated around the most populated regions of Guyana, affected approximately 37 percent of the population, and resulted in outbreaks of leptospirosis and other water-borne. Hence, a major concern is that climate change will cause increases in the frequency and severity of such events. Other such events have included:

- Increase in the severity of droughts and intensity of floods
- Loss of crop yields from inundation and salinization due to high tide
- Decrease in yield of crops due to increase in temperature
- Increase in vector-borne and water-borne diseases (Institute of Medicine: 2008)

Further analyses have projected that climate change in Guyana may be reflected in temperatures increasing to temperatures up to 4°C or a rise in sea levels of up to two feet.⁵ Added to this, Guyana's dependency on its agricultural sector, e.g., within its economic strategy is exposed to the impacts of

³ World Bank http://siteresources.worldbank.org/EXTTOOLKIT3/Resources/3646250-1250715327143/GN4_Annex2.pdf

⁴ World Bank Country Overview – Guyana <http://www.worldbank.org/en/country/guyana/overview#1>

⁵ Climate Change Information, Available: <http://www.lcds.gov.gy/index.php/documents/climate-change-information/understanding-climate-change/8-climate-change-projections/file>

climate change, such as low yields spurred by both flooding and extended dry periods.

Noted in September's Economic Bulletin, the agricultural sector has been affected by El Niño, reflected in the considerably lower yields in both sugar and rice productions. As of August 2016 rice production amounted to 269,338 tonnes compared to 360,727 tonnes from August 2015. Using the same timeframe, sugar came down to 61, 884 tonnes from 96,491 tonnes due to late sowing (Ministry of Finance 2016: 4).

To address these issues, the Government of Guyana has placed the responsibility of managing issues of climate change into the Office of Climate Change (OCC). The OCC's purpose is to support work on climate adaptation, mitigation and REDD+ by aligning and coordinating efforts by multilateral and NGOs assisting in the country's climate change agenda. Most notably, the OCC co-ordinates ongoing national consultations on the country's Low Carbon Development Strategy (LCDS).

Guyana has engaged with the climate change discourse since signing the United Nations Framework Convention on Climate Change (UNFCCC) (1992) in 2002 and amendment (2012), and most notably the Low Carbon Development Strategy (LCDS) vis-à-vis an agreement with the Government of Norway. This agreement has committed Norway to provide Guyana with up to \$250M by 2015 for the conservation of forests and to ensure that deforestation is avoided. The terms of this agreement depend on the country's ability to deliver these results. More recently, the Government of Guyana has put forth an integrated and holistic approach to addressing the country's climate change challenges, which will transform the LCDS into a national economy-wide policy.

Currently, LCDS identified a number of priority projects to support Guyana's transition to a low carbon economy. The first set of projects addresses eight key areas: Amerindian development, Amerindian Land Titling, Renewable Energy, expanding the digital economy and avoiding a digital divide; support for micro and small enterprises (MSEs); development of a centre for biodiversity research; climate resilience and adaptation; and Monitoring, Reporting and Verification of deforestation. For the second set of projects (2013-15), climate resilience, adaptation and water management; supporting high potential low carbon sectors; hinterland and Amerindian development; a centre for biodiversity; and a clean transportation programme are highlighted in the strategy.

It is no surprise that adaptation is seen within the LCDS as an important tool for reducing risks and building local capacity and resilience. The Government's adaptation systems will involve planning for the resilience of communications networks and public health during extreme weather-related events, such as ensuring the provision of clean drinking water. Finally, in terms of behaviour and attitudes, the LCDS aims to encourage management of, and wider insurance against, climate risk across the country.

Guyana has pledged its commitment to meeting performance targets towards lowering emissions through the Paris Agreement. In doing so, the country poses to further pursue its low-carbon strategy to reflect one that veers towards achieving a Green Economy vis-à-vis a low emission economic-development pathway. This pathway is meant to transition the national economy in order to improve "human well-being and social equity while significantly reducing environmental risks and ecological scarcities", and to globally provide "a better quality of life for all within the ecological limits of our planet, particularly as it pertains to our common global climate" (GoG 2016: 6) . This multisector, holistic approach for sustainable management of natural capital ensures social inclusion and equity.

Yet, Guyana has already started to work towards building resilience to alter impacts and to better capacities. Policies such as the Second National Communication to the United Nations Framework Convention on Climate Change, the National Integrated Disaster Risk Management Plan, and the National Adaptation Strategy to Address Climate Change in the Agricultural Sector, all work towards achieving these goals. Although Guyana has made strides in implementing adaptation

and resilience building strategies, such as “interventions to the drainage and irrigation and sea defence systems to reduce the risks of flooding, there still requires an overarching framework for planning and implementing climate resilience actions so as to achieve the Government’s ‘Vision 2020’ for a green economy” (GoG 2015: 1).

Moving towards a Green Economy

As the country moves forwards so does its approach to climate change and an integrated economic strategy that incorporates an environmental lens. This is most evident in Guyana’s current *Green Agenda* which aims to holistically address climate change and the ‘greening’ of Guyana as a response to not only the national pressures on the economy, but also the global stress, which is increasingly affecting the environment. As these pressures, which have manifested themselves in the forms of droughts in regions like the Savannahs, and floods that have been rampant along the coastal agricultural areas, cause greater economic impacts, Guyana’s strategy of transforming its economic climate to improve the management of natural resources becomes vital to the overall sustainability and stability of its economy.

The role of green growth strategies was recognised at the Rio+20 Sustainable Development Summit, which “should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the earth’s ecosystems” (UNCSD, 2012).

Guyana’s Green Agenda is part of the Green Development Strategy, which “aims to transform Guyana into a state that achieves the needed balance of sustainable development”⁶. This balance refers to achieving both social and economic stability whilst mitigating environmental risks. For this to take place, the government is attempting to ‘green’ national policies and investment decisions, which pose complexities in the various costs, risks, benefits and opportunities. Policies should be developed through an integrated decision-making process that considers the reduction and eradication of poverty, human welfare and job creation, *whilst pushing forth energy efficiency, carbon and emissions reduction, technological innovation and environmental protection* (Geoghegan 2014: 4).

We see this in the President’s pledge to “improve timber monitoring and maintain and high level of timber legality, increase value-added activities in the forestry sector so as to augment carbon storage in long-use wood products, intensify the sustainable management of our indigenous communities which own and manage 14 percent of our national territory, introduce a national Emissions Reduction Programme (ERP) to add two million hectares under conservation, encourage more efficient mining and logging activities, implement Reduced Impact Logging (RIL) and invest in solar power, wind power and hydropower to transition more rapidly to renewable sources of energy and reduce our dependence on fossil fuels.” (Geoghegan 2014: 4)

⁶ (<http://www.motp.gov.gy/index.php/2015-07-20-18-49-38/2015-07-20-18-50-14/1410-government-in-action-the-development-of-guyana-s-green-agenda>).

Rationale for the KAP Study

The overarching rationale behind this KAP Survey is to address climate change awareness and education. In addressing sustainable climate change adaptation, mitigation and disaster risk programming it is vital that where there are significant gaps in knowledge, attitude and behavioural practices amongst Guyanese, measures on how to instil best practice and understanding must be highlighted. Hence, this study hopes

1. *To explore the Guyanese knowledge and perceptions of climate change*
2. *To identify the ways in which Guyanese explain the causes of their changing weather, and the impact that such changes have on their lives*
3. *To investigate the barriers to responding to climate change among individuals and communities and within local, provincial and national government*
4. *To assess respondents' media consumption patterns and preferences*
5. *To inform recommendations on the best methods of communicating to the Guyanese public on climate change.*

Structure of the Report

This document will further present the methodology, results of the survey and its detailed analysis, as well as recommendations as to how the Communications Consultant may proceed with designing a sustainable and culturally relevant communications campaign. The methodology provides a description of the research design and tools, along with further insight into the rationale behind the sample and locations chosen. Following the methodology is the presentation and analysis of the results that came out of the survey. These will highlight the experiences across the country as it relates to peoples' perceptions of climate change. The analysis then forms the basis for the recommendations for raising public awareness about climate change in Guyana to the Communications Associate on the project. Finally, the document ends with a conclusion and bibliography. A set of appendices are included, as they regard the terms of reference, survey instruments, and other relevant materials.

METHODOLOGY

This section outlines the methodological approach used for this KAP study. It highlights the two major methodologies—i.e. the quantitative approach, vis-à-vis the survey, and the qualitative approach which included focus groups and key informant interviews. More specifically, it will focus on the research design and purpose of these two approaches in meeting the before mentioned objectives. Finally, this section will address limitations in the methodology, and the execution of the study.

Research Design

In examining the knowledge, attitudes and practices people display towards a complex subject, such as climate change, it was necessary to use both quantitative and qualitative frameworks. As standalone frameworks, neither would be able to convey a holistic image of how it is that Guyanese engage in the discourse of climate change. Hence, the methodology included the following:

- Quantitative Surveys
 - o Face-to-Face Surveys
 - o Student Surveys
- Qualitative Interviews
 - o Focus Groups
 - o Key Stakeholder/Informant Interviews

Study Areas

The study areas for this research were Regions 4, 5, 7, and 9. More specifically, the communities of Luisignan, Good Hope and Sophia in Region 4, Bushlot in Region 5, Bartica in Region 7 and Nappi and Parishara in Region 9 were surveyed on their knowledge, attitudes and practices towards climate change. The communities in Regions 7 and 9—Bartica and Nappi and Parishara, respectively—were recommended by UNDP Guyana and the OCC as these areas have been proposed to be the UNDP and JCCCP Pilot Projects' areas.⁷ However, no decision has been made in regards to the Indigenous Villages' involvement in the project as the project implementers prefers that this be the remit of the National Toshao's Council. Region 4 was chosen based on its proximity to the coast and its vulnerability to flooding due to rainfall and rising sea levels. Within Region 4, the communities of Lusignan and Good Hope were chosen based on their accessibility to the capital and their recent experiences with natural disasters. Whereas, Bushlot in Region 5 was selected based on its reliance on Agriculture, and the threats posed to the industry by climate variability. Due to time, the other regions could not be surveyed.

Table 1. Distribution of Respondents by Community and Region for General Survey

REGION	COMMUNITY	No of Respondents
4	Luisignan	109
	Good Hope	63
	Sophia	82
5	Bushlot	98
7	Bartica	97
9	Nappi	40
	Parishara	25
TOTAL		514

⁷ The proposed projects will entail an Improved Water Access Pilot in drought afflicted Nappi and its satellite communities, such as Parishara, and an Energy Efficiency Project in Bartica.

Key Questions

As the nature of this consultancy is to establish understanding of and best practices in how the nation-state adapts, mitigates and manages climate change a KAP/B study is pertinent as it will address key questions that will form the basis for a clear communications framework. These key macro-questions will generate cross-cutting analysis between the project objectives and levels of stakeholders' understanding, and are as follows:

- 1) What is the level of awareness of climate change?
- 2) How is this level of awareness disaggregated by gender, age, religion, ethnicity, location, and status?
- 3) What do people understand by the term climate change?
- 4) What are the general interpretations and applications of climate change within communities?
- 5) What are current practices and practices towards climate change adaptation, mitigation and disaster risk management plans?
- 6) What are current and potential sources of education and discourse influences these understandings and perceptions?
- 7) Who updates these sources of information?
- 8) What are the capacity needs for climate change awareness?
- 9) What are possible entry points through which a successful communications campaign could be launched?
- 10) How are knowledge, attitude and practices currently monitored?
- 11) What other measures can be taken to strengthen awareness of climate change?

Quantitative Surveys

A survey of Guyanese households was conducted to examine the levels of knowledge, attitudes and practices towards climate change. The survey was administered by the J-CCCP consultant with the assistance of a fieldworker from the National Agricultural Research Institute, who assisted for two days. The fieldworker was briefed on interview and surveying techniques, and was allowed to trial surveying techniques during the consultant's testing of the survey in Annandale, Region 4. The survey was fielded over a fifteen-day period between 3 – 24 October 2016.

The survey, which can be found in Appendix 2, commenced with demographic questions, followed by questions pertaining to knowledge of climate change, attitudes toward climate change and practices related to climate change. The survey ended with questions about media usage.

Sample Size

The proposed confidence interval or margin of error was 4, which established an estimated representation of between +/- 4% of the total population. Using the population size of 767,000 and a confidence level of 95 percent, the target sample size for this survey was approximately 600 respondents. The total number of respondents for the general survey was 512 and 200 respondents for the student survey. Respondents were chosen vis-à-vis a randomised sampling process. However, the survey maintained a 50:50 ratios between men and women between the ages of 16-65.

The students' survey incorporated many of the questions within the national survey, but was designed to be completed by the students under the supervision and guidance of the consultant. Three schools were selected in regions 7 & 9, with 200 surveys disseminated to fourth and fifth formers. Unlike the general survey, the student survey depended on a somewhat convenience sampling approach. Although, students were chosen at random, they were chosen from with a specific age and class group. In Region 7, Three Mile Secondary School and Bartica Secondary School were given the survey. In Three Miles, 73 students from Forms 4 & 5 were randomly selected, with a 50:50 ratios of boys and

girls maintained. Whereas in Bartica Secondary, only 34 students were randomly selected, based on the availability of students at the time.

Although the survey area in Region 9 was Nappi and Parishara, the secondary school survey was administered in St Ignatius Secondary School. As this is the main Secondary School for Region 9, administering the survey here ensured that a representative cross-section of region was achieved.

Data Analysis

The Quantitative data analysis was done using SPSS software. In addition to data triangulation from evidence collated during this assessment, the findings and recommendations have been cross-referenced with the relevant literature to search for areas of convergence and divergence. Situations where strong differences of opinion and data exist, have been used to probe deeper, and better understand the set of factors that contribute to such differences.

The Likert scale responses [Strongly Agree to Strongly Disagree], were used to investigate the presence of differences in the distributions of categorical data and may be analysed by grouping the “agreement” responses and the “disagreement” responses to determine variance (this may best be described as the Chi-square test). As we cannot use the mean as a measure of central tendency as it is not viable—i.e. there is no average of Strongly Agree and Strongly Disagree. The most appropriate measure, therefore, is to analyse the mode—i.e. the frequency—of the responses, which will be demonstrated in a bar chart.

Data collected endure both descriptive and inferential analysis where we look at the relationships between:

- 1) Knowledge and attitudes—how do people feel about climate change, once they are aware of the effects it has on them? Is there a change? Does knowledge lead to desirable attitudes?
- 2) Knowledge and Practices —how proactive are people once they become knowledgeable of climate change issues? Does knowledge lead to positive behaviours?
- 3) Attitudes and Practices—does a sentiment towards climate change correlate with desirable behaviours? Does good practice increase when desirable attitudes are achieved?

The sample was analysed according to the following comparative categories:

- Total Sample
- Geographic Regions
- Gender (male, female)
- Age (18 and younger, 19-25, 26-35, 36-45, 46-55, 56-65 and Over 65)
- Education: no formal education, primary, secondary, university (undergraduate), university (post-graduate) and technical/vocational education
- Occupational categories: farmer, fisherman/woman, business owner, sales and services employee, skilled manual, housework/housewife, educator, student, government officials, and other professional.

Qualitative Research

A qualitative investigation was also conducted to introduce contextual information to the study to address “how” and “why” certain attitudes and practices exist. Hence, the qualitative component provides anecdotal data to establish a deeper understanding. The qualitative component of this survey involved in-depth interviews with 40 key stakeholders from local community members, the media, national government, local leaders and non-governmental organisations. The sectors interviewed included the agriculture, fishing, goods and services and extractives industries.

Key Informant Interviews

Key Informant Interviews (KII) were held with members of the surveyed communities as well as integral national stakeholders of the climate change discourse identified by UNDP Guyana’s National Focal Point on Climate Change and the OCC. Senior level officials and ministers were interviewed through 30-60 minute semi-structured interviews. These interviews were guided by four main questions:

1. How participants believed climate change will impact their sector or community;
2. How prepared they believed their own organisation
3. How they perceived their own role in facilitating climate change awareness and adaptation; and
4. What they believed the best mitigation and adaptation practices to be for achieving climate resilience within their sector and why these are the best practices to adopt?

Table 2. Showing Participating Government and International Donor Agencies

AGENCIES
Guyana Energy Agency
Guyana Water Incorporated
Office of Climate Change
Conservation International
Environmental Protection Agency
Protected Areas Commission
United Nations Development Programme - Guyana
Bartica Regional Chairman
Bartica Regional Education Office
Ministry of Indigenous Peoples’ Affairs
National Toshao’s Council
<i>Civil Defence Commission</i>
<i>Hinterland Electrification</i>

Focus Group Discussions

Focus Group Discussions (FGDs) were held in four of the seven communities, namely in Luisignan, Bushlot, Nappi, Bartica, with each group consisting of six to ten community members. The FGDs lasted between 45-90 minutes and were held in local community spaces, such as schools, local shops and community members’ homes. Participants represent a cross-section of the population—i.e. disaggregated by gender, age, and economic status. The groups were divided as follows:

Table 3. Representation of Community Members

Region	Focus Group Participants	No. of Respondents
4 - Luisignan	Male and Female community members, local business owners,	10
5 - Bushlot	Male and Female community members, local business owners, farmers	9
7 - Bartica	Male & Female Community Members, local business owners, miners, fishermen	10
9 - Nappi	Female Community Members	6
9 - Nappi	Male and Female Community Members, Farmers	10

The FGDs were guided by the following topics:

1. The extent to which people in the community have heard of the term “climate change”
2. Current perceptions and understandings of what climate change actually is and the impact community members believe it may have (i.e., how climate change is defined in the minds of the respondents)
3. The degree to which respondents believe climate change will affect them personally and how they perceive their personal level of risk as it relates to the effects of climate change
4. Changes in behaviour that respondents may be taking to reduce their level of risk and why they are taking these steps and they may not be taking others, if they are taking any at all.
5. The extent to which respondents perceive climate change risk affecting their community and which groups may be more vulnerable to the effects
6. The extent to which respondents are aware of what the UNDP and the Government of Guyana are doing about climate change
7. Respondents’ perceptions of roles and responsibilities to improve climate resilience

Initial desk reviews of KAP studies on climate change in the Caribbean were conducted in order to understand the context of climate change adaptation and mitigation in the region and nationally.

Observations & Limitations

Permissions were required to conduct surveys within the schools. However, as these permissions came on the nearer the end of the data collection period, only three schools within two regions—i.e. regions 7 & 9—were surveyed.

In Region 9, houses were spaced further away from one another which made the door-to-door surveying time consuming. As a result, focus groups were formed to reach a larger cross-section of the population. Residents were also consumed by farm work, which meant that a large population were not in the village during the time of surveying. This increased the time spent looking for respondents to participate.

Time was a contributing factor to the length of survey administered. Initially, a seventy-five question survey was developed. However, when tested in Region 4, the survey took between 40-60 minutes per individual, which meant that a significant edit needed to occur in order to administer the survey to a significant sample size and within the fifteen (15) days dedicated towards data collection. The survey was, therefore, reduced to thirty major questions with several follow up questions. In doing so, this limited the number of questions we could ask, and perhaps the scope through which this study could have been analysed.

If the survey was limited to only two regions, the abovementioned measures would not have been taken. However, as Guyana is divided into ten (10) administrative regions and four (4) natural regions—namely the coastal, hilly sand and clay, highland and interior savannah regions—it was necessary to widen the scope of this survey. This was also necessary as the majority of the population resided on the coastal region, and were also continuously enduring natural disasters.

It was later realised that several questions could have benefited from more options for the respondents to choose from. One such example, was when participants were asked “What were the causes of climate change?” The responses included: burning of fossil fuels, deforestation, carbon emissions, and several other options. However, it did not include electrification, which was relevant to Bartica, e.g., which was undergoing initiatives surrounding energy efficiency and green energy.



FINDINGS

In this section the results of the quantitative surveys are presented. First, the findings from the household survey and school surveys are presented, which are presented under the headings of Knowledge, Attitudes, Practices and Media Usage. The qualitative findings from the focus group discussions and interviews will offer a contextual basis from which to consider the quantitative data and will follow this section.

Characteristics of the Study Population

Demography and Education

For the general survey, a 50:50 ratios of males and females was almost maintained with 255 female respondents (49.7 percent) and 259 male respondents (50.3 percent). The average age of the male respondents was 39.6 years, while the female respondents averaged 40.2 years. During the survey, most respondents had an age range 36-45 years for males and females. The highest percentage of respondents came from Region 4, with a total of 49.4 percent of the total respondents (n= 254/514). As the majority of Guyana’s population live in this region, this reflected in distribution of respondents. The second highest population came from Regions 5 & 7 (19 percent each) with the lowest coming from Region 9 (12.6 percent).

Most respondents stated that they had completed secondary school (79 percent), and another 20 percent stated that they have completed up to a primary education. One percent has completed University. However, some of the respondents who had completed secondary stated that they were currently attending university.

Figure 1. Showing education disaggregated by gender

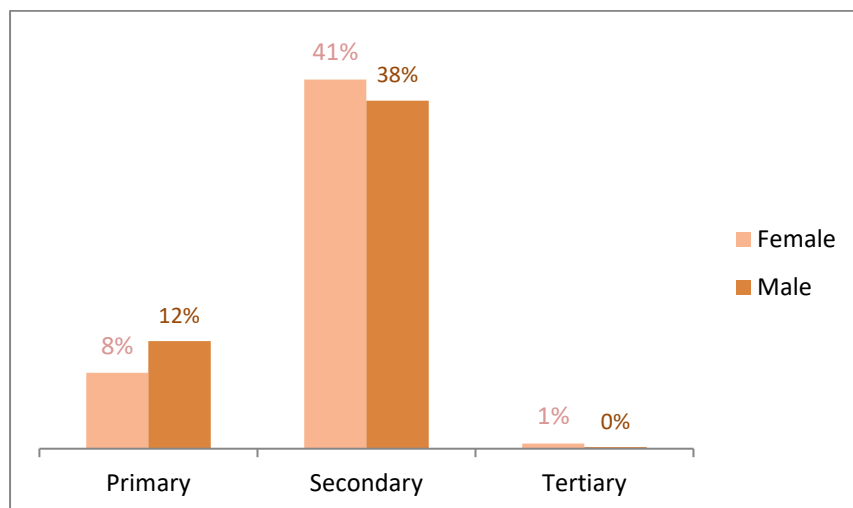
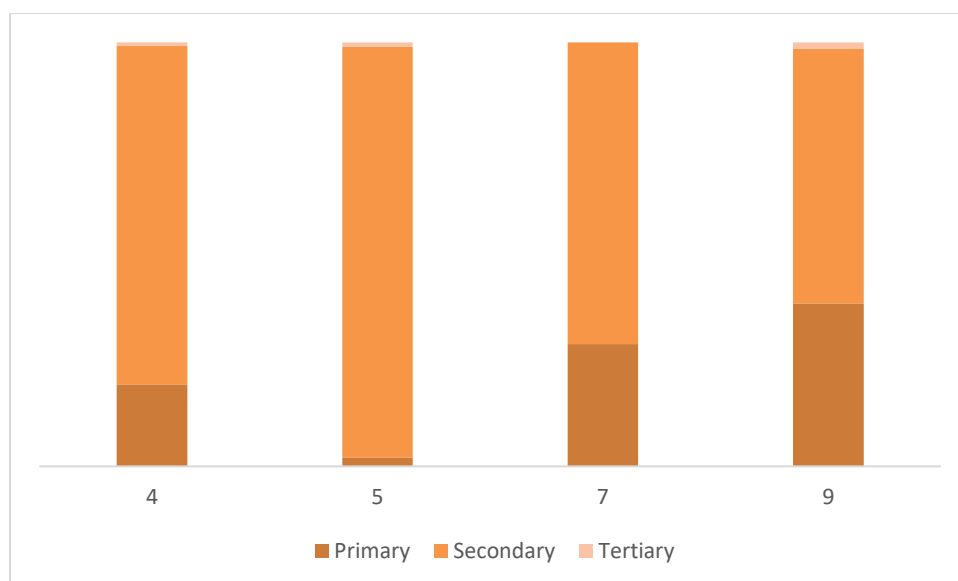


Figure 2. Education disaggregated by Region



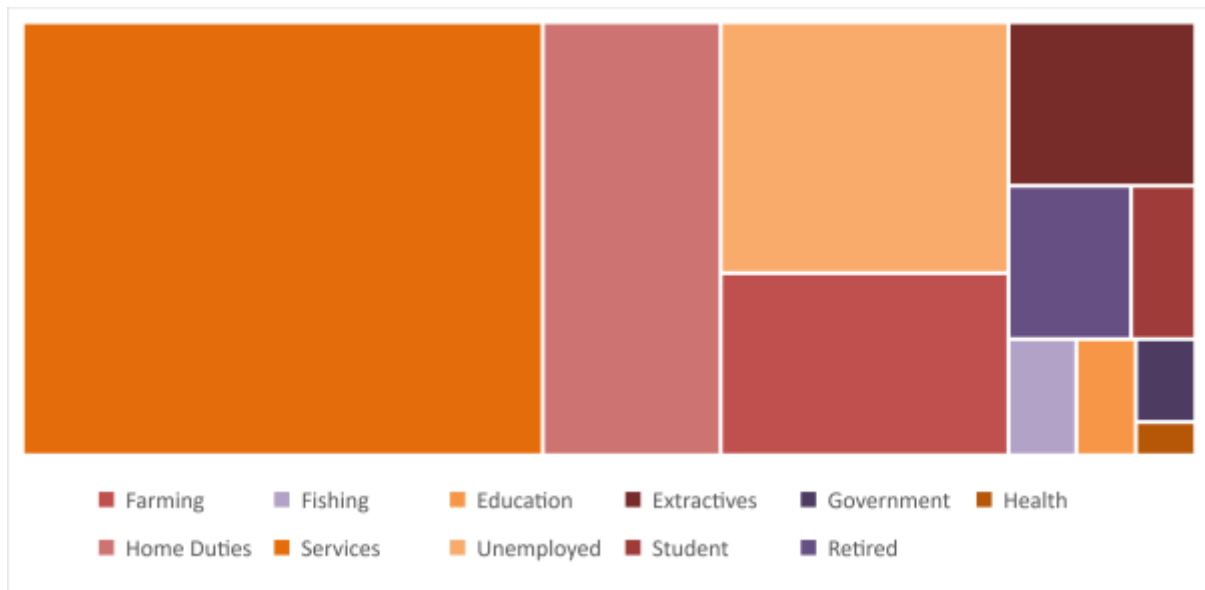
Livelihoods of the study population

Almost half of the respondents (44 percent) worked in the services industry, with another 15 percent stating that they were housewives or performed home duties. Of this group, all were women, making up 31% of all women’s (n=225) employment from the sample group. The Agricultural, Fishing and Livestock Industries made up a total of 12 percent of all respondents. During the general survey, there were ten students who participated. However, they will not be accounted for when referring to the student survey, which varied.

Table 4. Showing Respondents Disaggregated by Employment

Main Employment	No. Respondents	% Respondents
Farming	53	10%
Fishing	8	2%
Education	7	1%
Extractives	31	6%
Government	5	1%
Health	2	0%
Home Duties	78	15%
Services	228	44%
Unemployed	73	14%
Student	10	2%
Retired	19	4%
TOTAL	514	100%

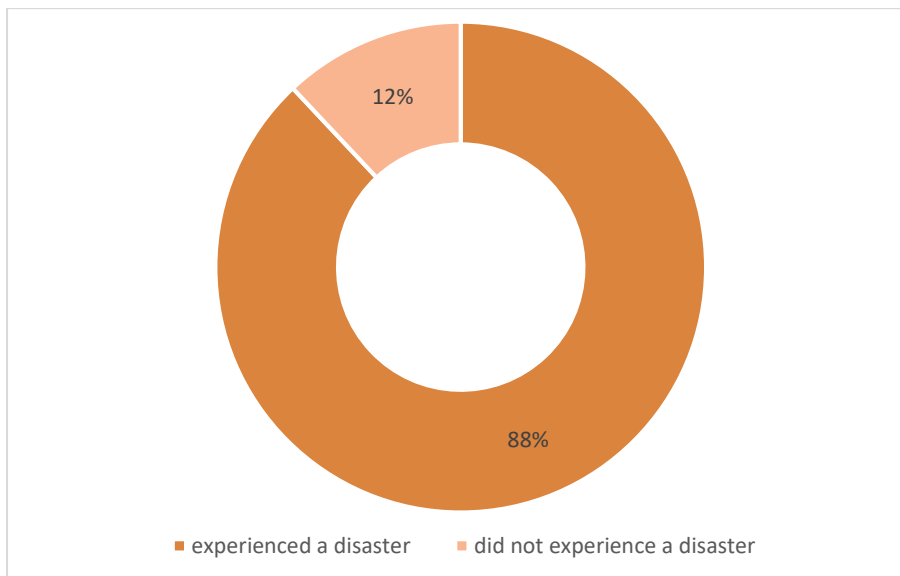
Figure 3. Showing Relational Value of Main Income Generating Activities of Respondents (in percentage)



Experience of Living with Natural Disasters

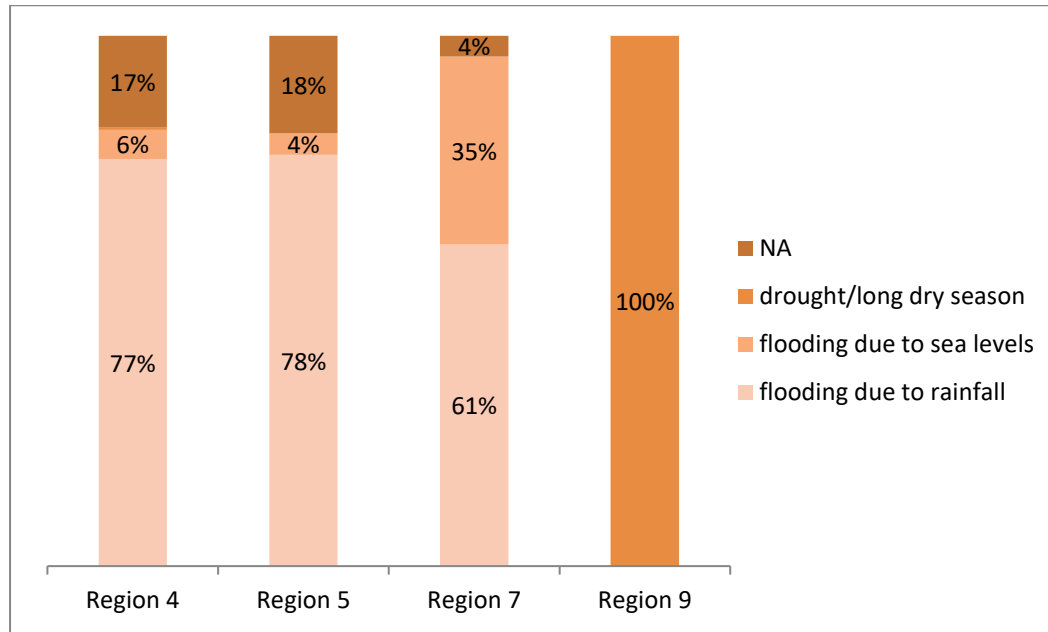
Most of the respondents (88 percent) experienced natural disasters within the last 15 years. During this period, they encountered natural disasters of various levels of intensity, with respondents (n=450/514) experiencing floods from rainfall (77 percent) and sea levels rising (14 percent) and droughts (15 percent). 12 percent of respondents stated that they did not encounter natural disasters.

Figure 4. Percentage of Respondents who encountered disasters



All the regions were affected by flooding caused by heavy rainfall and/or rising sea levels. However, for Region 9, only the students living in its capital, Lethem, identified flooding as an issue to the region. None of the respondents for the general survey identified flooding as an issue, as they resided in further away from Region 9’s capital and may experience different climates, although they are situated in the same natural region. In regions 4, 5 & 7 not all of the respondents stated that they experienced a natural disaster. However, their response might not necessarily mean that they did not experience a natural disaster, but that they might not have been significantly impacted by any. However, when asking respondents in Region 9, all stated that they were impacted by long dry seasons which have caused droughts for the last few years.

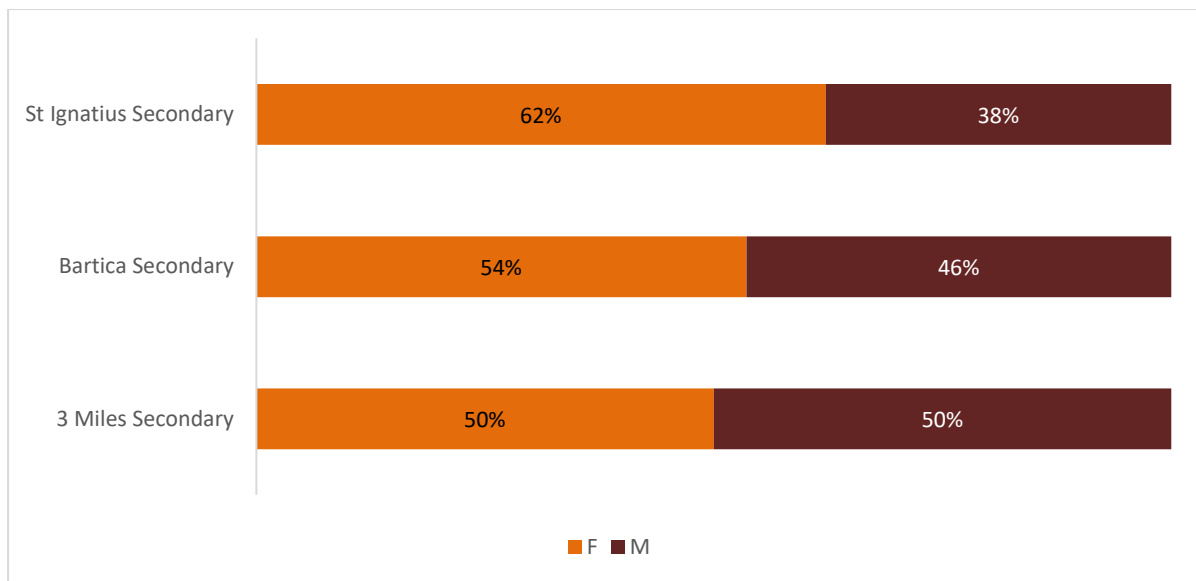
Figure 5. Showing Types of Disasters by Region



Characteristics of Student Participants

In addition to the general respondents’, this study also takes into account the knowledge, attitudes and practices of secondary school students from Fourth and Fifth Forms in Regions 7 and 9—namely from Bartica Secondary and Three Miles Secondary in Region 7 and St. Ignatius Secondary in Region 9. A total of 200 surveys were administered in these schools with 110 respondents from Region 7 and 90 from Region 9. In Region 7, it was less challenging to maintain a 50:50 ratios with male and female students, whereas in Region 9 classes were mostly populated with female students, which meant that a representative sample had to be taken.

Figure 6. Percentage of students based on location



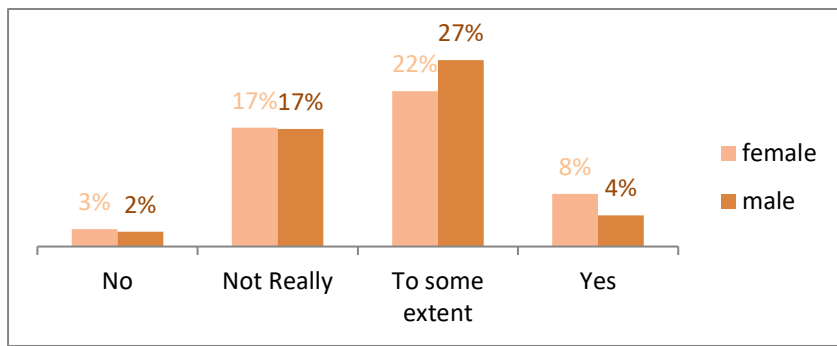
Student respondents were taken from Forms 4 and 5. This was because they were considered to have had the most engagement on the topic of climate change, having completed exercises on the topic for the Form 3 Projects and their preparations for their GCSEs/CXCs.

PEOPLE'S KNOWLEDGE OF CLIMATE CHANGE

Understanding Climate Change: It's Meaning and Causes

All of the surveyed population had heard about the term 'climate change.' However, when asked whether they understood what it meant, only 12 percent stated 'yes', whereas almost half of the respondents indicated that they understood climate change 'to some extent' (49 percent). There was no large variance between men and women's understandings, with the exception of those respondents who stated 'yes' (8 percent of females vs 4 percent of males).

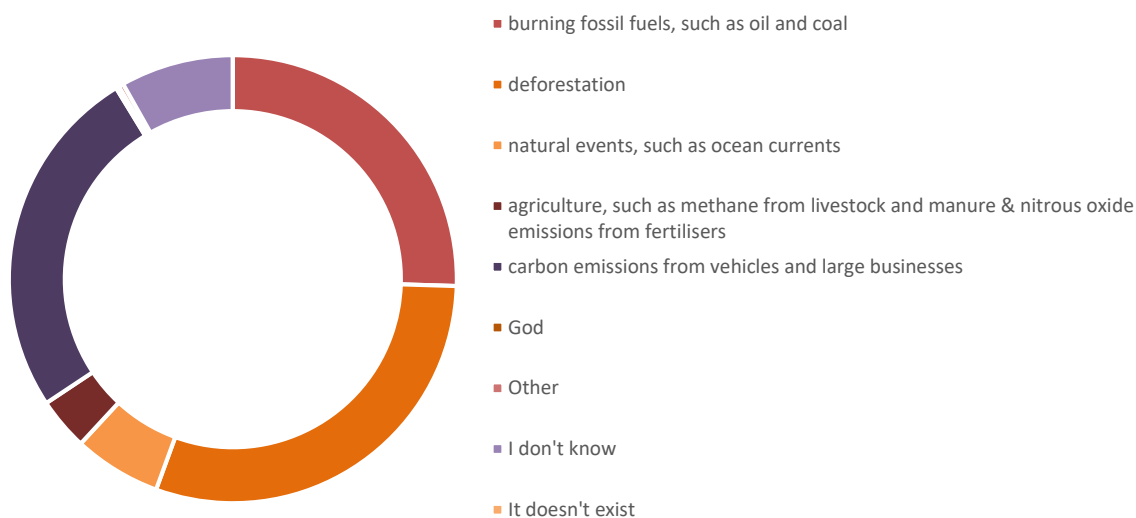
Figure 7. Percentage of respondents Understanding of Climate Change



Of respondents who stated that they understood climate change to a certain degree (both 'yes' and 'to some extent, n=315), 80 percent stated that they understood climate change to some extent.

To further test this knowledge, all respondents were asked what they believed to be the cause(s) of climate change. Of all respondents, 30 percent attributed climate change to Deforestation followed by Carbon Emissions (26 percent) followed by Burning of Fossil Fuels (25 percent).

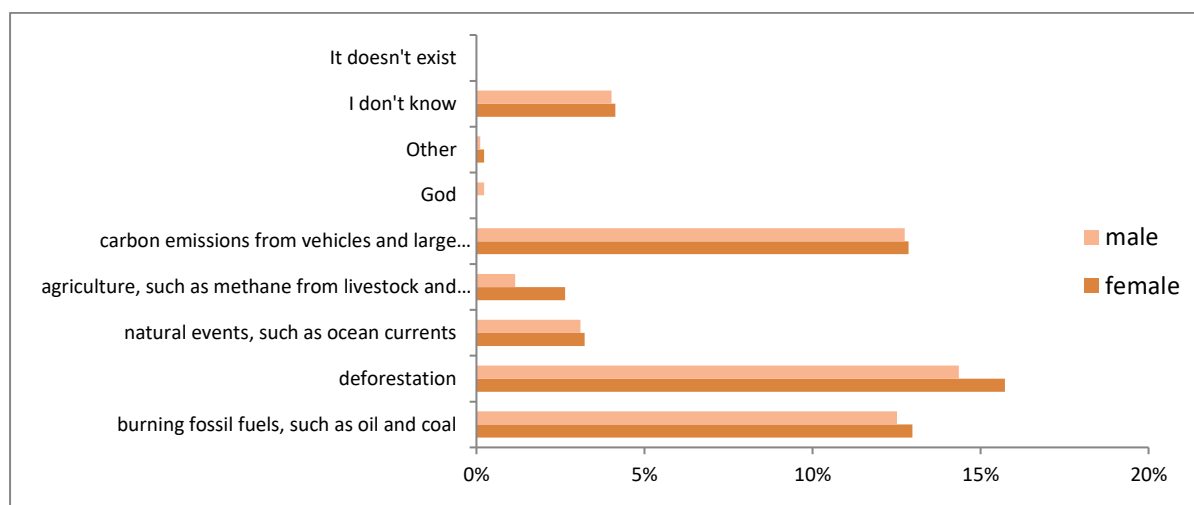
Figure 8. Perceptions of Causes of Climate Change



It is important to note that a significant percentage of citizens of Guyana would be aware of the Low Carbon Development Strategy as that has been a national campaign that has been pushed heavily since its conception.

There were no great variations in this understanding between male and female responses. Two men attributed climate change to God as they were both of Rastafarian faith, and believed that 'Jah' was responsible for all the changes. Three respondents selected other, stating that Pollution was a contributing factor to climate change, with one respondent stating: "not only is pollution, in general, a cause of climate change but it is also a problem when it comes time to fix the problem. [It's] gets in the way."- Bartica

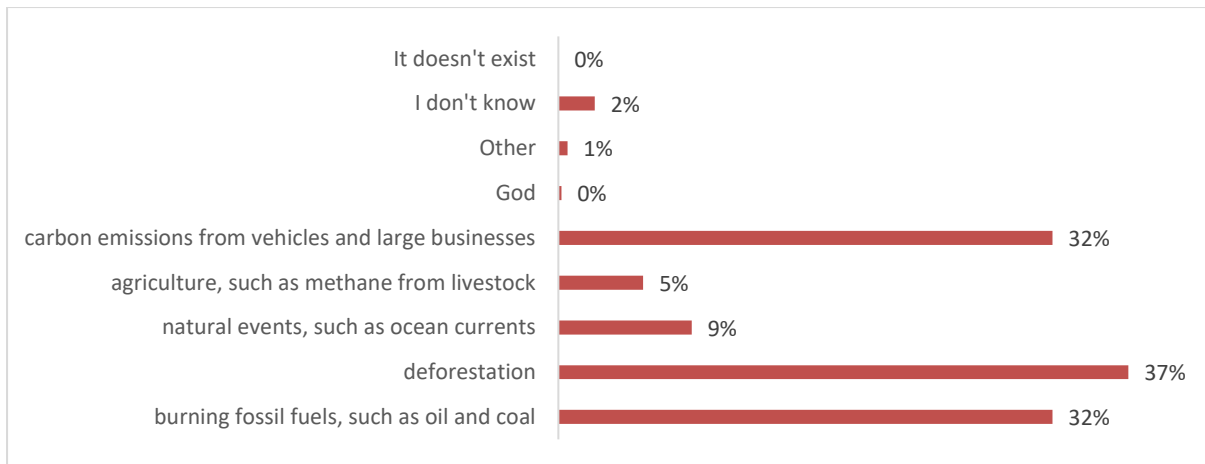
Figure 9. Respondents Views on Causes of Climate Change



It was important to analyse further those respondents who stated that they understood climate change to varying degrees. Hence, further analysis was conducted of those respondents who stated 'yes' (n=62) and 'to some extent' (n=253) when asked if they understood climate change. When further probed as to what the causes of climate change were, participants of the focus groups stated that they might not be able to explain why deforestation, burning of fossil fuels and carbon emissions cause climate change, but they are aware that those are contributing factors.

This was a common issue across all regions, where respondents were familiar with key terms or 'buzzwords' that have been constantly pushed in the media, but may not have been sufficiently explained. In order for communities to 'learn' about climate change, the use of far removed buzzwords act as a hindrance, as was evident from responses to this question.

Figure 10. Causes of Climate Change by Respondents Who Stated They Understood Completely or to Some extent



Students between 14-18 years appeared to be the somewhat informed as to the causes of climate change. Most students attributed the cause of climate change to burning of fossil fuels (73 percent). The second most selected cause was carbon emissions (63 percent), followed by deforestation (43 percent). [See Annex 2 for Distribution by School]

Figure 11. Causes of Climate Change by Students (%)

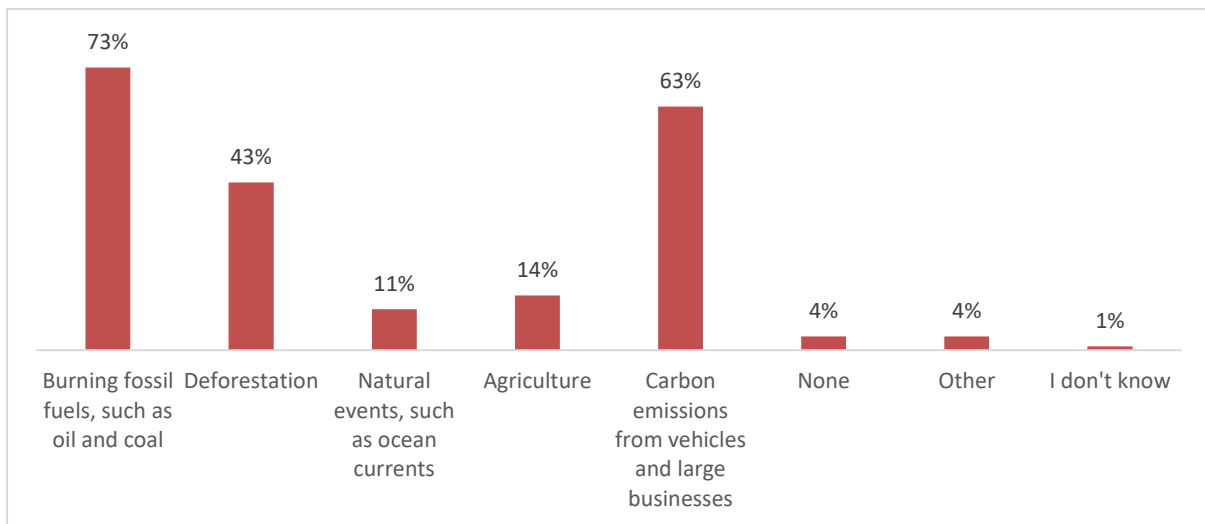
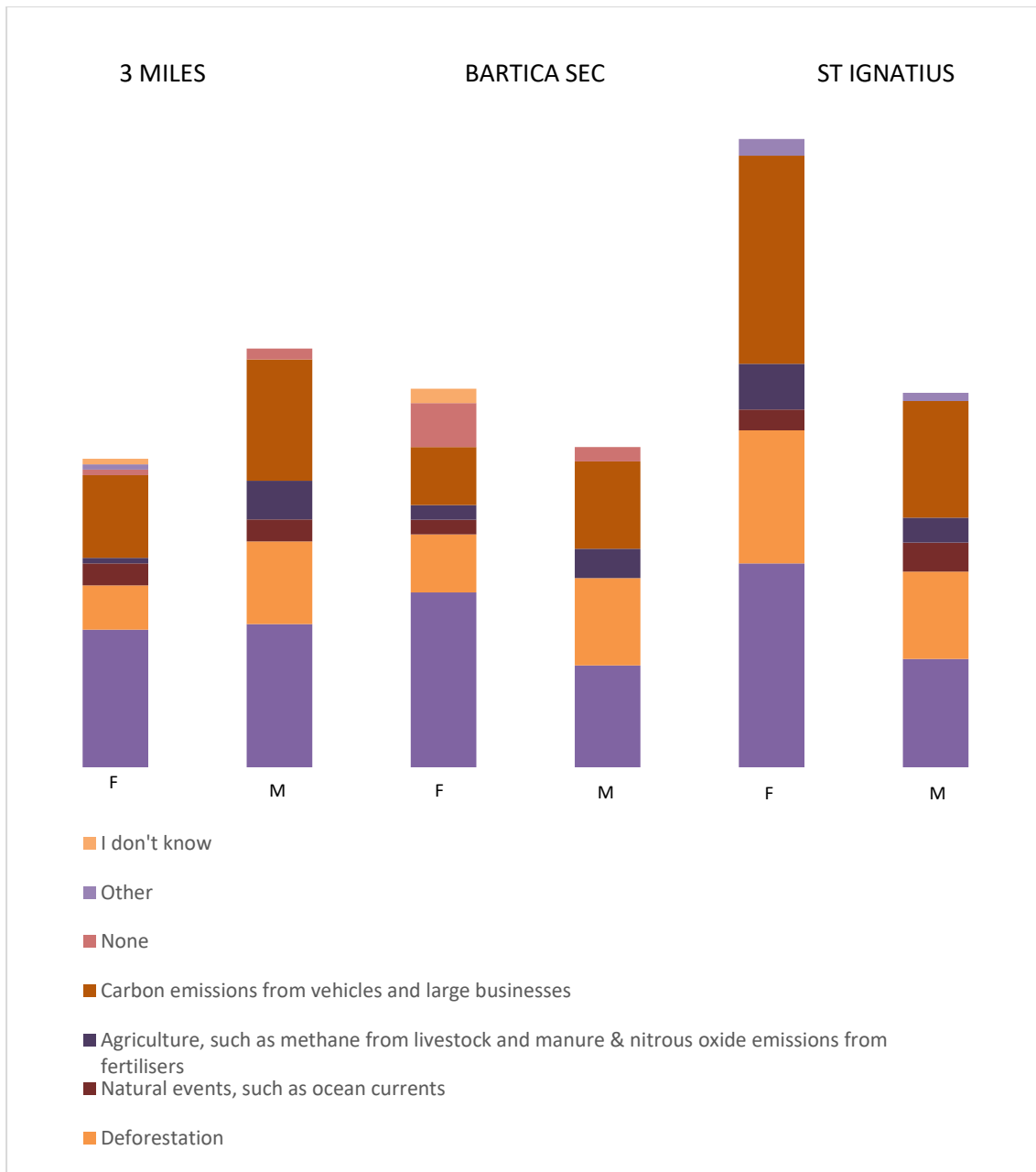


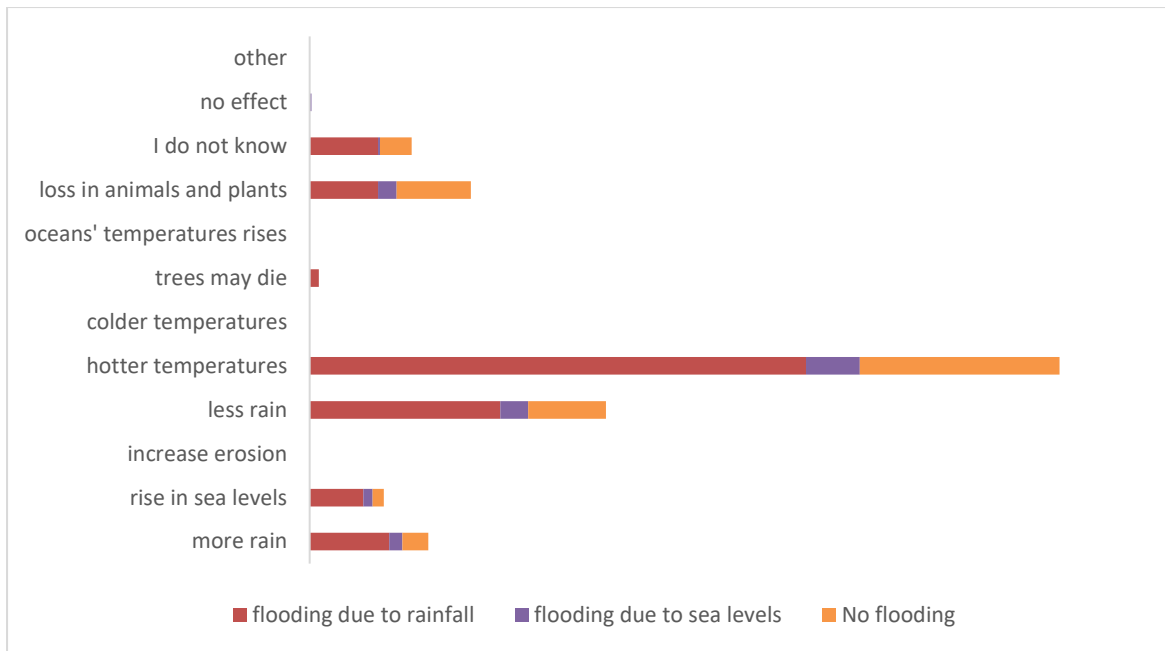
Figure 12. Causes of Climate Change by Students



Effects of Climate Change

When asked as to what the current and/or possible future effects of climate change on Guyana were, most respondents stated that an increase in temperature was the most evident (84 percent; n=431/514). However, this might have been the case due to the current climatic event which saw the coast experiencing a longer dry season. Although 56 percent of all respondents (n=287/514) stated they experienced floods by rainfall, only 15 percent of those respondents (n=43/287) stated that a future effect of climate change would be more rain, whereas 93 percent of those very respondents (n=267/287) stated that hotter temperatures and 36 percent stated less rain were the future effects of climate change.

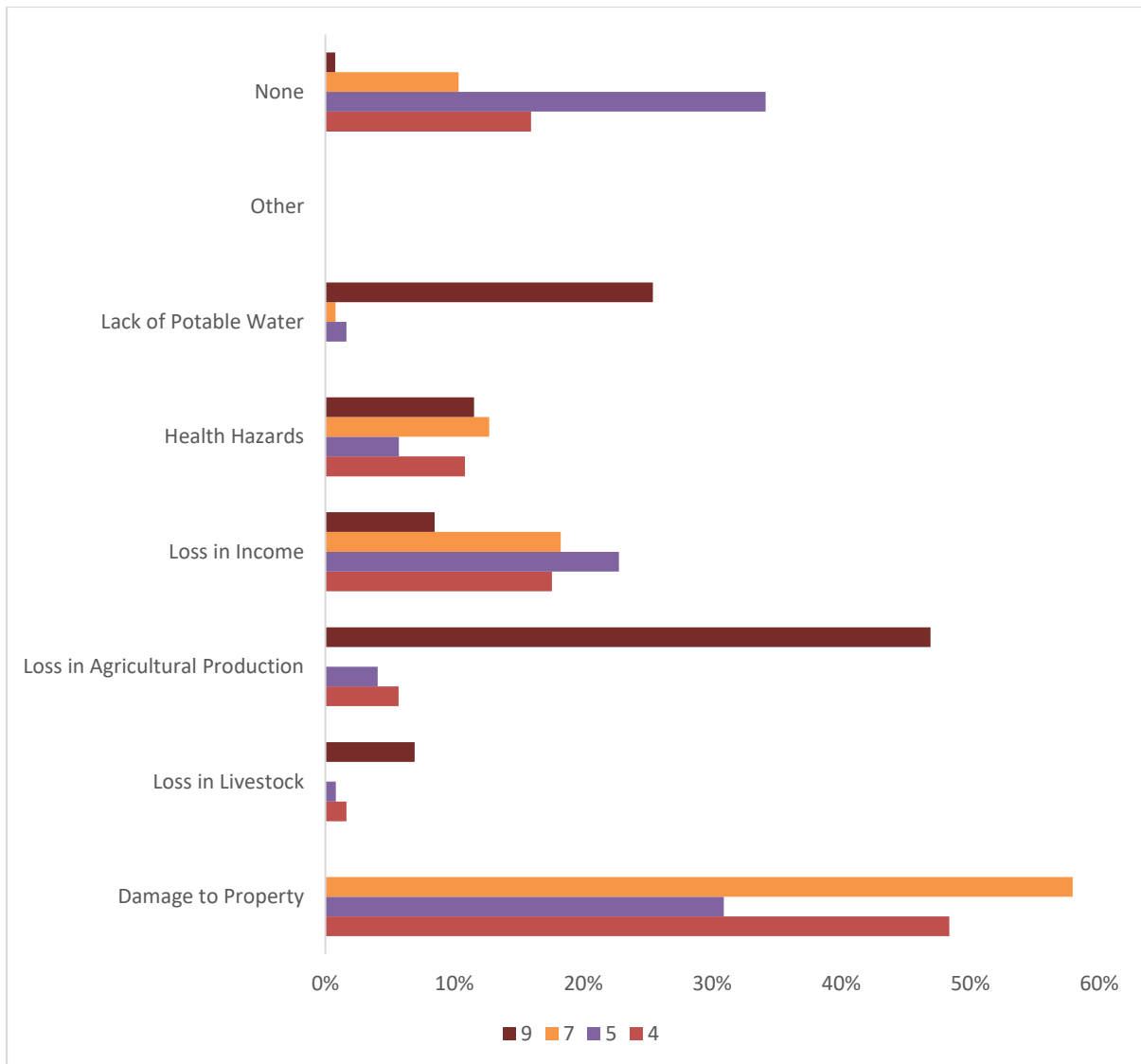
Figure 13. Future Effects of Climate Change against Perceptions of Experienced Effects



Climate Change Impact at Household Level

Of the respondents who experienced natural disasters (n=450), 74 percent experienced some kind of loss as a result. Respondents who were impacted were most impacted through damage to property (64 percent) caused by water damage from flooding. As Region 9 does not suffer from irregular flooding, none of the respondents from this region encountered damage to property. Around 28 percent of those who were impacted reported loss in income due to disruption to livelihoods. Another 19 percent reported loss in agricultural production and 4 percent in livestock. However, of all the respondents who stated that they farmed (n=53), 72 percent stated that they suffered losses in agricultural production and 62 percent stated that they suffered loss in income as a result. Of those who worked in Goods and Services (n=228), 63 percent stated that they suffered damages to their property. However, only 27 percent stated that they were impacted through loss of income. Another 36 percent reported health risks, such as leptospirosis, caused by water borne bacteria.

Figure 14. Respondents reporting losses during last natural disaster they faced



Region 7 respondents highlighted that they were affected by floods due to heavy rainfall (61 percent, n= 59/97). However, of all the respondents in Region 7(n=97) 35 percent stated that they were affected by floods due to sea defence and rise of sea/river levels. Upon further probing, respondents who experienced floods stated that drainage due to poor waste management caused their yards to floods. Hence, although floods may have been caused by excessive water, the effect may have been exacerbated by poor drainage infrastructure and waste management. This may also explain why 40 percent of respondents from the region (n=39/97) stated that they adapted to climate change by clearing drains and 36 percent (n=35/97) stated that they cleaned or helped to maintain public drainage systems from waste.

Figure 15. Types of losses caused by Climate Change by Region

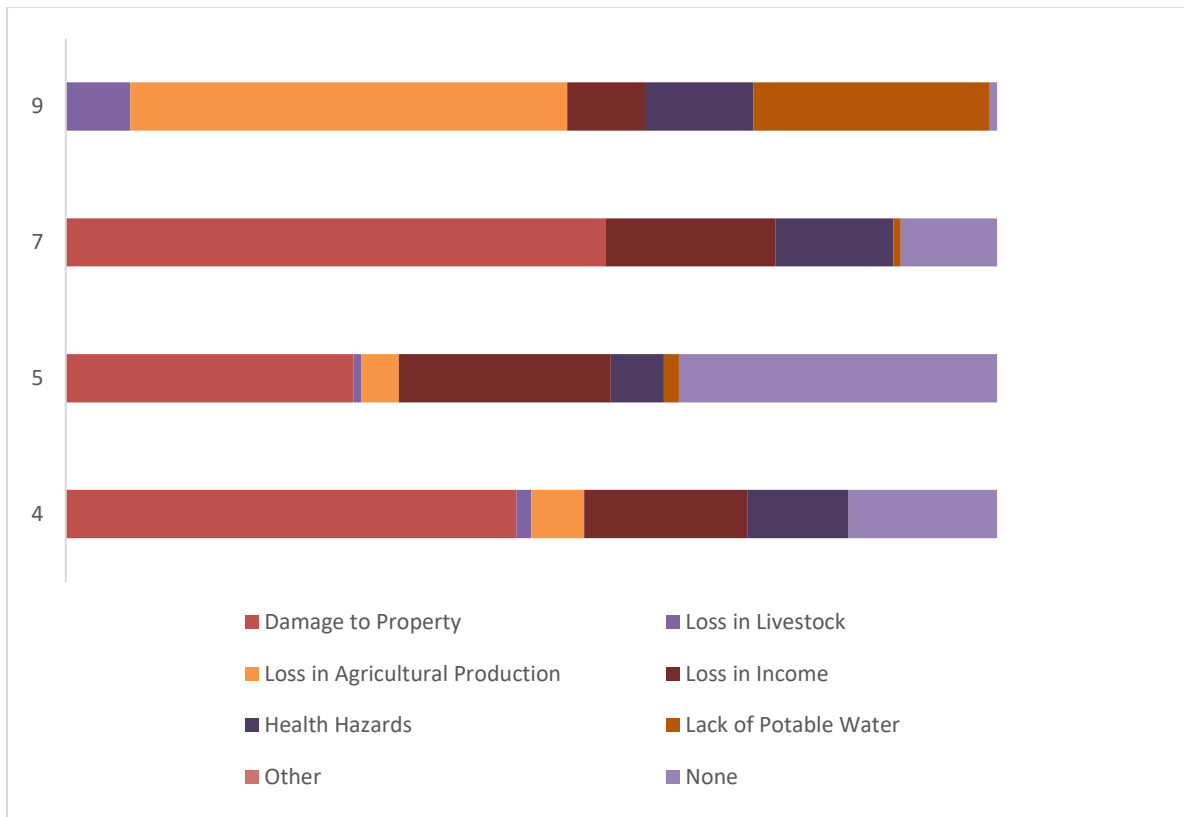
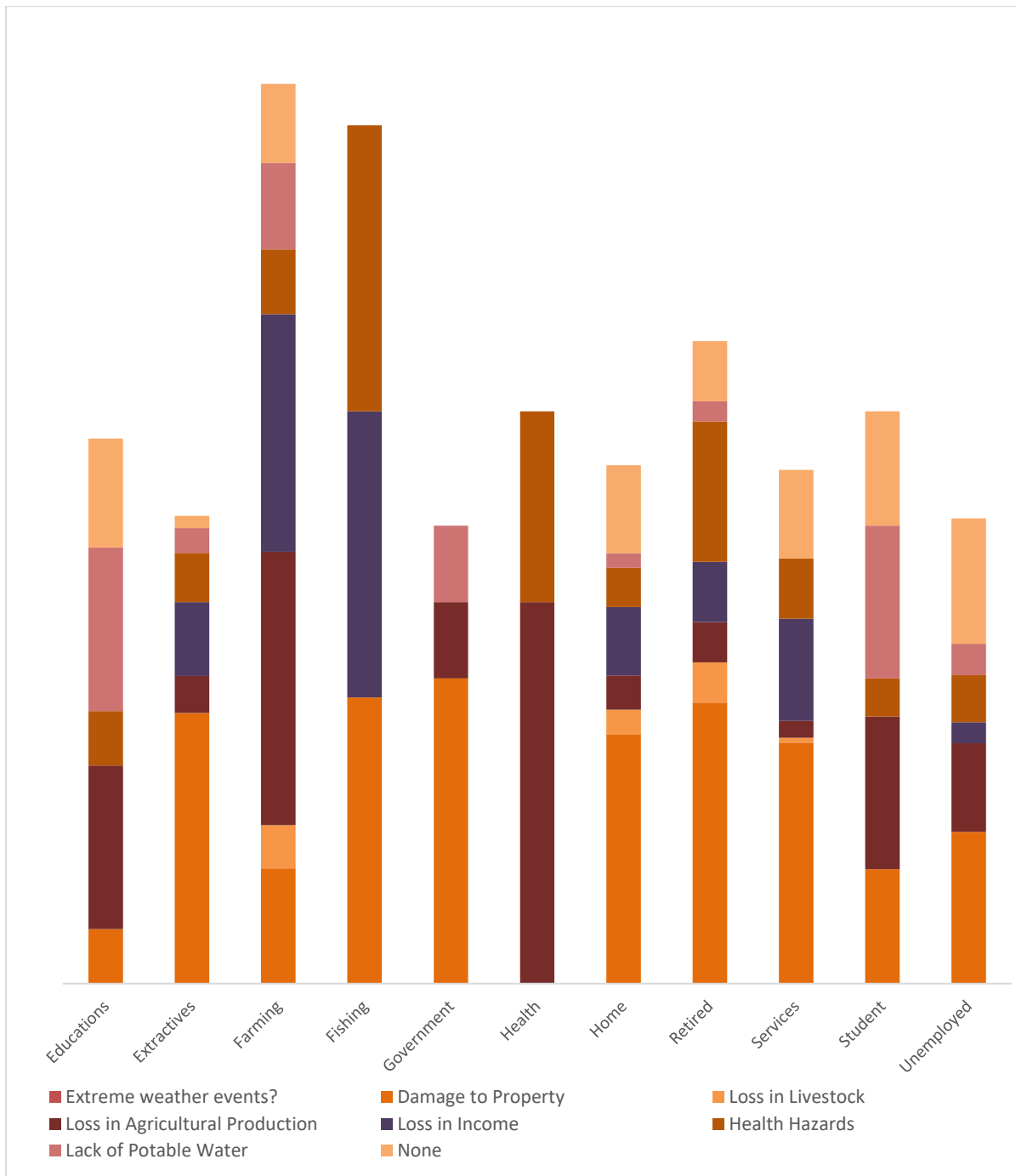


Figure 16. Impacts of Climate Change by Employment



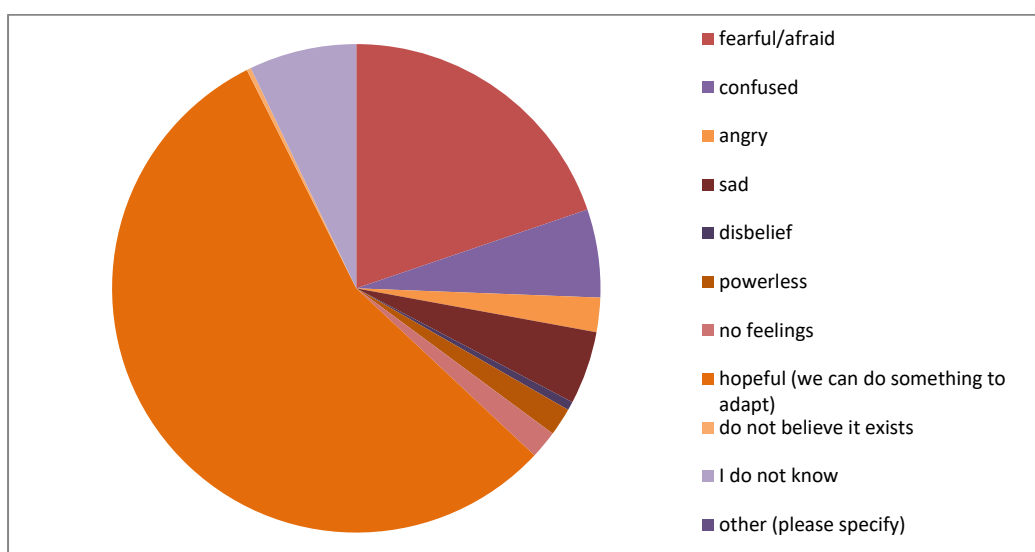
ATTITUDES TOWARDS CLIMATE CHANGE

Respondents were asked how they felt about climate change. According to 56 percent of respondents, they were 'hopeful' that something could be done about climate change. However, a there were a few of respondents were sceptical about whether climate change could be mitigated (2 percent) and another 7 percent unsure as to their feelings towards the subject.

Table 5. Feelings towards Climate Change

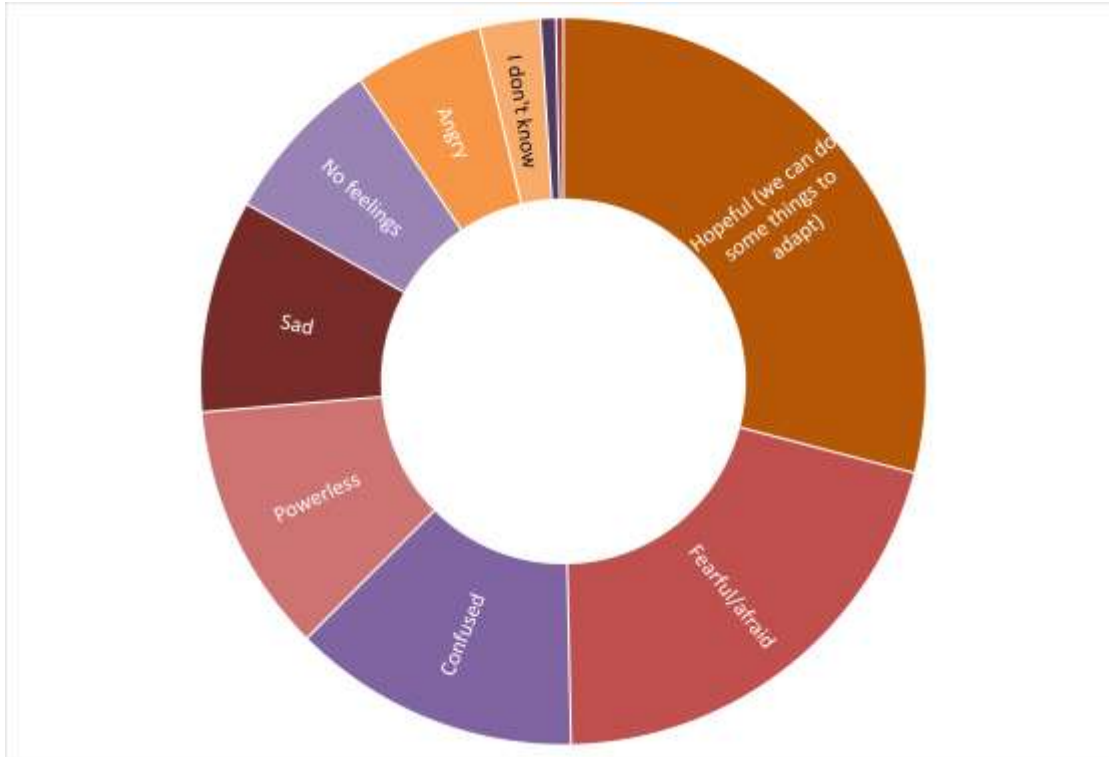
Feelings	female	male	Grand Total	%
fearful/afraid	73	66	139	20%
confused	20	21	41	6%
angry	9	7	16	2%
sad	16	18	34	5%
disbelief	2	2	4	1%
powerless	6	7	13	2%
no feelings	4	9	13	2%
hopeful (we can do something to adapt)	197	194	391	56%
do not believe it exists	0	2	2	0%
I do not know	22	28	50	7%
other (please specify)	0	0	0	0%

Figure 17. Feelings towards Climate Change



When asked the same question, 49 percent of students they stated that they were 'hopeful' (n=86/200), whereas 31 percent stated they were fearful, and another 19 percent stated they were confused. During FGDs with the students, those who stated they were fearful and/or confused brought up the fact that they were still learning about climate change, but have seen the negative impacts natural disasters have had on their community, which makes them even more fearful of what would happen in the future if climate change impacts were not mitigated.

Figure 18. Students' Feelings towards Climate Change



Respondents were asked whether they wished to learn more about climate change. Most respondents from the general survey (78 percent) and those from the student survey 89 percent stated that they would like to learn more about climate change. Only 10 percent of general respondents and 9 percent of students were apathetic, stating they didn't mind either way.

ADAPTING TO CLIMATE CHANGE

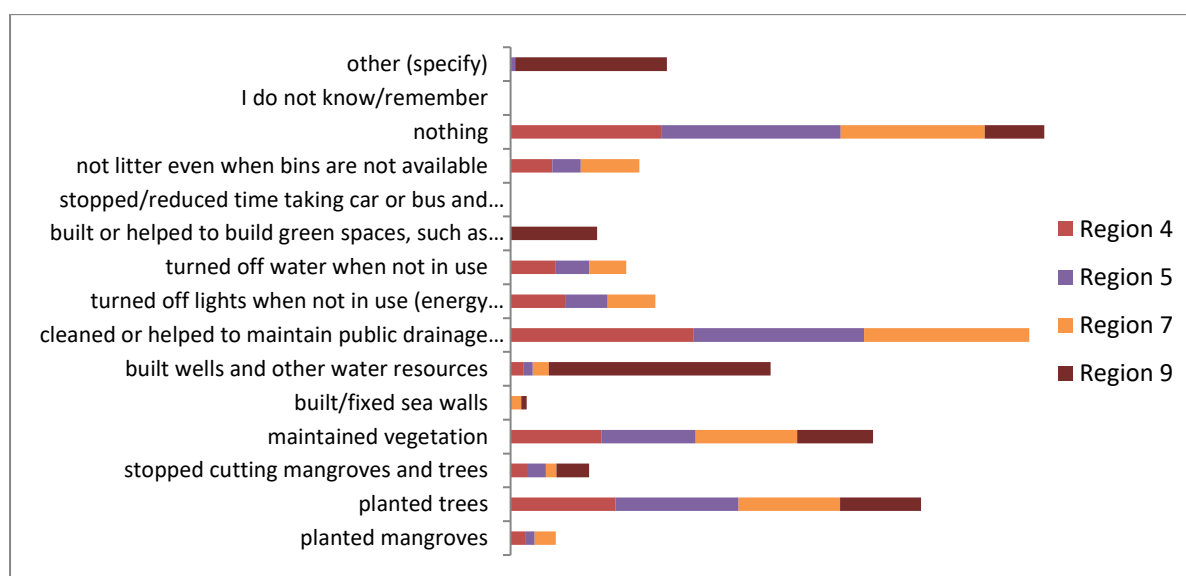
People’s Actions to Adapt to Climate Change

When asked if respondents were taking action to adapt to climate change 69 percent (n=355/514) reported that they were taking measures. Yet, the variance occurred as to intensity in which respondents acted based on their location. Respondents who lived in regions 4 & 9 reported a higher percentage of actions taken to adapt to climate change. Although residents in flood zones reported most losses due to climate change, 21 percent in Region 4, 25 percent in Region 5 and 20 percent in Region 7 reported not doing anything to adapt to extreme the effects of climate change.

Table 6. Showing Regional Adaptation Activities to Climate Change

What have you done already to adapt to climate change?	Region 4	Region 5	Region 7	Region 9
planted mangroves	2%	1%	3%	0%
planted trees	15%	17%	14%	11%
stopped cutting mangroves and trees	2%	3%	1%	5%
maintained vegetation	13%	13%	14%	11%
built/fixed sea walls	0%	0%	1%	1%
built wells and other water resources	2%	1%	2%	31%
cleaned or helped to maintain public drainage systems from waste	26%	24%	23%	0%
turned off lights when not in use (energy efficiency)	8%	6%	7%	0%
turned off water when not in use	6%	5%	5%	0%
built or helped to build green spaces, such as parks or gardens	0%	0%	0%	12%
stopped/reduced time taking car or bus and walked or cycled	0%	0%	0%	0%
not litter even when bins are not available	6%	4%	8%	0%
nothing	21%	25%	20%	8%
I do not know/remember	0%	0%	0%	0%
other (specify)	0%	1%	0%	21%

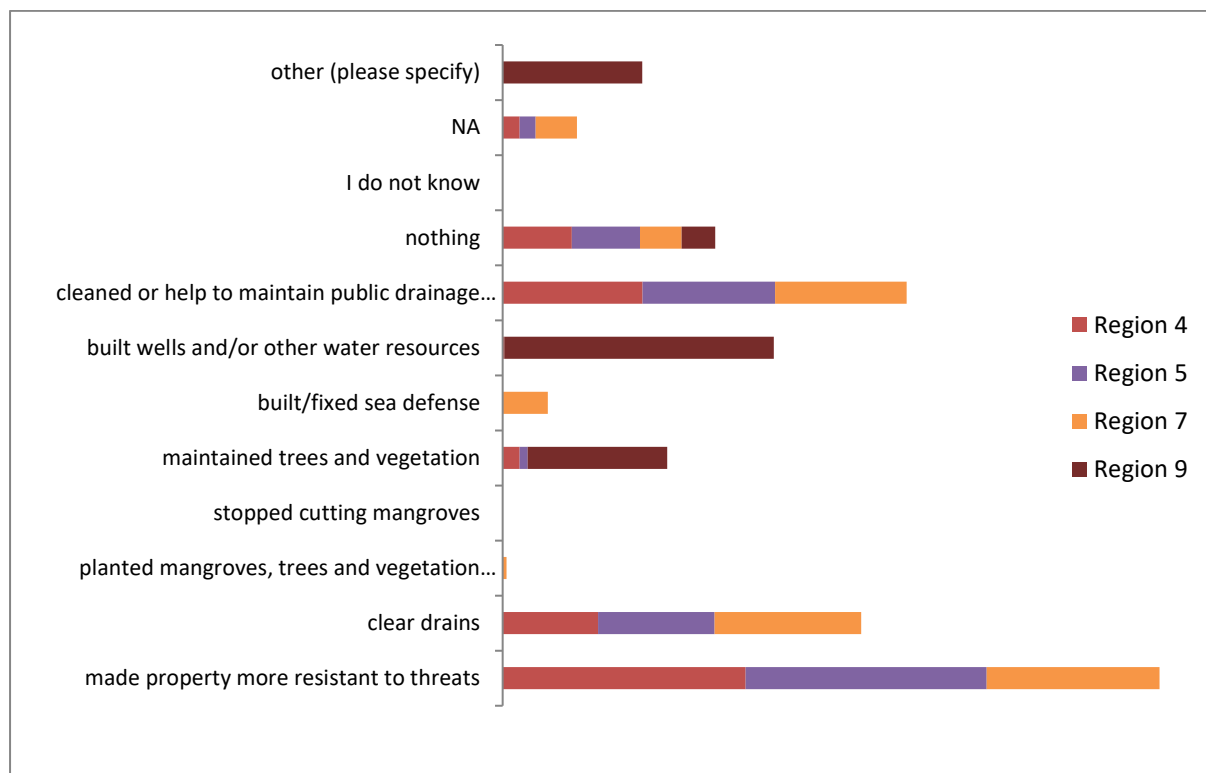
Figure 19. Percentage distribution of respondents who took adaptation measures



Of the 355 respondents who reported taking measures to adapt to climate change 74 percent (n=264/355) stated that their adaptation strategy was to make their homes resistant to flooding. As shown in the figure below, this was the most prominent measure amongst respondents from Regions 4, 5 & 7. This is based on the fact that the communities surveyed in this region experience severe flooding. As we further analyse the data, it is evident that these three regions share commonalities in how they respond to disasters, e.g. the cleaning of drains, both domestic and public were also practices these regions share.

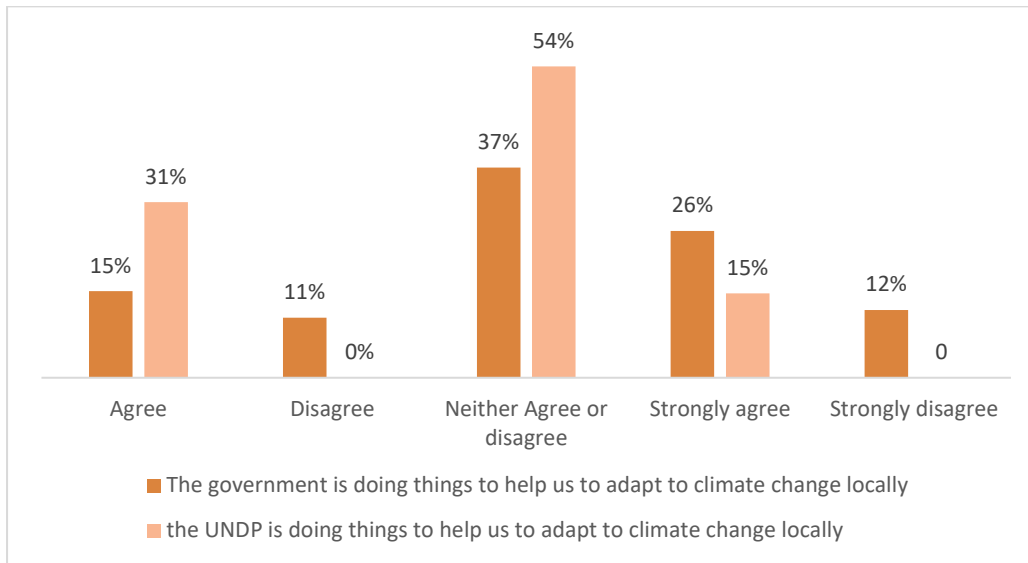
Unlike the other regions, Nappi has been affected by droughts, which can account for the reasons why none of the respondents indicated the need to make their property more resistant. However, this is not to say that Region 9 is not affected by floods, as the survey with students in St Ignatius revealed that St Ignatius and the adjacent capital of the region, Lethem, had suffered from floods. Yet, if we were to focus on Nappi and its satellite communities, activities such as building wells and other water resources (46 percent) has been made a priority. 24 percent of respondents also selected the ‘Other’ option, stating they have had to *move their farms and change the crops they planted to more drought resistant ones*.

Figure 20. Respondents’ Preparations for Natural Disasters



When asked if they thought the government was taking actions to help them adapt to climate change, 41 percent agreed to some extent, with 26 percent strongly agreeing that actions were being taken. When asked whether they thought international agencies like the United Nations were taking actions, none of the respondents disagreed. This might be due to implementer of the survey being a UNDP consultant. Instead, the majority of respondents (54 percent) stated that they neither agreed nor disagreed to the statement, as they did not know what the UNDP were doing to help Guyana’s citizens adapt to climate change. A marginally higher percentage of respondents (46 percent), therefore, agreed to varying degrees that the UNDP were taking actions to help respondents adapt.

Figure 21. Degrees to which respondents agreed that government and international organisations were assisting in adaptation strategies



ACCESS TO INFORMATION THROUGH MEDIA

Although most people felt that they understood climate change to a certain extent most respondents felt that more information was needed.

When asked for the preferred medium through which information about climate change should be made available, there was variance depending on region. It is important to note that as Guyana has varying terrains, which are not easily accessible, many communities will not have access to all modes of communication as others. For example, some communities in the interior of Guyana only receive newspapers several times a year. Others have no access to internet or telephone services, and communicate via radio. Bearing this in mind, it is necessary to point out that when assessing access to information and ways in which information should be disseminated we must consider Guyana in terms of regions and not as a conglomerate.

Regions 4, 5 & 7, showed the same trend when looking at the most effective channels for delivering information. These were mobile phone for calls and text messaging, followed by the local television and then the radio. This is based on respondents using these technologies daily and/or 3-6 times a week.

In Region 9, however, as locals who have televisions rely on satellites from Brazil, more than half of the respondents from the region (57 percent) stated that they never watched local television. For the communities in this region the most effective channels for delivering information have been via radio (46 percent) and mobile phone (57 percent). 40 percent stated that they texted daily.

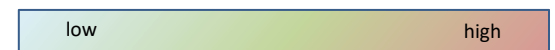
Figure 22 below highlights the intensity/frequency through which each region consumes the most common channels for communication in Guyana.

REGION 4	Very					
	Daily	Often	Often	Seldom	Sometimes	Never
TV (local)	80%	17%	3%			
TV (international)	57%	27%	5%	6%	6%	
newspaper	20%	12%	30%	24%	14%	
radio	70%	7%	8%	2%	6%	6%
email	5%	12%	9%	23%	7%	44%
text/SMS	93%	0%				7%
Whatsapp	65%	0%			1%	34%
Skype		0%	8%	15%	6%	71%
Facebook	58%	13%	3%	3%	5%	19%
Instagram	10%	1%	0%	2%	2%	85%
Twitter			1%		2%	97%
Phone	63%	7%	2%	11%	7%	11%
Phone (mobile)	100%	0%				

REGION 5	Very					
	Daily	Often	Often	Seldom	Sometimes	Never
TV (local)	82%	17%	1%			
TV (international)	53%	34%	1%	7%	4%	1%
newspaper	10%	11%	30%	33%	16%	
radio	81%	2%	2%		6%	9%
email		8%	11%	30%	4%	47%
text/SMS	85%		2%			13%
Whatsapp	56%					44%
Skype			8%	13%	2%	77%
Facebook	50%	17%	2%	3%	4%	23%
Instagram	9%			4%		87%
Twitter			2%		4%	94%
Phone	52%	9%	2%	15%	7%	14%
Phone (mobile)	100%					

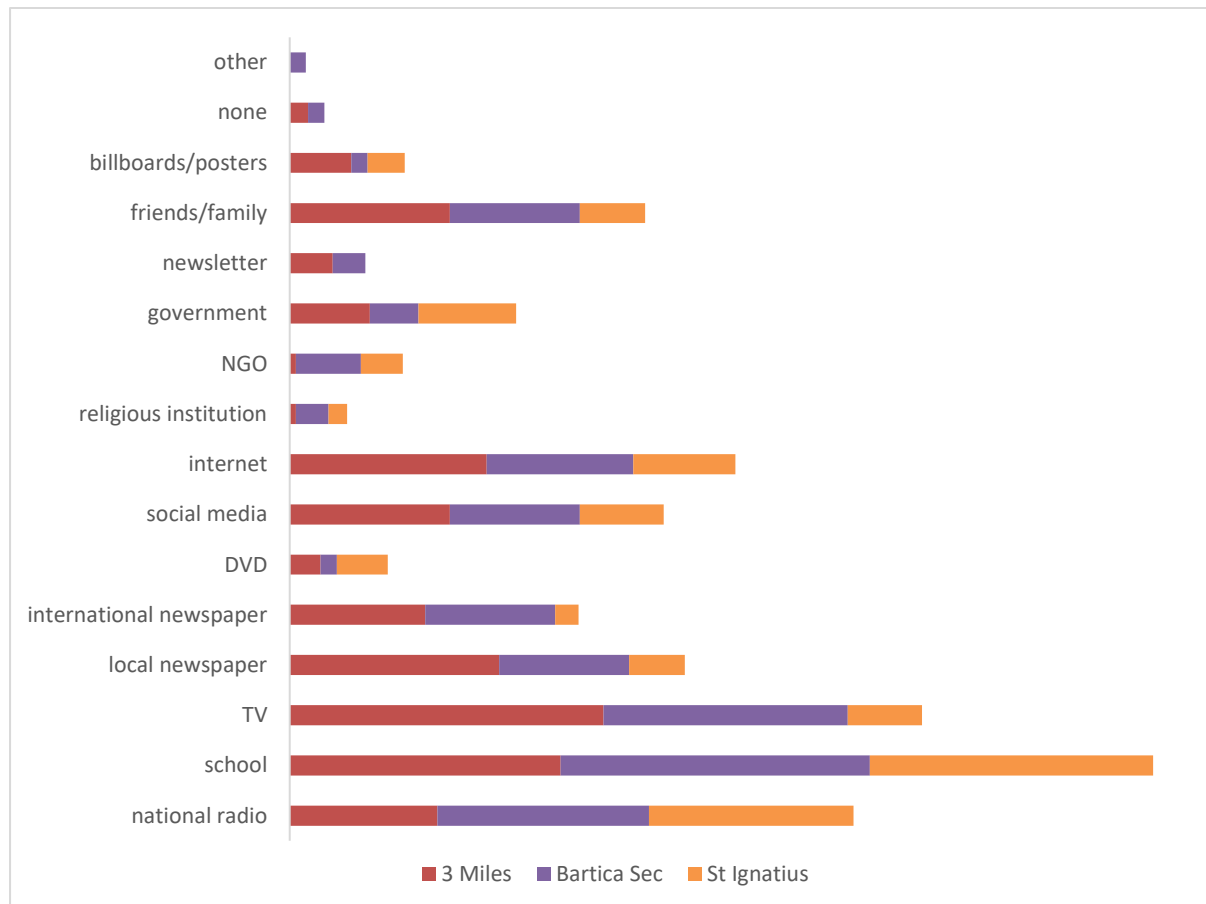
REGION 7	Very					
	Daily	Often	Often	Seldom	Sometimes	Never
TV (local)	84%	15%	1%			
TV (international)	53%	33%	2%	7%	5%	
newspaper	11%	13%	32%	29%	14%	
radio	72%	7%	8%	2%	4%	6%
email	3%	13%	7%	32%	5%	39%
text/SMS	94%					6%
Whatsapp	65%					35%
Skype			7%	16%	4%	72%
Facebook	55%	19%	5%	3%	5%	13%
Instagram	10%	1%		3%	1%	85%
Twitter					3%	97%
Phone	62%	8%	5%	13%	3%	8%
Phone (mobile)	97%	1%			2%	

REGION 9	Very					
	Daily	Often	Often	Seldom	Sometimes	Never
TV (local)				32%	11%	57%
TV (international)		5%	43%	17%	23%	12%
newspaper		5%	18%	17%	40%	20%
radio	46%	49%	5%			
email	2%	3%	11%		6%	78%
text/SMS	40%	18%	6%			35%
Whatsapp	8%	11%	9%			72%
Skype				5%	5%	91%
Facebook	9%	25%	6%	5%	15%	40%
Instagram					3%	97%
Twitter						100%
Phone						100%
Phone (mobile)	57%	26%	8%	2%	6%	2%



When asked the medium through which they have heard of climate change the majority of students (62 percent; n=61/98) in St Ignatius stated that they have learnt the most about the topic through school (62 percent), whereas 68 percent of Bartica Secondary students (n=19/28) and 60 percent of Three Miles Secondary students (n=44/74) stated the same. Around 69 percent of students attending Three Miles Secondary stated that they had learnt this through the television.

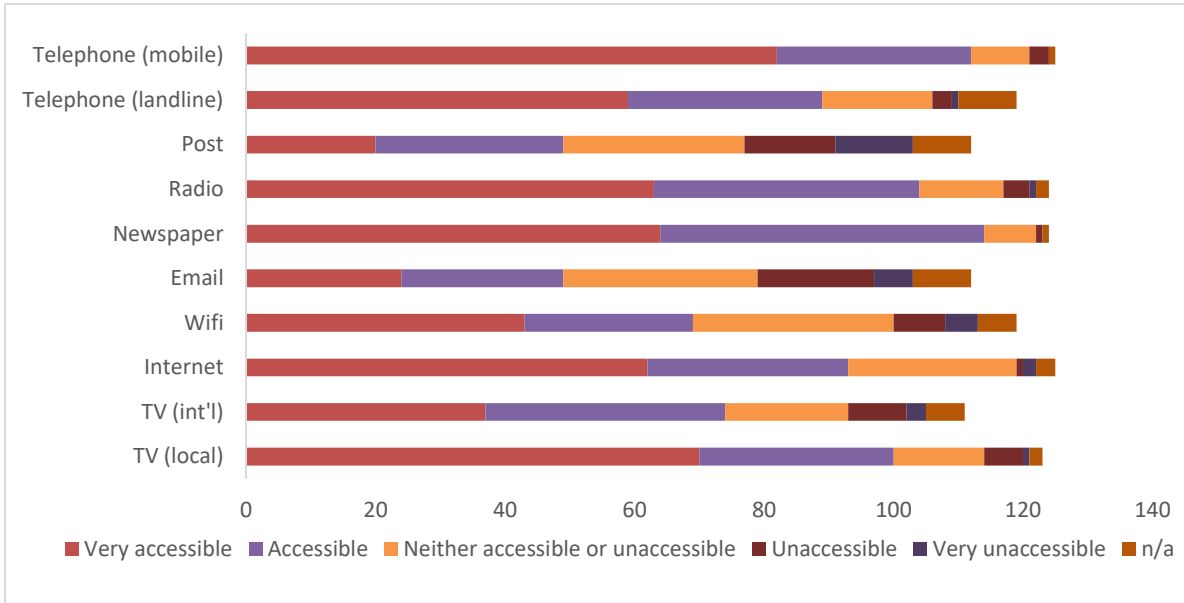
Figure 23. Distribution of how Students receive information on Climate Change



Around 93 percent of students stated that their most frequently used channel for sourcing information was through their mobile, followed by 86 percent who stated that social media/Facebook was their second, followed by 71 percent stating that they get their information from local television.

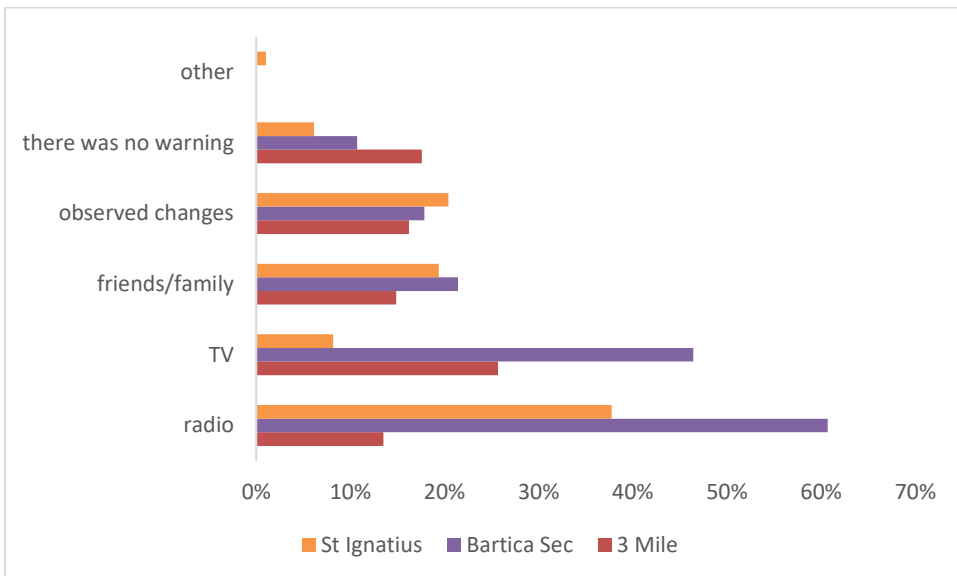
When asked which media were easily accessible, most students in both Regions 7 & 9 found that local television, radio, mobile phones and the newspapers were the most accessible. However, the most accessible means for communication appears to be the mobile phone, with 41 percent of all students stating that it was very easy to access this device and 56 percent stated that it was very accessible or accessible. If we were looking at accessibility in general the order for most accessible would be the newspapers, then mobile, then radio, then local television.

Figure 24. Students' Accessibility to Modes of Communication



Students were then asked about disaster warnings and the medium through which they have received information prior to a disaster occurring. For St Ignatius students, the radio was how most students received warnings prior to a disaster occurring (38 percent). This was followed by general observations (20 percent) made by the students, and being informed by family and friends (19 percent). Likewise, for students attending Bartica Secondary the majority received warnings via the radio (61 percent) and 46 percent received this information through the television. It is important to note that the high percentage for Bartica Secondary is related to the small sample size.

Figure 25. Disaster Warnings Amongst Students



Local Channels for Communication

Respondents were asked to identify popular local media outputs that they listened to, watched or read most frequently. The table below highlights the most frequently stated channels on radio, T.V. and newspapers. It also highlights hinterland communities' most frequent forum through which they access information.

Table 7. Local Channels Most Accessed

REGION	OUTPUTS			
	TV	RADIO	NEWSPAPER	OTHER
Region 4 – Luisignan and Good Hope	28, 67	93.1, 98.1	GuyanaTimes Kaieteur	
Region 5 – Bushlot	8, 10, 15	98.1	Kaieteur	
Region 7	Tarzie		Kaieteur	
Region 9		Radio Lethem 95.1FM		Community Meetings
Students – Region 7	Tarzie			
Students – Region 9		95.1FM		

QUALITATIVE FINDINGS

This section analyses the findings from five Focus Group Discussions (FGDs). It delves further into the findings from the quantitative studies by providing context to respondents’ knowledge, attitudes and practices.

Focus Group Discussions (FGDs) were held in four of the seven communities, namely in Luisignan, Bushlot, Nappi, Bartica, with each group consisting of six to ten community members. The FGDs lasted between 45-90 minutes and were held in local community spaces, such as schools, local shops and community members’ homes. Participants represent a cross-section of the population—i.e. disaggregated by gender, age, and economic status. The groups were divided as follows:

Table 8. Representation of Community Members

Region	Focus Group Participants	No. of Respondents
4 - Luisignan	Male and Female community members, local business owners	10
5 - Bushlot	Male and Female community members, local business owners, farmers	9
7 - Bartica	Male & Female Community Members, local business owners, miners, fishermen	10
9 - Nappi	Female Community Members	6
9 - Nappi	Male and Female Farmers	10
	TOTAL	45

The FGDs were guided by the following topics:

1. The extent to which people in the community have heard of the term “climate change”
2. Current perceptions and understandings of what climate change actually is and the impact community members believe it may have (i.e., how climate change is defined in the minds of the respondents)
3. The degree to which respondents believe climate change will affect them personally and how they perceive their personal level of risk as it relates to the effects of climate change
4. Changes in behaviour that respondents may be taking to reduce their level of risk and why they are taking these steps and they may not be taking others, if they are taking any at all.
5. The extent to which respondents perceive climate change risk affecting their community and which groups may be more vulnerable to the effects
6. The extent to which respondents are aware of what the UNDP and the Government of Guyana are doing about climate change
7. Respondents’ perceptions of roles and responsibilities to improve climate resilience

Key Stakeholders who participated in the Sector-Based Focus Groups were from the agriculture, services, fishing and extractives sectors. Stakeholders from public service were also engaged in vis-à-vis interviews, as has been outline in the table below.

Table 9. Showing Key Stakeholders based on Sector

SECTOR	Number of Respondents	Participating Regions			
		4	5	7	9
Agriculture	19	4	5	0	10
Fishing	3	0	0	3	0
Livestock	3	1	0	0	2
Extractives	2	0	0	2	0
Goods/Services	8	2	2	4	0

Participants’ Understanding of Climate Change

The discussions that came out of the focus groups highlighted that respondents from Region 9 knew the most about Climate Change. All sixteen (16) respondents across the two focus groups in Nappi stated that they had heard of climate change and understood what it meant. They were able to articulate causes of climate change with all respondents being able to list at least one cause. The causes mentioned included carbon emissions, burning of fossil fuels, pollution and deforestation.

Although all of the nineteen (19) respondents from Region 4’s focus group in Lusignan stated that they understood climate change, only five were confident enough to state ‘yes’, of which were four farmers and one student. Eleven (12) of the participants stated that they understood climate change to an extent of which one was a 26-year-old farmer, who stated

“I know much about climate change and its causes, but I still do not know how we can survive if it keeps on happening.” – 26-year-old Farmer, Lusignan

The remaining two respondents stated that they did ‘not really’ understand climate change, and just knew that it “means something about the weather and how much flooding [we have]” – 20-year-old Woman, Lusignan

In Region 5, only one respondent stated that she understood climate change, whereas all other respondents stated that they understood climate change ‘to some extent. Likewise, in Region 7, three (3) respondents stated that they understood climate change, five (5) stated ‘to some extent’ and, one stated ‘not really’.

In all communities, the most fervently discussed cause of climate change was the issue of *Deforestation*. This was brought up in all discussions in relation to the recent logging activities by Chinese Logging Company, Bai Shan Lin’s operations in the country. Respondents in Regions 7 and 9 appeared to be the most knowledgeable about the company’s activities. Several respondents expressed their concerns in the following ways:

“Miss, they are supposed to cut down trees of a certain size, and leave the smaller ones, but they are cutting down everything. They are not following the laws, but no one seems to be saying anything” – 59-year-old man, Nappi

“dem Chinees cutting down all we forest which is not good fuh di environment”
– 33-year-old Woman, Bartica

This is not to say that other communities were unaware of the issue of deforestation and overlogging in the country as members from all regions had a perspective on Bai Shan Lin’s operations in the country.

“Let me ask you something? If the government supposed to be protecting the forest, how they give Bai Shan Lin all the land to clear away so much trees? Dat nah contribute to climate change?” – 45-year-old man, Lusignan.

The majority of the focus group respondents (n=20, 44 percent) felt that human activity was a main factor in exacerbating the impact of climate change. Amongst these respondents the example of the burning of rubbish was brought up, particularly in Regions 4, 5 and 9, as having a negative impact on the environment. When probed as to how they knew this, respondents noted that government officials spoke out against burning rubbish and the negative impacts this action would have. In Nappi, respondents also mentioned the fact that the Amerindian Peoples’ Association have engaged regularly with them on climate change and the negative impacts some of their actions have had on the environment, which was why they felt that they were mainly responsible for climate change. Other respondents stated that climate change is mainly caused by natural changes, with 13 percent (n=6) selecting this option, and 31 percent (n=14) attributed both human activity and nature to the impacts of climate change in Guyana. The 5 remaining respondents stated that they were unsure as to which activity had the most or least influence on climate change and wanted to learn more about what they could do to alleviate some of the pressures they posed.

Figure 26. People’s perceptions (by location) about who is responsible for climate change: Human Activity vs Nature

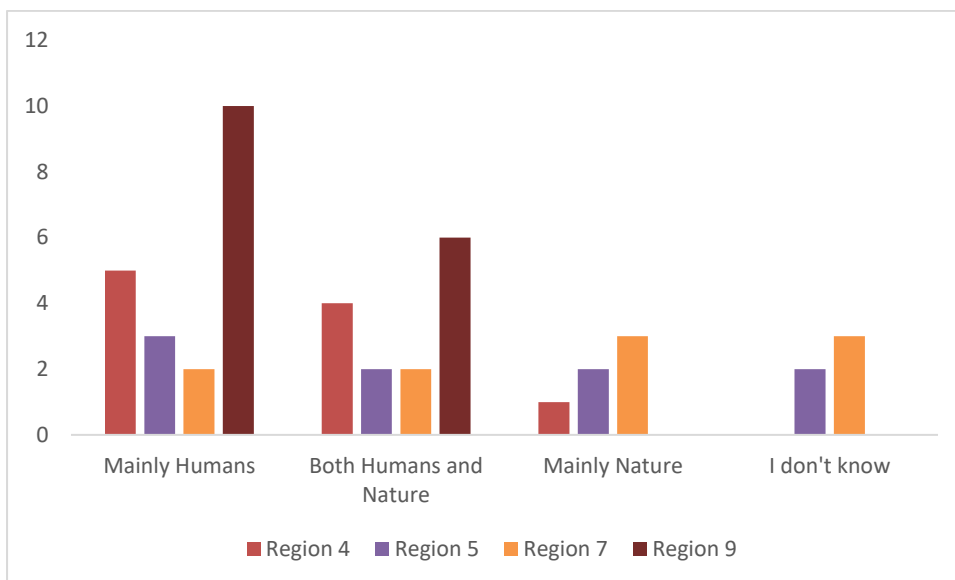
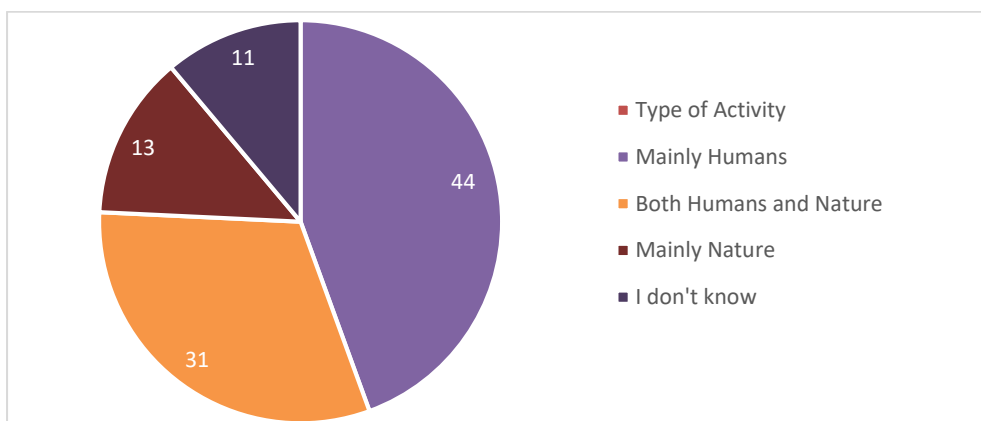


Figure 27. Perceptions on Types of Activities Responsible for Climate Change (%)



Attitudes towards Climate Change

During the focus group discussions, sixteen (16) respondents stated that they were fearful as the current impacts of natural disasters had negative outcomes on their livelihoods. The majority who expressed fear were those living in Region 4, particularly with those small business owners who stated that they were fearful of not knowing if they will be able to sustain their families, if the floods constantly pose threats to their livelihoods.

“Miss, this [life] is hard! Then you add all the floods which means we can’t open shop to make money to put food on the table. You know what it is to not know when your business can open? It’s hard man!”

When asked as to whether they would like to learn more about climate change, almost all respondents stated that they would like to learn more with the exception of four (6) of which four stated that they didn’t mind and two who stated that they already knew enough. Those in the focus groups who were apathetic and dismissive of the idea stated several reasons for their reactions. The most frequent response, however, was that they were constantly met by government officials and members from international organisations asking about climate change and the environment. Hence, they expressed that they didn’t have any particular feelings towards whether they should learn more about climate change or not, and were more interested in seeing actions take place. This was also the sentiment amongst several respondents who stated that they wanted to learn more about climate change.

Figure 28. Frequency of words used during focus groups in association with climate change

weather government less rain future **hotter** confused loss in income temperatures
flooding deforestation cutting trees **hopeful** suffering **more rain** dead animals **no crops**
drought powerless hard **environment** NGO rainfall drains pollution sea walls seawater

Experience of Living with & Adapting to Climate Change

The farmers in the FGDs recounted the impacts they suffered. Farmers in Region 9 stated that they were seeing significantly lower yields in their citrus farms, which has caused some to abandon their citrus farms to focus on others that were showing resiliency to the weather, such as cassava crops. In this drought afflicted area the most common response was to move their farms from the forests to the savannahs, which is a relatively new approach to coping with the impacts of irregular water resources for the farms.

In Regions 4 & 5, farmers stated that they were affected by flood waters which posed several issues. Some stated that the salinity of sea water had ruined their crops, whilst others expressed that because their farms were flooded they could not plant during the planting period, which meant that they would miss a planting cycle. Of course, the repercussion for these farmers is loss in income due to loss in agricultural production.

In Region 4, all respondents stated that they were affected by flooding through damage to property, which caused all but four to take measures to adapt. These respondents either built up their yards or build barricades to prevent flood water from getting into their property. Those who did not take measures gave varying reasons as to why this was the case. However, all four stated that the main

factor related to the fact that they did not have enough financial means through which to take such measures.

The respondents further expressed their frustration of current measures that were being taken.

“we are tired of seeing waves coming over the walls” and

“What [are] sand bags going to do? That’s not enough.”

- Lusignan Respondents

In Region 7, all of the respondents spoke of their experiences with flooding in relation to the drainage system of Bartica. More importantly, all respondents agreed that the drainage is a problem because of the amount of rubbish dumped there by residents. When there is heavy rainfall or the tide is high, water was not able to drain off due to the amount of rubbish in drains that prevented this from happening.

“I don’t care who vex with me, only when the president come do they hurry to clean up. I have a business by the arcade, and [the people who work there] like to leave their garbage.”

43-year-old businesswoman, Bartica

As a result, some residents stated their frustration that they did not know if they would have been affected as much if it had not been for the rubbish.

“We don’t even know if we would have the floods as bad as we do because we got so much garbage clogging the drainage. Nobody cleaning.”

– 30-year-old miner and manual labourer, Bartica

In response to the above comment:

“I don’ know why y’all think people gah fuh walk behind us and pick up our trash. If we don’t change, then how yuh expect things to get better. The situation getting worse and worse. Wuh gon’ have to happen for us to change? It shameful!” – 43-year-old businesswoman, Bartica

During the discussion in Bartica, due to the drainage problem, almost all participants stated that they regularly clean their drains as they found that it lessened the impacts of the flooding. One participant stated that when he cleaned the drains outside of his house, he saw that his yard was not as flooded as it usually is when flooding occurs. Instead, only a small section of the front of his yard was covered in water, and that, he stated, was because his neighbours did not clean their drains causing more water to come over.

Respondents who did not take any actions, although they suffered losses, were further probed as to the reasons this was the case. Reasons given for this were that some did not know what to do, others did not have enough money, and the rest did not have access to the right technology to implement the knowledge they had. However, the majority of respondents considered their financial situation to impede their ability to adapt to climate change. As poverty is often a major impediment to disaster preparedness, respondents stated that unless the government or an international organisation assisted, they were not able to prepare.

Access to Information

Focus group participants were asked two major questions in relation to access to information and media. These were:

- 1) How do you usually receive information? Discuss how often and why they use that medium as opposed to others.
- 2) How would you propose communicating climate change so that people take notice?

In Regions 4 and 5, most respondents stated that they relied on the television, radio and the newspapers for their information. However, when it came to the frequency of which these were accessed. Almost all stated that sometimes they only read the newspapers once a week, and that time was on Sunday, where the week's news would be published.

In Regions 4, 5 and 7 the majority of respondents stated that they read Kaieteur, followed by Stabroek Newspapers. In Lusignan, another frequently referenced newspaper was the Guyana Times.

All stated that the use of TV, radio and newspapers were all easy to access, which was why they used those the most. In Bartica, all respondents stated that they listened to the local radio station called Tarzie. One participant from Bartica stated that they heard a PSA from on Green Bartica through the radio, and thought that this focus group was a part of that initiative. Whereas in Nappi, respondents stated that they listened to the newly formed 95.1FM Radio Lethem station.

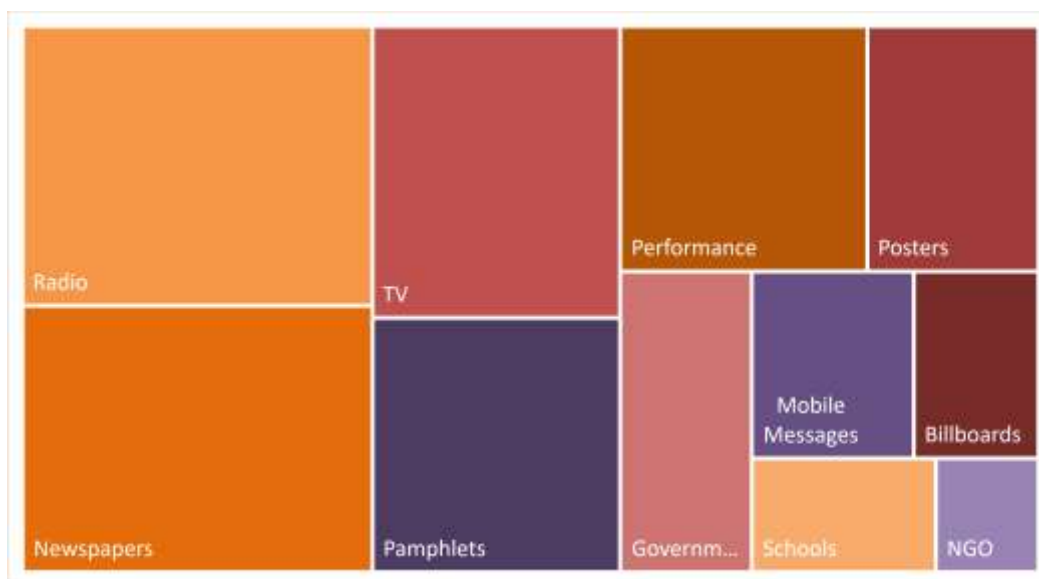
All Focus Groups had access to a mobile and used it daily. However, only a few stated that although they had mobiles, they only called or texted. Around eleven people stated that they accessed the internet through their phone, with no respondents from Region 9 attesting to this.

When asked their preferred mode of communication through which to receive information on climate change, participants responded as illustrated below.

Table 10. Preferred modes of communication

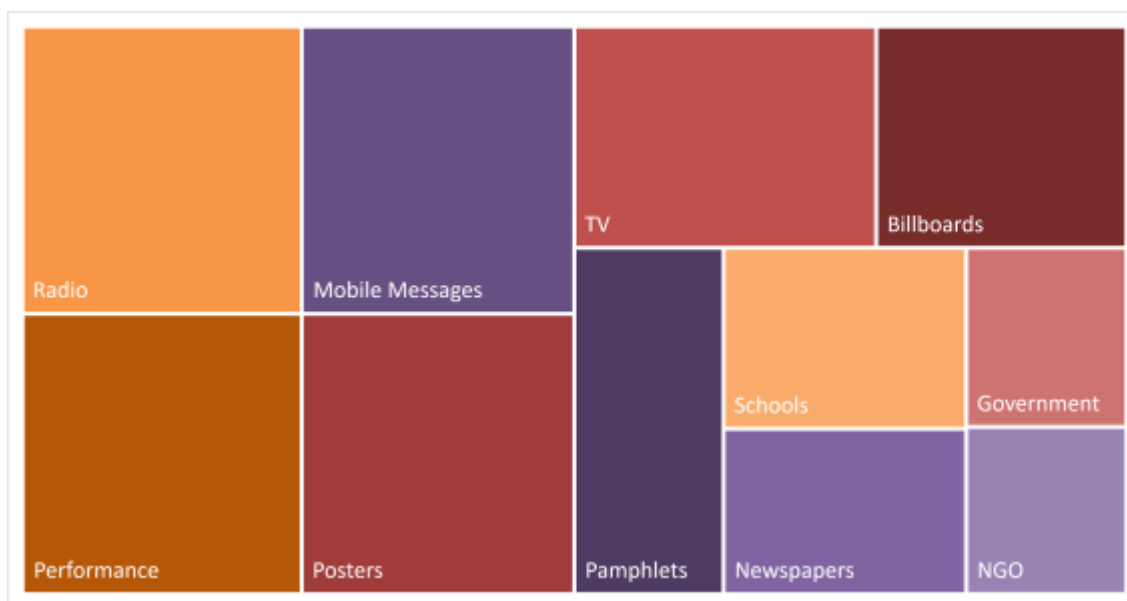
Mode of Communication	No. of Respondents
TV	31
Newspapers	40
Radio	42
Billboards	10
Pamphlets	27
Performance	26
Government	17
NGO	5
Schools	9
Posters	18
Mobile Messages	13

Figure 29. Distribution of Types of Media Recommended to communicate Climate Change



However, after respondents discussed which modes of communication they found most exciting and most impactful. The distribution changed.

Figure 30. Distribution of Types of Media Recommended After FGDs



Initially most respondents felt that radio and newspapers were the best ways through which to communicate information on climate change. However, almost half of the respondents stated that when they read the newspapers they sometimes glossed over messages or ads on topics like climate change, and focused more on headlines that about the government, crime and social issues.

In Region 9, all respondents stated that they receive most of their information through a community meeting, and that this would be the most effective way to get information into the community, as well as ensure that they understood. At the same time, all but three people in Nappi stated that pamphlets would be ideal, as they could refer to it later on.

In Bartica, one man commented that it would be good to have a ‘guide’ on ways they could adapt to the effects of climate change, instead of just a pamphlet about what is climate change. Other members then started to concur and nod their heads in agreement.

“All the time they giving we a whole set of papers to read with the same thing on the papers. What I want to see is a paper telling me what I got to do to make sure my situation is taken care of” – 30-year-old miner, Bartica

In Regions 7 & 9, respondents mentioned the fact that performances by local groups were creative ways through which to communicate information, and that they have already experienced information about climate change communicated by such means. In Nappi, one of the participants in the women’s focus group performed with the Bina Hill Performance Group a song about climate change.⁸As a result, a lot of the participants were familiar with the song, which encouraged the woman to sing the song in the session. Both focus groups in Nappi explained that they have frequent performances by the local culture groups, who sing, act and put on plays about issues plaguing the community.

In Bartica, a few respondents mentioned that there was a performance about the environment in relation to Green Bartica, but they were not able to relay who the group was. One member said, that it would be nice to involve groups like that on climate change, or to even engage students from the school to form a climate change group—a sentiment the Headmistress of 3 Miles Secondary School shared, especially as it pertained to involving children in the dormitories, who were lacking activities. In all the groups, respondents were very receptive to having posters. However, all respondents were interested in having vivid imagery of their environment and others showing how all over the country has been affected by climate change.

As most people have mobile phones, respondents thought that having messages sent to their mobiles with a tip on how they could become more resilient would be an effective way to convey messages. Three people conveyed concerns over the fear of having too many messages on their mobile, but members in the group stated that instead of having daily messages, there could be weekly messages which would negate any issue of messages becoming overwhelming.

⁸ Bina Hill Institute’s Climate Change song can be accessed here < <https://youtu.be/9zz-p6HeqF4> >

CLIMATE CHANGE ADAPTATION POLICY & ACTIONS

For a clear understanding of climate change awareness, it is necessary to understand the extent to which climate change is being integrated into national policies and decision making processes. As climate change has been shown to affect households and impact sectors, particularly the agricultural sector, part of engaging the nation in an adaptation and mitigation strategy is in part by addressing the mainstreaming of climate change actions.

As is evident from the study thus far, climate variability has the potential to inflict grave consequences socially and fiscally. This is particularly true for the agricultural sector in Guyana, as has been highlighted by respondents in Regions 4 & 9. However, the agricultural sector affects all of Guyana, as it supports the national GDP and is the main livelihood support for rural and hinterland communities.

Guyana has signed onto numerous climate change adaptation projects, but one of the most integral is the National Adaptation Strategy to Address Climate Change in the Agriculture Sector. The aim of this strategy is to reduce the risks climate change poses to the sector, and to push forth an adaptation strategy that leans on a technical innovation and diversification process. More specifically it aims to:

- Enhance the capacity within the agricultural sector to adapt to climate change and position this Strategy to foster a nationally consistent policy framework.
- Build resilience and adaptive capacity within the sector.
- Assist the government in providing primary producers with a policy framework that embraces research and development and promotes climate change adaptation techniques in agriculture.
- Build greater awareness about adaptive techniques.⁹

Key Stakeholders to Climate Change in Guyana

Key Stakeholders to the discourse of climate change in Guyana were interviewed as part of this study. This section looks at how these agencies are working towards facilitating climate change adaptation and awareness, and those challenges they face in doing so.

Office of Climate Change, Ministry of the Presidency

The Office of Climate Change (OCC) is perhaps the most prominent focal point in Guyana for the discourse on climate change as it facilitates work on climate adaptation, mitigation and forest conservation across the Government. This also includes Guyana's engagement with the Low Carbon Development Strategy (LCDS), the Forest Carbon Partnership Facility, the Forestry Investment Programme and UN-REDD.¹⁰

The OCC is currently engaged in a long-term initiative called The 'Green Bartica Plan' which involves a holistic approach to sustainable economic growth in Bartica. The OCC's role is to lend support to the Office of the Presidential Advisor on Environment as it pertains to a communication strategy. The main objectives of the plan are "to create a climate-resilient economy and to establish a green pathway for

⁹ Grantham Research Institute on Climate Change and the Environment, LSE

<http://www.lse.ac.uk/GranthamInstitute/law/national-adaptation-strategy-to-address-climate-change-in-the-agriculture-sector-of-guyana-strategy-and-action-plan/>

¹⁰ The REDD Desk. Office of Climate Change, Guyana. Available <

<http://theredddesk.org/countries/actors/office-climate-change-guyana-0>>

the foundation of a new Guyana, which will result in reducing the overall carbon footprint in electricity, agriculture, fisheries, water, forestry, waste, manufacturing, transport, construction, tourism and other sectors.”¹¹The office has so far launched a mobile app, produced a successful inter-school ‘Green Bartica’ debate between Bartica and Three Miles Secondary Schools, a spelling bee competition for primary schools, and have developed campaigns through billboards, radio, social media and ‘Green Bartica’ memorabilia. They have also developed ‘Green Messages’ via time signals and have held community forums.

Guyana Energy Agency

Guyana Energy Agency is the main stakeholder in implementing energy efficiency initiatives throughout the country. The agency recently received Cabinet approval to act as the key implementer for national energy efficiency programmes, such as energy audits on the public sector’s energy consumption, design of renewable energy strategies and energy awareness campaigns.

At the grassroots level, GEA targets 45 schools every year to educate students on energy conservation and efficiency through the dissemination of education materials and the facilitation of activities, such as competitions where schools participate to win energy efficiency technologies.

As it pertains to pilot projects, the GEA is currently working with hinterland communities to integrate energy efficient technologies into community development plans. In Moco-Moco, in Region 9, they are working on electrification of an agriculture project

Challenges have been encountered in getting the content out beyond the public sector, as well as measuring the effectiveness of campaigns. There is also need for technical support in conducting energy assessments, particularly as it pertains to Hinterland projects.

Guyana Water Incorporated

Guyana Water Inc. (GWI), an entity that aims to “deliver safe, adequate and affordable water and to ensure safe sewerage systems for improved public health and sustainable economic development,”¹² has embarked on analysing and augmenting existing Needs Assessments and developing a Service Improvement Strategy and Associated Action for integrated water supply and on-site sanitation services in the Hinterland. One example of their engagement is through a drought management initiative for Region 9. However, GWI is in the process of devising a sustainable integrated water resource plan to address the Hinterland communities.

There are several challenges, however, as in development of programmes around waste water management. This challenge is particularly evident amongst the private sector as to but this was considered a failure as waste management was deemed too expensive for many. Additionally, Integrated water resource management requires participatory principles that look at local level capacity. As a result, the GoG through GWI have recognised the need for a National Water Council to facilitate management of water resources across the country, particularly with the increase of floodings and droughts across the country. This has been identified as critical if a high quality of water service is to be provided. This is particularly urgent in areas where there is a lack of water safety and water security.

“Despite the prevalence of water in the country, the recent event of El Niño shows that the country is vulnerable. It reminded that water management remains a critical area and a critical issue that has to be addressed, and it will be one of the areas of responsibility of the National Water Council.”
Minister of Communities, Hon. Minister Bulkan

¹¹ “‘Green Bartica’ initiative moving smoothly” Guyana Chronicle. 3rd July 2016. Available <<http://guyanachronicle.com/2016/07/03/green-bartica-initiative-moving-smoothly/>>

¹² Mission Statement of GWI Available <<http://www.gwiguyana.com/>>

Conservation International – Guyana

Conservation International Guyana (CI-Guyana). works to empower sustainable development through conservation efforts. CI-Guyana has partnered with the GoG and the Guyana Forestry Commission (GFC) to support the development of an essential component of Guyana’s national Monitoring Reporting and Verification System (MRVS) by building forest carbon stocks measurement and monitoring capacities for REDD+ in Guyana.¹³ At the same time, grassroots mechanisms like the Village Resource Development Plans¹⁴ offer holistic processes through which communities can integrate climate change resilience to their community-level projects and annual community development plans. This engagement allows for synergies between sustainable community development goals and an integrated climate change agenda that promotes local level learning and change.

Regional Education Office – Bartica

Climate change is intergrated in science and Social Studies curriculum. Students are also engaged in Health & Family Life Education which is mainstreamed throughout primary and secondary schools, and addresses disaster risks and preparedness as they pertain to the negative impacts on family life. Schools were also engaged in climate change through the Civil Defence Commission (CDC) through the distribution of educational resources, such as posters. It was also revealed that that the CDC also created a video, shown on TV, describing how to prepare for a flood, which students were given access. This was part of a Disaster Preparedness Package distributed by the CDC to all schools. Although the package has been received and information is being disseminated to students, the Regional Educational Officer still believes that there is gap between receiving information and application of knowledge as it pertains to climate change awareness.

Ministry of Indigenous Peoples Affairs

In addressing climate change in Indigenous communities, it is proposed that mapping resources and usage will assist in developing sustainable adaptation plans. Minister Allicock stated that Guyana is moving towards the use of renewable energy especially in the hinterland communities, pointing out that residents of the indigenous communities were finding it challenging to understand climate change. However, he emphasised government’s efforts towards providing them with the necessary information and by ensuring they have access to radio and the internet.

Protected Areas Commission

The PAC play an integral role in protecting and managing natural resources in the forms of the national parks of Guyana. This includes large expanses of land, such as the Kaieteur National Park and the National Botanical Gardens. The Commission is currently being challenged by indigenous communities who would like possession of the country’s largest national park in which they hope to practice traditional livelihoods as well as more destructive practices such as mining and logging.

The commission operates under the Protected Areas Act 2011,¹⁵ which stipulates that the commission would provide maintenance of ecosystem services, which it is able to manage through penalties enacted upon individuals who access the protected area without permission.

Other agencies engaged in this discourse include the Environmental Protection Agency, the Ministry of Education, Ministry of Natural Resources, and the Hinterland Electrification, among others.

¹³ http://www.conservation.org/publications/documents/CI_KfW_Avoiding-Deforestation-in-Guinanas-Program-Factsheet_Brazil_Suriname_Guyana.pdf

¹⁴

http://www.conservation.org.gy/publications/Village_Resource_Development_Planning_Toolkit_For_Communities.pdf

¹⁵ Protected Areas Act 2011, Available < http://parliament.gov.gy/documents/acts/3636-act_no._14.pdf>



RECOMMENDATIONS ON INTERVENTIONS FOR COMMUNICATING CLIMATE CHANGE

In the section on Access to Information, the survey highlight that the most frequently used/preferred form of communication were the mobile phone for calls and text messages (99 percent), followed by local television (82 percent) then radio (74 percent)¹⁶. However, this was the trend for regions 4, 5 & 7. Unlike these regions, Region 9 saw the mobile phone for calls and text messages (57 percent), followed by the radio (46 percent).

Before delving into the recommendations, respondents were asked by which methods would they prefer to receive information on climate change and adaptation strategies. Most of the respondents for regions 4, 5 and 7 stated social media (27 percent, 31 percent, and 32 percent, respectively). This was immediately followed by television (30 percent, 29 percent and 28 percent), then local newspapers (11 percent, 11 percent, 12 percent). This reflects where people have heard or read about climate change and extreme weather in the past, as well as through which medium they believe would be the most effective for their gaining of access to such information, as well as for their learning.

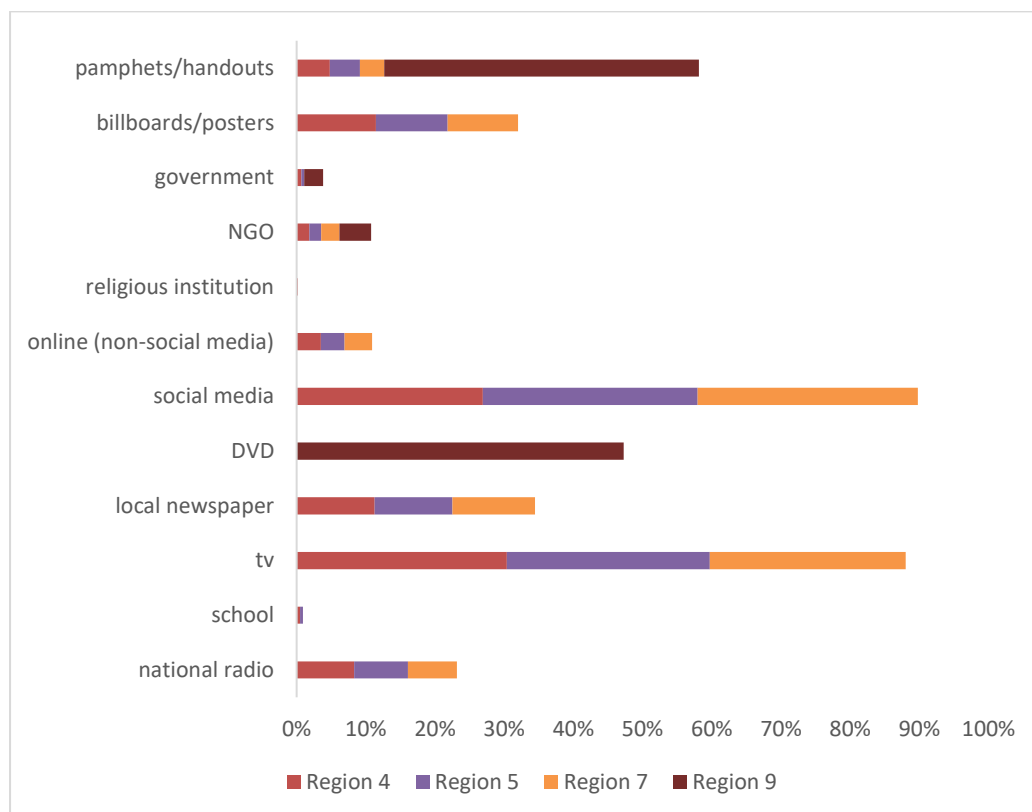
Table 11. Methods for Receiving Information on Climate Change

By which of the following methods would you like to receive information about climate change and adaptation methods?	Region 4	Region 5	Region 7	Region 9
national radio	8%	8%	7%	0%
school	0%	0%	0%	0%
tv	30%	29%	28%	0%
local newspaper	11%	11%	12%	0%
international newspaper	0%	0%	0%	0%
DVD	0%	0%	0%	47%
social media	27%	31%	32%	0%
online (non-social media)	3%	3%	4%	0%
religious institution	0%	0%	0%	0%
NGO	2%	2%	3%	5%
government	1%	0%	0%	3%
newsletter	0%	0%	0%	0%
friends/family	0%	0%	0%	0%
billboards/posters	11%	10%	10%	0%
pamphlets/handouts	5%	4%	4%	45%
leader from community	0%	0%	0%	0%
none	0%	0%	0%	0%
I do not know	0%	0%	0%	0%
other (please specify)	0%	0%	0%	0%

¹⁶ Percentages represent average percentage for regions 4, 5 & 7.

In Region 9, 47 percent of respondents stated that they wanted information to be disseminated through a video on DVD and 45 percent stated that they would prefer handouts. Region 9 is primarily populated by Indigenous communities of Makushi (in the north) and Wapishana (in the south), who rely on community meetings for the most part to receive information on actions occurring in the community. As a result, they rely on their Toshao to organise and lead meetings. However, in one of the FGDs in the region respondents stated that a DVD showing how climate change affects them and the world at large would be most helpful, as they prefer DVDs overall. During this meeting, many stated that they did not agree with respondents who stated that they wanted pamphlets (45 percent) as many did not read them. However, when asked if they would be receptive to pamphlets if they were illustrated with high-quality images and succinct explanations, almost all agreed that that might be a better option.

Figure 31. How respondents would like information on climate change to be communicated

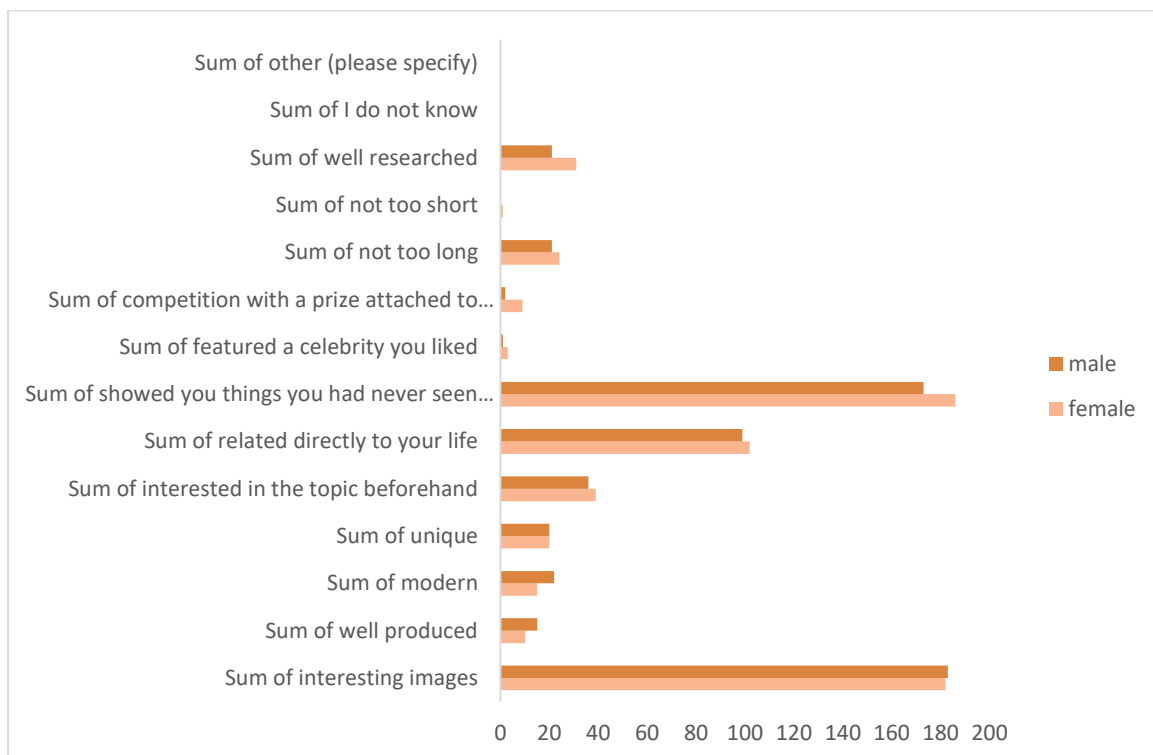


Impact of Campaigns

Respondents were asked what characteristics determined whether a campaign was impactful. In all regions, respondents believed that a successful campaign must have strong imagery. This was immediately followed by the notion that respondents wanted campaigns to show them things they had never seen before. When FGD respondents were asked to delve further into the meaning of this, they stated that they have been constantly engaged in climate change, but yet they still did not understand. They are hoping for a new perspective and a more innovative and “exciting” campaign that used “interesting photographs from Guyana and different parts of the world” (female respondent from Region 9).

What was interesting was the fact that only 52 survey respondents (10 percent) found well researched campaigns to have impact. This was attributed to the fact that they have had so many “well researched” campaigns, but because it wasn’t translated into a medium that provoked interest, they did not consider this.

Figure 32. Perceptions on Characteristics of an Impactful Campaign



RECOMMENDATION MATRIX

Context	Recommendation	Description
There is relative understanding of climate change, however respondents asked for more access to information	Increase communication tools for helping public understand climate change	Design communications on climate change around the information sources that most Guyanese use and trust: mobile phones through text messages, radio, TV, and local newspapers
		Develop separate communication strategies for people who do not have access to broadcast media but to phones.
		Develop separate communication strategies for people who do not have access to broadcast media and mobile phones, such as Indigenous communities across the country: DVD, pamphlets and word-of-mouth .
Engage Media in appropriate communication strategies for communicating climate change.	Increase understanding of the scientific basis for global climate change	Develop, pre-test and distribute an illustrated pamphlet and e-pamphlet for the media on best practice in covering climate change
Increase access to vulnerable and marginal populations	Open access to information on global climate change to non-English speakers	Develop simple illustrated guidance document on climate change translated to all spoken languages in the country. Enlist local language specialists to translate into indigenous languages, and Portuguese.
	Improve public communication	Design radio phone-in shows for rural populations that bring together farmers and those with relevant expertise to share their experiences and develop solution to widely expressed concerns.
	Improve children’s understanding on climate change	Explore and develop children’s programming to increase the role of children as effective messengers to their friends and family. Develop media and outreach formats aimed at children that will allow them to learn the science through making things, and solving problems. -Include fun illustrated series, such as comic strips -Integrate climate change debates and competitions into schools
Most respondents experienced at least one extreme weather event, yet more than a third did not receive information prior to it occurring. Respondents stated that they would use information to prepare themselves	Increase the number of people receiving information before the event	Establish a national broadcast alert system that is widely recognised by the public. <ul style="list-style-type: none"> - Combine mobile alerts, with TV and radio broadcasts. - Enhance social media warning outreach (e.g. Facebook disaster alert and check in, so that families are aware of possible threats and whether friends and family are safe) - Follow social media ‘hashtag’ trends that may incite interest in younger generations.
		Enhance word of mouth outreach by making mobile phones integral to the national alert system.
Lack of technology for immediate alerts	Develop technology to facilitate alerts on	Explore mobile networks signing up to an industry-wide mobile alert scheme, with a universal extreme weather emoticon loaded on every phone.

		<p>Explore a disasters preparedness app for mobiles with weather updates and alerts through an independent</p> <p>Identify ways of isolating mobile users in specific areas of the country for early warning dissemination.</p> <p>Pre-test tools on aesthetics, usability, accessibility, market appeal, and value before dissemination</p>
Students felt that they were left out of the discourse of climate change and felt that they could be part of the dissemination and culture change process	Increase number of programmes for students to engage with and disseminate information on climate change	<p>Explore setting up youth performance groups to disseminate information on climate change through the arts.</p> <ul style="list-style-type: none"> - Poetry - Drama - Music (e.g. Bina Hill Youth Group singing The Climate Change song) <p>Engage high school students in outreach programmes to alert communities on</p> <p>Develop national high school climate change competitions by liaising with public sector and international agencies in Guyana.</p> <ul style="list-style-type: none"> - Offer schools prizes, such as energy efficient electrification of dormitories.
National initiative that remains a constant within Guyana climate change agenda	Public Awareness Day	<p>Incite a National Climate Change Awareness Day during Environment Awareness Day.</p> <ul style="list-style-type: none"> - Each year a new theme could be conceived - Make sure it is educational, but appeals to pop culture and current cultural trends (e.g. RED ENTERTAINMENT Music Events)
People are uncertain whether the changes to weather are long term. 37% of students stated that climate change would affect Guyana in the future, whilst 19% stated that it would affect both now and in the future, whereas 39% stated that climate change was something we had to worry about now. Their comments suggest that there needs to be more understanding as to the long-term impacts, and not just the short-term measures.	Increase awareness that climate change has both long- and short-term impacts	<p>Put the message that climate change is a long-term problem as a key message in communication and media campaign</p> <p>Ensure that message highlights that predictions of climate change are uncertain, so long-term measures will need to be diverse and adaptable.</p> <p>Centre climate change communication on practical solutions that correspond with the needs of Guyanese population, and are flexible within how they can respond to climate change.</p>
Key informants from industry, NGOs and national government have indicated that successful responses to climate change have been developed and implemented (e.g. Green Bartica Climate Change Awareness)	Build on success stories of national awareness strategies as it pertains to climate change.	<p>Engage in collaborative campaigning to utilise successful practices from national government agencies and established NGOs</p> <p>Engage with local grassroots organisations (e.g. Guyana Environment Initiative) to establish outreach programmes in areas that they have most rapport.</p>
Giving Guyanese ownership of the technologies that they use to adapt to climate change has the potential to provoke cultural change.	Promote green technologies, inventions and responses developed by Guyanese for Guyanese	Have local stakeholders from budding technology organisations, environmental scientists, artists and green technology experts engaged in national discourse to invent suitable technologies as a result of climate change adaptation
As many respondents depended on local community members for information on the goings-	Capitalise on local celebrities and influential figures	Develop a pool of spokespeople across the country who can be used to broadcast media on climate change responses in person.

<p>on within their community, it appears that these very influential individuals could play a key role in not only the dissemination of information, but also in communicating adaptation strategies.</p>		<p>Develop a pool of local celebrities across the country who can be used to broadcast media on climate change responses on popular networks (e.g. radio host The Remix Chick).</p>
<p>Key stakeholders highlighted that in understanding how they could work towards climate change adaptation they needed to understand what were some of the best practices.</p>	<p>Showcase diversity of issues across the country and globally</p>	<p>Invite key stakeholders (e.g. farmers, business owners, government officials, etc) from varying regions to be part of a radio chat show, or T.V. roundtable to share experiences and adaptation measures.</p>
<p>During the focus group discussions, a common theme as to why information on climate change had not been retained had to do with how unfamiliar a lot of the terms were. They felt that if people communicated information on climate change in a way that was not only familiar but innovative (and exciting) they would retain the information more.</p>	<p>Ensure information on climate change and adaptation strategies offer familiar messages and imagery.</p>	<p>Develop communication strategies with familiar messages and imagery so as to develop recognisable links between the realities of communities and the awareness campaign.</p> <p>Ensure that “good for the environment” translates into “good for you” & “feel good” concepts.</p>
<p>Most of the respondents in flooded zones who only stated that the rise in temperatures is the future effect of climate change in Guyana might have stated this due to the present dry season. If it were the rainy season, one might assume that their response would’ve been that they the future effect was more rains and flooding. As climate change issues are most likely to be raised in people’s minds during times of extreme weather, it is important to utilise the seasons to communicate seasonal events.</p>	<p>Alongside year-round campaigns, focus on seasonal weather events during specific seasons</p>	<p>Develop seasonal events that address floods and sea defence, and issues surrounding droughts.</p> <p>Prepare seasonal press releases</p>
<p>The Survey showed that respondents of Region 9 were interested in having pamphlets and posters (45%) to help them address climate change issues.</p>	<p>Develop Pamphlets</p>	<p>Ensure Pamphlets are translatable to Indigenous populations</p> <p>Develop eye-catching posters which show off images of all regions of Guyana and how they have been affected by climate change and ways in which they are adapting.</p> <ul style="list-style-type: none"> - Posters may include guidelines or a how to adapt in local languages and plain English - Engage local artists to spearhead creative initiative that are thought provoking and provocative. Conversation pieces that stick in the minds of the populace.

CONCLUSION

We know that real change comes when there is shared or social learning by doing. As participants become further engaged in the discourse of climate change, it is important to remember that a successful communication campaign will incite such learning, and hence the desired change. As we incorporate the knowledge and experience of the respondents into the learning process, then applying action to knowledge will follow.

Typically, the challenge of climate change communication tends to require systematic research, much like this survey. However, it is equally important to convey innovation and creativity when communicating climate change, which may not come with such a methodical approach. As a result, my recommendation is to use a cross-section of the recommendations by incorporating recommendations that come both directly and indirectly from the results of the survey.

Finally, unlike the rest of the Caribbean, Guyana has a significantly large indigenous population and a relatively large geographic size. As a result, any communication strategy must first consider accessibility and how accessibility to communication campaigns will affect a wider climate change agenda. Once this is considered, we must then acknowledge that Indigenous and Hinterland communities have their own languages and dialects through which social learning can take place. We must not treat the entire nation as a single entity, but a complex transient one that needs to engage from multiple approaches.

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ANNEXES

ANNEX 1: TERMS OF REFERENCE

Terms of Reference

J-CCCP In-country Communications Consultant

Project Title:	Japan-Caribbean Climate Change Partnership
Beneficiary countries:	Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Vincent and the Grenadines and Suriname
Contracting Authority:	United Nations Development Programme (UNDP)
Contract Type:	Individual Contract (IC)
Duration of Assignment:	60 days
Start Date:	March 28, 2016

1. BACKGROUND

Caribbean countries share similar economic and sustainable development challenges, including a small population, remoteness, susceptibility to natural disasters, and most importantly, vulnerability to climate change. Given the current condition of the marine environment, most coastal areas have few defences against the raging surfs of hurricanes and tropical storms, and the likely consequences would be significant coastal damage including beach erosion and infrastructure damage. Negative impacts associated to climate change on land, water resources and biodiversity have also been predicted, and ultimately, tourism and agriculture will be negatively impacted by these changes. Meanwhile, Caribbean countries emit such relatively small amounts of greenhouse gas emissions, which mean that they will suffer disproportionately from the impacts of climate change.

The Government of Japan has been one of leading donors in the target of climate change. Japan has delivered development assistance total of \$17.6 billion to vulnerable countries from October 2009 to December 2012 for mitigation and adaptation. The Government of Japan intends to continue its assistance in this area to create enabling environment with a view to formulate a new framework applicable to all Parties by COP 21 in 2015. Especially, the Government of Japan sees it important to assist Small Islands Developing States (SIDS), and in this context, is interested in establishing a new regional assistance programme for Caribbean and/or CARICOM in the area of climate change under the framework of the Partnership for Peace, Development and Prosperity between Japan and the Member States of the Caribbean Community (CARICOM)¹⁷.

The Japan-Caribbean Climate Change Partnership aims to support countries in advancing the process of low-emission risk-resilient development by improving energy security and integrating medium to long-term planning for adaptation to climate change. In the pursuit of this objective, the initiative will support policy innovation through the development of a number of Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Plans (NAPs) that will help guide Caribbean countries towards a green, low-emission and climate-resilient development pathway. The initiative will then also support the implementation of actual technology that is both low-emission and advances climate risk management, including demonstration in the target countries. The programme will strengthen institutional and technical capacities in selected countries for iterative development of comprehensive NAMAs and NAPs that are country-driven, and based on existing national/sub-national development priorities, strategies and processes. Each country will be able to tailor the specific assistance it will receive as informed by its priorities and needs.

¹⁷ http://www.mofa.go.jp/region/latin/caricom/mc_1009/psp.html

2. OBJECTIVE OF THE ASSIGNMENT

The Communications Consultant will provide support to the J-CCCP Project Management Unit and specifically the Communications Associate in the development of a country-specific communication campaign. This objective supports output 3.2 of the J-CCCP work plan which notes that a communication campaign on the benefits of mitigation, adaptation and disaster risk management interventions for sustainable cities in towns and communities be developed.

3. SCOPE OF WORK

Under the overall guidance and supervision of the J-CCCP Project Manager, the consultant will work with the Communications Associate to develop and implement a country-specific communication strategy.

The Communications consultant will undertake the following tasks:

- Develop, administer and report on a knowledge, attitude and perception or behavior (KAP/B) study related to climate change adaptation, mitigation and disaster risk management
- Support the UNDP Communications Associate in the development of a country-specific communication campaign, based on the results of the KAP/B study
- Review communication products in order to ensure that they are culturally appropriate
- Facilitate in-country pre-testing of communication products/collateral
- Support the Communications Associate in coordinating in-country media and public outreach
- Monitor in-country media for project specific content/coverage

The Communications Consultant will operate from their home-base, and undertake missions to the beneficiary communities as necessary.

4. INSTITUTIONAL ARRANGEMENT

The consultant will report directly to the J-CCCP Project Manager with support from the Communications Associate. The consultant will provide briefs and updates to the Project Manager and the respective UNDP personnel on the progress of the work, challenges encountered, risks foreseen, proposed or taken mitigation measures, and where UNDP support may be required. UNDP will review for certification of acceptance the outputs produced by the contracted consultant.

UNDP staff will provide technical and administrative support to the contracted consultant.

5. REPORTING REQUIREMENTS

All deliverables should be submitted in Microsoft Word and PDF. If relevant, copies of high resolution maps and graphics should also be submitted to the J-CCCP Project Manager.

The contracted consultant will report monthly to the J-CCCP Project Manager to ensure a timely delivery of the expected outputs.

6. REMUNERATION

Payment

Payment will be remitted subject to the approval of final deliverables by the J-CCCP Project Manager and based on the contractor's price proposal. Expected days of work are as follows:

Deliverable	No. of days
Inception report/work-plan	2 days
KAP/B Report	30 days
Support the development of country-specific communication plan	7 days
Review and facilitate in-country pre-testing of communication products	7 days
In-country coordination of media and public outreach and media monitoring for project specific content/coverage	12 days
Final report	2 days

The contractor's price proposal will include all expected costs of the assignment, including local travel and allowances.

7. QUALIFICATIONS, EXPERIENCE AND KNOWLEDGE

The Communication Consultant most suited to complete this consultation should have:

- An advanced university degree in communications, journalism, public relations or social sciences or
- A first level university degree with at least five (5) years of professional training/certification or experience may be accepted in place of an advanced university degree.
- Previous experience conducting communication research
- Previous experience working with climate change or natural resource management initiatives
- Previous experience with UN agencies or projects is a distinct asset
- Intimate knowledge of the country they will work in, in order to effectively have input into the cultural suitability of communication collateral developed

Other skills:

- Proficiency with Microsoft Office

Language: Fluency in written and oral English is required

8. ADMINISTRATIVE INFORMATION

The candidate must submit their curriculum vitae and/or P11 form, including contact information for three references, and price proposal to procurement.bb@undp.org by **16:00 AST (GMT-4) 11 March 2016**.

ANNEX 2. GENERAL SURVEY

Explain that the purpose of the survey is to find out the opinions of the Guyanese public on 'our environment'/ 'climate change'. No names will be taken, nor will the identities of participants be revealed to anyone. If you do not understand a question, rephrase. At any point the participant can state that they do not know the answer. The survey will take approximately 10-15 minutes

A. ABOUT YOU

1. **Gender** [1] Male [2] Female [3] Other
2. **Ethnic Background**
[1] Afro-Guyanese [2] Indo-Guyanese [3] Indian National
[4] Portuguese (Guyana) [5] Portuguese (Brazilian) [6] Chinese (Guyana)
[7] Chinese (national) [8] Indigenous [9] Mixed
[10] European (non- Portuguese) [11] Other
3. How old are you?
[1] 15-18 [2] 19-25 [3] 26-35 [4] 36-45 [5] 46-55 [6] 56-65
[7] over65
4. Where do you live? _____
5. How many years have you lived there?
[1] less than one year [2] 1-5 years [3] 6-10 years [4] 11-20 years
[5] 20-39 years [6] over 40 years [7] born there
6. Highest completed level of education?
[1] no formal [2] primary [3] secondary
[4] tertiary (first degree/undergraduate/college) [5] university (postgraduate)
7. Main Employment (i.e. things you get paid for?)
[1] government [2] education
[3] religious institution [4] small business (yours)
[5] small business (someone else) [6] NGO/development
[7] unemployed [8] retired
[9] student [10] housewife/home duties
[11] village work (fisherman/farmer) [12] Other _____
8. Do you hold any leadership position/s?
[1] government [2] religious institution [3] youth [4] women
[5] community toshao [6] union [7] NGO/development [8] education
[9] no [10] business [11] Other

B. KNOWLEDGE OF CLIMATE CHANGE

9. Before this interview, had you heard of climate change?
[1] yes [2] no [3] I don't know
If no, explain that *climate change refers to those changes in the environment* THEN go to Question 11
10. Would you say you understood what climate change means?
[1] yes [2] to some extent [3] not really
[4] no [5] I don't know

D. BEHAVIOURS TOWARDS CLIMATE CHANGE

When we say 'adapt to climate change' we mean those things in our lives we change to respond to the impacts of climate change.

21. Have you or anyone you know taken any actions to adapt/cope to climate change?

[1] yes [2] no [3] I don't know

22. What have you done already to adapt to/deal with/cope with climate change? [Tick all the apply]

- [1] planted mangroves
- [2] planted trees and vegetation along the shoreline
- [3] stopped cutting mangroves
- [4] maintained trees and vegetation
- [5] built/fixed sea walls
- [6] built wells and/or other water resources
- [7] cleaned or helped to maintain public drainage systems from waste
- [8] turn off lights when not in use
- [9] turn off water tap/pipe when you are not using it
- [10] built or helped to build green spaces, such as parks or gardens
- [11] stopped taking a car or bus and walk or cycle to school
- [12] not litter even when bins are not available
- [13] nothing
- [14] other _____
- [15] I don't know/remember

23. Have you encountered extreme/unusual weather events, such as floods, waves washing over walls or droughts?

[1] yes [2] no (go to section E) [3] I don't know/cannot remember (go to Question ____)

24. If yes, what?

- [1] flooding due to heavy rainfall
- [2] flooding due to sea levels
- [3] drought
- [4] other _____
- [5] I do not remember/know

25. What did you do to prepare yourself in case it happens again?

- [1] made property more resistant to threats
- [2] Clear drains
- [3] planted mangroves, trees and vegetation along the shoreline
- [4] stopped cutting mangroves
- [5] maintained trees and vegetation
- [6] built/fixed sea walls
- [7] built wells and/or other water resources
- [8] cleaned or helped to maintain public drainage systems from waste
- [9] nothing
- [10] I do not know
- [11] other _____

26. What effects did it have on you?

- [1] Damage to Property
- [2] Loss in Livestock
- [3] Loss in Agricultural Production
- [4] Loss in Income
- [5] Health Hazards
- [6] Lack of Potable Water
- [7] Other
- [8] None
- [9] I don't know
- [10] NA

27. How did you get a warning?

[1] radio [2] TV [3] newspaper [4] online/on the internet

[5] friends/family [6] social media [7] observed changes [8] There was none

[9] Other _____ [10] I do not know

28. Have you been told by someone in authority what to do if a disaster such as flooding or droughts occur?

[1] yes [2] no [3] I do not know

E. ACCESS TO INFORMATION

. Please indicate how often you use the following modes of communication

Media	Daily	Very Often 3-6 times a week	Often once a week	Sometimes a few times a month	Seldom a few times a year	Never
	1	2	3	4	5	6
29. TV (local)						
30. TV (int'l)						
31. Newspaper						
32. Radio						
32. Email						
33. Text/SMS						
34. Whatsapp						
35. Skype						
36. Facebook						
37. Instagram						
38. Twitter						
39. Phone (landline)						
40. Phone (mobile/cell)						
41. Other _____						

42. Name your favourite local newspaper, tv station, website and/or radio from where you get your information? _____

43. From which person do you get most of your information within your community? [Tick all that apply]

[1] Your teacher

[2] A teacher that does not teach you

[3] Your headmistress

[4] A local celebrity

[5] Your religious leader

[6] A parent

[7] Another family member

[8] A Friend

[9] Toshao

[10] A youth leader

[11] Other Communiy Leader _____

[12] Other _____

[13] I do not know

44. Have you ever attended a consultation, meeting or school lesson on Climate Change?

[1] yes [2] no [3] I don't know

45. If yes, who organised it/them?

[1] government [2] UNDP [3] Indigenous Peoples Organisation
[4] church [5] Another UN office [6] Another NGO/development agency
[7] school [8] I don't know [9] other _____

46. When was the last one you attended?

[1] Within the last week [2] 1 month ago [3] less than 6 months ago
[4] more than 6 months less than a year [5] more than a year ago [6] 1-2 yrs ago
[7] 2-4 years ago [8] 5+ years [9] I don't remember/know

47. What makes a campaign or ad interesting to you? What makes a campaign or ad grab your attention?

[1] Interesting Images/Pictures
[2] Well produced
[3] It was modern
[4] Different/Unique
[5] You were interested in that topic beforehand
[6] It related to directly to your life
[7] It showed you things you had never seen before
[8] It featured a celebrity you liked
[9] There was a competition with a prize attached to the campaign
[10] Not too long
[11] Not too short
[12] Well Researched
[13] Other _____
[14] I do not know

Please indicate whether you agree or disagree with the following statements.

Question	Strongly Agree	Agree	Neither Agree nor Disagree/Unsure	Disagree	Strongly Disagree
	1	2	3	4	5
48. The government is doing things to help us to adapt to climate change locally.					
49. The UNDP are doing things to help us to adapt to climate change locally?					

50. By which of the following methods would you like to receive information about Climate Change and adaptation methods?

[1] national radio [2] school [3] TV [4] local newspaper
[5] international newspaper [6] DVD [7] social media [8] internet
[9] religious institution [10] NGO [11] government [12] newsletter
[13] friends/family [14] Billboards/posters [15] pamphlets/handouts
[16] leader from community [17] none [18] other _____

ANNEX 3: Student Responses to the Causes of Climate Change by Gender & School

Causes	3 Miles		Bartica Sec		St Ignatius		TOTAL	% [N=200]
	F	M	F	M	F	M		
Burning fossil fuels, such as oil and coal	25	26	12	7	49	26	145	73%
Deforestation	8	15	4	6	32	21	86	43%
Natural events, such as ocean currents	4	4	1	0	5	7	21	11%
Agriculture, such as methane from livestock and manure & nitrous oxide emissions from fertilisers	1	7	1	2	11	6	28	14%
Carbon emissions from vehicles and large businesses	15	22	4	6	50	28	125	63%
None	1	2	3	1	0	0	7	4%
Other	1	0	0	0	4	2	7	4%
I don't know	1	0	1	0	0	0	2	1%

ANNEX 4: STUDENTS: How do you feel about climate change?

School	3 Miles		Bartica Sec		St Ignatius	
	F	M	F	M	F	M
Fearful/afraid	16%	15%	29%	18%	16%	9%
Confused	18%	11%	11%	4%	10%	3%
Angry	4%	8%	4%	4%	2%	4%
Sad	3%	7%	4%	4%	18%	1%
Disbelief	0%	1%	0%	0%	0%	1%
Hopeful (we can do some things to adapt)	12%	12%	7%	14%	36%	28%
Powerless	8%	7%	18%	7%	13%	2%
No feelings	12%	8%	4%	7%	1%	3%
I don't know	0%	4%	11%	0%	2%	0%
Other	0%	0%	0%	0%	1%	0%