







**Survey on Knowledge, Attitudes and Practices Study
on the Effects of Climate Change in the Upper Yallahs Watershed**

Final Report

**Prepared by
Jamaica Conservation and Development Trust
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Introduction

The Department of Geography and Geology (DOGG), University of the West Indies (UWI) was awarded a grant from CARIBSAVE, to implement the project, “Climate Change and Inland flooding in Jamaica, risk and adaptation measures for vulnerable communities”. The project seeks to better understand the climate change effects and their possible impacts on vulnerable communities in the Blue Mountains and in Negril. The Jamaica Conservation and Development Trust (JCDT) is a Non-Government Organisation which manages the Blue and John Crow Mountains National Park and which is partnering with the DOGG, UWI to implement the component of the project targeting communities in the upper Yallahs watershed, just beyond the boundary of the National Park.

In order to gain a better understanding of the community and later, to assess any changes in awareness regarding climate change issues, JCDT has conducted a Knowledge, Attitudes and Practices Survey in the three targeted communities of **Poorman’s Corner, Grasspiece and Brook Lodge**. In light of the small size of these communities and the time and resources available for the project, a convenience sample of 20 persons per community was administered with the questionnaire. The questionnaire was designed and administered by JCDT personnel. The survey was conducted following a Sensitisation Meeting in the communities, so that community leaders and members would be aware that there was a project being implemented and what it was about.

Analysis and Comparison of Community Knowledge, Attitudes and Practices about the Effects of Climate Change in the Yallahs Watershed

1. Among the three communities, the majority of respondents were aware of the climate change that is occurring in their community. For **Grasspiece, 75% were aware, Poorman's Corner had a 80% awareness rate and Brook Lodge had 85% of respondents being aware.** The remaining respondents in each community either did not know or were not completely sure about climate change.

2. The evidence of climate change that occurs in all three communities includes events of drought and flooding. In Grasspiece and Brook Lodge, the majority of respondents agree that flooding is a better example of evidence of climate change according to 60% and 47% of persons respectively, while drought is the next popular example according to 13% of respondents in Grasspiece and 24% in Brook Lodge. In Poorman's Corner, however, unlike Grasspiece and Brook Lodge, drought is a more significant change than flooding, as 31% of respondents agree to drought, while only 6% agree to flooding, even though 37% of respondents agree to increases in temperature as evidence of climate change as well. Grasspiece and Poorman's Corner had suggestions of global warming according to 7% and 13% of respondents respectively.

3. Resulting events of climate change, as agreed to by the majority of respondents in all communities include, more frequent and stronger hurricanes and storms, increased rainfall and increased flooding. This is according to 55% of respondents in Poorman's Corner, 60% in Brook Lodge and 50% in Grasspiece. The rest of respondents from all communities believed that only one of the events is a likely occurrence from climate change. Grasspiece and Brook Lodge both have the next popular suggestions to be increased rainfall (according to 20% and 25% respectively) followed by frequent hurricanes and storms (according to 15% and 15% respectively). Poorman's Corner however, has the second highest popular suggestion being frequent hurricanes and storms according to 30% of respondents, while the third popular was increased rainfall according to 10% of persons.

4. The majority of respondents in all three communities agree that flooding definitely occurs, according to 85% in Poorman's Corner, 95% in Brook Lodge and 100% in Grasspiece. It could be safe to assume that in such order, the likelihood of flooding occurrence increases. The rest of persons from Poorman's Corner and Brook Lodge either were either unsure or did not know about the flooding at all.

5. All 3 communities experience flooding in the general area of each community, however, the general area may not be the most popular suggestion in each community. In Poorman's Corner and Brook Lodge, the general area has the highest popular suggestion according to 41% and 60% of their respondents respectively while the Grasspiece area is suggested by only 30% of their respondents making it the second highest suggestion in that community. Grasspiece and Brook Lodge respondents agreed that flooding occurs in the homes located along the river bank according to 60% and 40% respectively. This shows the river bank has the highest likelihood of flooding in Grasspiece and is the

second highest flooding area in Brook Lodge. In Poorman's Corner, other areas for flooding include the Yallahs River, according to 24% of respondents and the road near a tyre shop, according to 35% of respondents.

6. The most common problem experienced in all communities from flooding includes the damaging and flooding of roads and homes according to 70% of respondents in Grasspiece, 85% in Poorman's Corner and 95% in Brook Lodge. Both Grasspiece and Brook Lodge experienced the second most common problem, being damage to bridges according to 20% and 5% of respondents respectively. The next popular suggestion in Grasspiece included crop loss according to 10% of respondents. Unlike both of these communities, Poorman's Corner experiences overflow to banks and blocked drains as the two next most popular suggestions according to 10% of respondents while 5% of respondents were unsure.

7. In all communities, common causes of flooding as chosen by respondents include rainfall, rivers and blocked drains. Even though these causes are similar among the communities, the popularity percentages are different. Like Brook Lodge and Grasspiece, the river is seen to be the main contributor to flooding, according to 65% of respondents in both communities. In Poorman's Corner however, rainfall is seen to be the main contributor according to 45% of respondents, followed by the river and blocked drains that are both equally popular according to 25% of respondents equally. The rest of respondents in Poorman's Corner are not sure. In Grasspiece, rainfall is the second most popular cause, according to 25% of respondents, followed by the clearing of trees and blocked drains, agreed to by 5% of respondents each. In Brook Lodge however, the second most popular cause seems to be a combination of the river, rainfall, clearing of trees on the hill and blocked drains according to 25% of respondents. The clearing of trees only is seen as the third most popular, having being agreed to by 10% of respondents while rainfall and blocked drains only are agreed to by 5% of respondents each.

8. In Poorman's Corner and Grasspiece, the most popular time frame for flooding to occur is once every year according to 50% and 65% of respondents respectively, with the next popular suggestion being every 2 years by 45% and 35% of respondents respectively. The rest of respondents in Poorman's Corner agree to once every 6 months. Unlike Brook Lodge, however, in which 50% of respondents agree to once a year and the other 50% agreeing to once every two years.

9. In all 3 communities, the majority of persons will be able to manage the effects of climate change, namely flooding. This is according to 50% of respondents from Brook Lodge, 60% of respondents from Grasspiece and 65% of respondents from Poorman's Corner. Of course, the second most popular response includes respondents from all three communities agreeing that they will not be able to manage the flooding, according to 45% of respondents in Brook Lodge, 30% in Grasspiece and 20% from Poorman's Corner. The remaining respondents from all communities were not sure how they would manage the effects.

10. Should flooding occur, the majority of respondents from all 3 communities agree that they will all evacuate, according to 67% from Grasspiece, 77% from Poorman's Corner and 80% from Brook Lodge. However, common among all 3 communities, the next highest majority of responses from

persons is that they are unsure of what measures to take according to 15% from Poorman's Corner, 17% from Grasspiece and 20% of respondents from Brook Lodge. Another suggestion from Poorman's Corner included working with the conditions, according to 8% of respondents. From Grasspiece 8% of respondents suggested preparing documents and planting trees each.

11. Poorman's Corner and Brook Lodge had similar popularity in the same responses for activities which can be used to reduce or address flooding in the communities. A combination of the activities that include planting more trees, practicing agro-forestry, avoiding slash and burn farming and using a buffer when planting have the highest percentage agreement according to 65% of respondents from Brook Lodge and 45% of respondents from Poorman's Corner. Planting trees only is seen as the second most popular suggestion that can be used to alleviate the flooding problem according to 35% of respondents in Brook Lodge and 35% of respondents in Poorman's Corner. Other suggestions from Poorman's Corner suggested by the remaining 25% of respondents to address the flooding problem may be solved by using one of the following; practicing agro-forestry, avoiding slash and burn farming practices and using buffers when planting crops close to banks. Opinions from Grasspiece however, maintain a stark contrast from Poorman's Corner and Brook Lodge. Planting trees alone is the most popular suggestion according to 70% of respondents, followed by using the combination of activities according to 15% of respondents. The other 15% of respondents think either avoiding slash and burn farming or using buffers when planting will be sufficient enough to solve the flooding problem.

Conclusion

It is clear that the three communities have quite a high level of awareness of the climate change effects taking place within their communities. They agree that flooding and drought events as well as temperatures are increasing. Community members can clearly identify the negative impacts and are aware of many of the human activities that increase the likelihood of disasters associated with climate change. They are therefore aware of many of the actions necessary to reduce the likelihood of disasters.

Appendix 1

Grasspiece Community

Question	Response(s)	Number of Persons	Percentage
1) Have you been exposed to what is meant by climate change? (read, media, meetings, etc.)	Yes	10	50%
	No	8	40%
	Not Sure	2	10%
2) How would you define climate change?	Long Drought	3	15%
	Not Sure	11	55%
	Disaster	6	30%
3) Do you believe the world is currently affected by climate change?	Yes	15	75%
	No	2	10%
	Not Sure	3	15%
4a) Are you aware of climate change?	Yes	15	75%
	No	4	20%
	Not Sure	1	5%
4b) If yes, tell us the evidence	Drought	2	13%
	Not Sure	2	13%
	Flooding	9	60%
	Global Warming	1	7%
	Soil Erosion	1	7%
4c) If yes, tell us the source as well	Experience in Grasspiece	6	40%
	Television	2	13%
	Personal Experience	7	47%
5) How concerned are you about	Not Concerned	4	20%

the effects of climate change?	Slightly Concerned	1	5%
	Very Concerned	15	75%
6) Are you prepared to manage the effects of climate change (such as flooding?)	Yes	12	60%
	No	6	30%
	Not Sure	2	10%
6b) If yes, how?	Plant Trees	1	8%
	Evacuate	8	67%
	Prepare Documents	1	8%
	Not Sure	2	17%
7) Climate Change is likely to result in which of the following?	Frequent Hurricanes and storms	3	15%
	More Rainfall	4	20%
	Increased Flooding	3	15%
	All of the above	10	50%
8) Which of the following gas is the main cause of climate change?	Carbon Dioxide	15	75%
	Methane	2	10%
	Liquefied Natural Gas	3	15%
9) Are forests important in addressing climate change?	Yes	12	60%
	No	2	10%
	Not Sure	6	30%
10) State one other reason why forests are important to you	Less soil erosion	9	45%
	Shade	1	5%
	Beautification	1	5%
	Homes for wildlife	1	5%
	Cools Temperature	1	5%

	Food	3	15%
	Increases Rain	2	10%
	Increases Oxygen	2	10%
11) Do you think adopting alternative energy sources can help solve climate change?	Yes	11	55%
	No	4	20%
	Not Sure	5	25%
12) Name one source of alternative energy	Solar	14	70%
	Water	1	5%
	Wind	3	15%
	Not Sure	2	10%

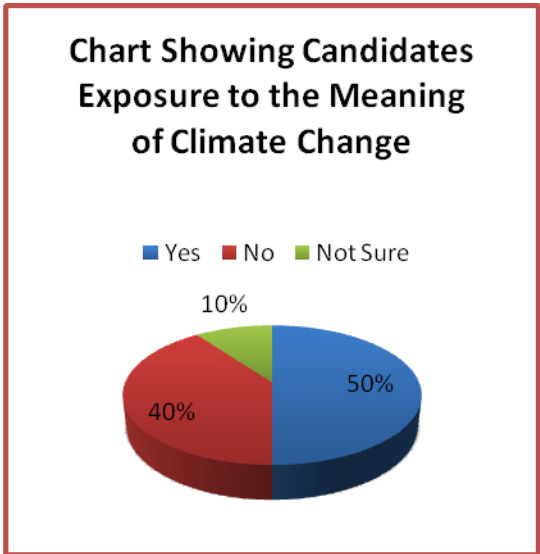
FLOODING

2) Does flooding occur in your community?	Yes	20	100%
2a) If yes, state where	General Grasspiece area	6	30%
	River Bank Homes	12	60%
	Roads	2	10%
2b) What do you think causes flooding your community?	River	13	65%
	Rainfall	5	25%
	Clearing of Trees on hill	1	5%
	Blocked Drains	1	5%
2c) If yes, state what kinds of problems this causes.	Crop Loss	2	10%
	Damage Bridges	4	20%
	Floods and damages homes and roads	14	70%

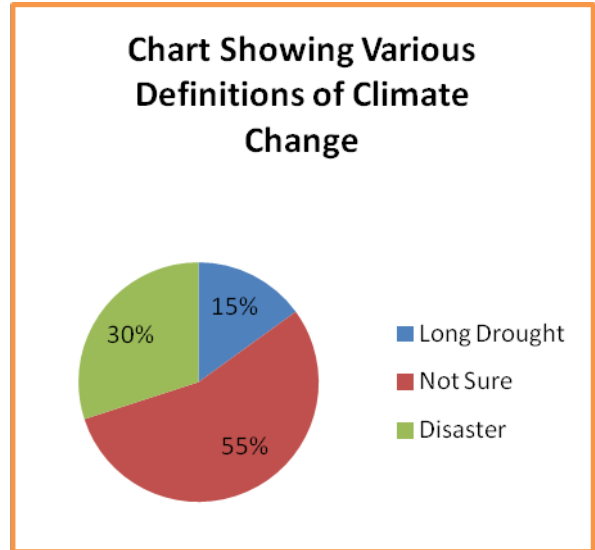
2d) If yes also, indicate how often	Every 2 Years	7	35%
	Every Year	13	65%
3) Do you think climate change will increase flooding in your community?	Yes	14	70%
	No	2	10%
	Not Sure	4	20%
4) How can we reduce or address flooding your community?	Plant more trees	14	70%
	Practice Agro-Forestry		
	Avoid Slash and Burn	2	10%
	Using a buffer when planting	1	5%
	All of the above	3	15%

Climate Change

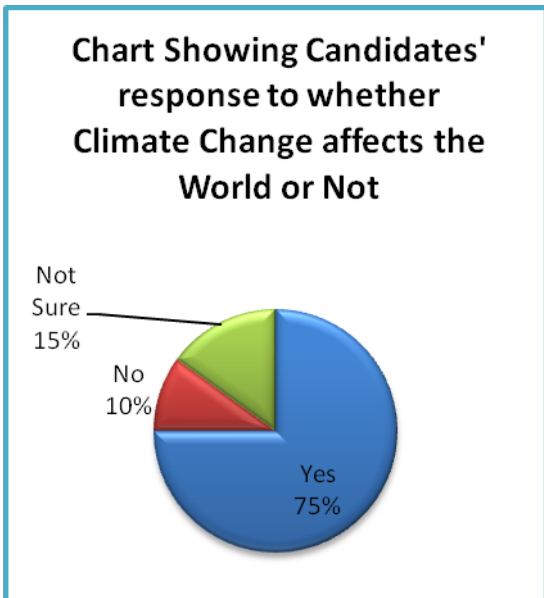
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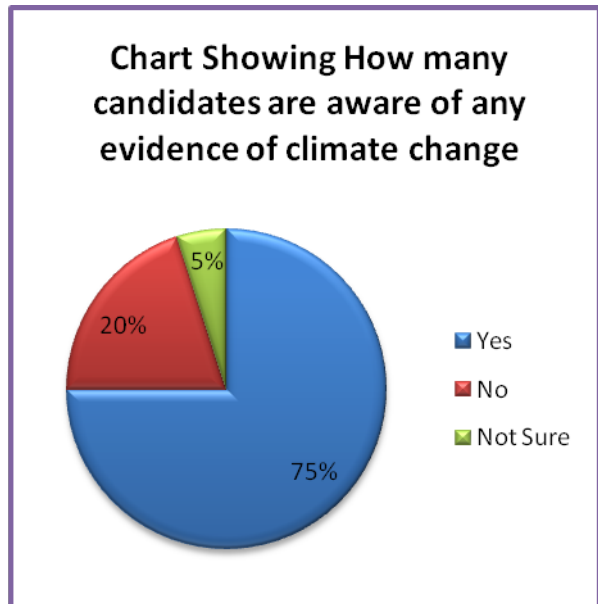
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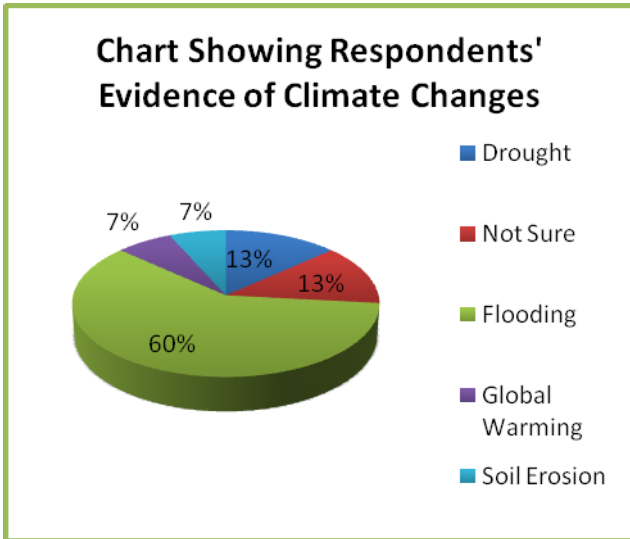
Question 3:



Question 4a:

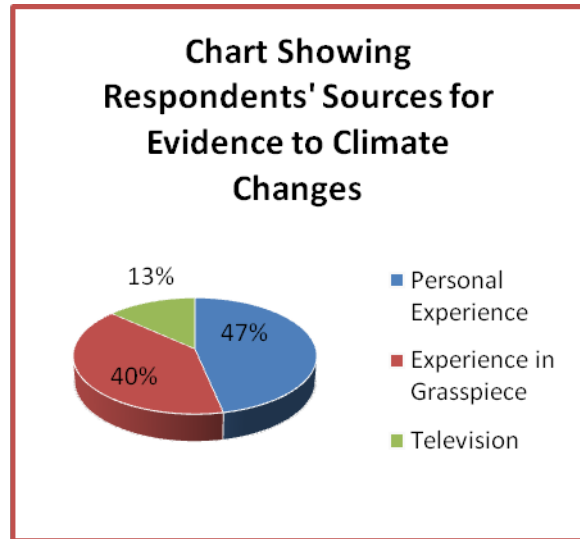


Question 4b:



Question 5:

Question 4b:



Question 6:

Chart Showing Respondents' Concern about the effects of climate change

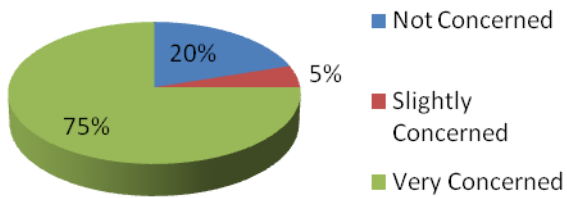
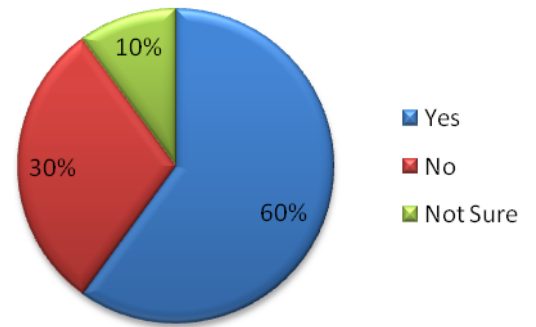
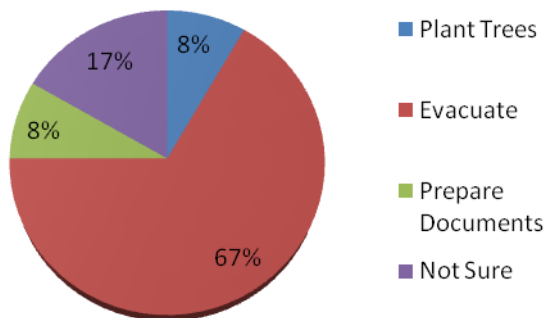


Chart Showing whether or not respondents would be able to manage the effects of climate change



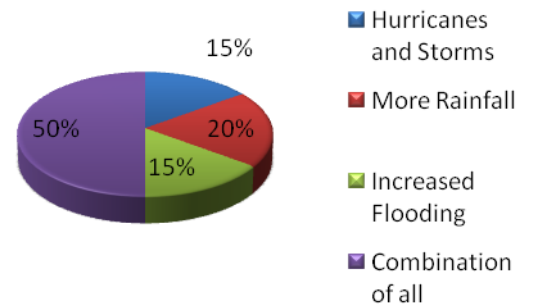
Question6b:

Chart Showing Respondents' plans for managing climate changes

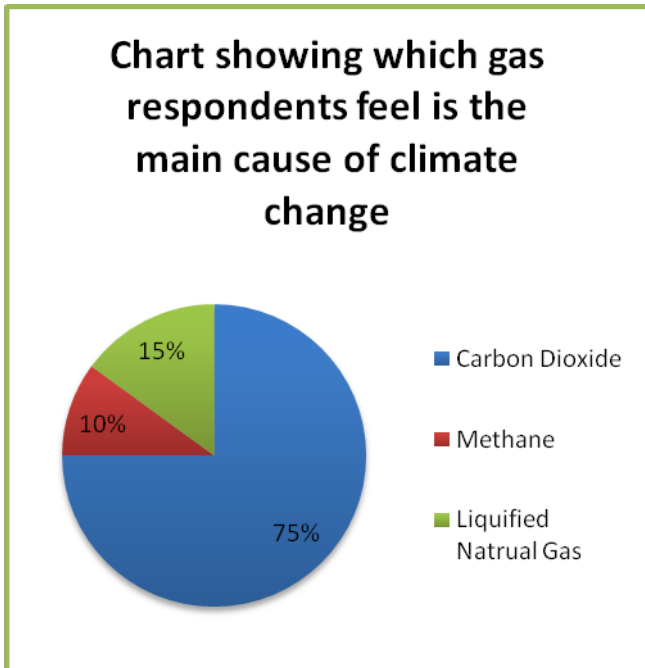


Question7:

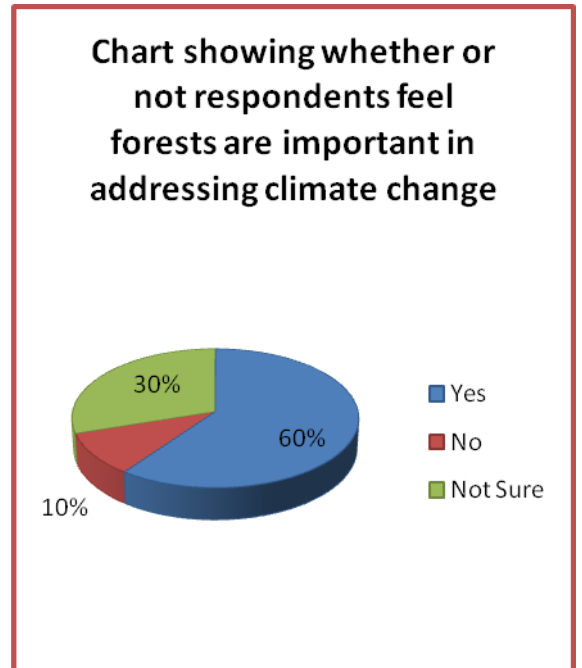
Chart showing what event is most likely to occur as a result of climate change?



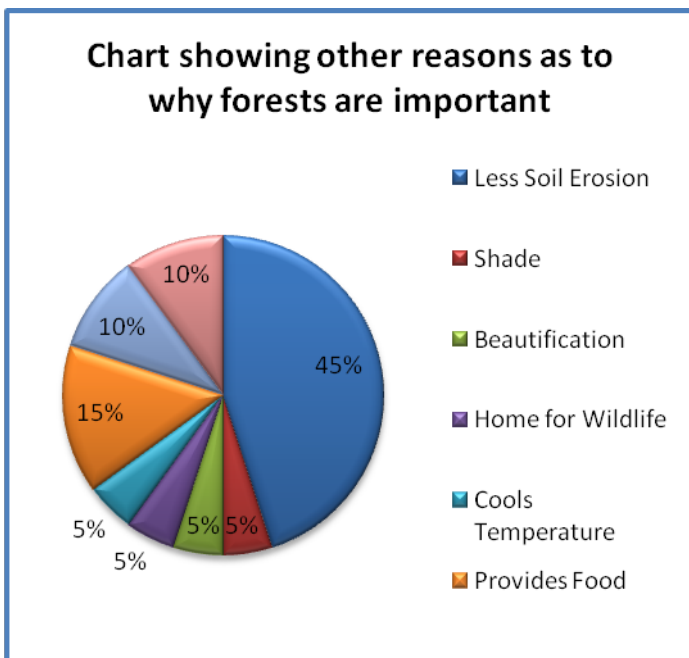
Question8:



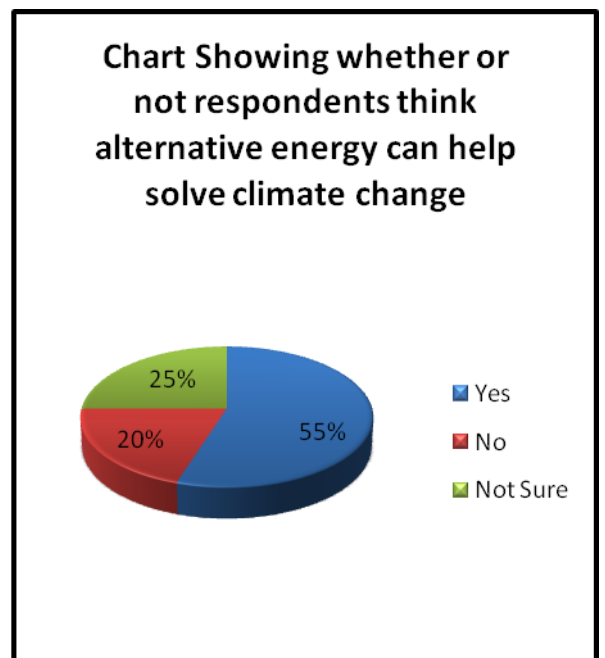
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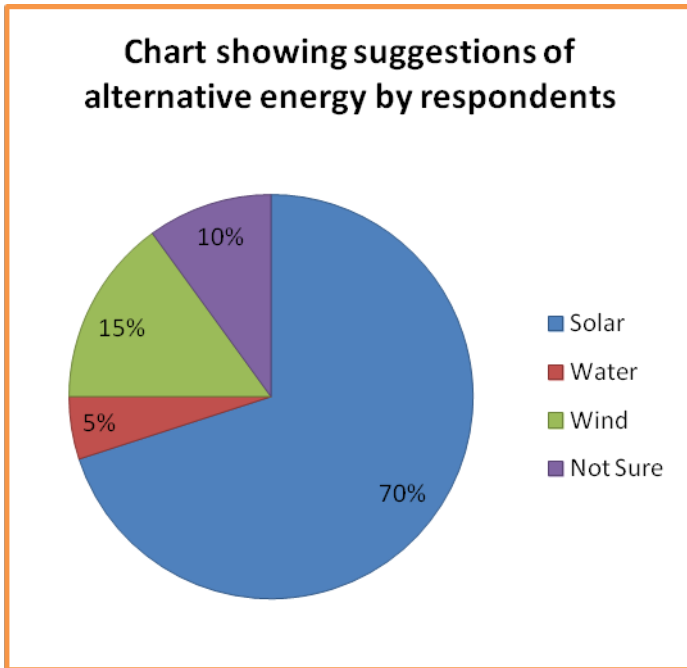
Question 10:



Question11:

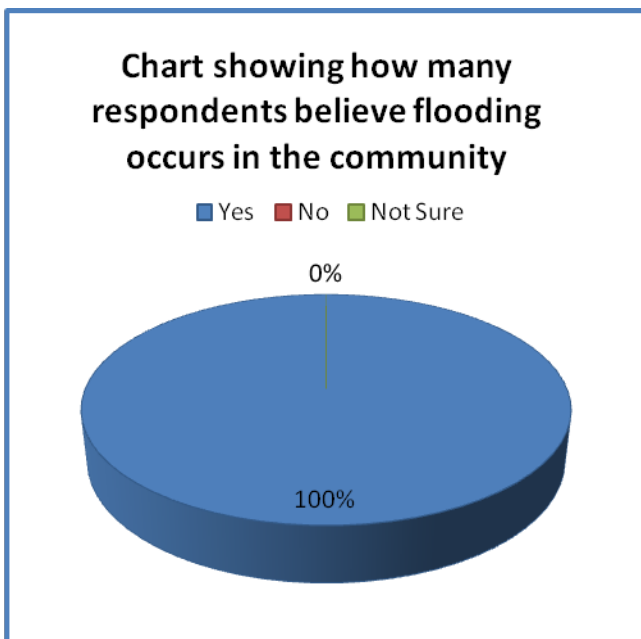


Question 12:



Flooding

Question 2:



Question 2a:

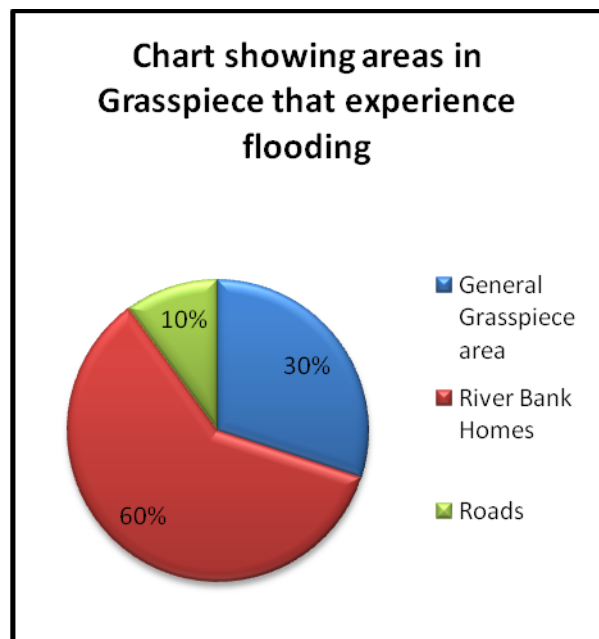


Chart showing what respondents think are the major causes for flooding

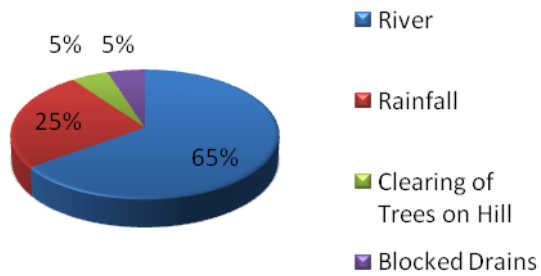


Chart showing the major problems caused by flooding

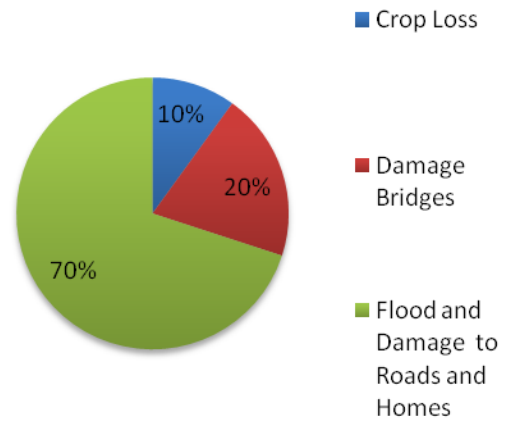


Chart showing how often flooding would occur

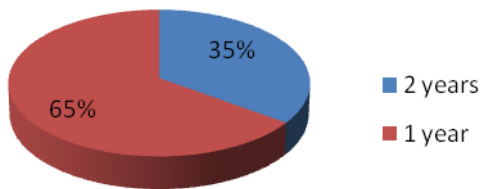


Chart showing whether or not respondents think climate will increase flooding in the community

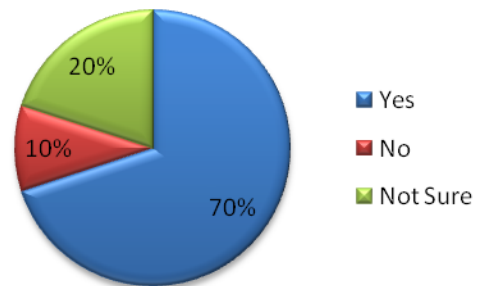
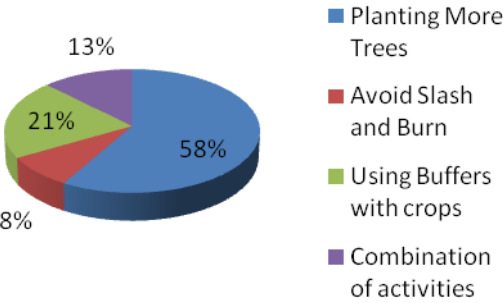


Chart showing activities in the community that can be used to lessen flooding



Appendix 2

Brook Lodge Community

Question	Response(s)	Number of Persons	Percentage
1) Have you been exposed to what is meant by climate change? (read, media, meetings, etc.)	Yes	6	80%
	No	3	15%
	Not Sure	1	5%
2) How would you define climate change?	Change in weather	9	45%
	Not Sure	5	25%
	Drought	4	20%
	High Temperature	1	5%
	Natural Disaster	1	5%
3) Do you believe the world is currently affected by climate change?	Yes	18	90%
	No	1	5%
	Not Sure	1	5%
4) Are you aware of climate change?	Yes	17	85%
	No	3	15%
4b) If yes, tell us the evidence	Brook Lodge area	4	23%
	Flooding	8	47%
	Drought	4	24%
	Not Sure	1	6%
4c) If yes, tell us the source as well	Personal Experience	15	88%
	Not Sure	2	12%
5) How concerned are you about the effects of climate change?	Not Concerned	3	15%
	Concerned	1	5%

	Very Concerned	16	80%
6) Are you prepared to manage the effects of climate change (such as flooding?)	Yes	10	50%
	No	9	45%
	Not Sure	1	5%
6b) If yes, how?	Evacuate	8	80%
	Not Sure	2	20%
7) Climate Change is likely to result in which of the following?	Frequent Hurricanes and storms	3	15%
	More Rainfall	5	25%
	Increased Flooding		
	All of the above	12	60%
8) Which of the following gas is the main cause of climate change?	Carbon Dioxide	14	70%
	Oxygen	1	5%
	Liquefied Natural Gas	5	25%
9) Are forests important in addressing climate change?	Yes	19	95%
	Not Sure	1	5%
10) State one other reason why forests are important to you	Less soil erosion	8	40%
	Lumber for production	2	10%
	Prevents water from drying	1	5%
	Not Sure	1	5%
	More Oxygen	3	15%
	More rainfall	3	15%
	Prevents flooding	2	10%
11) Do you think adopting alternative energy sources can help solve climate change?	Yes	13	65%
	No	3	15%

	Not Sure	4	20%
12) Name one source of alternative energy	Water	1	5%
	Solar	14	70%
	Wind	5	25%

Flooding

2) Does flooding occur in your community?	Yes	19	95%
	No	1	5%

2a) If yes, state where	Homes on the river bank	8	40%
	General Community	12	60%

2b) What do you think causes flooding your community?	River	11	55%
	Rainfall	1	5%
	Clearing of Trees on hill	2	10%
	Blocked Drains	1	5%
	All of the above	5	25%

2c) If yes, state what kinds of problems this causes.	Flooding and damage of homes and roads	19	95%
	Damage to Bridges	1	5%

2d) If yes also, indicate how often	Every 2 Years	10	50%
	Once a Year	10	50%

3) Do you think climate change will increase flooding in your community?	Yes	14	70%
	No	4	20%
	Not Sure	2	10%

4) How can we reduce or address	Plant more trees	7	35%
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flooding your community?

Practice Agro-Forestry

Avoid Slash and Burn

Using a buffer when planting

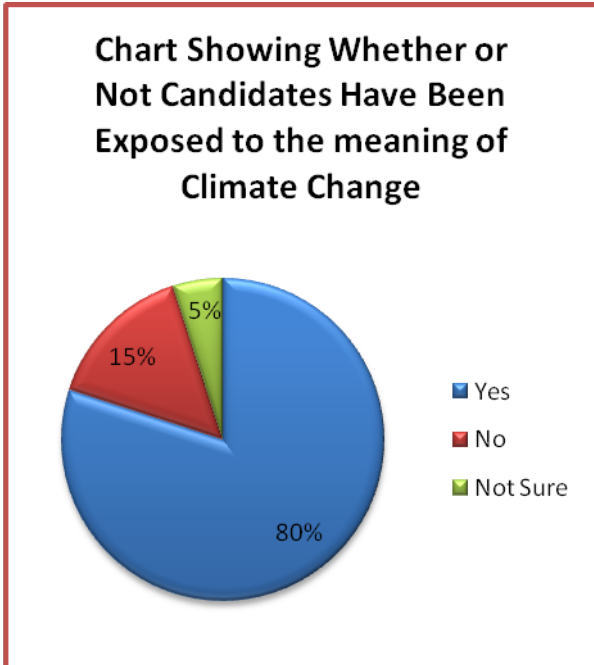
All of the above

13

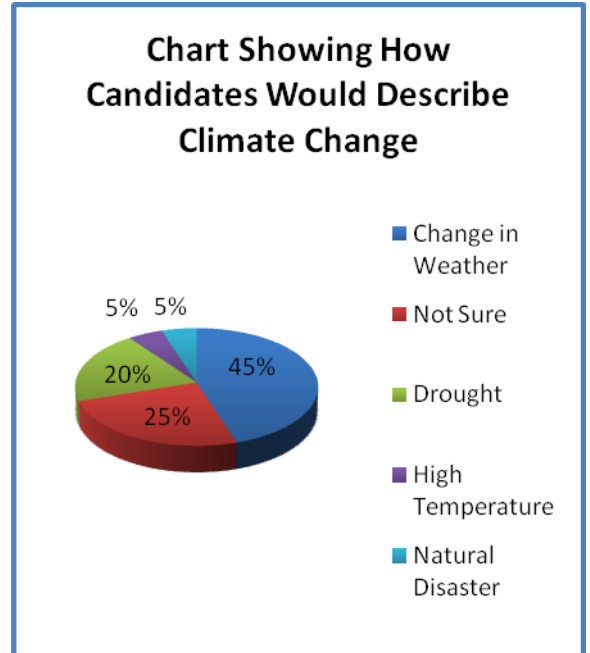
65%

Climate

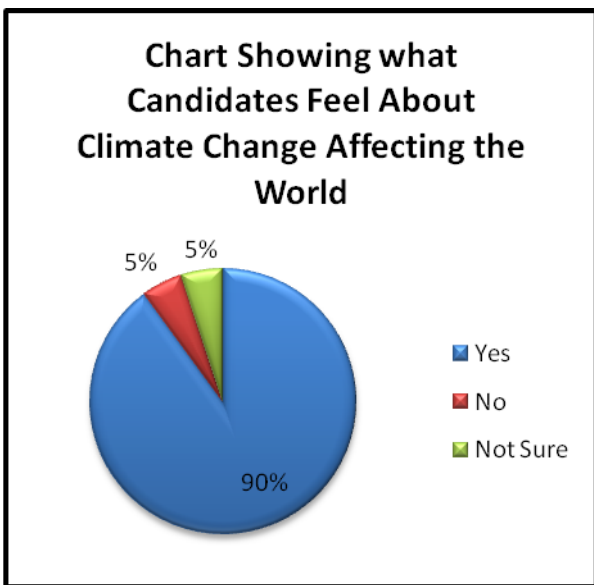
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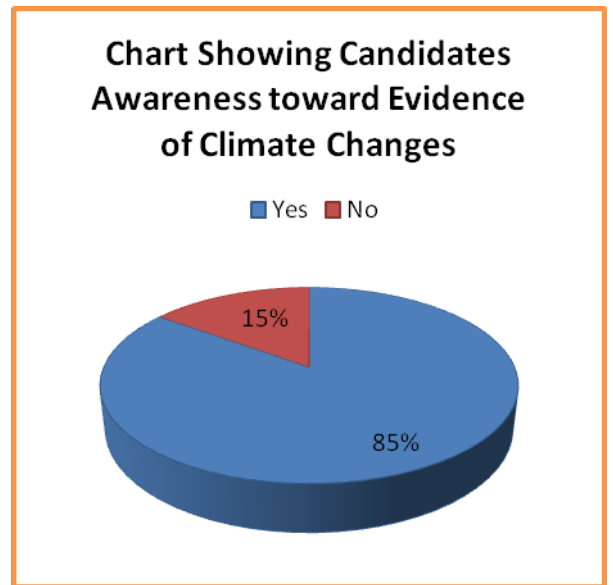
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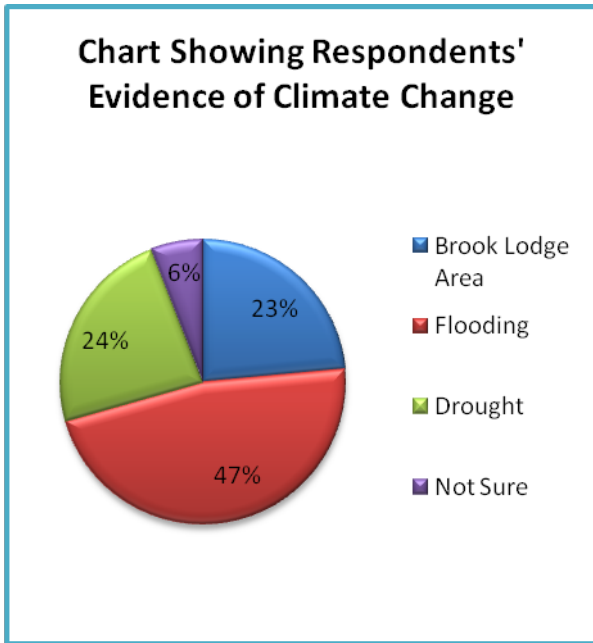
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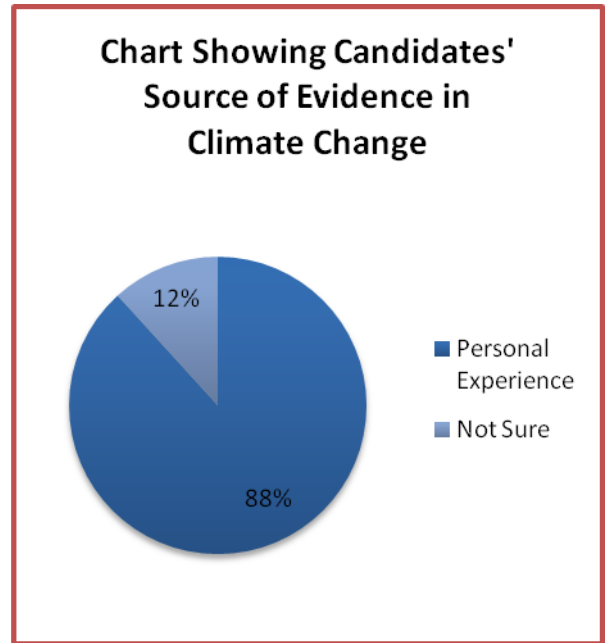
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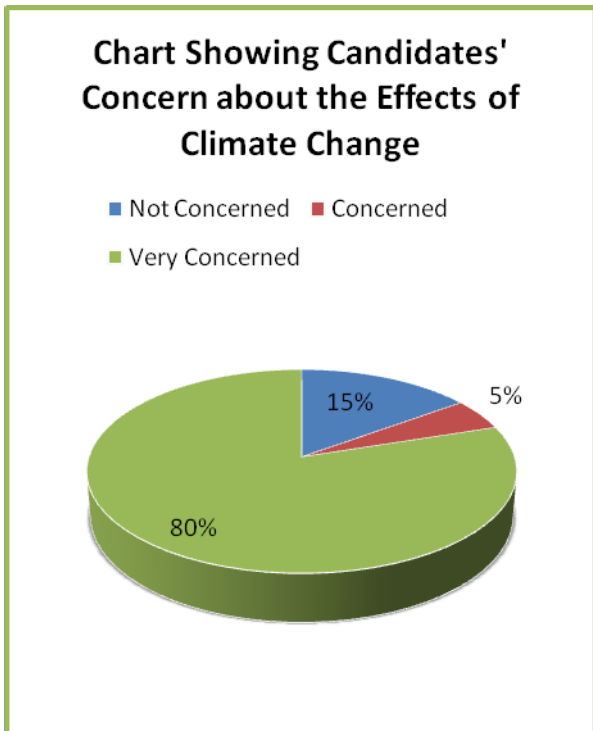
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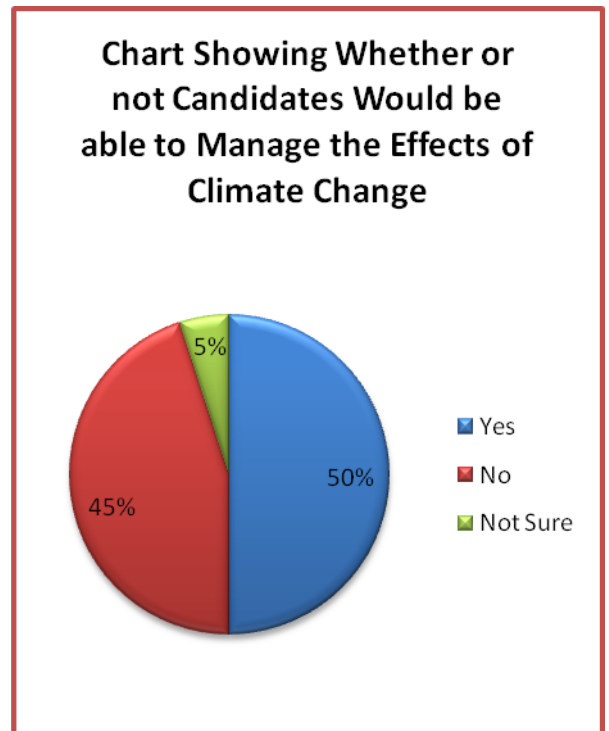
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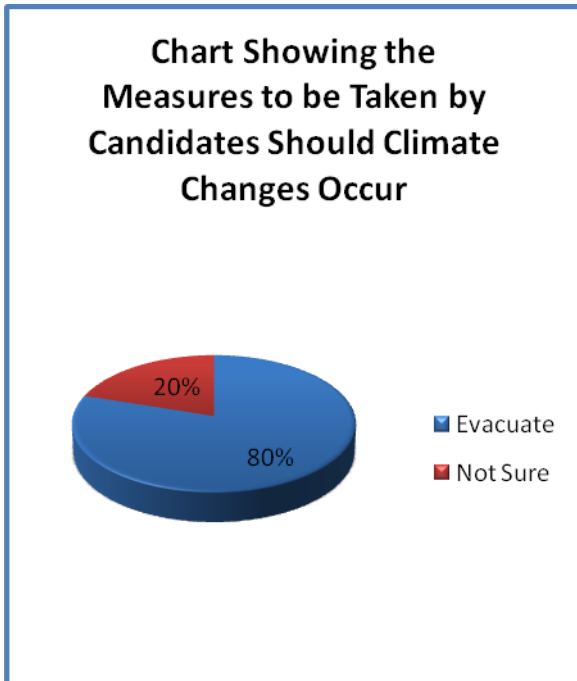
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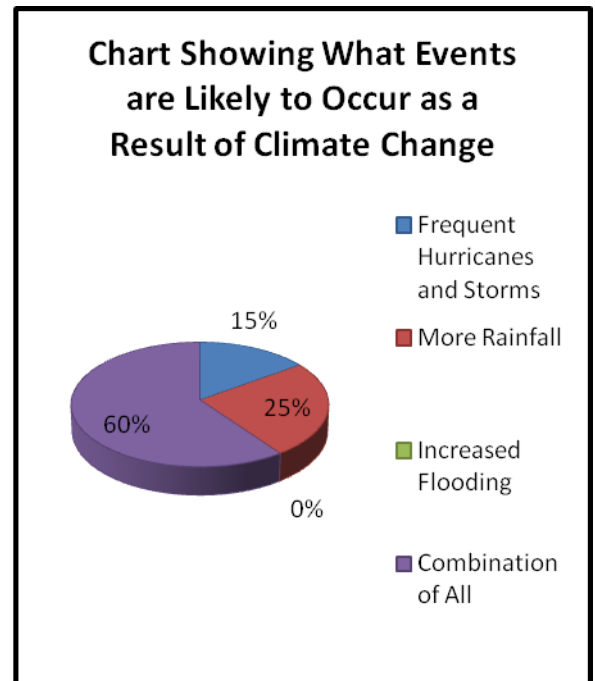
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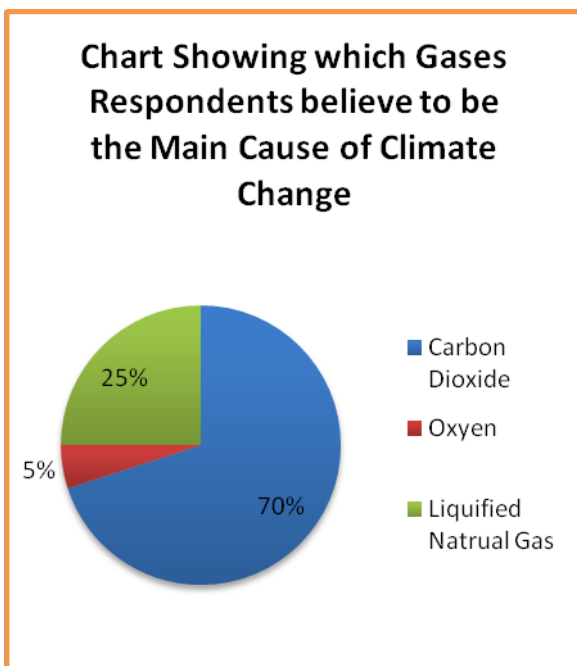
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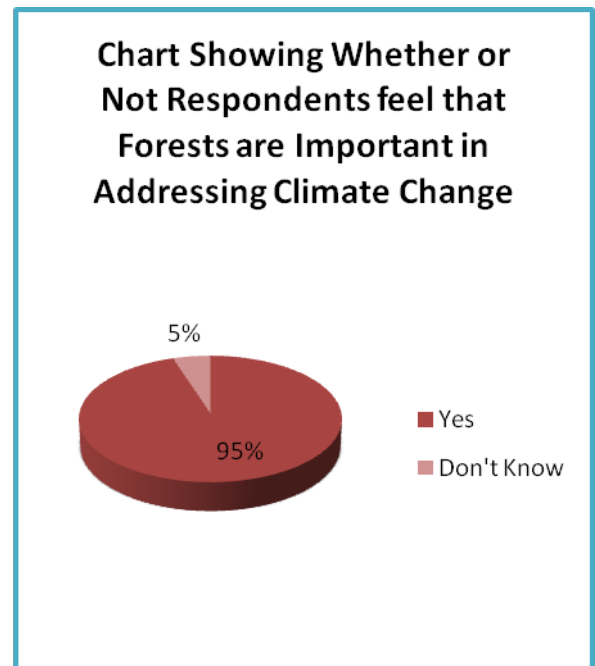
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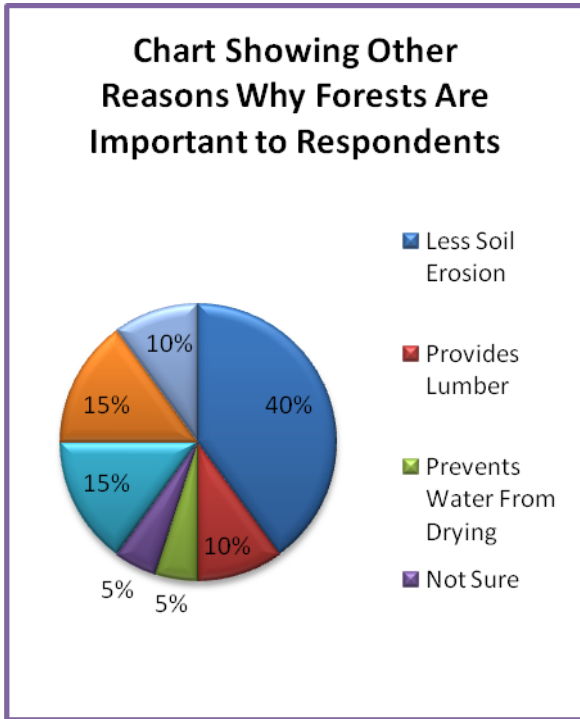
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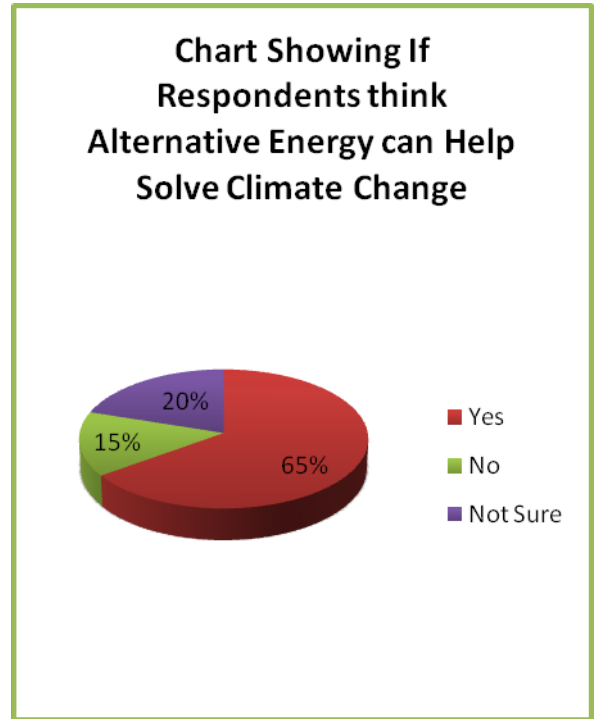
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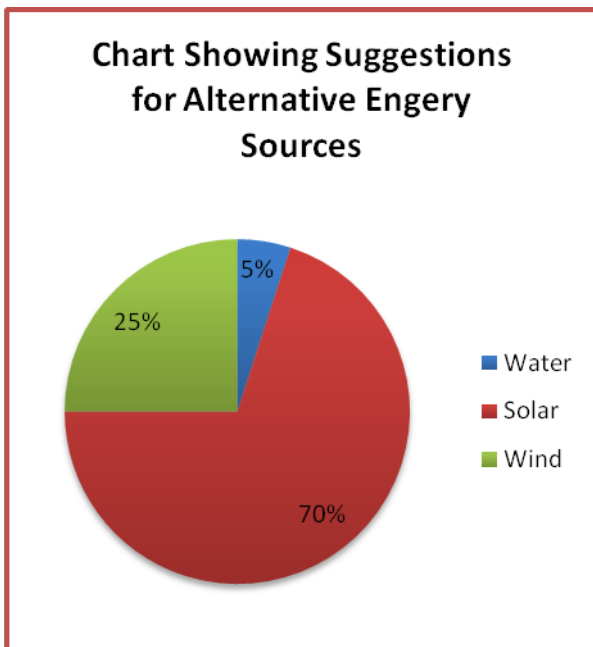
Question 10:



Question 11:

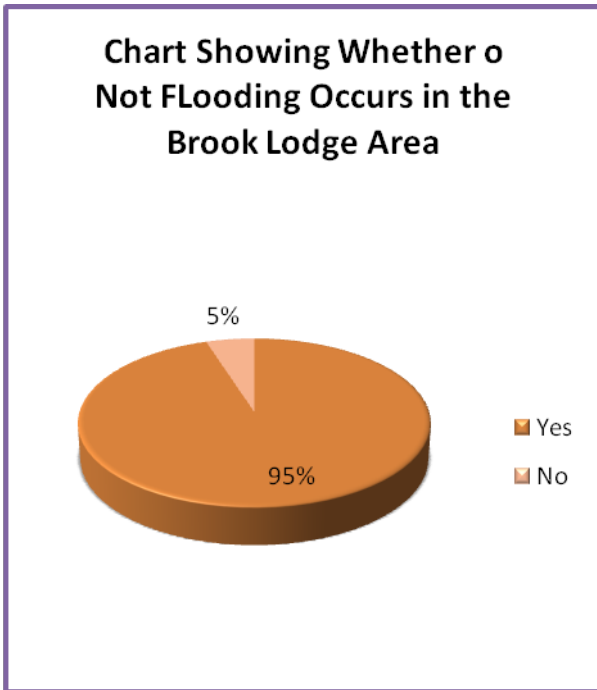


Question 12:

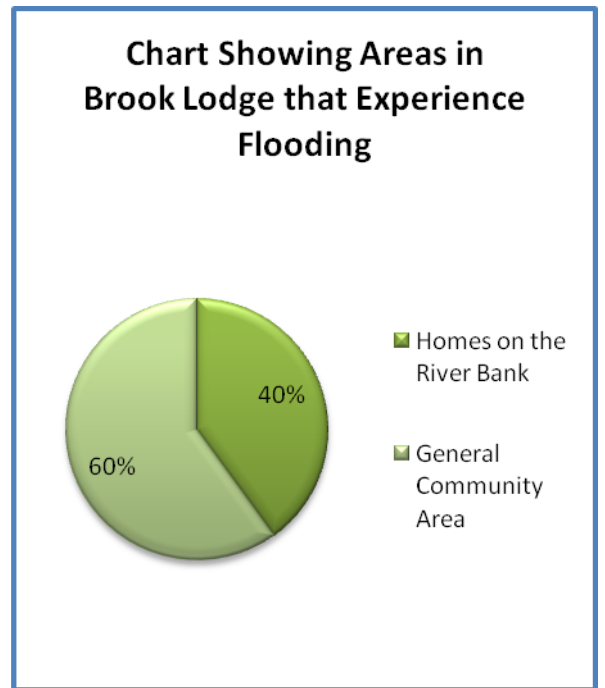


Flooding

Question 2:



Question 2a:



Question 2b:

Question 2c:

Chart Showing The Major Causes of Flooding In the Community

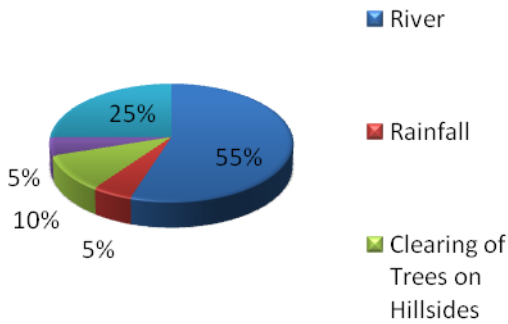
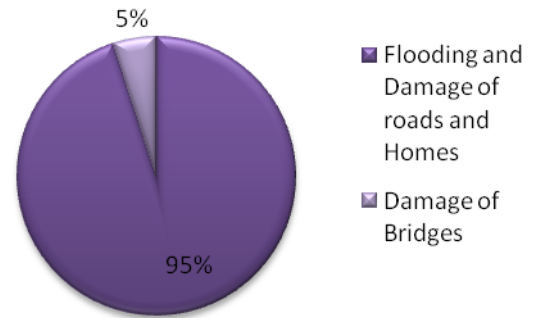
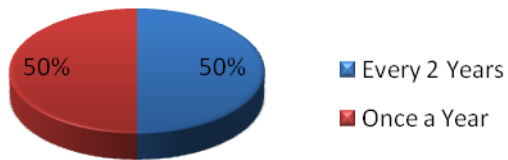


Chart Showing Major Problems Caused by Flooding



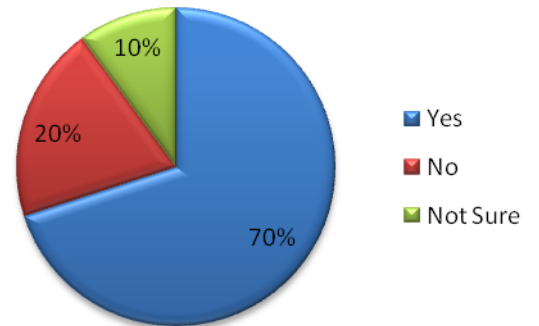
Question 2d:

Chart Showing How Often Flooding Occurs in The Community



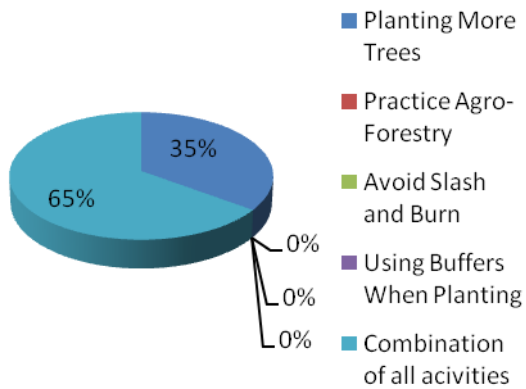
Question 3:

Chart Showing if Climate Change will increase flooding in Respondents' Community



Question 4:

Chart Showing Activities that can be used to reduce flooding in the Community



Appendix 3

Poorman’s Community

Question	Response(s)	Number of Persons	Percentage
1) Have you been exposed to what is meant by climate change? (read, media, meetings, etc.)	Yes	20	100%
	No	0	0%
2) How would you define climate change?	Weather Patterns	9	45%
	Not Sure	8	40%
	Change in Atmosphere	3	15%
3) Do you believe the world is currently affected by climate change?	Yes	16	80%
	No	3	15%
	Not Sure	1	5%
4) Are you aware of climate change?	Yes	16	80%
	No	3	15%
	Not Sure	1	5%

4b) If yes, tell us the evidence	Increase in temp	6	37%
	Drought	5	31%
	Flooding	1	6%
	More Rain	2	13%
	Global Warming	2	13%
4c) If yes, tell us the source as well	Experience	10	62%
	Poorman's General Area	4	25%
	Yallahs river	2	13%
5) How concerned are you about the effects of climate change?	Not Concerned	1	5%
	Slightly Concerned	5	25%
	Concerned	2	10%
	Very Concerned	12	60%
6) Are you prepared to manage the effects of climate change (such as flooding?)	Yes	13	65%
	No	4	20%
	Not Sure	3	15%
6b) If yes, how?	Evacuate	10	77%
	Work with it	1	8%
	Not Sure	2	15%
7) Climate Change is likely to result in which of the following?	Frequent Hurricanes and storms	6	30%
	More Rainfall	2	10%
	Increased Flooding	1	5%
	All of the above	11	55%
8) Which of the following gas is the main cause of climate change?	Carbon Dioxide	16	80%
	Oxygen	1	5%

	Liquefied Natural Gas	3	15%
9) Are forests important in addressing climate change?	Yes	18	90%
	Not Sure	2	10%
10) State one other reason why forests are important to you	Not Sure	4	20%
	Less soil erosion	7	35%
	Increase rainfall	3	15%
	Controls wind	1	5%
	Increases oxygen	3	15%
	Provides shade	2	10%
11) Do you think adopting alternative energy sources can help solve climate change?	Yes	7	35%
	No	4	20%
	Not Sure	9	45%
12) Name one source of alternative energy	Solar	12	60%
	Wind	1	5%
	Not Sure	7	35%

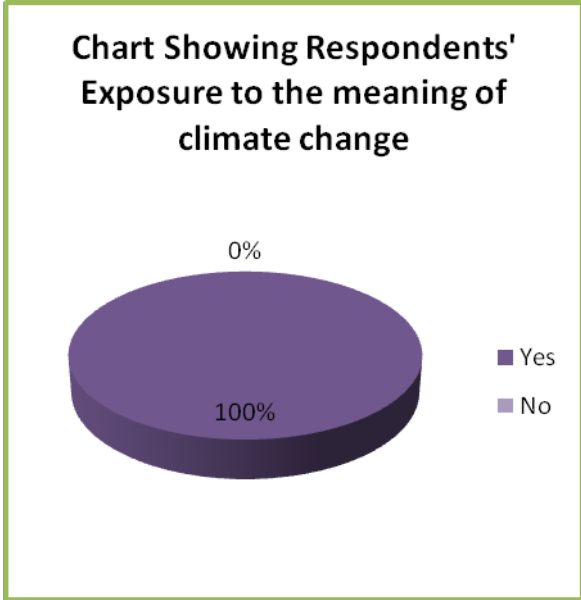
Flooding

2) Does flooding occur in your community?	Yes	17	85%
	No	2	10%
	Not Sure	1	5%
2a) If yes, state where	Poorman's Corner	7	41%
	Road by Tyre Shop	6	35%
	Yallahs river	4	24%
2b) What do you think causes	River	5	25%

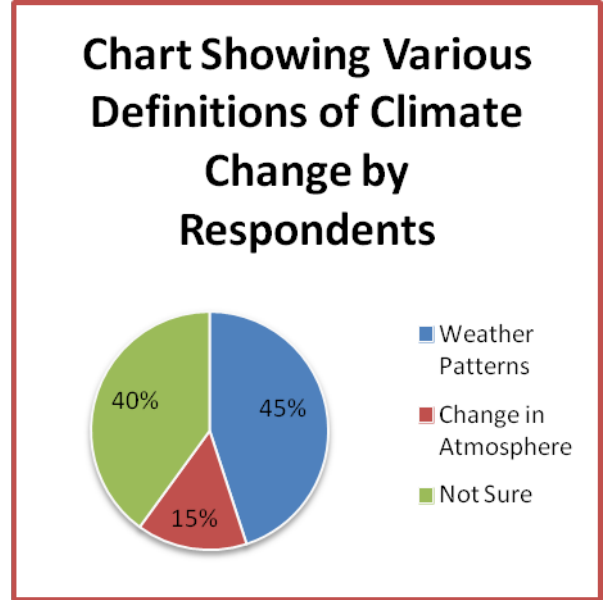
flooding your community?	Rainfall	9	45%
	Not Sure	1	5%
	Blocked Drains	5	25%
2c) If yes, state what kinds of problems this causes.	Damage or flood to roads and homes	17	85%
	Over flow of banks and blockage of drains	2	10%
	Not Sure	1	5%
2d) If yes also, indicate how often	Every 2 Years	9	45%
	Once a Year	10	50%
	Every 6 months	1	5%
3) Do you think climate change will increase flooding in your community?	Yes	16	80%
	No	2	10%
	Not Sure	2	10%
4) How can we reduce or address flooding your community?	Plant more trees	7	35%
	Practice Agro-Forestry	2	10%
	Avoid Slash and Burn	1	5%
	Using a buffer when planting	1	5%
	All of the above	9	45%

Climate

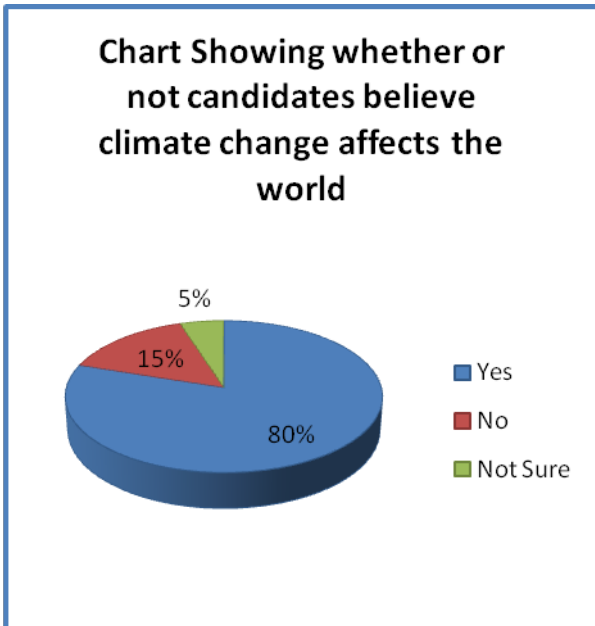
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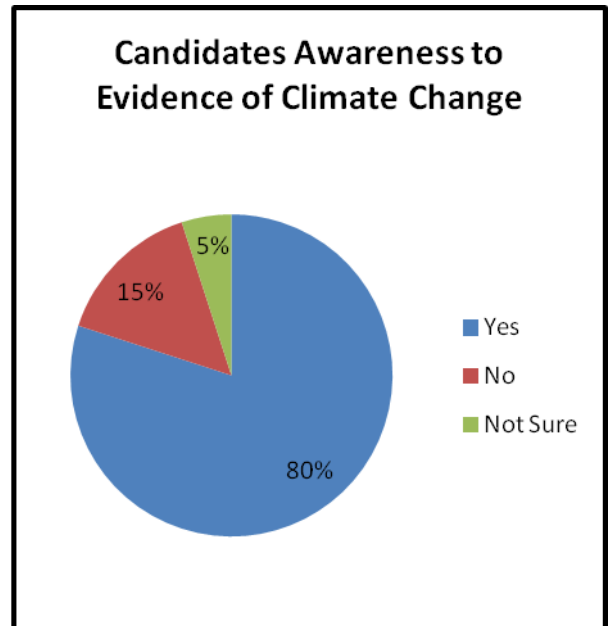
Question 2:



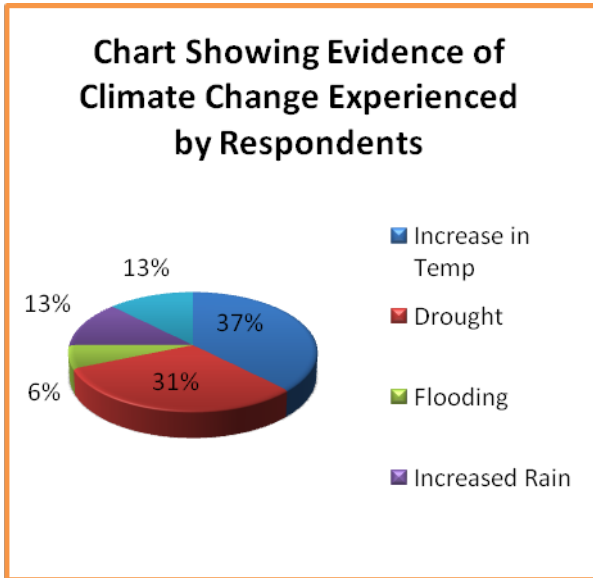
Question 3:



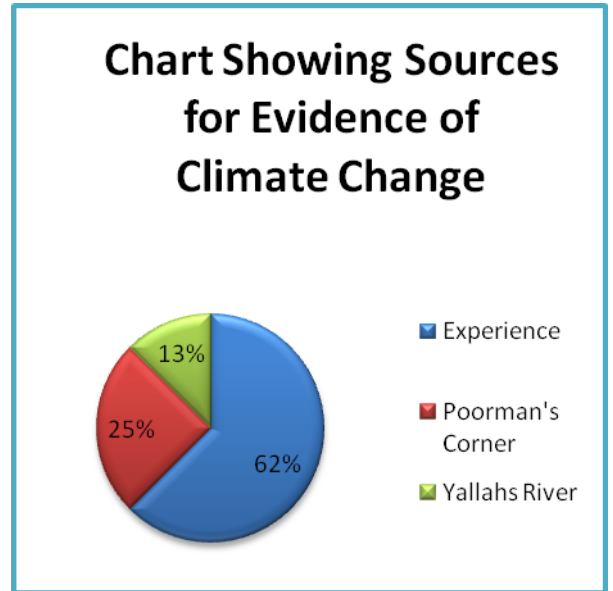
Question 4:



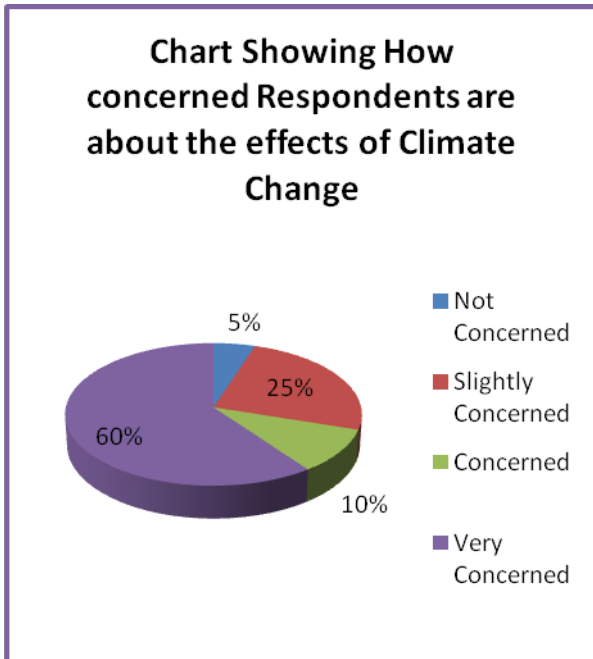
Question 4b:



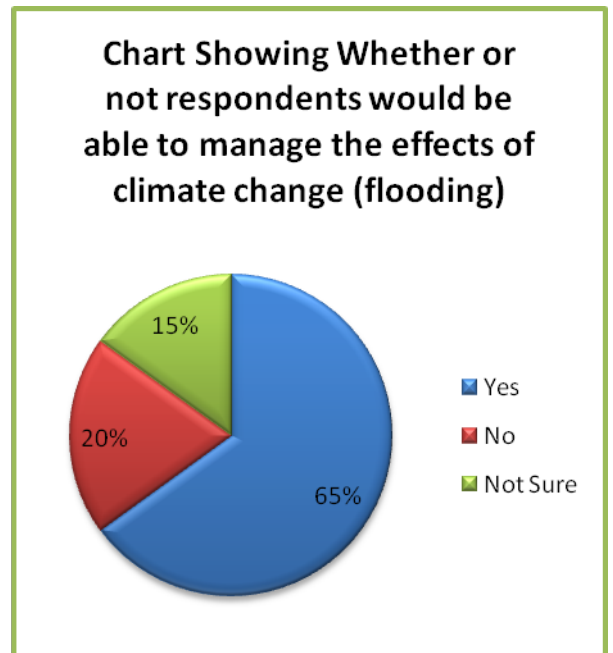
Question 4b:



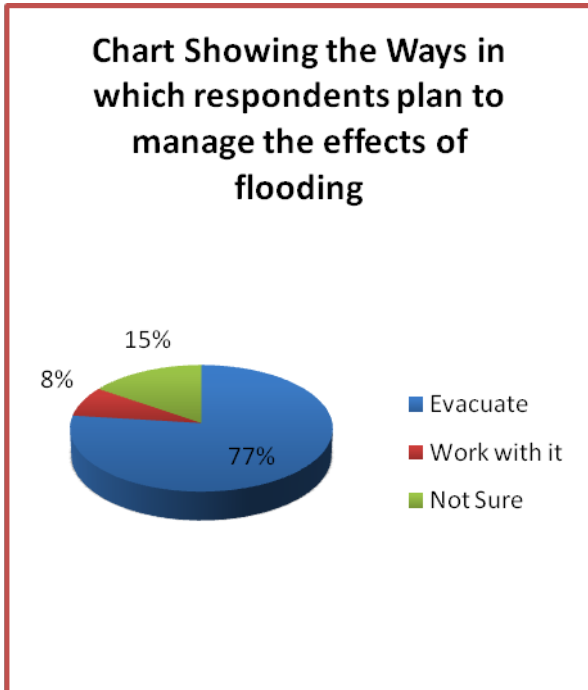
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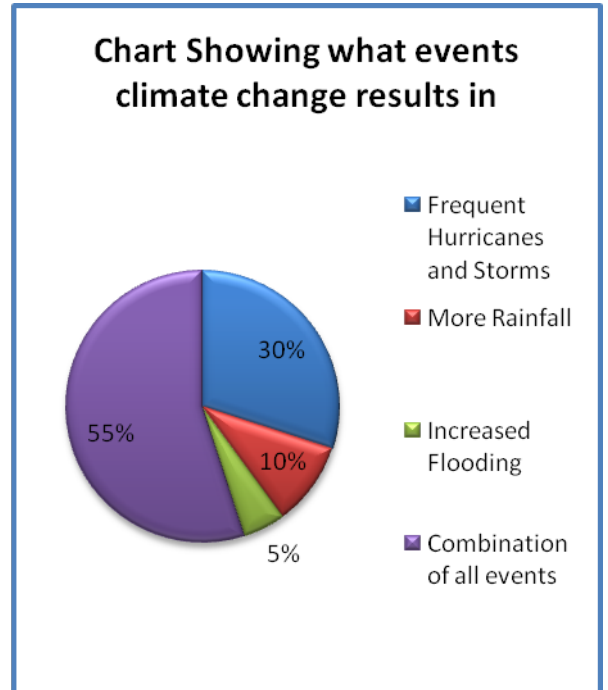
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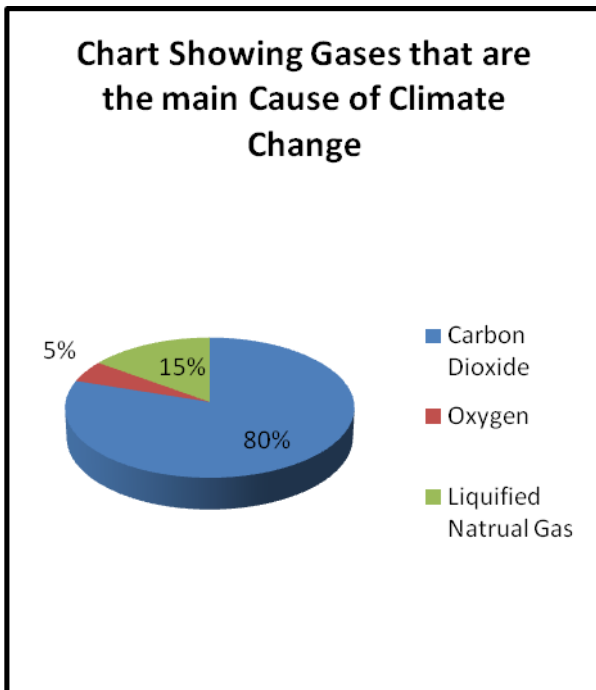
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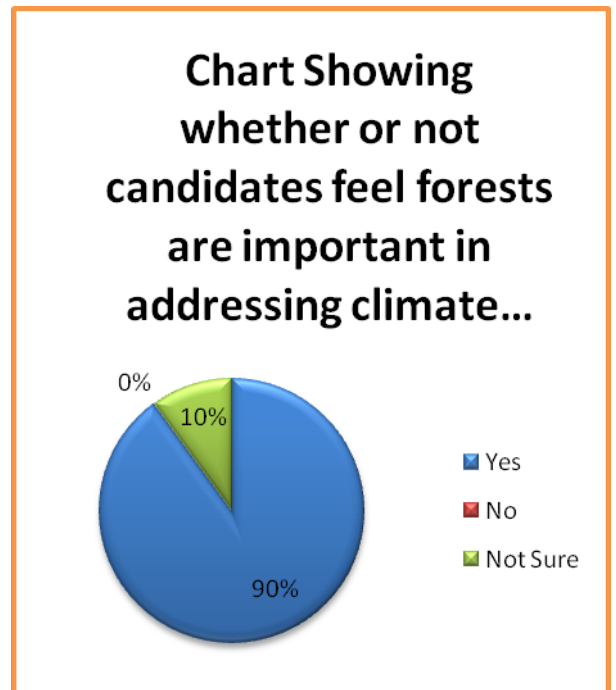
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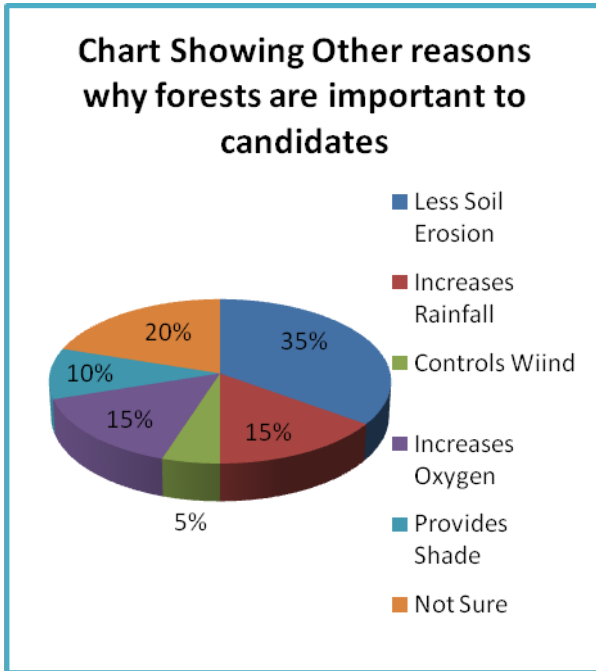
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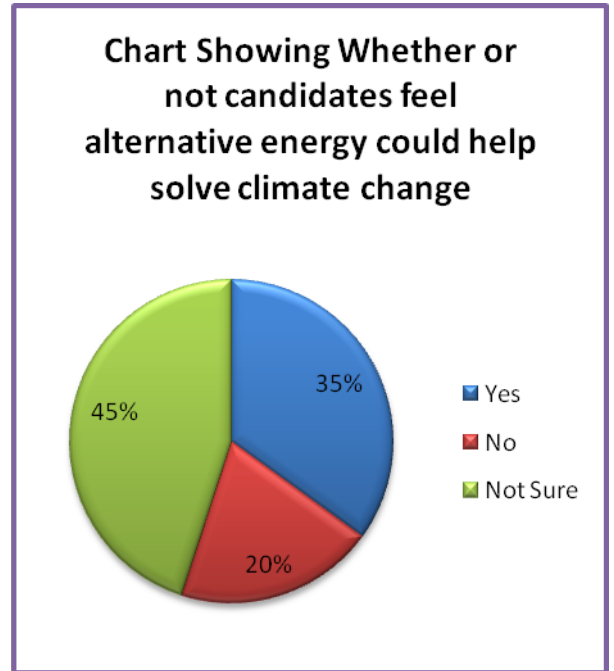
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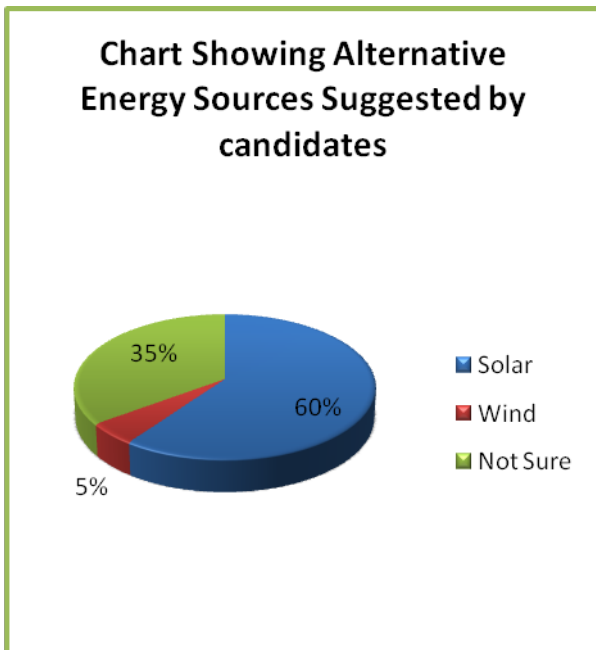
Question 10:



Question 11:

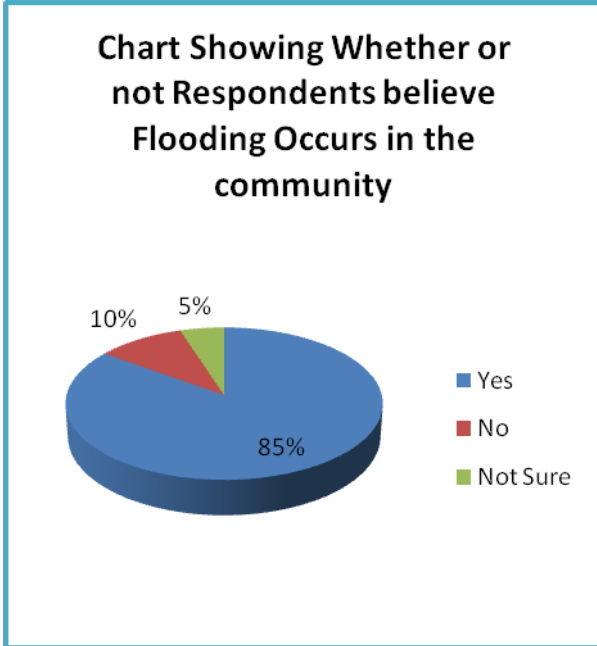


Question 12:

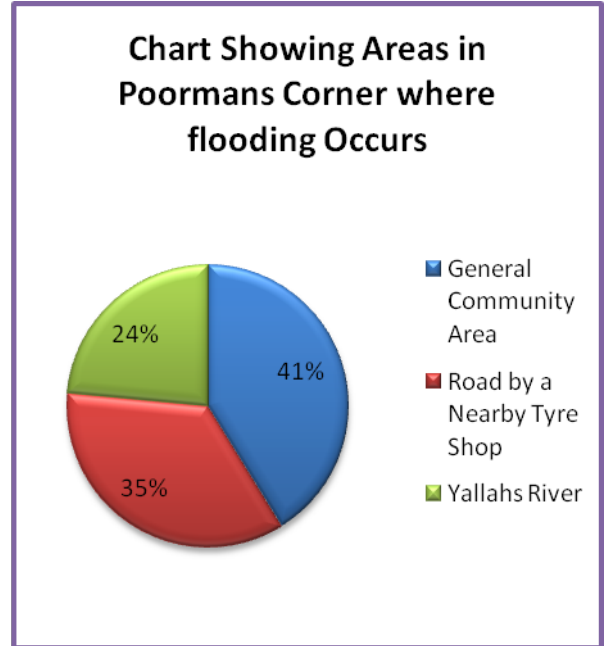


Flooding

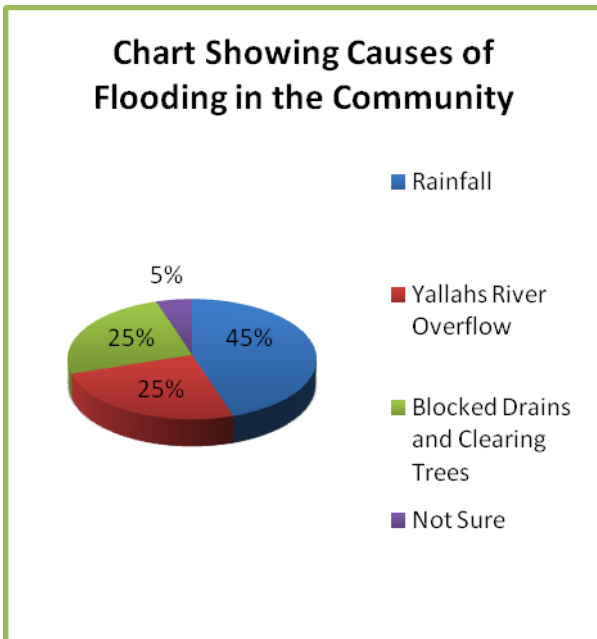
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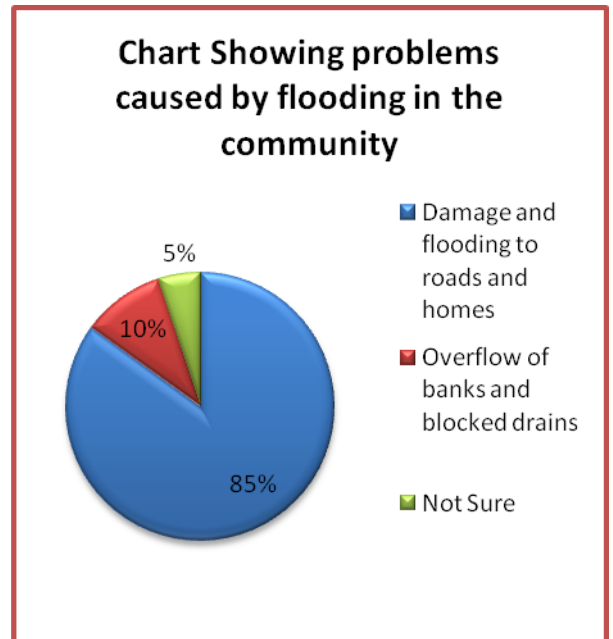
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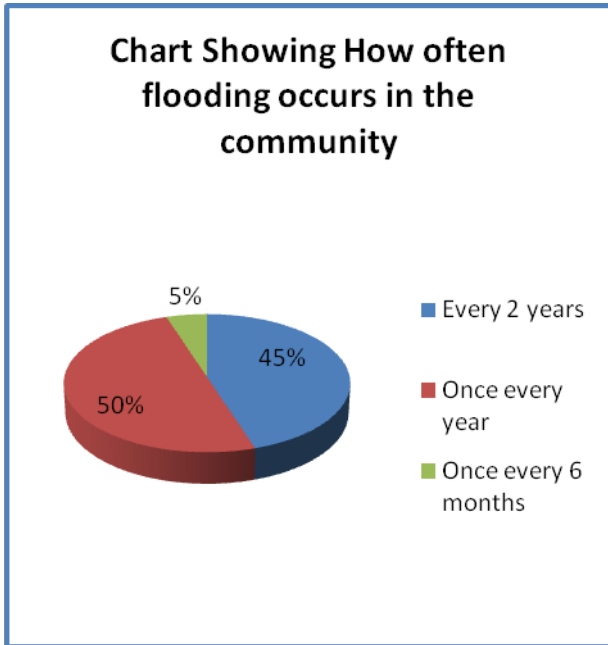
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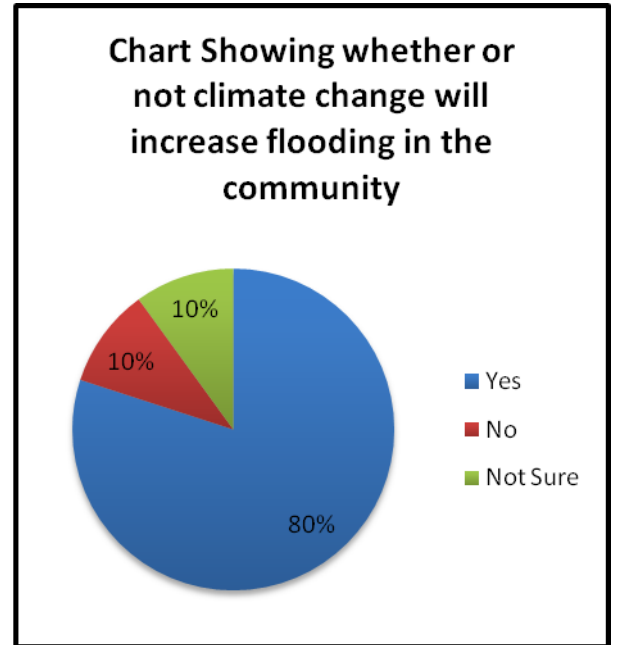
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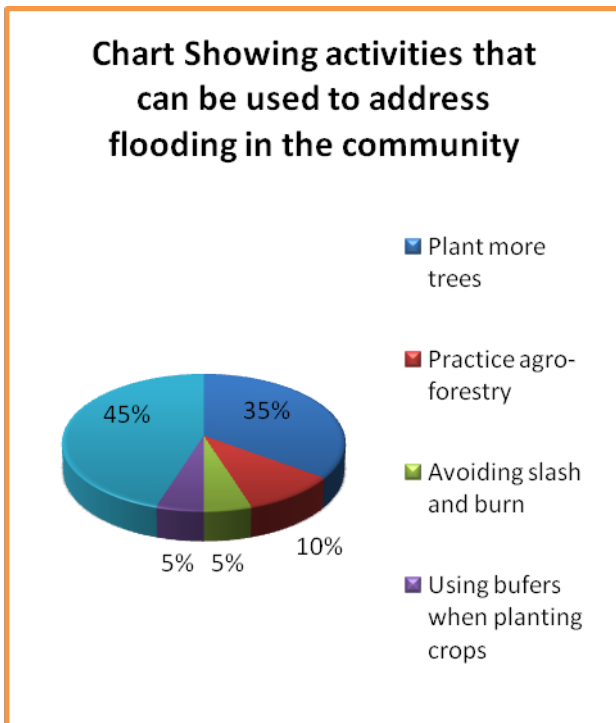
Question 2d:



Question 3:



Question 4:



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