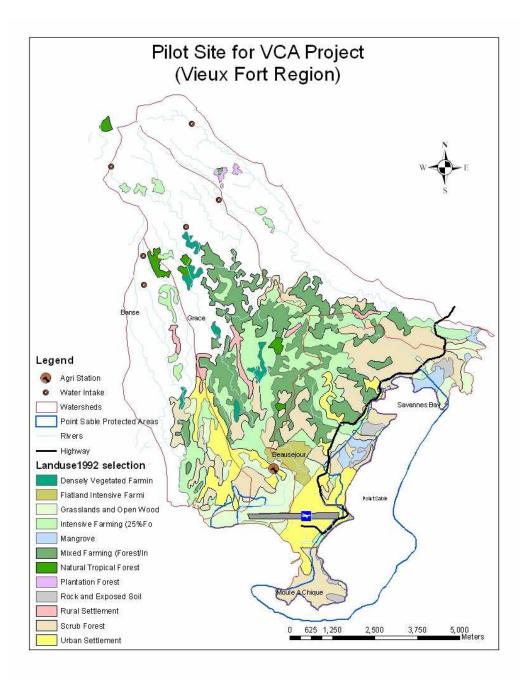
### **REPORT OF THE KNOWLEDGE, ATTITUDE PRACTICE (KAP) SURVEY FOR THE VIEUX FORT REGION IN FULFILLMENT OF THE VCA PROJECT**



Prepared by Sustainable Development and Environment Section Ministry of Physical Development, Environment and Housing Saint Lucia July 2006

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#### 5.3 1.0 INTRODUCTION

Saint Lucia is implementing a Climate Change Vulnerability and Capacity Assessment (VCA) initiative through the leadership of the Sustainable Development and Environment Section of the Ministry of Physical Development, Environment and Housing. This initiative is being undertaken through the collaboration of the Mainstreaming Adaptation to Climate Change (MACC) Project for CARICOM countries and the United Nations Development Program (UNDP) Caribbean Risk Management Initiative (CRMI).

The VCA methodology was developed and subsequently refined for the Caribbean region by the University of Colorado and National Oceanic and Atmospheric Administration (NOAA). The UNDP CRMI seeks an integrated approach to managing and reducing climate risks in the region, bringing together the Disaster Reduction and Recovery and Climate Change communities (or practitioners) to address common issues.

This regional VCA initiative includes up to 12 Caribbean countries. These countries aim aims to develop a structured and practical approach to vulnerability and adaptive capacity assessment, cognizant of recent advances in the field and building on past efforts and interventions in the Caribbean region. In this regard two regional workshops were convened in Trinidad and Saint Lucia in March and October of 2005 respectively, during which the capacity of practitioners were enhanced to form a cadre of VCA experts.

The overall goal of the VCA is to adopt a strategic approach to vulnerability assessment that will facilitate the institutionalisation of Climate Change uncertainties, vulnerabilities and risks into policies, legislation, and development plans. This would require innovative approaches to technology and investment strategies that would ease the transition needed to adapt/mitigate to climatic risks and vulnerabilities.

The objective of the VCA initiative in Saint Lucia is to test a practical approach to vulnerability and adaptive capacity assessment, capturing community-based issues and approaches in the context of changing climatic conditions. As a pilot activity, it will focus mainly on water resources, tourism, and agriculture within the Vieux-Fort region. The particular communities represented individuals who earned their livelihood through

farming, husbandry as well as from the nearby industrial zone. Some of the communities that were predominantly farming communities are Grace, Morne Cayene. The St. Urban community members are mostly fishers and charcoal producers.

The Government of Saint Lucia was one of the first CARICOM countries to give its commitment to the VCA initiative and the lessons learnt from this process will contribute to a more refined meaningful process in other islands.

Against this backdrop, the Sustainable Development and Environment Section in collaboration with the Statistics department designed a sample questionnaire in fulfilment of the Knowledge, Attitude and Practise survey within the pilot site. The absence of these three critical elements inhibits effective interventions in the adapting and mitigating against adverse implications of climate change.

The information gathered from this survey would inform practitioners of the various Knowledge, Attitude and Practise gaps within communities that inhibit the level of preparedness to the adverse impacts of climate change. It would also seek to outline risks in vulnerable areas. This analysis will subsequently inform specific interventions that would be required in the social marketing of climate change. Additionally bio-diversity, land degradation, ozone depletion and other environmental issues will be addressed through the design of a public Environmental Education Campaign (EEC).

#### 2.0 -DEMOGRAPHIC SECTION

### **2.1 PERSONAL INFORMATION**

The survey was implemented within the Vieux Fort region, where a total of 246 respondents were interviewed. The following *Table 2.1* identifies the sampled communities where the questionnaires were administered. The table provides a breakdown of the respondents' by community of settlements.

SETTLEMENT AREA	NUMBER OF	PERCENTAGE
	RESPONDENTS	
Augier	12	4.9
Bellevue	27	11
Black Bay	8	3.3
Cantonement	8	3.3
Coolie town	10	4.1
Derriere Morne	6	2.4
Fond Sabot	1	0.4
Grace	33	13.4
La Ressource	17	6.9
La Tourney	7	2.8
Morne Cayenne	25	10.2
St. Urban	24	9.8
St. Jude	19	7.7
Town	47	19.1
Not Stated	1	0.4
TOTAL	246	100

Table 2.1: Respondents Community in Vieux Fort

The percentage of females interviewed exceeded their male counterparts; representing 53.3% of females and 46.7% males. The age of respondents varied with both older and younger persons being included. The majority of respondents fell within the 20-29 and 30-39 years age cohorts thus representing 26.8% and 24% of the respectively.

*Table 2.2* illustrates the profile of education within the pilot site where at least one person interviewed declared that he/she had attained postgraduate level education, whilst a majority (44.3%) indicated their highest level of education is primary. This was followed by secondary level education representing 31.1% of respondents and ten persons indicated that they were not exposed to any level of formal education.

## Table 2.2 : Highlighting highest level of Education

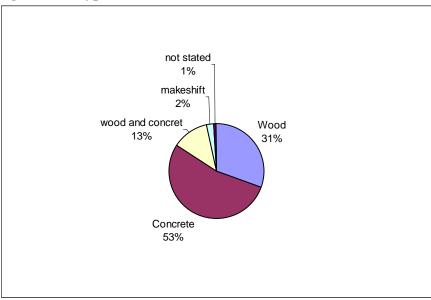
LEVEL OF EDUCATION	PERCENTAGE
Primary 1 to 3 years	3.7
Primary 4 to 7 years	44.3
Secondary	31.3
Pre University/SALCC Post Secondary	13.8
Bachelors Degree	.8
Post Graduate Level	.4
Other	.8
None	4.1
Not stated	.8

The employment status of respondents was examined. and Approximately 56% percent of respondents were deemed economically active, whilst individuals engaged in domestic activities represented 20.7%.

# **2.2 HOUSEHOLD INFORMATION**

Figure 2.1 below gives an indication of the type of material from which the houses within the sample communities are constructed.

Figure 2.1: Type of Material of Outer Walls



It is interesting to note is that only 8.9% of homes are insured. Similarly 8% of respondents declared that they have modified their homes to make them more resistant to

the weather forces. However, only 8% also said that any form of weather events had damaged their homes.

Respondents were asked whether their homes were located in areas with the following vulnerabilities of flood, storm surge and landslides. Their responses are captured in *figure 2.2,* 

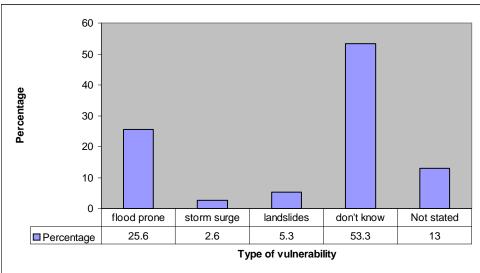


Figure 2.2: Vulnerability to Natural Disasters

An overwhelming 88.2% of respondents said that they have observed changes in the weather pattern for the past ten years. Their observations are summarized in *table 2.3* below:

#### Table 2.3: Changes Observed in Weather Patterns

Changes Observed	Percentage
Timing of wet and Dry seasons	20.3
More storms and hurricanes	10.2
Stronger hurricanes	3.3
More annual rainfall	14.2
Less annual rainfall	6.9
Higher temperatures	32.1
Lower temperatures	.8
Other	4.5
Not stated	7.7

The majority of people interviewed have heard about climate change/climate variability thus representing 67.1% of the sample and it is perceived to be changes in weather patterns and seasons.

Over half (59.3%) of respondents did not think that climate change would affect their work although a significant 33.3% thought it would. Among the latter group, 31% expressed the impact on their work through intense rain/floods, 26% said through intense heat. A number of persons accounting for 15% of those interviewed identified the decrease in agriculture, whilst a similar 15% were unaware of how their work would be affected.

When asked whether climate change would affect Saint Lucia, 67.3% thought it would and 26.4% expressed a counter view. Within the former group it was perceived that the effects of climate change on Saint Lucia includes lower agricultural production (34%) and flooding and more rains (14%). A little over 60% of respondents thought that their community would be directly affected. This would be manifested through *inter alia* flooding (28%), low economic activity/low agricultural production (23%) and very dry weather (20%).

An examination was sought of the various effects that respondents thought climate change would have in Saint Lucia on various issues. Interesting to note is that the only effect that obtained less than 50% of people saying yes is "salt water intrusion into aquifers/loss of fresh".

Possible Effects on	Yes (%)	No (%)	Don't	Not stated
			Know (%)	(%)
Coastal flooding	58.9	6.1	32.9	2
Coastal erosion	50.4	9.3	37.8	2.4
Coastal infrastructure	52.8	6.1	36.6	4.5
Loss of fresh water	64.2	5.7	27.2	2.8
Salt water intrusion	27.6	14.2	53.3	4.9
into aquifers/loss of				
fresh				
Increased severity of	69.5	3.7	23.6	3.3
tropical storms and				

**Table 2.4 : Possible Effects on Various Issues** 

hurricanes				
Decreased	70.7	4.9	21.5	2.8
agricultural				
productivity				
Deterioration of coral	50	8.9	37.4	3.7
reefs				
Decreased	50.4	10.2	33.3	6.1
productivity of				
fisheries				
Longer dry seasons	65.4	6.1	25.2	3.3
More unpredictable	65	5.7	26.8	2.4
Increased flooding	65.9	6.5	23.2	4.5

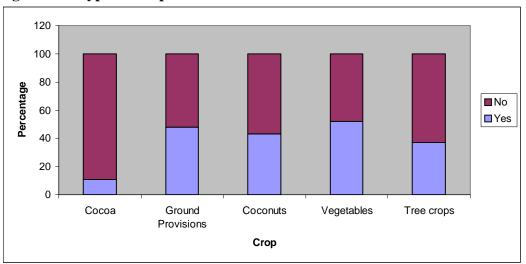
Respondents were then asked to indicate what human activity causes climate change (refer to *table 2.5*). The most popular activities respondents thought contributed to global climate change were burning fuels such as coal, oil and natural gas (61.4%), land clearing (68.7%) and industry factory (58.1%). Almost a third of respondents indicated that they did not know the causes of global climate change.

	Table 2.5. Causes of Global Chinate Change					
Causes of	Yes (%)	No (%)	Don't know	Not stated		
Global Climate			(%)	(%)		
Change						
Burning fuels etc	61.4	2.4	34.6	1.6		
Transportations	47.6	11	38.6	2.8		
such as driving a						
car						
Land clearing	68.7	5.3	22	4.1		
Agriculture	50.4	12.2	33.7	3.7		
Industry Factory	58.1	6.5	32.5	2.8		
Electricity	39.4	9.8	46.3	4.5		
generation						

**Table 2.5: Causes of Global Climate Change** 

#### **3.0 - PROJECT AREA**

The major crops grown in the area include vegetables, coconuts and ground provisions, whilst the least popular includes cocoa and tree crops.





There was a high non- response rate when people were asked to say how certain weather issues affected agriculture, however, at least a third of all respondents believed that agriculture is affected agriculture "*often*" and "*seldom*" by storms and droughts respectively (*refer to figure 3.1*).

How agriculture	Often	Seldom	Never	Don't know	Not stated
is affected					
Drought	31.3	25.6	6.5	4.5	32.1
Storms	18.3	32.1	7.3	3.3	39
Changes in length and timing of seasons	21.1	25.6	5.3	8.9	38.6
Changes in rainfall	27.6	18.7	7.3	7.7	38.6
Longer or more frequent droughts	21.1	24	6.9	8.9	39
Increased variability in weather	22.4	22	4.9	12.6	38.2

 Table 3.1 : How Agriculture is Affected by Change in Weather Patterns

There is no universal access to water in the communities because only 55.3% of respondents indicated that they had access to pipe borne water in their communities. When asked the regularity in which they receive water the majority (38.6%) said that they receive pipe borne water everyday of the week. The quality of the water was rated by 34.1% as "usually good", 9.3% of respondents said "always good" and an overwhelming 41.1% of respondents "did not respond". However, a significant portion of persons accounting for 22.8% of respondents said that there are problems with water quality in the area.

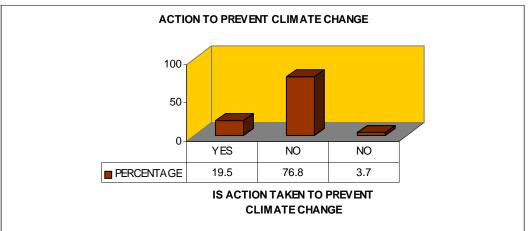
Additionally, 32.9% of respondents said that they have a river in their area. The more popular activities that are being conducted in the vicinity of the rivers include; farming at the edge of the river, which accounted for 26.8%, washing 26.4% and bathing 27.2%. There was also a high non- response rate for this suite of questions, as can be inferred from *table 3.2*.

Activities carried out by	Yes	No	Don't know	No response
River				
Wash cars	16.7	11.4	4.9	67.1
Bathe	27.2	3.7	.8	68.3
Wash clothes	26.4	3.7	1.6	68.3
Tie animals	24	3.7	4.9	67.5
Dump garbage	14.6	10.2	7.7	67.5
Wash pesticide	17.9	12.6	22	47.6
containers				
Farm nearby	26.8	2	2.8	68.3

 Table 3.2 : Land-uses Within the Watershed

# 4.0 -COMMUNITY INFORMATION

Generally the majority of people disclosed that they are not taking any action to lessen the effects of climate change, as highlighted by the chart below.



**Figure 4.1: Action to Prevent Climate Change** 

However, for those individuals within the various communities who are proactive have identified preventative measures such as proper drainage and the construction of sea walls/bridges.

Respondents were asked to indicate the level of importance for the following issues and their responses are captured in the *table 4.1* below.

Rating	Don't	No	Little	Somewhat	Important	Very
Issues of	know	importance	importance	Important		Important
Climate						
Change						
Increased rainfall	12.2	4.1	6.1	20.7	24	29.7
Decreased rainfall	13.8	12.6	19.5	13	17.1	20.7
Longer droughts	13.8	14.6	9.3	11.4	15.9	31.3
More intense periods of droughts	17.1	14.6	8.1	9.3	17.1	30.1
Increased storm frequency	15.4	7.3	6.1	16.7	16.3	33.3
Sea level rise	16.3	11	14.2	15.9	20.3	19.1
Coastal erosion	17.1	12.6	10.6	17.1	18.7	19.1
Changes in timing of wet and dry season	11	6.9	5.7	16.3	18.7	38.2

**Table 4.1 : Rating Issues of Climate Change** 

The following measures were highlighted as potential strategies to mitigate against climate change:

- 1. Educating the public on the effects;
- 2. Planting more trees;
- 3. Construction of proper drainage/build sea walls; improved garbage disposal.

Some of the factors that prohibit communities from mitigating against the adverse effects of weather related events include the following:

- Lack of cooperation/interest/cooperation 31.3%
- Not sufficiently educated 19.5%
- No government assistance/finance 14.6%
- Don't know 28.5%

#### 5.0 BIODIVERSITY, LAND DEGRADATION AND OZONE DEPLETION

#### **5.1 Biodiversity**

While only 19.5% of respondents indicated that they are familiar with the term biodiversity, 78.9% indicated their lack of knowledge on the issue. For the majority of respondents, with regards to the meaning of the term, 11.4% say plants and 4.9% animals and change in farming patterns.

Respondents were split when they were asked whether they have seen a change in the numbers of types of animals and plants in the area over the last 10 years. 49.6% said "yes" while 48.4% said "no". For those persons who indicated that there were changes, observed some of the following changes:

- Difficulty in finding plants and they taste different 33.8%
- Less animals, loss of wildlife and animals look sick 44.3%
- Decrease in Agricultural Activities 14.5%

A variety of reasons were provided for these changes including the use of chemicals, change in weather patterns and dry weather.

#### **5.2 Land Degradation**

Respondents were asked to explain what land degradation meant to them and almost half (49.2%) of respondents either said that they did not know or they simply remained silent. However, for those who responded, 20.3% said soil erosion and another 20.3% said landlosing substance. When asked about land degradation in the area although the no response rate was high (43.1%), approximately 35.8% of respondents were able to say yes to the occurrence of land degradation in the area.

Approximately, 23.6% of respondents indicated that they could not attribute the cause of land degradation to any particular factor. However, 22.8% attributed it to land clearing/deforestation while, 18.9% identified excessive rainfall and flooding as casual

factors. When questioned about the seriousness of land degradation, there was also a high non- response rate, but 26.4% of interviewees believe that land degradation is "very serious".

## 5.3 Ozone Depletion

Approximately one third (31.7%) of respondents have heard about ozone depletion, but on the 65.4% are completely uninformed. Among those interviewed, 16.7% and 13.4%define ozone depletion as the damage of the ozone layer and the damage of protective layer of the atmosphere respectively. Another 4.9% of respondents said that they "did not know and/or did not state" a response/not sure.

# 5.4 Other Environmental Issues

The interviewees declared that poor garbage disposal and cutting down of trees as as the most important environmental issues in Saint Lucia. According to respondents the overall state of Saint Lucia's environment is rated fair (36.6%) and good (34.1%). Only 1% thought that it is very good and 14.6% thought it was poor.

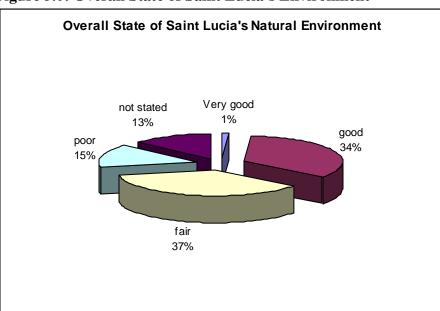


Figure 5.0: Overall State of Saint Lucia's Environment

Management of the environment for the majority of respondents is the responsibility of everyone. This is reflected in the findings as an overwhelming 80.9% of them said that. This was followed by 60.6% saying that Government should be responsible.

Interviewees believed that the following are the most important for government to enhance the protection of the environment:

- Enforce the law (32.1%)
- Educate the people (17.5%)
- Frequent garbage collection (7.7%)
- *Plant more trees (7.4%)*

They responded further by indicating that the most important action for individuals in the communities to protect the environment include:

- Ensuring that their garbage is disposed of properly (43.5%)
- Destroy rodents (17.9%)

Almost 40% of respondents believed that their community can do something to contribute towards the combating of climate change. Some of the ways in which they can assist include:

- Proper disposal of their waste;
- Using fewer chemicals
- Planting trees and not cutting trees
- Proper management and use of resources.

The majority of the respondents (78.9%) indicated that the environment is important to Saint Lucia's economy for a number of reasons. The most significant reason that 50.8% of respondents gave was to attract tourist/visitors. To a lesser extent 15.1% thought its importance is linked for agricultural produce.

Over half of respondents declared themselves as being "knowledgeable" about environmental issues. A quarter considered themselves as being "not at all knowledgeable".

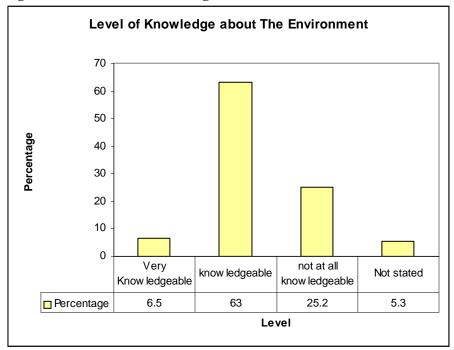


Figure 5.1: Level of Knowledge About the Environment

Among the 90.2% of respondents who are interested in hearing more about environmental issues, the majority would like to hear about the effects of improper garbage disposal, water pollution, deforestation, soil erosion.

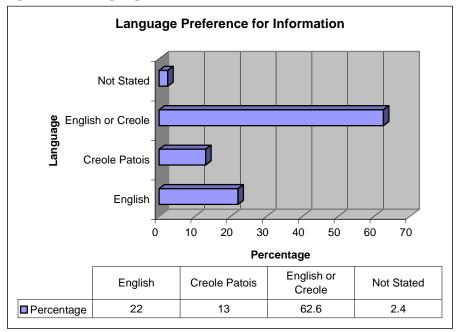
The following table highlights respondents' level of interest in finding out about the following areas affected by climate change:

Table 5.1 .Level of interest for more information areas affected by Climate Change				
Area	Very	Fairly	Not Interested	Not Stated
	Interested (%)	Interested (%)	(%)	(%)
Rainfall	65.9	26	5.3	2.8
Drought	67.5	24	4.1	4.5
Tropical	82.9	11.4	2.8	2.8
storms/hurricanes				
Sea level rise	51.6	33.7	10.2	4.5
Coastal erosion	47.6	38.2	9.8	4.5

Table 5.1 :Level of Interest for more information areas affected by Climate Change

Based on responses obtained it is clear that individuals are very interested in hearing more about the effects of climate change on tropical storms and hurricanes than any other area, followed by drought and rainfall. Their least level of interest points to the effects of climate change on sea level rise.

Noteworthy is that the majority would like to get the information in English or Creole, as reflected in the chart below.



**Figure 5.2: Language Preference for Information** 

With respect to the medium for delivering information responses are captured below by level of preference based on responses:

- 1. Television –90.2%
- 2. Radio 84.1%
- 3. Newspapers 40.2%
- 4. Posters 28.9%
- 5. Public seminars 27.6%
- 6. Internet 17.1%
- 7. Pamphlets- 17.1%
- 8. *Mailings* 9.3%
- 9. Video 8.1%

# SECTION 6 – OBSERVATIONS, IMPLICATIONS AND RECOMMENDATIONS

1. Observation:-There appears to be a fairly high level of awareness of some Climate Change indicators such as changes in the timing of wet and dry season and less annual rainfall. However respondents did not see how Climate Change would affect them directly. E.g. 59.3% of respondents did not think that Climate change would affect their work (see Page 8.)

**Implication:** -Partial knowledge does not necessarily translate into an awareness of Climate Change itself.

Recommendation: -Greater Level of public sensitization on climate change issues and its potential effects on all sectors, linking indicators to climate change.

2. **Observation**: - The knowledge of other environmental terms such as bio-diversity and ozone depletion is much more limited than that of Climate Change.

**Implication:** - Community members do not associate these terms to their environment and how the implications for them at the community level.

Recommendation: -Develop and implement tools to promote "environmental literacy" whereby terms such as these and "sustainable development" can become more commonly understood.

- 3. **Observation:** -The second highest percentage of homes was made of wood, and a very low percentage of homes were insured. Further most individuals indicated that they were unaware of their vulnerability to natural disasters (see figure 2.2.)
- 4. **Implication:** -People may not clearly understand their vulnerabilities and what can be done to reduce them, thus increasing the likelihood of adverse impacts and their inability to adapt or mitigate.

Recommendation: -Education highlighting the implications of vulnerabilities and measures to combat these vulnerabilities. The importance of planning approval process to ensure structural integrity of homes and the importance of insurance should be an integral part of the education strategy.

**Observation;** --TV and radio remain the preferred medium for reaching people.. Public seminars, newspapers, posters and internet and pamphlets also appear to be effective means of education.. Additionally, a combined use of English and Kweyol ranks highly as a preferred means of communication

**Implication:** -.All forms of media must be utilized in order to reach a wider crosssection of persons within rural and urban communities. It is obvious that certain types of media are more easily accessible and more effective in rural versus urban areas as well the different age groups.

Recommendation:--A public Education Campaign executed via radio and television and even the print media should be in both English and Creole.

The livelihood of target communities must be understood to devise the most successful form of media to impart knowledge on climate change issues.

More traditional means of communication with rural communities such, as "town criers' should be employed.

All age groups should be targeted. Particular focus should be placed on the Education System and how Environmental Issues can be incorporated in the school curriculum.

5. **Observation:-**People expressed an awareness of their limited knowledge of issues surrounding climate change and displayed an interest enhancing their capacity to adapt or mitigate through additional knowledge..

**Implication:-** Agencies need to consult with communities and each other more readily in designing strategies to bridge their knowledge gaps on environmental issues.

#### RECOMMENDATION

Through a collaborative process, empower communities with the institutional mechanisms to continue the process of education.

6. **Observation:-**Just over half of the respondents think the environment is important primarily for tourism.

**Implication:-** Respondents do not fully understand the value of the environment in relation to their well being .

**Recommendation:-**It is essential to link the environment to people in areas such as food security, livelihoods and recreation.

#### 7.0 CONCLUSION

The main purpose of this research was to determine the knowledge, attitude and practice of selected communities in Vieux Fort on environmental issues. Moreover, the results of the findings will help in the design of appropriate environmental education strategies not only for the people of Vieux Fort but the island in general.

The findings demonstrate that people are generally familiar with some of the indicators of environmental issues. They are also aware of some of the implications of bad environmental practices such as improper disposal of garbage and cutting of trees without replanting. This KAP survey highlighted two main gaps, firstly the limited knowledge of Climate Change and other environmental issues and secondly a lack of the necessary attitudes and practices to foster environmental sustainability. An examination of table 2.4- Possible Effects of Climate Change on Various Issues and 3.2- Land-uses Within the Watershed reinforces this point.

A social marketing approach must be adopted as people are driven by their own selfinterest. The application of marketing principles within the environmental discipline will enable practitioners to devise more strategic methods of delivering various messages within the various sectors. Consequently, it is important to design a campaign that is all encompassing, linking indicators to the main issues, and linking issues to the way of life of the people. An emphasis on the social dynamics of the community will lead to an effective Public Education and Sensitization Campaign.

The medium used to provide this sensitization and education is critical. . It should not be restricted to television and radio but rather should be embrace Internet usage, newspapers, pamphlets, as well as public seminars and the use of community extension officers. Particular emphasis should be place on the target audience and their preferred means of communication for e.g. "Town criers" in rural communities. . Any public education and sensitization campaign should be thorough in order to ensure effective execution.

#### Lessons learnt

The survey instrument brought to the fore a number of pertinent issues that will provide a good starting point in addressing the education needs of individuals in the Vieux-Fort region and other communities in Saint Lucia.

The preparation stage for the survey is critical, particularly in the training of enumerators. Their level of preparedness and approach to individuals determines the interviewee's level of cooperation.

There are however, some areas that were identified as needing further research. Among these is the absence of an exhaustive examination of the impacts of effects of Climate Change on other forms of agriculture such as animal husbandry in that region. Although reference was made to livestock and their use of rivers in the area, this does not speak to the broader issue of grazing and how livestock are affected by changes in rainfall (see figure 3.1)

Another area that would necessitate further research is the impact of climate change on agriculture. The Vieux-Fort area is predominantly a farming and fishing area. However there was a high no- response rate when respondents were asked how certain weather issues affected agriculture. Percentages below fifty were recorded for indicators of Climate Change that do affect agriculture such as changes in the lengths and timing of seasons and changes in rainfall patterns (see figure 3.1).

Also of note is that the Laborie region although not captured during the execution of the instrument, depends on the same watershed as the other areas identified in table 2.1. Consequently the particular needs, issues and perspectives of residents in that area were not captured. Fortunately, the national survey to be implemented will capture the issues and concerns of residents of Laborie.

#### The Way Forward

One of the constraints of Small Island Developing States (SIDS) like Saint Lucia is a limited number of resources and the traditional sectoral approach to environmental management. An integrated and more collaborative approach to the management of natural resources must be embraced. This approach will enable countries to have a more holistic perspective on the implications of occurrences such as climate change and would enhance their ability to assess vulnerability, and adequately adapt and/or mitigate. It also allows SIDS to maximize the use of limited financial resources and increase the likelihood of sourcing external funding to assist in adaptation and or mitigation.

Sustainability should be enshrined in our developmental goals. Consequently we need to ensure that as stewards of the environments we should advocate positive behavioral changes, so as to increase our ability to adapt to Climate Change and other environmental threats. In addition by ensuring sustainability of our environment we are also meeting the obligations of the many Multilateral Environmental Agreements that we are signatory to.