JAMAICA

CLIMATE CHANGE

KAP STUDY

PREPARED BY THE JAMAICA CLIMATE CHANGE ENABLING ACTIVITY (JCCEA) AND BRAC LTD.

PREPARED FOR MAINSTREAMING ADAPTATION TO CLIMATE CHANGE (MACC) PROJECT

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1.0 EXECUTIVE SUMMARY

Introduction

1. The objective of this study is to assess the Jamaican population's knowledge, attitude and behavioural practices with regards to climate change. This information will be used, as input for the drafting of a National Climate Change Public Education Outreach (PEO) strategy which in effect will assist in better preparing communities for the effects of climate changes.
2. A sample survey covering some six stakeholder groups was the main method of investigation. A structured questionnaire was used as the main data collection instrument.
3. The survey was conducted throughout all 14 parishes of Jamaica. The field operations were planned to take place over the two-week period, April 8, to April 22, 2005. It was also planned that a total of 2,000 questionnaires would be administered among the stakeholder groups throughout the island.
4. A few minor problems relating to the survey instrument and the low level of familiarity with the concept of climate change among the general public category resulted in the field operations extended beyond the planned period for several weeks. The coding of the open-ended questions was more tedious than was expected and this caused further delay in the data processing phase. Nevertheless, well over 1,700 or 85% of the planned interviews were successfully completed.

Findings

5. A general feeling of complacency and indifference towards climate change and its effects was detected in the general publics' responses.
6. A measure of peoples' preparedness for disastrous situations caused by the environment is the extent to which they insure their homes and property. Only 15 % of the adult respondents indicated that their homes were insured. Another 10.8 % did not know or were not sure. Alarmingly however was that 73.1 % did not have any home insurance.
7. The most common theme among the respondents' perception of climate change was of a change or variation in global climate accompanied by changes in temperature and weather patterns. This was expressed by an overall 77.9 % of the persons interviewed.
8. Although significant proportions of the various categories of respondents felt that their community was at risk, the majority only felt that they were only somewhat at risk
9. 'The terms with which the greatest proportion of respondents associated with climate change were droughts (92.1 %), and floods (88.3 %). The association was lowest for fish kills.
10. One interesting nuance is that although 72.5 % saw the burning of fossil fuels, and 75.6 % saw industries and factories as contributors to climate change, only 48.0 % thought that

electricity generation (especially in the case of Jamaica where so much of the electricity is generated from burning fossil fuels in factories) was a contributory factor.

11. Generally persons expressed strong to moderate interest in knowing how climate change affected the various climatic conditions they were asked about.
12. Most persons (60.9 %) strongly agreed with the statement that the Government should play a stronger role in addressing the impacts of climate change on communities. Only 15.3 % strongly agreed that they were prepared to pay a little more or put up with some inconvenience to help the environment. Despite this however there was still a fair number of respondents at 39.0 %, who agreed with making this personal sacrifice.
13. A clear trend is seen where people feel that climate change is less important to their own communities than to the country in general.
14. It is interesting to note that respondents' answers to the question of who should bear the primary responsibility for addressing climate change, the overwhelming majority of persons across all of the categories interviewed, felt that it was primarily the responsibility of the Government.

15. On the question of what *had been done, if anything, to worsen the effects of weather and climate change*, the responses received were as follows:
    a. The majority of persons either did not respond to this question or believed that they had done nothing or were not sure.
    b. Some 40.0 % overall felt that their community contributed to the worsening of the environmental problems through the improper disposal of garbage, through burning or other environmental unfriendly methods.
    c. Most blame however, was placed at the feet of the country in general.
16. Suggestions made by respondents on *what could be done to prevent or lessen weather impacts*, at the individual personal level, at the community level, and by the country were as follows:
    a. The main response (16.5 %) at the personal level was properly disposing of waste and stopping the burning of garbage.
    b. As a community, the responses were similar with the proper disposal of garbage (21.5 %), and increased environmental awareness (15.7 %) being the most popular responses.
    c. The most popular suggestions on what Government could do were for them to mount a major public education campaign (18.1 %).

Media Use

17. Approximately 48.3% of all respondents reported only occasional exposure to stories that dealt with climate change.
18. An overwhelming majority of all respondents (91.7%) responded yes when asked whether they would like to read, listen to or watch more stories that deal with climate change.
19. The most common source of information on climate change for all of the categories, with the exception of the media, was television (96.6%).
20. Some 38.7 % of respondents in the children category, reported the school as a main source of information on climate change. It is surprising that the schools scored so low among for this category of respondents.
21. The most popular methods chosen for transmitting information about climate change were television and radio. Mailing was considered to be the least effective method.

Private Sector

22. Approximately 73 % of the companies felt that they had a role to play in addressing the possible effects of climate change on the country.
23. The strengths of current measures being taken were highlighted as follows: they are environmentally safe; the company building is safer for staff; increased energy conservation; reduced costs; better disaster preparedness; reduction of waste and pollutants; and increased level of awareness among employees.
24. The main and only weakness identified was that these practices are expensive and difficult to maintain.
25. Some 42.5 %, of respondents in this category cited the need for more information as a factor hampering their participation in climate\e change activities. Essentially, they said that they needed more information on how they can help.
26. Just over a half of companies responded that they did not include climate change issues in their annual budgets or their business plans. However, just over two thirds of the companies felt that climate change was either important (10.7 %) or very important (57.2 %) to their companies.
27. Only 8.2 % of companies indicated that they were in any way involved in the development of government policy on climate change.
28. Many respondents (41 %) believed that the issue of climate change was very immediate and another 29.5 % thought that it was somewhat immediate to their businesses.
29. With respect to respondent's perspective of climate change from the view point of the country, nearly a half of the respondents thought that the issue of climate change was very immediate, while a further 32.8 % felt that it was only somewhat immediate. .

Public Sector

30. Only 53.5 % of the entities reported that they had members of staff who were responsible for climate change issues.
31. There was universal agreement of all the respondents that each of their organizations had a role to play in adapting to climate change. Some of the reasons given as to what this role could be included: -
    a. Provide a mandate
    b. Beneficial to industry and country
    c. Affect country
    d. Ensure availability of potable water
    e. Dev. and sustain environment nationally
    f. Human safety
32. Some 26.7 % of the respondents were not able to say if their organization was involved in any aspect of adaptation to climate change.
33. The strengths of current actions being taken were seen as serving to: increase the awareness of strategies and costs; improving the livelihood of residents and communities; the development of marine activities; and, reducing the financial burden. Weaknesses were identified as: their high costs and the lack of resources.
34. The main constraints to the effective implementation of current strategies were seen mainly as a lack of financial and other resources, as well as unwillingness to change existing practices.
35. Just over 46 % of the respondents indicated that presently there was collaboration among the ministries, departments and agencies on climate change issues.
36. The following were put forward as suggestions on how various public sector agencies could be integrated to address climate change issues.

    - Close monitoring of programmes,
    - Collaboration - Ministry & agencies
    - Evaluations of current environmental strategies,
    - Collaboration at national level on measures to combat climate change,
    - Having regular meetings,
    - Dissemination of information on climate change, and
    - Budgeting for the implementation of climate change measures.

Special International Lending Agencies

37. The types of financing arrangements available from these agencies were for the funding of national agricultural development, a national development plan and the granting of technical cooperation grants.
38. There was an even split among those interviewed as to whether funds were allocated by their agencies to specifically address climate change issues. The agencies indicated that they made allowance for micro-projects and/or community-based projects.

Knowledge and Behaviour

39. Respondents demonstrating some knowledge of climate change when asked about measures that they have implemented to lessen the effects of climate change, the proper disposal of garbage was the most common measure cited by each of the three main target groups.
40. A certain amount of indifference with respect to action taken in response to climate change was also detected among those respondents demonstrating knowledge of climate change. In this regard, the data show that respondents when asked what they had done to lessen the impact of climate change, an average of 25% in each category either did not respond, was unsure or just did not know.
41. The most positive correlation between knowledge and behaviour was observed among respondents in the International Agencies target group. Here in response to the question as to what they have done to lessen the impact of climate change, well over 50% cited conservation of resources while the remaining was 50% evenly split between on soil conservation and educating and informing family and friends.

Recommendations

42. Some recommendations made for the campaign to address public awareness about climate change include:
    a. The need for more effort to be made to get the message as to the *raison d'tre* for many of the common place Government interventions across to the wider public in general and to the media in particular.
    b. The tendency to pass the buck to someone else is a real issue that will have to be overcome in any efforts to get the general public to start behaving in a more environmentally responsible manner.

c. The schools are ideal for starting this process of awareness and responsible environmental usage and thus should be used more for climate change education.
d. That the programme of public awareness on climate change be launched as a stand alone programme in the first place but be institutionalized into an overall environmental awareness Plan.

2.0 BACKGROUND

A major global response to climate change has been the **United Nations Framework Convention on Climate Change (UNFCCC)** which is an international environmental treaty. The objective of the Convention is to stabilize the concentrations of greenhouse gases in the atmosphere at a level that would prevent dangerous human-made interference with the earth's climate system. Jamaica along with over 150 states became a signatory to this convention on 24 March 1994

The Jamaica Climate Change Enabling Activity (JCCEA) Project commenced under the aegis of the Meteorological Service, on August 1, 2004 with funds provided by The United Nations Development Project and Global Environmental Facility (UNDP/GEF). A function of the project is to conduct activities aimed at fulfilling Jamaica's obligations under the United Nations Framework Convention on Climate Change (UNFCCC). The Project is essential to maintaining and enhancing the capacity of the GOJ to prepare future National Communications, while helping to ensure continuity with ongoing enabling activities.

The project has several components to it, one of which is Public Education and Awareness component. An outlined requirement under this component is the collection of a baseline survey on climate change. The objective of this survey is to assess the Jamaican population's knowledge, attitude and behavioural practices with regards to climate change. This information will be used, as input for the drafting of a National Climate Change PEO strategy which in effect will assist in better preparing communities for the effects of climate changes. **Business, Research and Agricultural Consultants (BRAC)** was contracted to conduct this survey.

3.0 METHODOLOGY

3.1 Survey Design

The study was conducted using a combination of survey designs. These included stratified random sampling, purposive sampling, cluster sampling and a total census. A structured questionnaire which was provided by the client (JCCEA Project), with some minor modifications done by BRAC, was used as the main data collection instrument. Interviewers were further trained for this purpose. The survey was conducted throughout all 14 parishes of Jamaica. The field operations were planned to take place over the two week period, April 8, to April 22, 2005. It was also planned that a total of 2,000 questionnaires would be administered among six stakeholder groups throughout the island as shown in Table 1 below:

Table 1: Sample Distribution

Stakeholder	No. of Questionnaires
Public Sector	48
Private Sector	150
Media Houses	23
International Funding Agencies	13
General Public/Residents (heads of households)	1700
Children	66
Total	**2000**

3.2 Sample Frame Selection

The General Public was the largest stakeholder group to be studied. For this group, a sample frame was obtained using the latest census publication for Jamaica (Population Census, 2001) which provides population counts for the island, broken down at the parish level. The parish population counts were then calculated to determine the proportional distribution, throughout the island. The 14 parishes were further broken down, into urban areas, rural areas and other areas also reflecting the proportional population distribution. Using the same proportional population distribution, 1700 questionnaires were then administered according to the proportional distribution of the population. The intended respondents were head of households. Table 2 below shows the proportional distribution throughout the island.

Table 2: Population Distribution by Parish

Parish	Population	Percentage Distribution	Number of Questionnaires
Kingston	96,052	4%	63
St. Andrew	555,827	21%	362
St. Thomas	91,604	4%	60
Portland	80,205	3%	52
St. Mary	111,467	4%	73
St. Ann	166,762	6%	109
Trelawny	73,066	3%	48

Parish	Population	Percentage Distribution	Number of Questionnaires
St. James	175,126	7%	114
Hanover	67,037	3%	44
Westmoreland	138,947	5%	91
St. Elizabeth	146,404	6%	95
Manchester	185,801	7%	121
Clarendon	237,025	9%	155
St. Catherine	482,308	18%	314
	2,607,631	**100%**	**1700**

Source: 2001 Jamaica Population census - STATIN

The second largest stakeholder group was the Private Sector, this consisted of a sample size of 150 privately owned businesses. A published list of members of one the country's largest business associations, the Private Sector of Jamaica (PSOJ) was used as the sample frame. This sample frame consisted of approximately 300 private businesses. A stratified random sampling technique was used to select the businesses from this list. The target respondent in this instance were owners where possible or senior managers.

For the public sector a purposive sample was derived from a list of all government ministries, agencies and departments. The criteria used to determine which ministry/agency/department to be targeted was those ministries/agencies/departments that it was determined to be directly impacted by the effects of climate change. The target respondents were either department/agency heads or sectional head of planning departments within the selected ministry or agency.

Given the size of both the Media Houses and the International Lending/funding Agencies stakeholder groups a census was done rather than a sample.

The children sub-group was selected using a cluster sampling.

4.0 Main Constraints Encountered

The questionnaire itself was a main constraint for the survey exercise. Interviewers sited both the length of the questionnaire and the wording of some of the questions as major hindrances to the level of responses and the quality of responses by respondents. As a result, field operations took much longer than planned due mainly to the length of time it took to complete individual

questionnaires. Although the planned duration was 30 minutes, for the most part this time frame was exceeded by another 20 to 30 minutes. There was also a general complaint that some questions were repetitive and tedious to answer. This was due mainly to the newness of the concept of climate change and generally low level of awareness of the issues involved. Hence respondents found it tedious to respond to questions and issues that they were not accustomed to paid little or no attention to. Questions 24 to 27 are good examples of these questions (see appendix I for survey instrument).

The media group was the least responsive. Although they initially agreed to be interviewed, they kept rescheduling forcing repeated extension of the planned time. Similar problems, though to a lesser extent, were also experienced with the public sector and the private sector stakeholder groups.

Notwithstanding these difficulties, a total of 1700+ interviews of the planned 2000 interviews were successfully completed, corresponding to a response rate of 85%.

5.0 FINDINGS

5.1 Demographic Information

The analyses presented here represent the details of the demographic data collected on individual respondents. Although some demographic data were collected from the institutional respondents it was decided to not use these as there was no clear distinction between information on the institution and/or the person within the institution who answered the questionnaire.

Among the individuals (i.e. non-institutional respondents) interviewed, there was a predominance of females respondents. Among children this was much more pronounced as some 63.2 % were female. For adults this was not as pronounced since the split was much more evenly divided with 52.5 % of adult respondents being female. See Figure 1. overleaf.

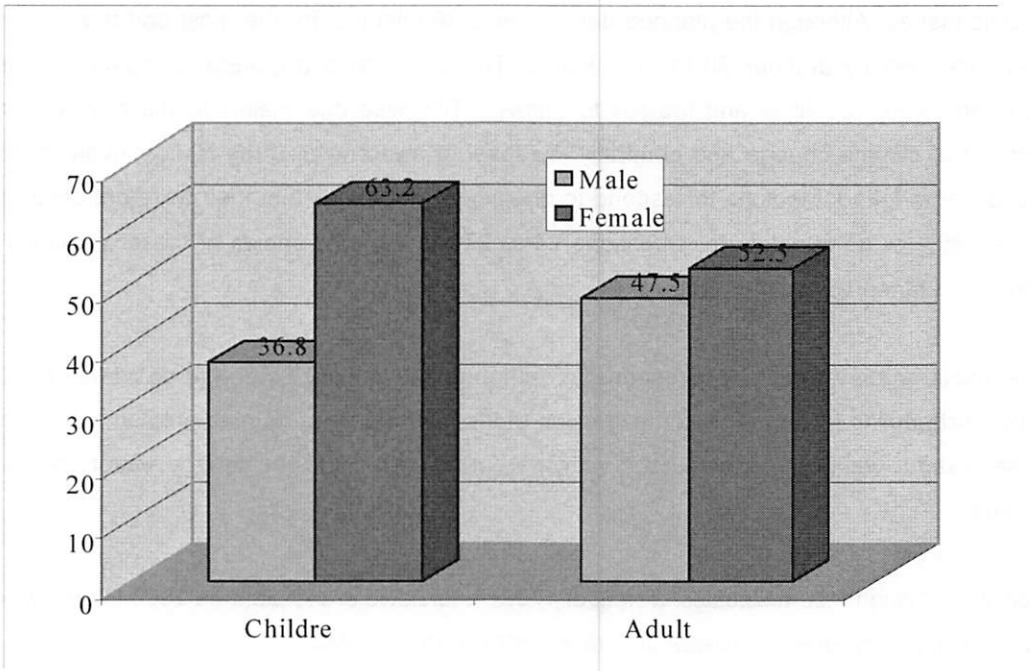


Figure 1 Percentage distribution of respondents by category and gender.

In terms of age, by definition all the children were less than 18 years old. Among the adults there was a fairly even spread of respondents among the two age groups, '18 to less than 40 years' and '40 to less tan 60 years', with 47 % and 40.2 % respectively. Another 12.5 % were older than 60 years.

The persons interviewed were drawn from across the island and all of the parishes were represented in the survey. However the majority (46.3 %) were from Kingston & St. Andrew and St. Catherine.

Respondents were asked if they lived near to one of the areas identified (flood plain, beach and low lying areas) as some of those more vulnerable to the effects of climate change and weather extremes. It is interesting to note that the majority of them said they did not live near to any of them. Given the size and topography of the country most persons would be expected to live near to one of these features. Further analyses of persons' perception of their personal proximity to areas that could be affected, will be examined later but the fact that so many felt that they did not liver in a "danger" area may be reflective of a wider feeling among many members of the society that they are not in any personal danger from deleterious environmental phenomena. This further leads to general feelings of complacency and indifference among many people.

Table 3: Percentage distribution of respondents by main occupation

Main Occupation	Children	Adults
Non-response	3.9	0.7
Professional senior official and technician	2.6	19.4
Clerks	3.9	10.2
Service workers	1.3	15.6
Skilled Agricultural & Fishery Workers	0	5
Craft & Related Trades Workers	0	8.1
Plant & Machine Operators & Assemblers	0	2.2
Elementary Occupations	1.3	17
Self-employed	0	6.4
Housewife	0	1.3
Retired/pensioner	0	6.4
Student	86.8	1.3
Unemployed	0	6.2

The main occupation of the majority of the children was as students, with some 86.8 % indicating so. However nearly 10 % of them were out of school and employed. These were mainly in the technical, clerical and service areas. The main occupation of the adult respondents spanned a wide cross-section as is evidenced in Table 3.

Among the adults, the majority, 54.3 %, worked outside of their community, whereas only just over a third (36.6 %) worked within their own community. In addition, many of the children also attended school outside of the community where they lived. In many cases, significantly more time is spent outside the community than within it. This was especially true for many of the St. Catherine communities. This fact could be of critical importance in the event of emergency situations requiring evacuation, shelter etc. and has to be taken into consideration in any disaster planning.

The marital status of the largest proportion of the adult population at 40.6 % was single. However some 48.7 % were in some sort of conjugal relationship with 33.6 % being married and 15.1 % being involved in a common law relationship. Mean household size among the respondents was 3.9, consisting of an average of 2.5 adults and 1.4 children per household.

A measure of peoples' preparedness for disastrous situations caused by the environment is the extent to which they insure their homes and property. Only 15 % of the adult respondents

indicated that their homes were insured. Another 10.8 % did not know or were not sure. Alarmingly however was that 73.1 % did not have any home insurance. The implication of this in the event of substantial natural or other disasters resulting in any significant damage to the housing stock is obvious.

This lack of insurance is also of interest when one looks at the distribution of the type of roofing and wall materials reported by the respondents as the main materials their homes were constructed of. Just over a quarter of the adults reported roofs made of concrete, which though resistant to the effects of high hurricane winds can, if poorly constructed, be vulnerable in earthquakes. However, more than a half (55.1 %), reported that their roofs were of galvanized zinc. These roofs have been shown in the country's recent brushes with hurricanes, especially Gilbert in 1988, can be highly vulnerable to hurricane winds.

Wall materials were mainly concrete (72.2 %) and wood (22.7 %) or a combination of both (4.4 %).

5.2 Climate Change

Most people had some perception of what constituted climate change. Only an overall 3.9 % indicated that they were unsure or did not know. The most common theme in the respondents' perception of climate change was of a change or variation in global climate accompanied by changes in temperature and weather patterns. This was expressed by an overall 77.9 % of the persons interviewed and was consistently the most common response across all the categories of respondents.

Table 4: Percentage distribution of respondents by their interpretation of what is meant by climate change and category of respondents.

Response	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	3.3	0	0	0	3.9	4.2	4.1
Change/variation in climate globally, temperature and weather pattern	85.3	93.3	50	66.6	64.5	78.2	77.9
Global warning	6.6	13.3	25	33.3	1.3	1	1.4
Changes in environment	18	0	50	0	26.3	8.3	9.4
Erosion (hillside, sea coast etc.)	3.3	0	25	0	0	0	0.2
Increase/reduction in rainfall	0	0	0	0	3.9	5.3	5.0
Other	0	0	0	0	1.3	3.8	3.5
Don't know/unsure	0	0	0	0	2.6	4.2	3.9

sector bodies, the majority of respondents for all the other categories felt that the Government was not doing anything in response to climate change or indicated that they were not sure or did not know. This was especially true for the private sector category where approximately half of the respondents felt that Government was not doing anything, with almost another third saying that they did not know or that they were unsure. See Figure 2 overleaf.

It was also particularly telling that all the media persons interviewed stated that they did not know or were unsure. This, if one takes the majority opinions of the international agencies and the public sector that Government was doing something as an indicating that in fact something was being done, is indicative of something being amiss. If something is being done and the public, especially the media is not aware of what is happening then obviously the relevance, effectiveness and scope of what is being done is brought into question.

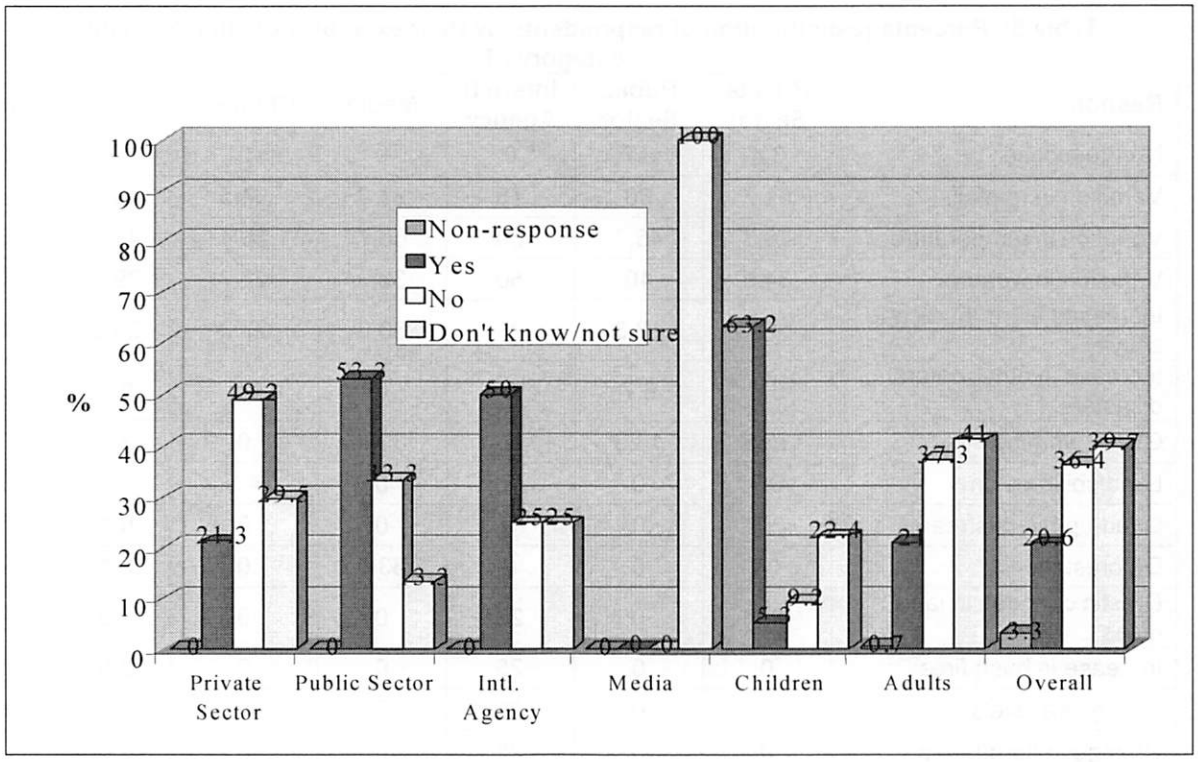


Figure 2 Percentage distribution of respondents by whether they felt that Government was doing anything in response to climate, by category of respondent.

Nevertheless, some persons did feel that government was doing something. When asked to give examples of what it was that government was doing, the following responses were given in decreasing order of frequency given:-

Others saw climate change as manifested as specific phenomena such as global warming (1.4 %), changes in the environment (9.4 %), all forms erosion (0.2 %), and increase/reduction in rainfall (5.0 %). See Table 4.

With the understandable exception of the children category of respondents, the majority of respondent indicated that they could give some examples of climate changes. The examples given are set out in Table 5 below.

As can be seen from the table the examples given covered a wide spectrum. However the most common responses were for the specific examples of variations in rainfall and temperature, and more generally, variations in weather. With the memory of last year's hurricanes still fresh, people also gave increases in natural disasters and hurricanes as examples.

Table 5: Percentage distribution of respondents by their examples of climate change and category of

Response	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	3.4	6.7	0	0	0	1.6	1.6
Variation in rainfall	51.7	60	75	33.3	54.5	76.3	74.3
Variation in temperature	48.3	46.7	50	66.7	36.4	48.2	47.7
Variation in weather	34.5	40	50	33.3	22.7	29.1	29.2
Increased storm/hurricane activity	19	13.3	25	33.3	27.3	23.8	23.7
Increase in other natural disasters	8.6	6.7	0	0	9.1	9.1	9.0
Global warning	15.5	13.3	0	33.3	0	2.5	3.0
Land/soil erosion	6.9	0	0	0	4.5	3.6	3.7
Dried-up rivers/streams	3.4	0	0	0	0	0.1	0.2
Deforestation	1.7	0	0	33.3	0	0.1	0.2
Drastic changes in land mass	3.4	0	25	0	0	0.9	1.0
Increase in bush fires	0	0	25	0	0	2.5	2.3
Rising sea levels	0	0	25	0	4.5	1.8	1.9
Change in flora/fauna	0	0	25	0	0	0.8	0.8
Acid rain	0	0	0	0	0	0.4	0.4
Health issues/pollution	1.7	0	0	0	0	2	1.9
Other	0	0	25	0	4.5	2	2.1

When asked whether they considered that the Government was doing anything in response to climate change, the responses were varied. Except for the international agencies and the public

- Disaster preparedness,
- Increased public education,
- Maintenance of drains/roads/bridges etc.,
- Reforestation,
- Proper/better waste disposal methods,
- Legislation on CFC's,
- Enforce Environmental Laws,
- Reduction in harmful emissions,
- Encourage conservation techniques,
- Watershed protection,
- Collaboration with regional partners and the PSOJ, and
- Research.

From this list it can be seen that there is a fair understanding of actions that Government is taking. Further many of these actions are well documented and well known by most people, but are not seen in the larger context of being reactions to present climate change, and attempts to institute mitigating factors to prevent or lessen further negative changes. However this knowledge and understanding of this contextual framework is highly skewed towards the 'insiders' i.e. the public sector and the international agencies. What is indicated is that there is a need for more effort to be made to get the message as to the *raison d'tre* for many of the commonplace Government interventions, across to the wider public in general and to the media in particular.

The priority ordering was different among the private sector agencies. For them increased public education was most important, followed jointly by reduction in harmful emissions, better disaster preparedness, and proper and better waste disposal methods.

5.2.1 Risks from Climate Change

Although significant proportions of the various categories of respondents felt that their community was at risk, the majority only felt that they were only somewhat at risk

Large percentages of the private and public sector agencies as well as the adults and children, were of the opinion that their community was not at risk. This category was highest among the children. The recent passage of Hurricanes Charlie and Ivan with their relatively light effects especially in the more populous Eastern half of the country from which most respondents were

selected, appears to have fostered a feeling among many people, especially the younger ones, who do not have any cognitive memories of the extremely damaging effects of hurricane Gilbert in 1988, or were not born then, that hurricanes are no big thing. Given the past experiences however and even some recent ones from Ivan and Charlie in some areas of the country, it can be a mistake to be too smug in the feeling that one's community is not at risk.

Changes in Weather

Interviewees were asked whether they had noticed any changes in the weather related areas presented in Figure 3, in their community over the last 10 years.

The ways in which the observed changes were seen to affect the community were: -

- Community unattractive (lack of trees),
- Changes in overall climate,
- Increased energy consumption,
- Damage to roads,
- Negative impact on tourism,
- Loss/damage to lives and property,
- Affects production of crops,
- Protracted drought (water restrictions),
- Contaminated air/health issues,
- Flooding, and
- Soil erosion.

Figure 4 shows a listing of terms given to the respondents for them to indicate whether they associated each with climate change and a summary of the responses given.

For all the terms, a majority of the respondents indicated that they associated them with climate change. The terms which the greatest proportion of respondents associated with climate change were droughts (92.1 %), and floods (88.3 %). The association was lowest for fish kills.

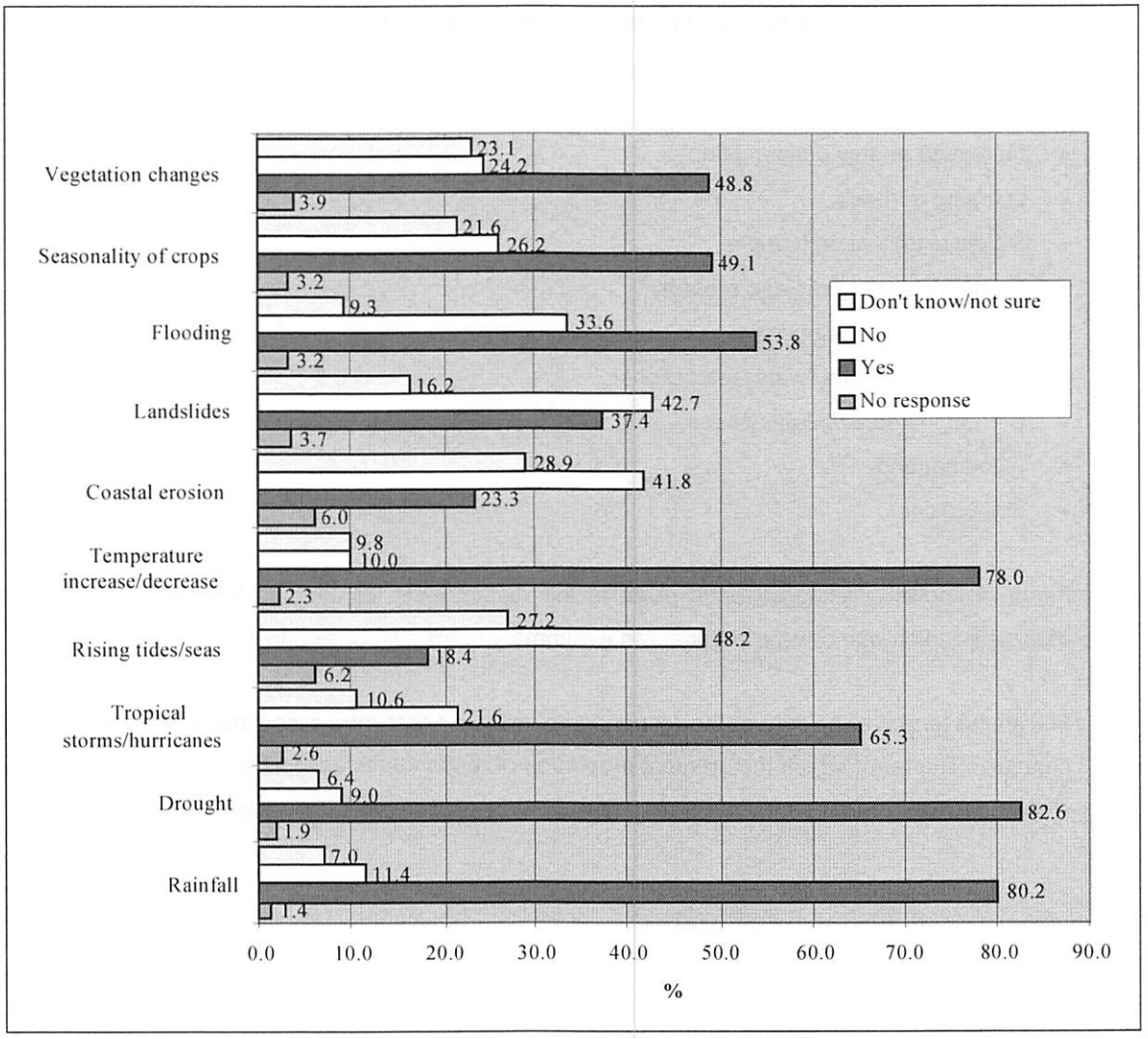


Figure 3 Percentage distribution of all respondents by whether they have noticed any change in weather related areas in their communities over the last ten years, by areas.

For most of the areas given, the largest number of respondents responded positively. Those areas that elicited the strongest positive responses were drought (82.6 %), rainfall (80.2 %), temperature increase/decrease 978.0 %) and tropical storms and hurricanes (65.3 %). It is noteworthy too that the areas for which there were a majority of respondents saying 'no', were rising tides/seas (48.2 %), coastal erosion (41.8 %), and landslides (42.7 %). These responses probably were because of lessened exposure to these areas by many persons who live in areas not greatly affected by them.

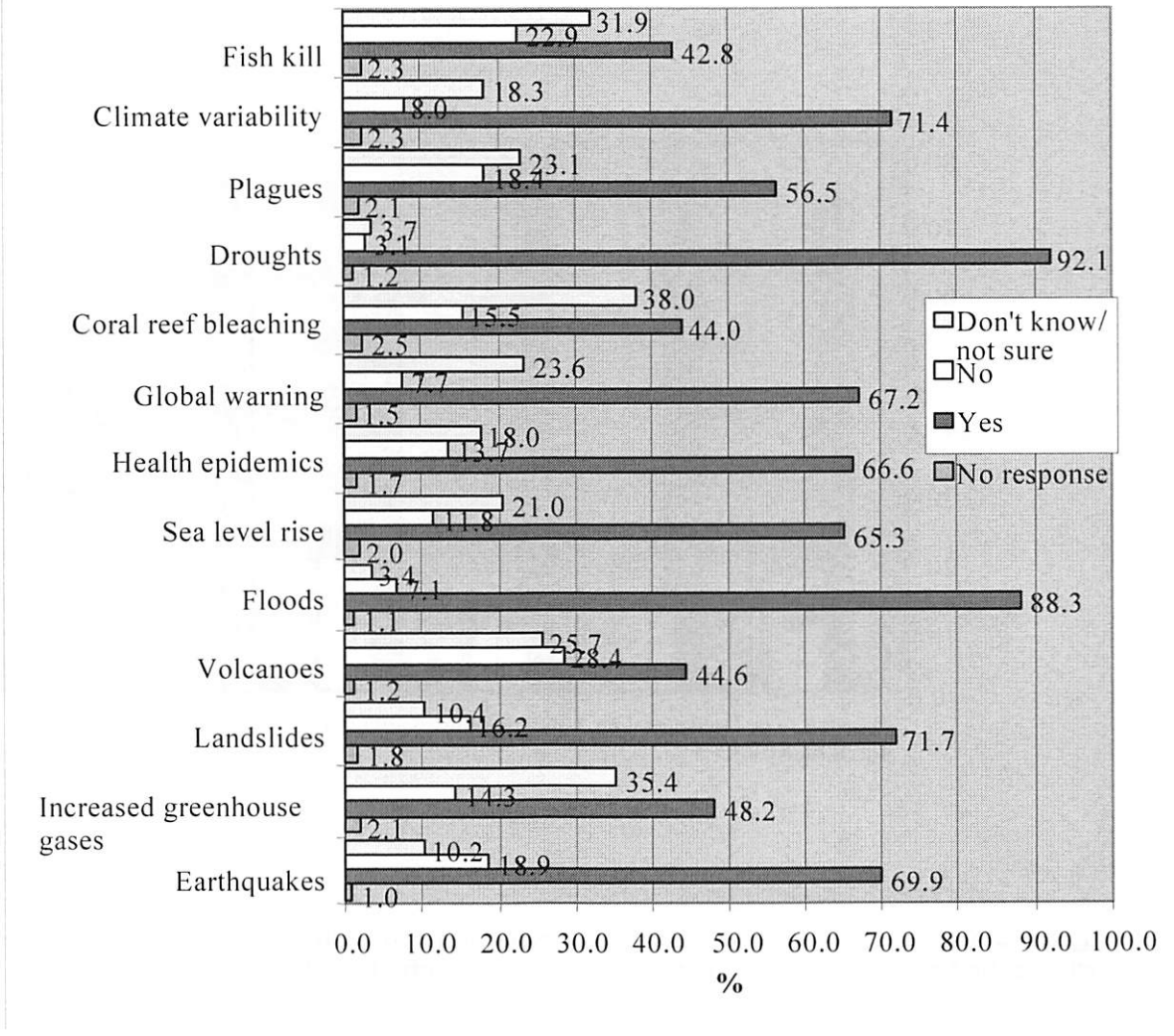


Figure 4 Percentage distribution of all respondents by whether they associate given terms with climate change, by term.

Presented in Figure 5, is the summary of the interviewees' responses to whether they thought that the activities listed were contributory to changes in climate. It can be seen that most persons did think that all of the activities given contributed to climate change. One interesting nuance is that although 72.5 % saw the burning of fossil fuels, and 75.6 % saw industries and factories as contributors to climate change, only 48.0 % thought that electricity generation (especially in the

case of Jamaica where so much of the electricity is generated from burning fossil fuels in factories) was a contributory factor.

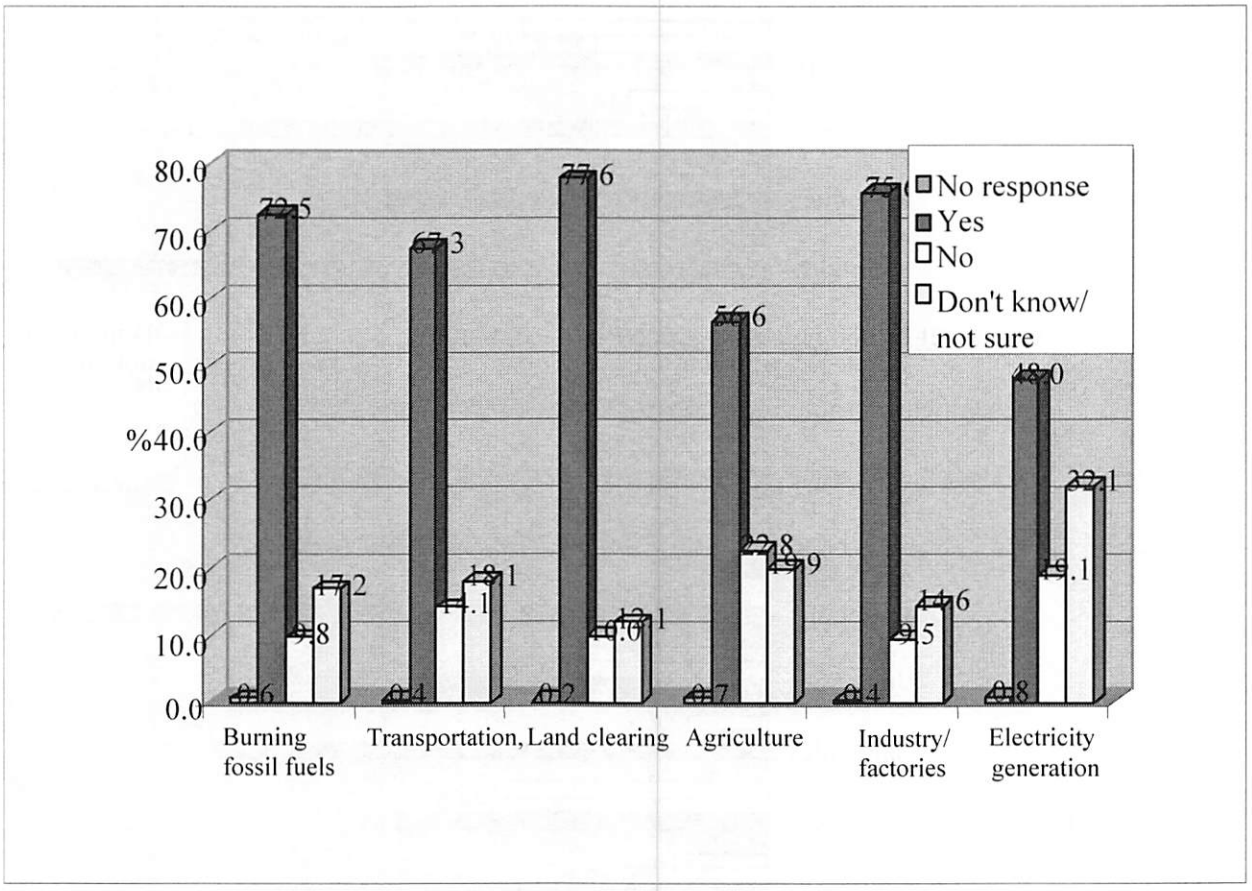


Figure 5 Percentage distribution of all respondents by whether they thought the listed activities were contribution to changes in climate, by activity.

When asked whether a list of climatic activities were possible effects of climatic change in their country, most persons, as is shown in Figure 6, felt that all of the activities presented were manifested as effects of climatic changes. The areas, which generated the strongest positive responses however were, increased flooding (84.0 %), increased severity of tropical storms and hurricanes (78.4 %), and decreased agricultural productivity (74.4 %).

The results from asking respondents to rate the importance of several strategies in addressing climate change in the country are presented in Table 6.

Most respondents were of the opinion that all of the strategies proposed were either moderately or very important in addressing climate change. These feelings were strongest for the perceived need for increased public awareness of climate change issues.

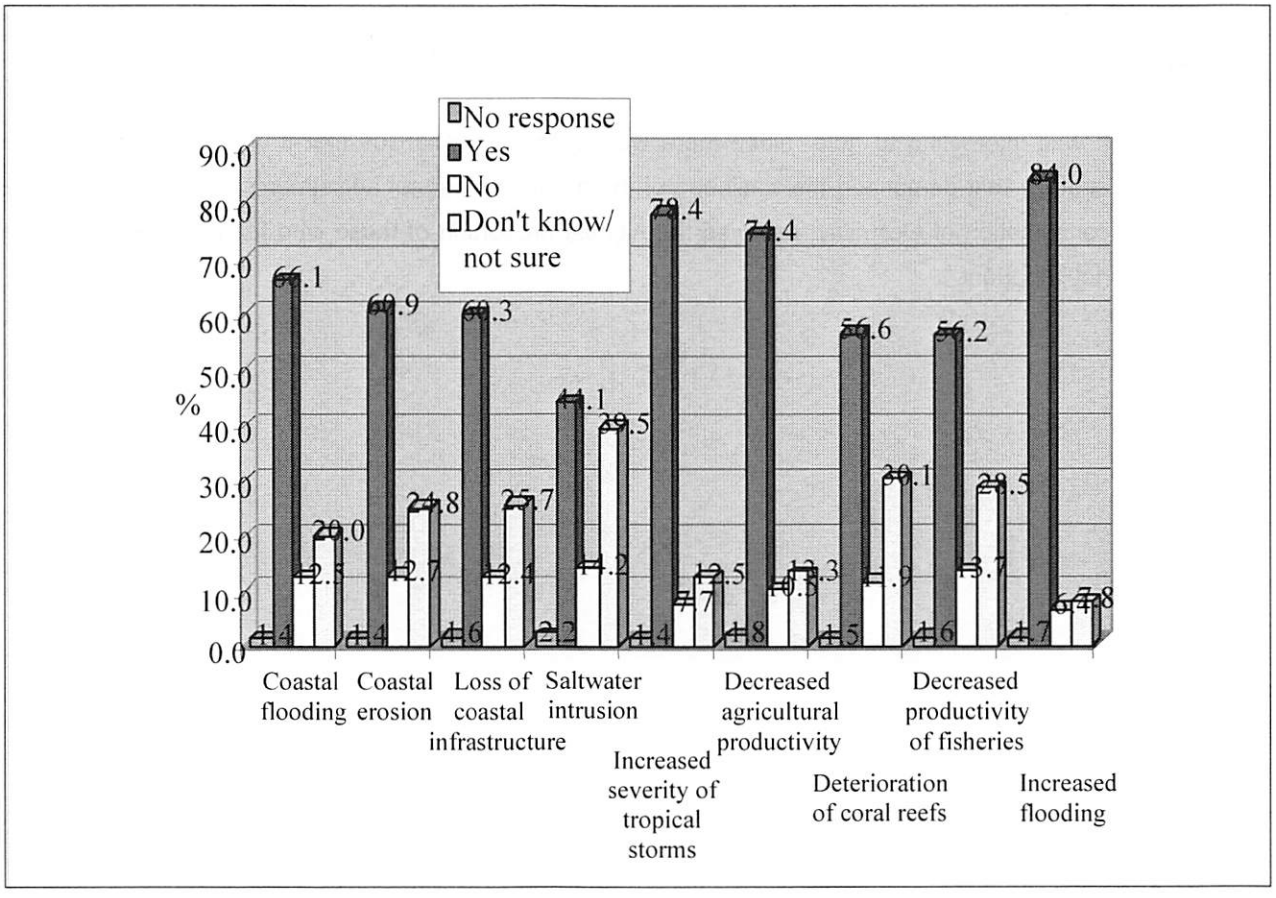


Figure 6 Percentage distributions of all respondents whether they thought the listed actions were possible effects of climate change in their country, by country.

This tie in with the relatively high proportion of persons who indicated that they were not sure, or did not know whether or not a proposed strategy was important (see Table 6 below). This points to a lack of sufficient knowledge among a significant section of the population.

Table 6: Percentage distribution of all respondents by their response to the relative importance of proposed strategies in addressing climate change

Proposed strategy	No response	Not important at all	Moderately important	Very important	Don't know/ not sure
Reduction of fossil fuels use	0.6	7.8	24.6	47.0	19.9
Reduction of consumption of electricity	1.1	11.9	26.4	37.3	23.1

Implementation of energy efficiency measures in the industrial and commercial sectors	0.5	6.0	20.8	54.8	17.7
Increased R&D of renewable energy technology	0.3	4.4	20.2	59.8	15.1
Improved crop cultivars in the agriculture sector	0.5	5.0	21.6	52.4	20.4
Increased public awareness of climate change issues	0.3	2.9	12.3	78.1	6.3

It was interesting to note, albeit there was a strong consensus that it was important that the strategy that demanded the likelihood of the greatest personal adjustments, the reduction in the consumption of electricity, received the highest proportion of those who felt the strategies were not important.

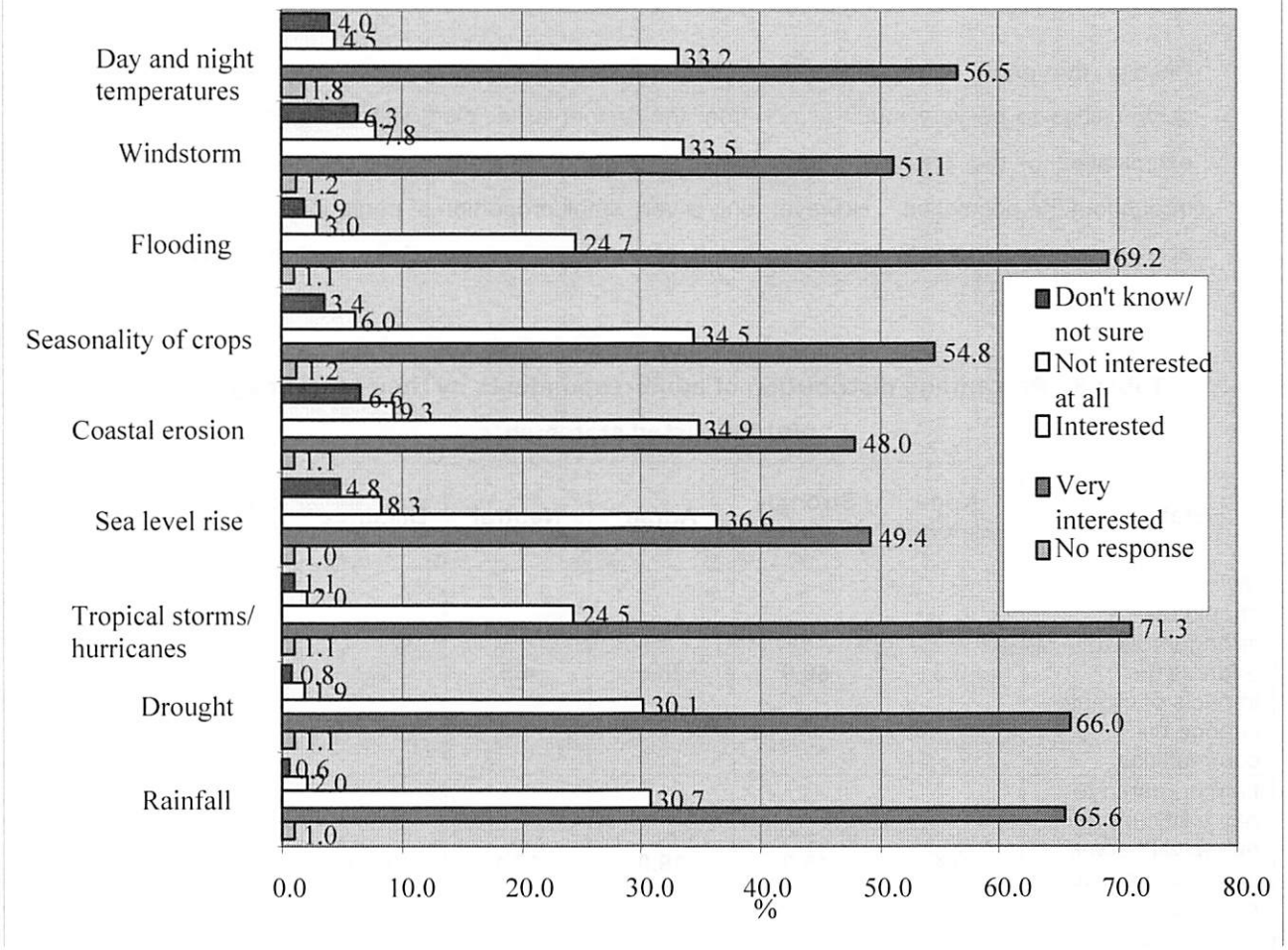


Figure 7 Percentage distribution of all respondents by how interested they were in knowing how climate change affected the list of climatic relate conditions, by condition.

Generally persons expressed strong to moderate interest in knowing how climate change affected the various climatic conditions they were asked about. Figure 7 summarizes these responses.

Table 7: Percentage distribution of all respondents by their levels of concern about climate

Response	Private Sector	Public Sector	Intern'tl Agencies	Media	Children	Adults	Overall
Non-response	0	0	0	0	1.3	0.6	0.6

Not concerned at all	1.6	0	25	0	2.6	1.5	1.6
Moderately concerned	44.3	26.7	0	33.3	38.2	32.9	33.4
Very concerned	54.1	73.3	75	66.7	55.3	63.1	62.6
Don't know/not sure	0	0	0	0	2.6	1.8	1.8

Despite the earlier observation that many persons did not consider themselves or their communities to be very much at risk from the factors associated with changes in climate, an examination of the Table 7 shows that the levels of concern about climate change varied throughout the population. However, only a very small proportion of persons said they were not at all concerned. Otherwise varying levels of concern were expressed, with most being very concerned.

Table 8: Percentage distribution of adult respondents by their level of agreement with the listed statements.

Statement	Non-response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know/Not sure
My government should take a stronger role to address the impacts of climate change on communities.	0.3	**60.9**	28.6	4.5	2.2	0.7	2.7
I am prepared to pay a little more or put up with some inconvenience to help the environment.	0.4	15.3	**39.0**	17.1	15.0	8.1	5.1
There is nothing a small country like mine can do about climate change.	0.5	5.6	9.2	6.5	**39.5**	33.3	5.5
My country should play a leading role to address climate change in the Caribbean region.	0.5	36.2	**41.0**	11.3	3.5	1.6	5.9

Respondents were given several statements on the role that they, the Government and the country should play in addressing the impacts of climate change, and asked to their levels of agreement with the statements. Table 8 summarizes the responses to these statements among the adults respondents interviewed.

From it can be seen that although most persons (60.9 %) strongly agreed with the statement that the Government should take a stronger role to address the impacts of climate change on communities, only 15.3 % strongly agreed that they were prepared to pay a little more or put up with some inconvenience to help the environment. Despite this however there was still a majority of respondents at 39.0 %, who agreed with making this personal sacrifice.

On the question of how effective a small country could be in the global response to climate change, most people were positive that despite the country's size it could make a difference. Most persons disagreed (39.5 % strongly disagreeing and 33.3 % disagreeing) with the statement that there is nothing that a small country like mine can do about climate change. Additionally some 41.0 % agreed, and 36.2 % strongly agreed that their country should play a leading role in addressing climate change in the Caribbean region.

Table 9 shows the mean ranking of a list of climatic related conditions that respondents were asked to rank from one to six in order of importance with one being the least important and six, the most important rank.

Table 9: Respondents mean ranking of climatic related conditions by category of respondents.

Climatic related conditions	Private sector	Public Sector	Media	International Agencies	Adults	Children	Overall
Rainfall	4.30	5.13	5.33	4.00	4.64	4.95	4.91
Drought	3.85	4.47	4.00	3.33	4.07	4.39	4.35
Tropical storms	4.15	4.14	5.33	4.67	3.79	4.28	4.26
Sea level rise	2.80	2.87	2.67	2.75	2.32	2.61	2.61
Coastal erosion	2.87	2.93	2.00	2.33	2.28	2.21	2.24
Seasonality of crops	3.03	1.47	2.00	4.00	2.95	2.56	2.58

For the overall survey, it can be seen that rainfall had the highest mean ranking followed by drought and tropical storms. Their mean ranks of more than four are indications that these factors on average are of significant importance to persons. However the relatively low ranking of the others condition would suggest that not many persons think that these conditions are as important as the others. The fact that the effects from sea level and coastal changes as well as the seasonality of crops are not conditions that directly impact on their lives as much as flooding from excessive rainfall, and the shortages of domestic and irrigation water during droughts. There would have been a bias towards ranking tropical storms as being important given tropical

storms the recent hurricane events. There was some variation in relative importance among some of the categories. Nevertheless there was a fair degree of consensus in the relative importance of the conditions presented.

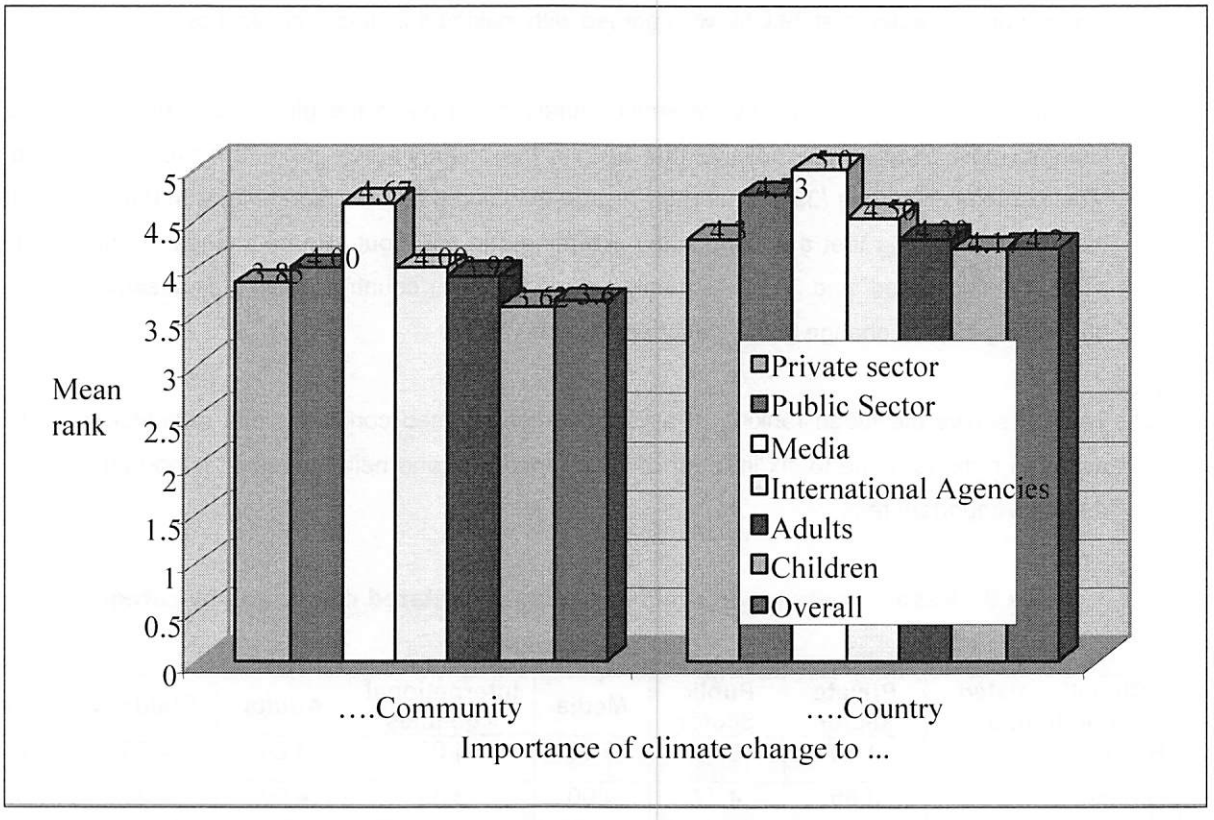


Figure 8 Mean rank of the importance of climate change by category of respondents.

The above figure shows the mean ranking on a scale of one to five with one being least important and five being extremely important, of the various categories of respondents' responses to how important they thought climate change was to their individual communities and the country in general, respectively. It is quite clear from the figure that generally persons considered that climate change was important to them. However a clear trend is seen where people feel that climate change is less important to their own communities than to the country in general. This is consistent with the earlier finding where many persons feel that their own community was not particularly at great risk from the negative effects of climate change.

It is interesting to note respondents answers to who should bear the primary responsibility for addressing climate change. The overwhelming majority of persons across all of the categories felt that it was primarily the responsibility of the Government. What is startling is that, with the

exception of the public sector category, very few people thought that the business/industry bore a primary responsibility. Equally revealing was that there were so few responses that felt that the private citizen bore a primary responsibility (see Table 10).

Table 10: Percentage distribution of respondents by who they believe should bear the primary responsibility

Group that should bear primary responsibility	Private Sector	Public Sector	International Agencies	Media	Children	Adults
Government	83.6	73.3	75	33.3	72.4	68.4
Business/industry	3.3	0	0	0	6.6	4.8
Community organizations	1.6	20	0	0	6.6	10.8
Private citizens	3.3	6.7	25	33.3	2.6	6.8
All of the above	8.2	0	0	0	7.9	6.1
Other	0	0	0	0	2.6	1
Don't know	0	0	0	33.3	0	0.7
Non-response	0	0	0	0	1.3	1.3

This point to the fact that many individuals either feel that it is not their responsibility to act in a way as individuals to be more responsible to the environment and take individual actions that will contribute to lessening the process and the effects of climate change. This tendency to pas the buck to someone else is a real issue that will have to be overcome in any efforts to get the general public to start behaving in a more environmentally responsible manner.

In response to the question as to whether the country was prepared to handle extreme climate change events, 57 % of respondents felt that the country was not prepared (See Figure 9). A further 28 % were not sure or did not know. Only 14 % felt that the country was prepared.

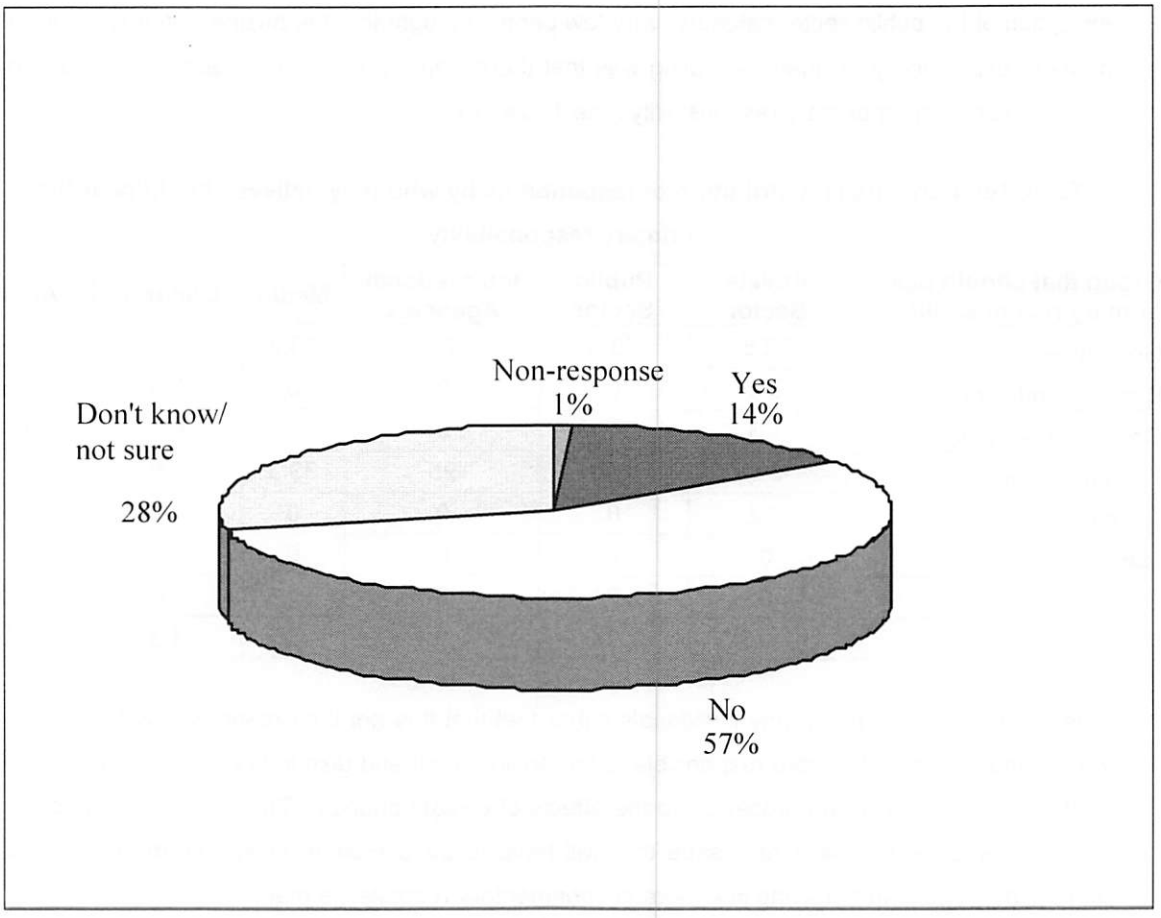


Figure 9 Percentage distribution of all respondents by whether they considered that the country was prepared handle extreme climate change events.

Presented below are respondents' suggestions of the most important actions that should be implemented by the country to adapt to climate change. In order of priority, these were: -

- Public education programmes,
- Disaster preparedness,
- Tree planting (reforestation),
- Enforce Environmental laws,
- Maintenance of drains/roads/bridges etc.,
- Better waste management technique,
- Conduct impact assessment studies,
- Legislation on CFCs,
- Encourage soil conservation,

- Reduction in harmful emission,
- Encourage conservation of resources,
- Budgetary allocation,
- Collaboration of Government & PSOJ, and
- Use environmentally safe products.

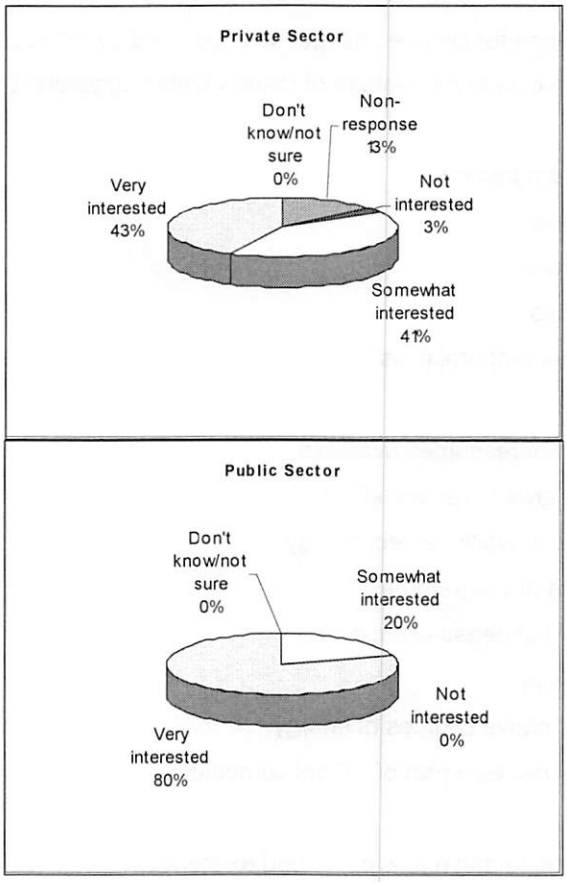
This order of the priority listing is a reflection of the common theme running throughout the survey. That is the need for more public education programmes and better disaster preparedness. This theme is also reflected below in the priority list of more that needs to be done in terms of preparation for climate change, as suggested by the respondents. These, in the order of priority based on overall percentage of respondents suggesting the action, were: -

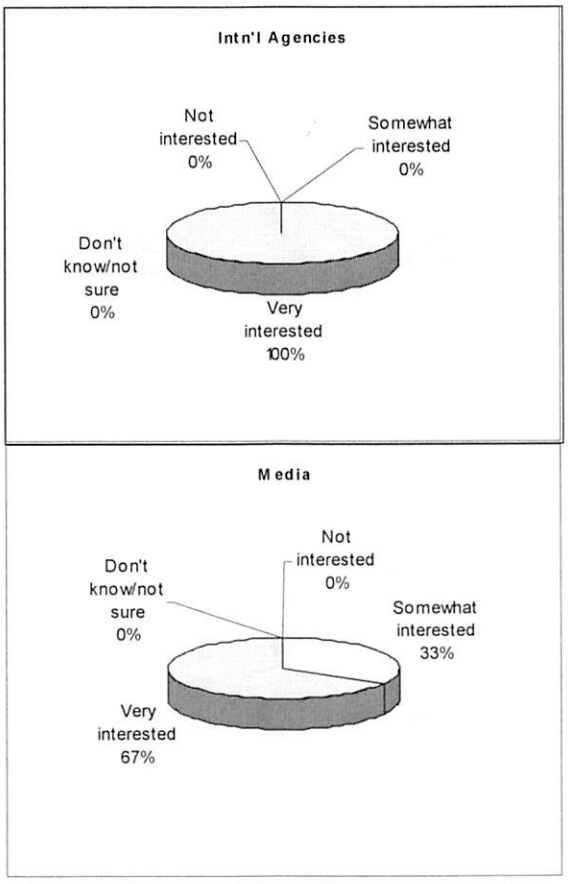
- Massive evaluation programme,
- Disaster preparedness,
- Improved infrastructure,
- Enforce building codes,
- Better waste management practices,
- Tree planting projects,
- Increase the amount of resources available,
- Enforce appropriate laws to reduce effect,
- Improved/better use of available technology,
- Continued evaluation of programmes,
- Increase assessment of negative impacts,
- Protect reefs/coastlines,
- Development of alternative sources of energy,
- Make environmental issues a part of school curriculum,
- Implement changes,
- Linkage between climate and man's continued existence,
- Better land usage and soil conservation practices,
- Oversight organization,
- A dedicated national weather channel,
- Community involvement & participation, and
- Conservation of natural resources.

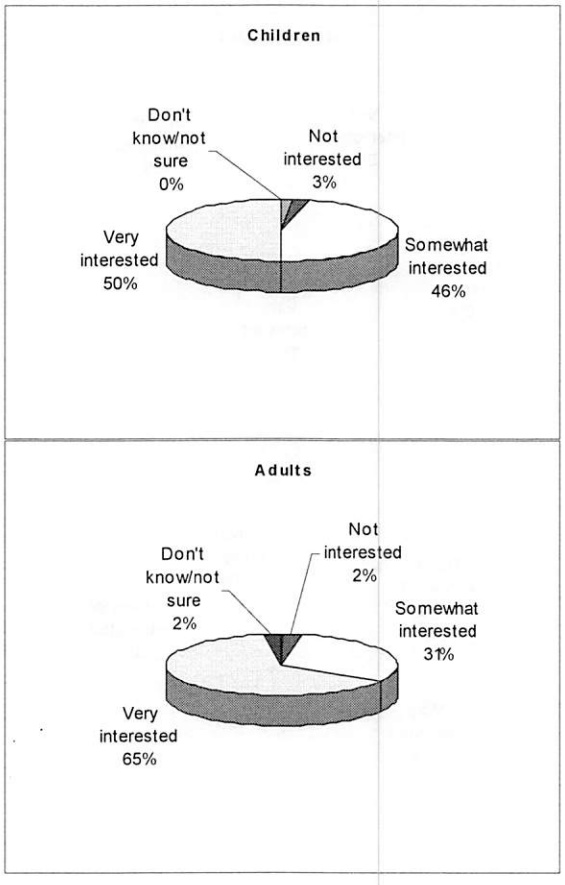
Figure 10 summarizes the responses of the respondents from the various categories as to whether they are interested in finding out more about the impact of weather on their community.

What is shown is that in general there was a strong degree of interest in finding out more, with the majority of persons indicating that they were very interesting. In addition most of the others were somewhat interested. There was very little disinterest expressed among persons.

Figure 10 Percentage distribution of all respondents by whether they are interested in finding out more about the impact of weather on the community, by category of respondents.




Intn'l Agencies
Not interested 0%
Somewhat interested 0%
Don't know/not sure 0%
Very interested 100%
Media
Not interested 0%
Don't know/not sure 0%
Somewhat interested 33%
Very interested 67%



The respondents' opinions on what has been done to prevent or lessen the effects of weather or climate change by themselves, their community, and their country are set out in Tables 11a, b, c.

Table 11: Percentage of respondents by what they considered had been done to prevent or lessen the effects of weather or climate change, by category of respondent.

(a) by themselves

Actions	Private Sector	Public Sector	Intern'tl Agencies	Media	Children	Adults	Overall
Non-response	18	0	25	0	10.5	13.7	13.6
Dispose of garbage properly	27.9	33.3	0	66.7	26.3	37.6	36.7
Observe building codes	8.2	20	0	0	3.9	4	4.3
Conservation of resources	8.2	13.3	50	33.3	2.6	1.2	1.8
Plant trees	18	13.3	0	0	2.6	9.6	9.6
Disaster preparedness	14.8	20	0	0	2.6	9.7	9.6
Soil conservation	4.9	0	25	0	0	0.8	1.0

Actions	Private Sector	Public Sector	Intern'tl Agencies	Media	Children	Adults	Overall
Educate & inform family/friends	3.3	0	25	0	3.9	4.7	4.6
Used alternative source of energy	0	0	0	0	0	0.5	0.5
Don't know/Unsure	16.4	13.3	0	0	55.3	26.3	27.0
Other	0	0	0	0	0	0.8	0.8

(b) by their community

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	24.6	0	25	0	11.8	16.5	16.4
Disaster preparedness	1.6	6.7	0	0	3.9	6.4	6.1
Keeping environment clean	3.3	26.7	0	0	6.6	13.9	13.3
Nothing/very little	39.3	20	50	0	30.3	22	22.9
Conserve resources/energy	1.6	6.7	0	0	2.6	0.7	0.9
Proper disposal of garbage (no burning)	14.8	6.7	0	33.3	10.5	13.4	13.3
Reduce/avoid use of CFC's	1.6	0	0	0	0	0.6	0.6
Reforestation	9.8	0	0	0	6.6	7.6	7.5
Information/increase awareness	1.6	0	0	0	1.3	1.5	1.5
Unsure/Don't know	6.6	40	25	66.7	31.5	18.3	18.6
Other	0	0	0	0	2.6	3.3	3.1

(c) by their country

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	23	6.7	25	0	17.1	17.5	17.6
Disaster preparedness	6.6	26.7	0	33.3	0	7.5	7.3
Enforcement of environmental laws	4.9	26.7	0	0	2.6	4.5	4.6
Conservation of resources	4.9	6.7	0	0	0	1.2	1.3
Public education programme	3.3	20	0	0	14.5	9.8	9.8
Conduction researches	1.6	0	0	0	1.3	0.5	0.6

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Alternate source of energy	9.8	0	0	0	3.9	1.8	2.1
Better waste management	4.9	0	0	0	3.9	9.8	9.3
Drain maintenance/clean drains/gullies	6.6	0	0	0	5.3	8.2	7.9
Preserve/increase tree stock	6.6	0	0	0	3.9	7.2	7.0
Collaboration of environmental groups	0	0	0	0	3.9	2	2.0
Don't know/unsure	9.8	13.3	0	33.3	39.5	22	22.2
Nothing/very little	31.1	13.3	25	33.3	10.5	13.9	14.4
Other	1.6	0	50	0	1.3	3.8	3.7

On the personal level, the most common response was that efforts are made to dispose of garbage properly. Other fairly significant personal actions taken were disaster preparedness, the planting of trees (9.6 %, respectively), educating and informing friends and family (4.6 %), and the observance of the building codes (4.6 %). Of concern however, is that in addition to a 13.6 % non-response to the question, some 27.0 % could not tell whether or were unsure if they had done anything personally.

At the community level, although some actions were seen to have been done by the community, including the proper disposal of garbage (13.3 %) and keeping the environment clean (13.3 %), it was somewhat disconcerting that nearly a quarter of the respondents felt that nothing or very little had been done by their community.

In terms of what respondents thought that the country had done to prevent or lessen the impacts of weather or climate change, the picture was not very different. A longer list of actions taken were given here than for individuals themselves or their communities, but it is significant that here again, the highest proportion of the population either did not know or were unsure if any thing had been done by the country (22.2 %), or felt that nothing or very little had been done (14.4 %).

On the question of what had been done, if anything, to worsen the effects of weather and climate change, Tables 10a, b and c, summarizes the respondents' answers.

The majority of persons either did not respond to this question or believed either that they had done nothing or were not sure. More than half of the responses were to this effect. The only other significant factors that were given was that they had improperly disposed of garbage by

burning (18.3 %), deforestation (3.5 % and the use of fuel that contribute to the depletion of the ozone layer (3.0 %).

Many more persons placed the blame on the community. Here, some 40.0 % overall felt that their community contributed to the worsening of the environmental problems through the improper disposal of garbage through burning or other environmental unfriendly methods. The generic statement 'pollution of the environment' was also given by a significant proportion of the respondents as one way in which the community contributed to worsening the situation.

Most blame however, was placed at the feet of the country in general, with significant proportions pointing to: a lack of environmental planning and protection (16.1 %); the destruction of trees for development (9.4 %); doing nothing (5.0 %); increased CFCs from imported vehicles; and limited maintenance of the country's infrastructure (3.4 %).

Table 12: Percentage of respondents by what they considered had been done to worsen the effects of weather or climate change, by category of respondents

(a) by themselves

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	23	0	50	0	15.8	19.8	19.6
Nothing/not sure	44.3	80	0	66.7	53.9	50.5	50.6
Poor soil conservation practices	1.6	13.3	0	0	1.3	1.7	1.8
Increased energy use	4.9	6.7	50	0	0	0.7	1.0
Lack of interest in environmental issues	1.6	0	0	0	0	1.3	1.2
Use of fuel that depletes ozone layer	6.6	0	0	33.3	6.6	2.7	3.0
Improper waste disposal (burning)	9.8	0	0	0	18.4	18.9	18.3
Deforestation	9.8	0	0	0	2.6	3.4	3.5
Not complying with building codes	0	0	0	0	0	0.2	0.2
Other	4.9	0	0	0	1.3	1.8	1.9

(b) by their community

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	19.7	0	25	0	19.7	16.2	16.3
Improper waste disposal (burning)	24.6	20	0	100	39.5	40.8	40.0
Poor conservation practices	3.3	6.7	0	0	0	0.8	0.9
Nothing	23	40	0	0	9.2	8.9	9.6
Pollution of environment	21.3	13.3	50	33.3	9.2	16.5	16.4
Car emissions	3.3	0	25	0	0	1.2	1.3

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Deforestation	4.9	0	0	0	0	2.3	2.3
Building without proper approval	1.6	0	0	0	0	1.1	1.1
Tax evasion (money to assist problems)	0	0	0	0	0	0.4	0.4
Lack of soil conservation	0	0	0	0	0	1.8	1.6
Unsure/Don't know	1.6	20	0	0	17.1	13.1	12.9
Other	0	0	0	0	3.9	3.1	3.0

(c) by their country

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	16.4	6.7	25	0	22.4	20.2	20.0
Lack of environ. planning & protection	32.8	33.3	50	0	6.6	15.7	16.1
Haphazard construction/no impact assessment	0	6.7	0	0	0	2.6	2.4
Increased CFC's from imported vehicles	8.2	6.7	25	0	3.9	4.1	4.3
Destroying trees for development	16.4	20	0	33.3	11.8	8.9	9.4
Allowing contamination of rivers/seas etc	0	6.7	0	0	2.6	1.2	1.3
Hillside erosion	8.2	6.7	0	0	0	0.5	0.8
Negligence in disposing of garbage	23	6.7	0	0	13.2	17.9	17.7
Lack of public education	6.6	0	0	0	3.9	1.7	1.9
Improper farming practices	3.3	0	0	33.3	2.6	0.7	0.9
Limited maintenance of infrastructures	3.3	0	0	0	2.6	3.5	3.4
Nothing	3.3	0	0	0	2.6	5.2	5.0
Reliance on fossil fuel	3.3	0	0	0	2.6	1.2	1.3
Don't know/unsure	0	13.3	0	33.3	32.9	17.6	17.6
Other	1.6	6.7	0	0	3.9	7.6	7.2

Suggestions are given in Tables 13a, b and c, of what could be done to prevent or lessen weather impacts, at the individual personal level, at the community level, and by the country.

Respondents felt that they as individual could personally help to do this by properly disposing of their waste and stopping the burning of garbage (16.5 %); participating in community activities (12.7 %); planting trees (5.2 %); complying with regulations and guidelines (5.0 %); becoming

more conscious and aware of the dangers associated with climate change and the effects that individual actions can have (4.0 %); and, disaster preparedness (3.9 %).

As a community the responses were similar with the proper disposal of garbage (21.5 %), and increased environmental awareness (15.7 %) being the most popular responses. In addition it was also indicated that the communities could plant more trees as well as keeping drains and gullies clear.

The most popular suggestions on what Government could do were for them to mount a major public education campaign (18.1 %), institute better garbage disposal methods (11.5 %), and a review of existing environmental laws and the enactment off necessary new ones (10.8 %).

Table 13: Percentage of respondents by what they considered could be done to prevent or lessen the effects of weather or climate change, by category of respondent.

(a) by themselves

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	24.6	6.7	25	33.3	21.1	20.8	20.9
Disaster preparedness	6.6	6.7	0	33.3	2.6	3.8	3.9
Reduction in ozone depleting emissions	1.6	6.7	0	0	1.3	1.2	1.3
Become more conscious/aware of dangers/effects	11.5	6.7	0	0	6.6	3.6	4.0
Participation in community activities	9.8	40	25	33.3	9.2	12.6	12.7
Reforestation	11.5	0	0	0	1.3	5.2	5.2
Proper waste disposal/stop burning garbage	11.5	0	0	0	13.2	17.1	16.5
Conservation of resources (energy, water etc)	4.9	0	50	0	0	1.6	1.7
Compliance with regulations/guidelines	3.3	0	0	0	2.6	5.2	5.0
Use of less chemicals	0	0	0	0	0	0.5	0.5
Other	1.6	0	0	0	5.3	6	5.7
Don't know/unsure	4.9	26.7	0	0	28.9	13.1	13.5
Nothing/very little	13.1	6.7	0	0	7.9	9.5	9.5

(b) by their community

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	26.2	6.7	25	66.7	19.7	21.4	21.5
Proper disposal of waste/stop burning	26.2	33.3	0	33.3	21.1	21.3	21.5
Reforestation	11.5	6.7	0	0	3.9	9	8.8

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Increased environmental awareness	24.6	40	50	0	21.1	14.8	15.7
Use environmentally friendly substances	3.3	0	0	0	0	1.3	1.3
Avoid living in flood prone areas	1.6	0	0	0	0	0.2	0.2
Conserve resources (fuel, water)	4.9	0	25	0	0	1.3	1.4
Keep drains clean	3.3	0	0	0	6.6	6.7	6.5
Soil conservation	1.6	0	0	0	2.6	2.5	2.4
Disaster preparedness	0	0	0	0	1.3	3.6	3.3
Nothing	0	0	0	0	2.6	3.1	2.9
Adherence to guidelines	0	0	0	0	1.3	1.4	1.3
Don't know	9.8	20	0	0	23.7	13.4	13.7
Other	1.6	0	0	0	2.6	5	4.7

(c) by their country

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	24.6	6.7	25	33.3	25	21.4	21.6
Impose/enforce stricter building codes	1.6	6.7	0	33.3	0	3	2.9
Major educational campaign/increase awareness	24.6	26.7	0	33.3	28.9	17.3	18.1
Implement strategies to lessen impact	13.1	33.3	0	0	0	4.4	4.7
Review/enact laws to address pollution	19.7	20	75	0	5.3	10.5	10.8
Seek international help to assist with problems	1.6	0	0	0	1.3	1.8	1.8
Reforestation/tree planting	3.3	0	0	0	2.6	3.9	3.8
Seek alternative energy sources	3.3	0	0	0	2.6	0.9	1.0
Better garbage disposal methods	6.6	0	0	0	6.6	12.1	11.5
Maintain/improve infrastructure (roads, bridges etc)	8.2	0	0	0	2.6	7.9	7.6
Promote environmentally friendly substances	0	0	0	0	0	1.2	1.1
Import less motor vehicles	0	0	0	0	0	0.8	0.7
Conduct impact assessment study	0	0	0	0	0	0.4	0.4
Nothing	0	0	0	0	1.3	2	1.9
Unsure/don't know	3.3	6.7	0	0	23.7	11	11.2
Other	0	0	0	0	2.6	9	8.3

The reasons cited by respondents for what had prevented action being taken about climate change in the past are summarized in the next set of tables, Tables 12a, b and c.

Generally most persons blamed a lack of information, lack of finances and the feeling that one person could not make a difference.

On the other hand many persons though absolving themselves as individuals placed the blame for a lack of action on the absence of civic pride. Other reasons given were a lack of information and finances.

Although the highest proportion of persons (19. 7 %) believed the Government had not done anything because of a lack of financial resources, a significant proportion (17.1 %) believed that no more had been done because this was not a priority of the Government and also that the Government had exhibited a lack of vision and forward planning.

Table 14: Percentage of respondents by what they considered had prevented action from being taken about climate change, by category of respondent.

(a) by themselves

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	100	100	100	100	72.4	26.9	32.2
Nothing	0	0	0	0	2.6	20.8	19.1
Lack of information/ignorance	0	0	0	0	10.5	8.2	7.9
Unavailability of time	0	0	0	0	0	3.5	3.2
Don't think one person can make a change	0	0	0	0	5.3	7.3	6.9
Lack of finances	0	0	0	0	3.9	8.8	8.2
Lack of governmental support	0	0	0	0	2.6	3.9	3.7
Lack of community cooperation	0	0	0	0	1.3	1.5	1.4
Lack of recycling facilities & equipment	0	0	0	0	0	0.1	0.1
Don't know/unsure	0	0	0	0	1.3	11.7	10.7
Other	0	0	0	0	0	8.5	7.8

(b) by their community

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	37.7	13.3	25	0	68.4	25.9	27.9
Nothing	8.2	6.7	0	0	0	5.8	5.6
Unaware of importance to	1.6	13.3	0	0	1.3	0.9	1.0

human survival							
Lack of information	24.6	33.3	50	33.3	9.2	14.7	15.1
Unavailability of time	0	6.7	0	0	0	0.5	0.5
Lack of finances	1.6	6.7	0	0	2.6	5.6	5.3
Lack of civic pride	11.5	26.7	25	0	14.5	21.4	20.8
Lack of governmental support	1.6	0	0	0	0	2.1	2.0
Don't know/unsure	4.9	0	0	33.3	3.9	19	17.7
Lack of direction/organization	1.6	0	0	33.3	0	2.1	2.0
Lack of recycling facilities	3.3	0	0	0	0	0.1	0.2
Other	6.6	0	0	0	1.3	4.5	4.4

(c) by their country

Actions	Private Sector	Public Sector	Intern'tl Agency	Media	Children	Adults	Overall
Non-response	37.7	13.3	25	0	21.1	25.1	25.2
Partisan politics	1.6	20	0	0	2.6	2	2.2
Lack of education/info. about climate	1.6	13.3	0	0	5.3	1.7	1.9
Nothing	11.5	26.7	0	0	3.9	6.1	6.3
Not a priority of government	4.9	6.7	50	66.7	22.4	17.2	17.1
Lack of resources	23	20	25	33.3	22.4	19.4	19.7
Lack of vision/forward planning	6.6	0	0	0	2.6	7.1	6.8
Lack of cooperation from citizens	1.6	0	0	0	2.6	1.2	1.3
Other	4.9	0	0	0	2.6	3.6	3.6
Unsure/Don't know	8.2	0	0	0	23.7	20.8	20.2

5.2.2 Knowledge and Behaviour

Table 15 below shows the distribution of those respondents demonstrating some knowledge of climate change by measures implemented to lessen the effects of climate change. The proper disposal of garbage was cited as the most common measure implemented amongst three of the groups: (34.3%) of general public, (33.3) public sector and (26.2) private sector. Disaster preparedness, planting trees, observing building codes, conservation of resources and soil conservation were also measures sited by respondents in the same three groups. The main response for the international agencies were the conservation of resources as cited by half of these respondents; soil conservation (25%) and educating and informing family and friends (25%) were the other actions taken. These responses do imply a positive correlation between knowledge of climate change and action taken.

The data in table 15 also show an interesting phenomenon on the part of those respondents demonstrating knowledge of climate change. When asked what have they done to lessen climate change, approximately 33% of the private sector respondents, 28% of the general public, 13% of the public sector and 25% of the international agencies either did not respond, were unsure or just did not know. This behaviour does imply a certain level of ignorance and or uncertainty as to what they can do to prevent or lessen the impacts of climate change.

Table 15: Distribution of respondents who can be considered to be knowledgeable about climate change by measures implemented to prevent or lessen the effects of weather or climate change.

Measures	General Public	Public Sector	Private Sector	International Agencies
Non-response	9.1		16.4	25.0
Don't Know/unsure	19.5	13.3	16.4	
Disposal of garbage	34.3	33.3	26.2	
Observe building codes	3.6	20.0	8.2	
Conservation of resources	1.2	13.3	8.2	50.0
Plant Trees	9.1	13.3	18.0	
Disaster Preparedness	8.8	20.0	13.1	
Soil Conservation	0.8		4.9	25.0
Educate and inform family & friends	4.2		3.3	25.0
Used alternative source of energy	0.5			
Other	0.8			

The distribution of respondents who can be considered knowledgeable about climate change and their responses to what they had done to worsen the effects of climate change on their community is shown in Table 16 below. The most popular measure was the improper disposal of garbage, which was cited by close to 20% of the knowledgeable general public and 10% of the knowledgeable private sector respondents. Deforestation, the use of ozone depleting fuels, poor soil conservation and increased energy use were also measures cited by these respondents. The fact these respondents who demonstrated some knowledge of climate change have actually participated in actions contrary to their knowledge implies a deviation from an expected positive correlation between knowledge about climate change and practices which would prevent or lessen the impact of climate change. The behaviour of these respondents in this context is very noteworthy.

Table 16: Distribution of respondents considered to be knowledgeable about climate change by what they had done to worsen the effects of weather or climate change on the community.

Measures	General Public	Public Sector	Private Sector	International Agencies
Non response	15.6		21.3	50
Nothing/not sure	40.8	80	42.6	
Poor soil conservation practices	1.6	13.3	1.6	
Increased energy use	0.7	6.7	4.9	50
Lack of interest in environmental issues	1.3		1.6	
Use of fuel that depletes ozone layer	2.6		6.6	
Improper waste disposal (burning)	16.9		9.8	
Deforestation	3.1		8.2	
Other	1.5		4.9	
Not complying with building codes	0.1			

5.3 Media Usage

The figure below shows the summary of the responses to how often respondents read, listened to, or watched stories that dealt with climate change. In the case of all of the groups, the highest percentage of persons only reported occasional exposure, with 48.3 % of all respondents reporting this. Nevertheless a significant proportion (34.5 % overall) reported that they were frequently exposed to these types of stories. Significant also was the 13.6 % who reported only infrequent exposure. None of the respondents reported that they had never been exposed to climate change stories.

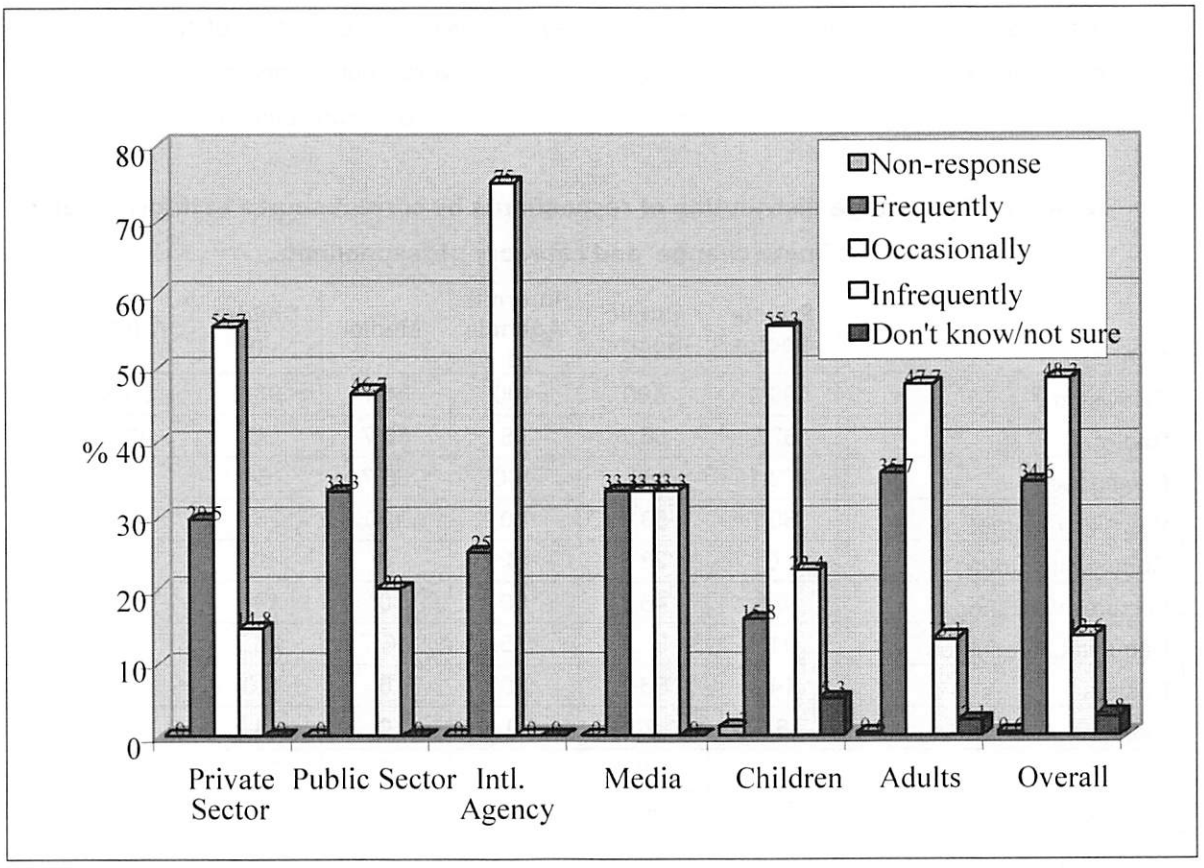


Figure 11 Percentage distribution of respondents by how often they read/listen to/watch stories that deal with climate change.

However it was not clear why there was this preponderance towards only occasional exposure to climate change stories. This could be as a result of their lack of interest in the presence of adequate coverage by the media of these types of stories or it could alternately be the lack of sufficient stories on the issue being reported by the media and hence there were not enough

opportunities for respondents to be exposed more than occasionally. Responses to other questions would however suggest that it is more likely to be the case of the latter situation.

The above observation was further borne out by the response to the additional question that asked whether respondents would like to read, listen to or watch more stories that deal with climate change. An overwhelming majority of the respondents at 91.7 % said yes. Only 3.1 % said that they did not want more of these types of stories. A further 4.7 % were not sure or did not know.

The current sources of respondents' information on climate change are summarized in Table 17. The most common source for all of the categories, with the exception of the media, was television. Radio was the second most popular medium overall, but for the private sector and the international agencies categories the newspaper was a more common source than radio.

Table 17: Percentage distribution of respondents by current source of information on climate change and category of respondents.

Source	Private Sector	Public Sector	Intern'tl Agencies	Media	Children	Adults	Overall
Television	93.4	100	100	66.7	93.3	96.8	96.5
Radio	62.3	86.7	75	66.7	72	82.6	81.5
Newspaper	72.1	80	100	66.7	64	65	65.4
Websites/Internet	60.7	53.3	50	100	26.7	19.4	21.6
Community groups	0	33.3	0	0	6.7	13	12.4
Lectures/workshops	9.8	46.7	50	0	14.7	11.3	11.8
Pamphlets/brochures	31.1	66.7	75	66.7	26.7	20.5	21.7
Posters	14.8	66.7	50	0	20	18.1	18.5
Videos	8.2	20	0	0	14.7	7.7	8.1
Schools	8.2	0	0	0	38.7	22.1	22.1
Friends/family	36.1	60	50	0	42.7	38	38.3
Church/place of worship	3.3	13.3	0	0	20	22.8	21.9
Government	37.7	66.7	50	0	22.7	21.6	22.6
Mailings	9.8	6.7	25	0	5.3	2.9	3.3
Other	0	6.7	0	33.3	1.3	1.4	1.4

Among the category children, although 38.7 % reported the school as a main source, it was surprising that the schools scored so low among them. This finding is particularly important in that this segment of the population is in potentially the best position to make a positive difference.

They however have to be sensitized and guided. The schools are ideal for starting this process of awareness and responsible environmental usage and thus should be used more.

Respondents were given the same information sources listed in Table 17 as possible means of transmitting information about climate change and instructed to select all those that they considered would be effective in delivering this message.

With the exception of the use of mailings, which only just over a third of all respondents thought would be an effective means, significantly more than a half of the respondents felt that all of the other methods listed would be effective.

However the most popular methods chosen were for the use of television and radio. These were almost universally selected as being effective. These media were followed closely in perceived effectiveness by the use newspapers and of programmes in the schools. Other significant methods selected were through friends/family; Government; websites/internet; community groups; churches; and posters.

On the negative side, the highest proportion of persons was of the opinion that mailings were the least effective method to transmit this type of information.

In addition to their assessments on the relative effectiveness of the various media, almost all the respondents who gave an additional opinion on how the media could be more effective in delivering this type of information and increasing public awareness felt that this could be achieved through the use of programmes specifically dedicated to informing about climate changes. In addition, some felt that the media could exercise more creativity in imparting the messages about the environment and climate change. The use of billboards was also suggested.

Outside of the above suggestions on the more effective use of the media for getting information about climate change to the general population and to influence positive behavioural changes, some respondents also felt that there is a need for a massive public education campaign about the issues surrounding climate change and a more responsible approach to the use of the environment and environmental resources. It was also felt that more could be done in the area of enacting new environmental laws and effectively enforcing them. However it was suggested that there are existing laws already in place which are not currently being effectively enforced. More effort should be made by the authorities in enforcing these.

The need to improve technology and more effective use of existing technology to warn of impending disasters as well as addressing the issues surrounding climate change with a greater sense of urgency were also important suggestions offered. Reforestation and the provision of practical recycling facilities were also seen as important steps that could be taken.

5.4 Special Private Sector Questionnaire

Presented in this section is a summary of the responses to the special additional questionnaire administered only to the private sector agencies.

Figure 12 shows the distribution of the companies interviewed in the private sector by the nature/type of business that they are mainly engaged in. The majority of companies at 70.5 %, were involved in manufacturing. This was followed by the 13.1 % in commerce/distribution, and 11.5 % engaged in services. Table 18 below shows the percentage of private sector respondents by the product and services provided by their companies.