



CLIMATE & MOBILITY IN **ANTIGUA**

A Case Study for the Greater Caribbean Climate Mobility Initiative

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Antigua & Barbuda Snapshot

Study Locations

Antigua and Barbuda is a Commonwealth nation consisting of twin islands, Antigua and Barbuda, in addition to several smaller islands. This tropical, coastal country experiences similar seasonal variations across the islands but with different impacts.

Antigua- Home to almost 97% of the total estimated 94,000 inhabitants of both islands,¹ Antigua was studied as the 'site of destination'. Research was conducted in the urban capital of St. John's and its surrounding areas, which have served as destinations for many people displaced from Barbuda following Hurricane Irma in 2017.

Barbuda- With a population of approx. 1,634,² Barbuda was studied as the 'site of origin' for displacement, following the mandatory evacuation of all inhabitants due to Hurricane Irma. Most of the population has since returned to the island, providing a unique post-displacement context.



Map 1. Map of Antigua and Barbuda showing areas where research was conducted. Image credit: Samuel Hall 2024.

1 The World Bank. "Population Estimates and Projections." <https://databank.worldbank.org/source/population-estimates-and-projections>

2 Statista. "2011 Population and Housing Census - Antigua and Barbuda," <https://statistics.gov.ag/wp-content/uploads/2017/11/2011-Antigua-and-Barbuda-Population-and-Housing-Census-A-Demographic-Profile.pdf>

Key Findings

- 1** Around half of respondents (46%) were born elsewhere than in the locations sampled, indicating a high level of migration and mobility among the country's residents.
- 2** Around 6 in 10 respondents have no desire or plans to move, indicating strong ties to their current areas of residence, particularly in Barbuda.
- 3** Awareness of climate change is high, with 96% of respondents overall reporting familiarity with the issue. Similarly, a larger portion of respondents in Antigua (94%) witness the impacts of climate change in their lives compared to those in Barbuda (64%).
- 4** Climate change influences future migration decisions for about a third of the respondents (34%), with around 5% indicating it would be the main reason for migrating.

When thinking about mobility, which of the following applies to you as an individual?

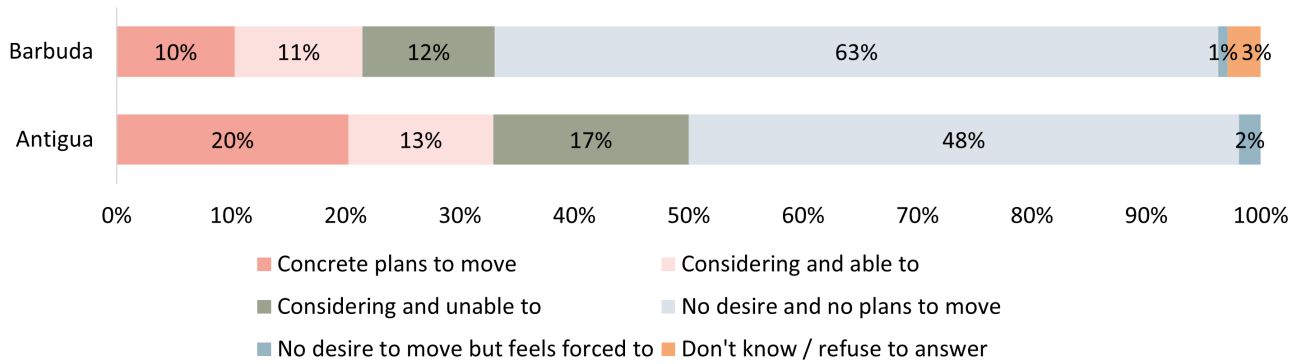


Figure 1: Figure 1. Mobility intentions and future decisions.



Image 1. Docked boat in Codrington, Barbuda. Photo credit: Charlene Harris 2024Photo credit: Mitchell George 2024.

Introduction

Project Background

Samuel Hall, a research organisation specialised in migration and displacement, undertook research to address the critical issue of climate-induced human mobility in the Greater Caribbean region, assessing in particular how climate-related factors influence people's decisions to migrate or to stay and their resulting lived experiences.

This project is part of the Greater Caribbean Climate Mobility Initiative (GCCMI), a partnership of the Global Centre for Climate Mobility (GCCM), the Association of Caribbean States (ACS), the World Bank, the UN Development Programme (UNDP), UN Disaster Risk Reduction (UNDRR), UN Framework Convention on Climate Change (UNFCCC) and the International Organization for Migration (IOM). It aims to inform strategies for enabling people-positive adaptation journeys by strengthening adaptive capacities, supporting mobility and addressing climate-forced displacement in the region. The conceptual framework, based on Carling's ability/aspiration model developed for the African Climate Mobility Initiative (ACMI) was adapted for the GCCMI to focus on factors that shape people's vulnerability to climate change and their decision-making.

By collecting data in frontline communities affected by climate-related events, the findings from this field research complement the results of the Greater Caribbean Climate Mobility Model, which projects climate-induced movements up until 2050. SH engaged with the modelling efforts during the simultaneous research phases, and both teams shared their results to ensure synergy and alignment. The research findings were presented during the GCCMI stakeholder consultations in May 2024 and will inform the GCCMI's Greater Caribbean Climate Mobility Report.

Methodology

Location	<p>Six Association of Caribbean States (ACS) member countries in the Greater Caribbean region, chosen for their diverse climate events and mobility patterns.</p> <ul style="list-style-type: none"> • Costa Rica • Suriname • Colombia • Jamaica • The Bahamas • Antigua & Barbuda <p>Both islands in Antigua and Barbuda, selected to represent a diverse mix of urban and rural settings, both origin and destination areas for displaced populations, and regions experiencing a range of climate-related impacts.</p> <ul style="list-style-type: none"> • Antigua • Barbuda
Selection Criteria	Twin-island nation, key economic sectors affected by climate change (tourism, fisheries), extreme weather events (storm) and slow onset events (sea level rise).
Key Phases	Desk review and research design, data collection and analysis, consultations and reporting (September 2023- September 2024).
Research Tools	297 household surveys, four focus group discussions and two-in-depth key informant interviews were conducted to examine the relationship between migration and climate, focusing on mobility features, climate change adaptations, and the impact on decision-making.

Further information on site selection, methodology, and regional findings can be found in the synthesis report.

Note on data collection and localisation

In March and April 2024, local Antiguan and Barbudan research teams led by Samuel Hall staff conducted fieldwork in the islands of St. John's, Antigua and Codrington, Barbuda. A total of 400 household surveys (242 in Barbuda, 158 in Antigua) were conducted with community members and four focus group discussions were held with 19 participants from the sample area, including teachers, council members, government workers and farmers. In depth interviews were conducted with two key informants representing relevant institutions such as the Department of Environment and civil society organisations like BarbudanGo.

The research in Antigua and Barbuda was carried out as part of a regional study undertaken in six countries: Costa Rica, Colombia, Suriname, The Bahamas, Jamaica, and Antigua & Barbuda. The study aimed to understand the full range of mobility outcomes for populations in the Greater Caribbean region affected by climate change, examining the degree to which these outcomes are climate-related, how climate mobility interacts with other mobility dynamics, and the perceptions of those who have moved due to climate impacts. Throughout the data collection, Samuel Hall's team implemented a localisation approach, encouraging local researchers to lead the process and for communities to define the study's concepts themselves. A localised approach ensures that the research process is tailored to the specific context of the affected communities involved in the study.

Note on contextualisation

This study offers an in depth exploration of two selected communities in each of the selected six countries. Given the limitations on timeframe and scope, the findings do not represent the perceptions of the entire communities, countries, or the region as a whole. Rather, they provide a snapshot into the experiences of individuals and households experiencing the impacts of climate-related factors on their life decisions. All findings should therefore be contextualised to each specific location's dynamic and features. Additional fieldwork within each country would offer a more comprehensive view, and additional country case studies would provide a deeper comparison within the region.

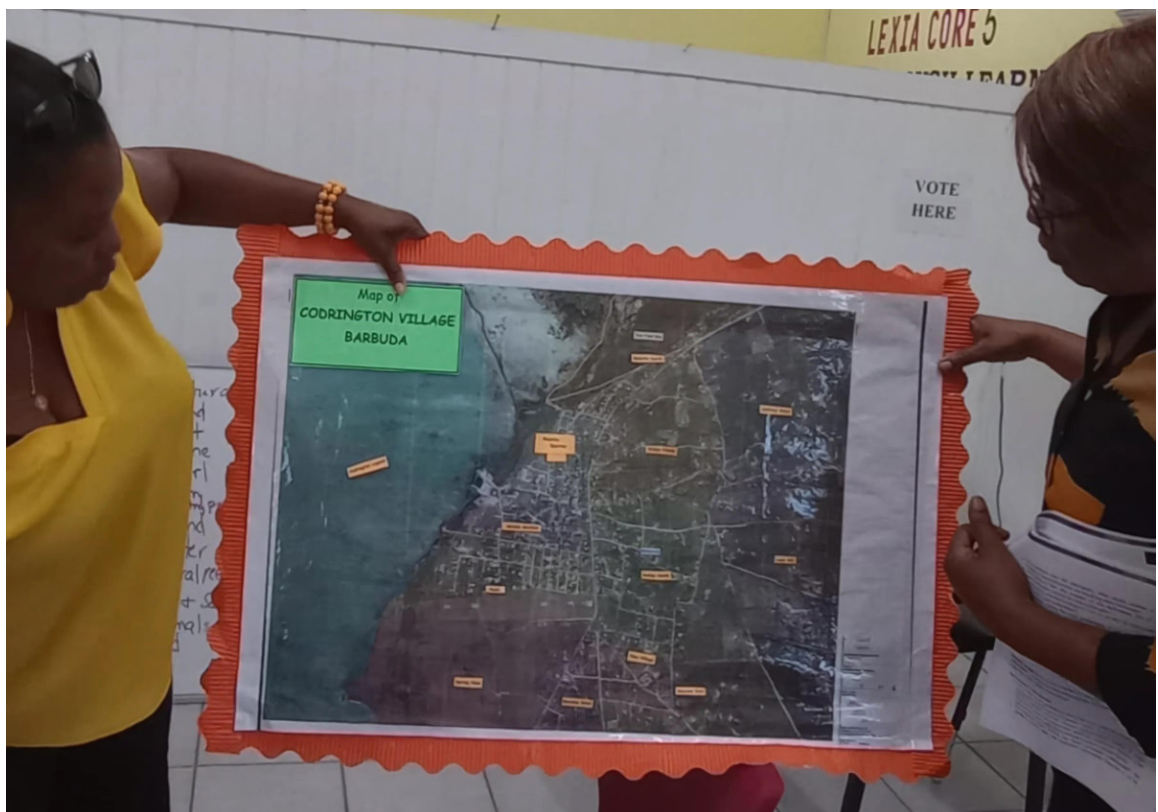


Image 2: Enumerator team planning data collection in Codrington, Barbuda. Photo credit: Charlene Harris 2024

Key terminology and concepts

Climate Change	"Long-term changes in the Earth's climate that are warming the atmosphere, ocean and land. Climate change is affecting the balance of ecosystems that support life and biodiversity, and impacting health. It also causes more extreme weather events, such as more intense and/or frequent hurricanes, floods, heat waves, and droughts, and leads to sea level rise and coastal erosion as a result of ocean warming, melting of glaciers, and loss of ice sheets." ¹
Climate Adaptation	"Actions that help reduce vulnerability to the current or expected impacts of climate change like weather extremes and natural disasters, sea-level rise, biodiversity loss, or food and water insecurity." ²
Climate Resilience	"Resilience is the capacity of a community or environment to anticipate and manage dangerous climatic events and recover and transform after the ensuing shock, with minimal damage to societal wellbeing, economic activity, and the environment." ³
Vulnerability	"The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to be affected by the impact of hazards." ⁴

1 United Nations Development Programme (UNDP). "Climate Dictionary: An Everyday Guide to Climate Change." <https://www.undp.org/iran/news/climate-dictionary-everyday-guide-climate-change>

2 UNDP. "Climate Dictionary: An Everyday Guide to Climate Change."

3 UNDP. "Climate Dictionary: An Everyday Guide to Climate Change."

4 United Nations Office for Disaster Risk Reduction (UNDRR). "Vulnerability." <https://www.undrr.org/terminology/vulnerability>

Context & Profiles

Antigua and Barbuda was recently ranked as the fourth most vulnerable country to the impacts of climate change.⁵ It is a small island developing state (SIDS), measuring around 440 km² in size and made up of two distinct but “twin” islands situated in the Lesser Antilles region of Eastern Caribbean, with an estimated population of 93,763 inhabitants.⁶

The country is vulnerable to a combination of rapid and slow onset climate events which threaten some of its key economic sectors, namely agriculture and tourism. The following subsections provide an overview of climate change impacts and related mobility dynamics in Antigua and Barbuda, before moving on to the profiles of study respondents.

Locations Profile: Climate Risks and Mobility Dynamics

Due to its geographic exposure, Antigua & Barbuda faces increasing threats from flooding, droughts, and hurricanes, which have intensified in frequency and severity in recent years.⁷

⁵ IOM (2021), Migration, Environment, Disaster and Climate Change Data in the Eastern Caribbean: Antigua and Barbuda Country Analysis.

⁶ The World Bank. “Population Estimates and Projections.” <https://databank.worldbank.org/source/population-estimates-and-projections>.

⁷ IOM (2021), Migration, Environment, Disaster and Climate Change Data in the Eastern Caribbean: Antigua and

Coastal erosion and sea level rise also pose long-term risks to the islands, especially for the coastal communities and those reliant upon the tourism sector.⁸ The share of tourism in the national economy, moreover, has significantly grown in recent years, accounting for 44.7% of GDP by 2019. Along these lines, a reduction in the number of tourists caused an important drop in GDP growth from 2018 (7.4%) to 2019 (4.7%) following Hurricane Irma.⁹

Coastal communities face rising risks. Increased coastal erosion and the reduction of natural barriers leave low lying coastal communities highly exposed to sea level rise, storm surges, hurricanes and the long lasting impacts thereof. Two thousand and seventeen was the first time in history two Category 5 hurricanes made landfall in a single year. Hurricane Irma specifically led to the destruction of 95% of all homes in the twin island State, with a third of the country rendered uninhabitable, leading to an overall economic loss of around 120 million USD.¹⁰

Given the size and climate vulnerability of Antigua & Barbuda, high intensity hurricanes have the potential to be experienced as “total events”: their impacts are all-encompassing, permeating the lives of island inhabitants, threatening livelihoods and becoming, in certain extreme cases, synonymous with (at least temporary) displacement. Indeed, the increased intensity of storms and hurricanes has resulted in significant displacement on the islands, often from one island to the other, followed by eventual return. Hurricane Irma alone led to the displacement of almost the entire population of Barbuda.¹¹

Antigua & Barbuda’s vulnerability to consecutive rapid onset events poses a serious risk. The small size, relative isolation, high level of disaster-related destruction, and climate-susceptible economic landscape expose the country to a potential multiplying effect from successive rapid onset events. Accordingly, the country *“struggled with a timely return of residents to the island following the 2017 evacuation, exposing a number of political, financial, environmental and social challenges which impede action”*.¹² Moreover, Antigua & Barbuda are part of the Organisation of Eastern Caribbean States (OECS) which allows for free-movement of citizens between countries, further facilitated by the Single Market Economy (CSME) in the Caribbean Community (CARICOM).¹³

However, limited data on climate mobility exists. Despite these regional arrangements and subsequent movements – which have clear implications for the facilitation of climate mobility – very little data is collected or shared among or within countries, including Antigua & Barbuda, related to this type of mobility. For example, the government of A&B does not include climate change or disasters as categories motivating inbound mobility in official forms filled out by migrants upon arrival.

Barbuda Country Analysis.

8 UNDP. “Fighting for Survival: Four small islands on the frontline of climate change.” News and Press Release. June 8, 2021. <https://reliefweb.int/report/antigua-and-barbuda/fighting-survival-four-small-islands-frontline-climate-change>.

9 Centre for International Earth Science Information Network (2023), GCCMI Desk Review.

10 UNDP (2021), Fighting for Survival: Four Small Islands on the Frontline for Climate Change

11 Centre for International Earth Science Information Network (2023), GCCMI Desk Review.

12 Centre for International Earth Science Information Network (2023), GCCMI Desk Review.

13 Centre for International Earth Science Information Network (2023), GCCMI Desk Review.

Similarly, while it is virtually certain that livelihoods are affected by climate change, insufficient information / data is available concerning direct links between extreme weather events, loss of business or work, and human mobility.¹⁴ This finding from the literature was supported by data collected in the context of this research, whereby participants discussed how impacts affecting highly exposed coastal urban areas are exacerbated by a limited emergency response system, and equally limited public awareness of response mechanisms.¹⁵

14 IOM (2021), Migration, Environment, Disaster and Climate Change Data in the Eastern Caribbean: Antigua and Barbuda Country Analysis.

15 KII14



Image 3. Coast in Codrington, Barbuda. Photo credit: Charlene Harris 2024.

Respondent profile: socioeconomic and migration characteristics

Respondents	400 Survey Respondents
Age	19-87 years old, Average age 46 Years, 24% Youth (18-35 Years old)
Gender	69% Women, 31% Men
Household Composition	Average 4 members, 77% have children, 33% Married or in Civil Union, 55% single
Decision Making	70% heads of households, 62% breadwinners, 76% overall make decisions for their households, less for those under 35 less
Education Level	78% with secondary education or higher
Housing	Barbuda: 83% and 12% wooden; Antigua: 52% concrete and 42% wooden
Employment	Barbuda: 24% informal sector 65% formal employment; 4% unemployed {higher in Antigua} 4% short term, 3% looking
Income Sources	Barbuda: 13% in agriculture, fishing or herding
Remittances	3%
Government Pensions	17%



Image 4. Survey participant, Codrington, Barbuda. Photo credit: Charlene Harris, 2024

Migration profile

Nearly half of respondents were born elsewhere. A significant proportion of respondents reported migrating in the past, with 46% indicating they were born elsewhere. Long-term settlement was common, with half of the households having resided in their current location for 20 years or more. However, Barbuda had more recent migrants, with 35% of households having lived in the area for less than a decade, compared to 25% in Antigua. This discrepancy is likely due to the displacement caused by hurricanes over the past decade.

Most migrants moved for family reasons. The study participants with migration backgrounds arrived at the sampled locations from diverse settings, with 40% migrating from rural areas, 35% from semi-urban areas, and 25% from urban areas. Family reasons were cited by 56% of respondents as the primary driver of migration. Economic motivations accounted for 24%, while 14% migrated for 'other' reasons including housing opportunities (e.g., building or purchasing a home). Only 3% attributed their migration to environmental disasters, and none cited extreme weather or environmental changes as reasons for leaving.

There is relatively low reliance on external remittances. Only around 1 in 10 respondents (11%) indicated that a household member worked in other areas and regularly stayed elsewhere for income purposes. Among these, only 39% reported that these individuals sent remittances back home, highlighting a low reliance on external financial support – and by extension a stronger reliance on the local economy.

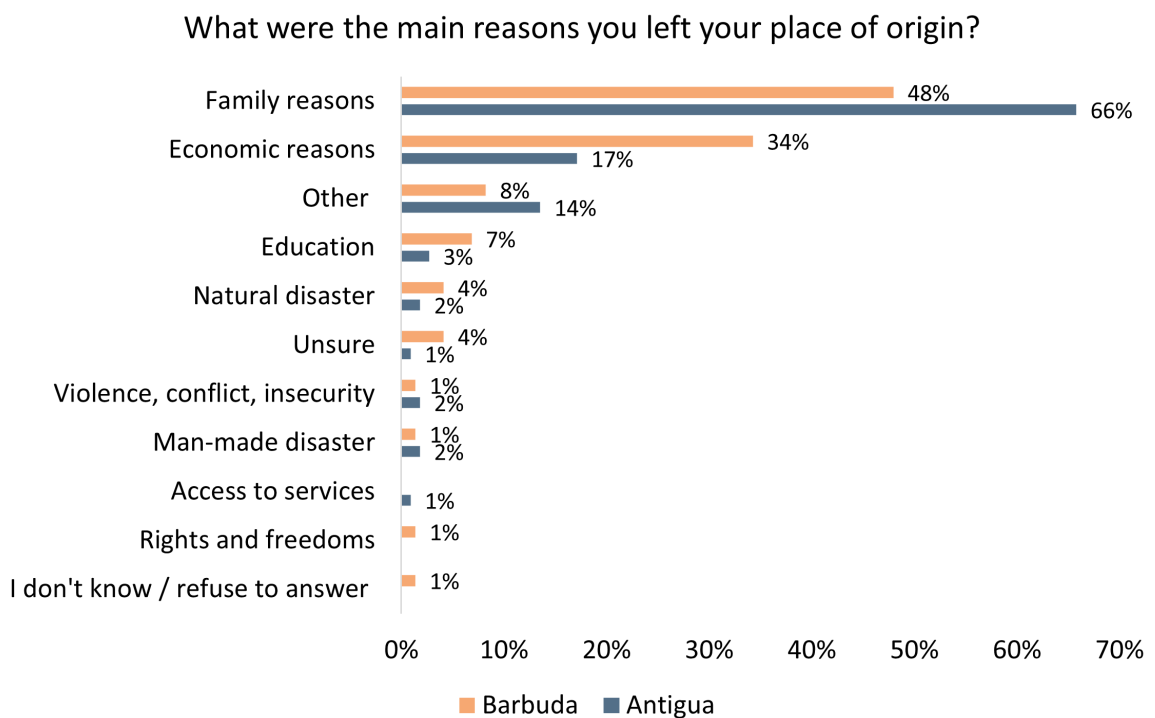


Figure 2. Reasons for leaving community of origin

Household profile

This study aims to assess individuals' and households' capacity to respond to climate change impacts, including their ability to relocate if needed. This capacity is crucial for climate change adaptive capacity and resilience, and is influenced by socio-economic, financial, mental, and physical health security. **Overall, around 4 in 10 migrants are either aspiring or planning to move elsewhere:** 14% of respondents have concrete plans to move, 14% are considering relocation but are unable to do so, and 12% are considering relocation and have the capacity to move. This indicates relatively high levels of desire for mobility, while more than 1 in 10 residents surveyed are involuntarily immobile.

Respondents report a relative level of overall financial stability and security. Just over half of respondents report that their household income is always (51%) or mostly (40%) stable and predictable. Similarly, the majority of respondents perceive themselves to be living comfortably or very comfortably (68%).

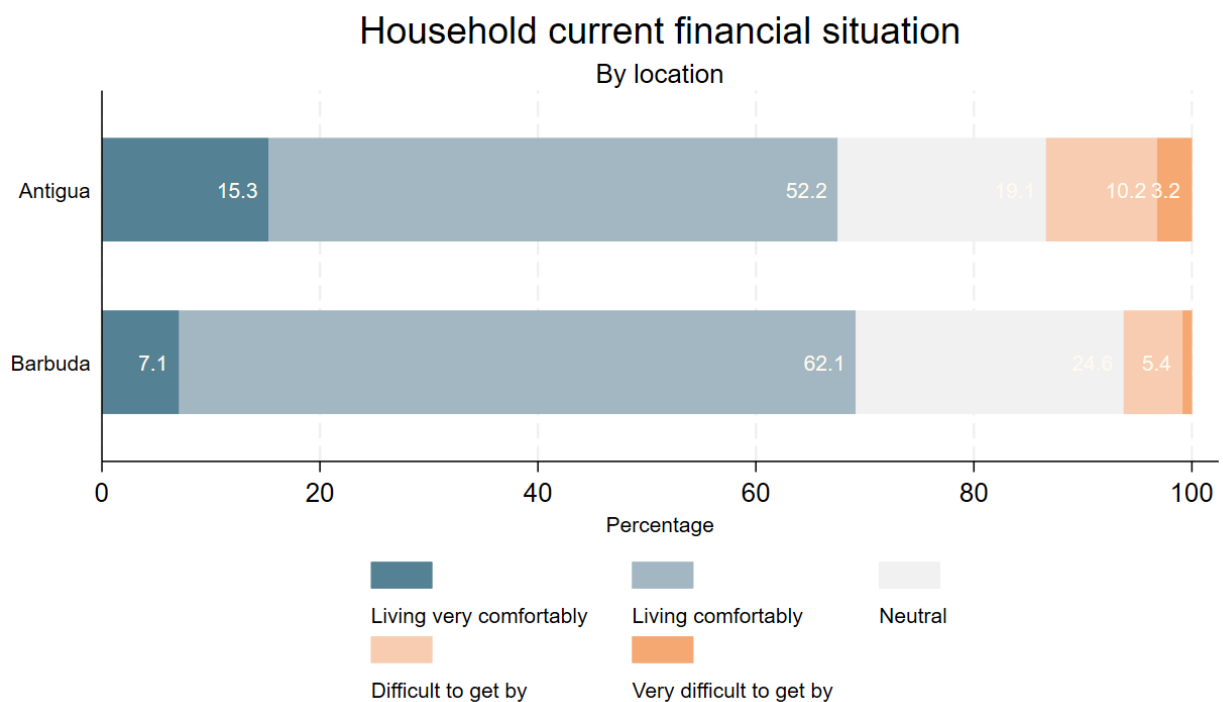


Figure 3. Financial situation

Financial instability impacts a minority of households surveyed. Only about 1 in 10 respondents (9%) report that their household income is mostly or always unstable and unpredictable and are in dire financial situations i.e difficult or very difficult to get by. This is slightly higher in Antigua (11% unstable income, 13% difficulty to get by) than in Barbuda (7%). Migrants are slightly more likely to report having unstable income than non-migrants (Figure 4).

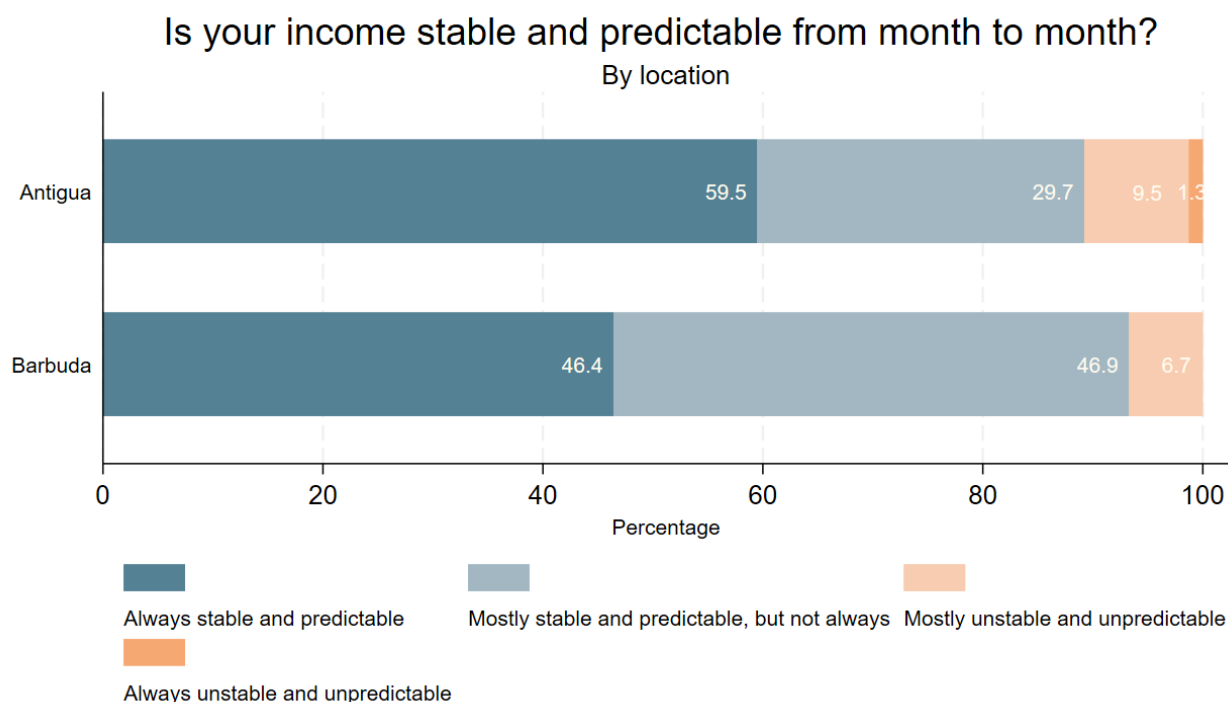


Figure 4: Household income stability and predictability (migrant v non-migrant)

Housing stability and adaptive challenges were influenced by ownership patterns and perceived freedoms within dwellings. In terms of housing arrangements, 78% of the respondents own their houses, while another 16% live in rented houses. Among migrants, 25% reside in rented houses, compared to 7% among host respondents, highlighting potential vulnerability in housing stability for migrants, which may affect their capacity to adapt to changing circumstances. Additionally, 8% of respondents, including 10% in Antigua and 6% in Barbuda, do not feel free to remain in their dwelling as they wish, often due to rental agreements where landlords could give notice at any time; or because they aspire to move into their own homes.

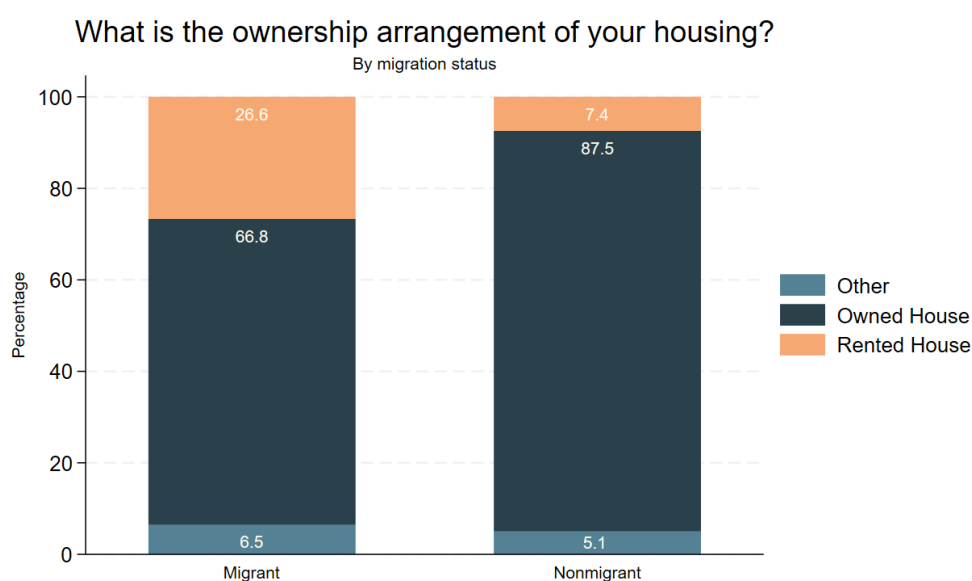


Figure 5: Housing ownership arrangement (migrant v non-migrant)

In terms of community safety, a large majority feel secure in their neighbourhoods, with an overall 87% of respondents feeling safe to walk in the streets in their area, suggesting an ability to rely on community in climate change responses.

Individual awareness levels regarding climate change could also influence preparedness and adaptation strategies. Most of the respondents (68%) feel informed about the potential impacts of climate change, yet around 1 in 5 (18%) respondents feel uninformed.

Box 1. Water Sources

Antigua and Barbuda's reliance on alternative water sources, particularly bottled water and rainwater harvesting, has significant implications for adaptive capacity to climate change. For those surveyed, This study's findings show that bottled water is the most popular drinking water source (55%), followed by rainwater harvesting (38%). Only 6% of respondents rely on piped water. This is significantly different from most other contexts studied in this region (Costa Rica, Suriname, Colombia and Jamaica), where most (79%) of respondents relied on piped water. While rainwater harvesting offers a sustainable solution, it leaves communities vulnerable during drought periods, limiting their ability to manage water scarcity. This dependency on variable water sources poses a significant challenge to building climate resilience and securing a stable water supply under increasingly unpredictable weather patterns.

Climate-related Challenges & Impacts

Climate Challenges and Vulnerabilities

Hurricanes have devastated Antigua & Barbuda over the past decade. In the field locations studied for this research, tropical cyclones were the most prevalent weather hazard affecting respondents (87%) followed by drought (81%) and flooding (66%) Data collection notably highlighted the fact that Antigua is more prone to flooding and drought than Barbuda. A respondent in Tomlinson, a parish on the island of Antigua, shared that one of his main concerns was the

"Intensity of the hurricanes and the frequency of the storms. The last one that we couldn't find, ended up in Barbuda, St. Maarten, and then came back to Antigua. What is it called? Nellie? That was a crazy storm?"¹⁶

According to participants, the increase in storms and major hurricanes has also led to tornadoes in some cases Figure 6. Climate-related events and factors affecting households.

¹⁶ FGD20, FGD21

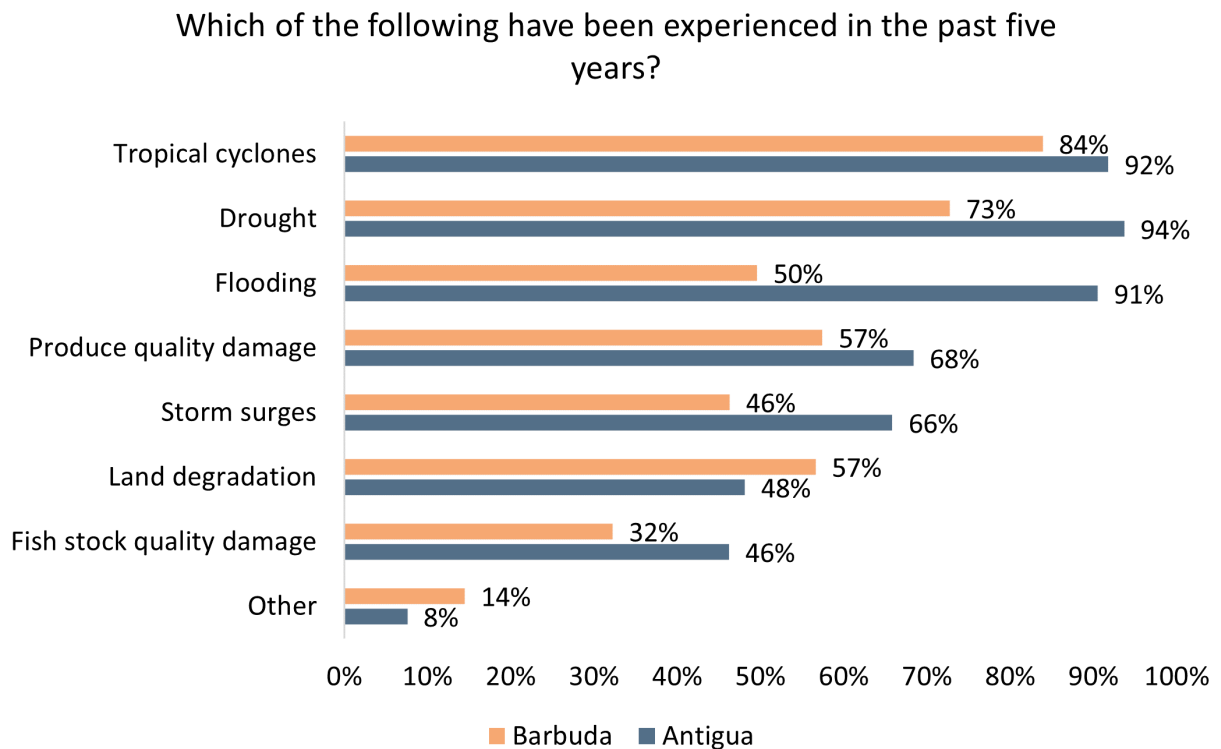


Figure 6. Climate-related events and factors affecting households

Vulnerability to climate change impacts has led to the deterioration of natural barriers that protect the islands from storm surges and rising sea levels. This deterioration threatens livability on the islands. A key informant working in environmental education and coastal conservation explained how there are three natural barriers protecting Antigua and Barbuda from storm surges and sea level rise, all of which are currently being eroded by the impacts of storms and coastal erosion: (1) reefs, which are being damaged by warming waters; (2) sandbars, shrinking as a result of storm surges, and; (3) mangrove forests, which are being destroyed by deforestation, droughts and flooding.

Focus group participants agreed that droughts and flooding are increasing the likelihood of beach and soil deterioration, indicating that erosion and sea level rise have been visibly altering the landscape over a very short period of time, some noting differences within a single year.¹⁷

For some, the loss of land in Barbuda has become visible over the span of a lifetime. A respondent shared that: *“Where I am right now, I’ve actually seen about 30 feet of land that has already gone into the sea. Places that I used to stand on are no longer there. So, I would say [its] because of the rise in sea level.”*¹⁸

17 FGD20, FGD21

18 FGD22

The destruction of mangroves, which are naturally able to protect against coastal erosion, is further exacerbated by human action, namely deforestation practices. Participants witnessed this first hand: *“we also have beach erosion and soil erosion due to exposure of soil due to deforestation. This one is dear to me because I live in a fishing village and we had several mangrove swamps east of us. I think we had four and I know for a fact that two of them so far have died and that is a result of climate change.”*¹⁹

Climate-related impacts

The inhabitants of Antigua and Barbuda have been significantly impacted by climate change, particularly by the increasingly unpredictable and extreme nature of climate events. While a majority (68%) feel informed about the impacts, an even higher proportion (96%) are aware of climate change as a phenomenon. Understanding the phenomenon more than the impacts suggests an awareness situated at an individual or small scale.

A larger portion of respondents in Antigua (94%) see the impact of climate change in their lives compared to Barbuda (64%). This discrepancy may be due to how climate change is understood and perceived, as hurricanes are not always perceived in terms of climate change, whereas people more regularly associate rise in temperature with climate change. Notably, women (80%) are more likely to report seeing the impact of climate change in their lives than men (70%)

Most households report climate impacts. In addition to recognizing the impacts, more than half (58%) of households reported being affected by climate change, particularly in Antigua, where 4 in 5 respondents report their households have been impacted. Of note, this was in reference to the past five years, so the experiences are not always in relation to the “total event” of Hurricane Irma. Specifically, 42% report frequently experiencing environmental disasters, while an additional 41% occasionally experience them.

Tropical cyclones are the top hazard. This total of 83% who experience environmental disasters out of the 96% who see the impacts implies that a smaller percentage (13%) experience just slow-onset events. Tropical cyclones are the most prevalent weather hazard affecting respondents (87%) followed by drought (81%) and flooding (66%). Antigua is more prone to flooding and drought than Barbuda. Produce quality damage in both locations is also a significant hazard (62%) and may pose a threat to food security.

19 FGD20, FGD21

If you face a climate-related challenge or emergency, to whom would you turn for immediate support?

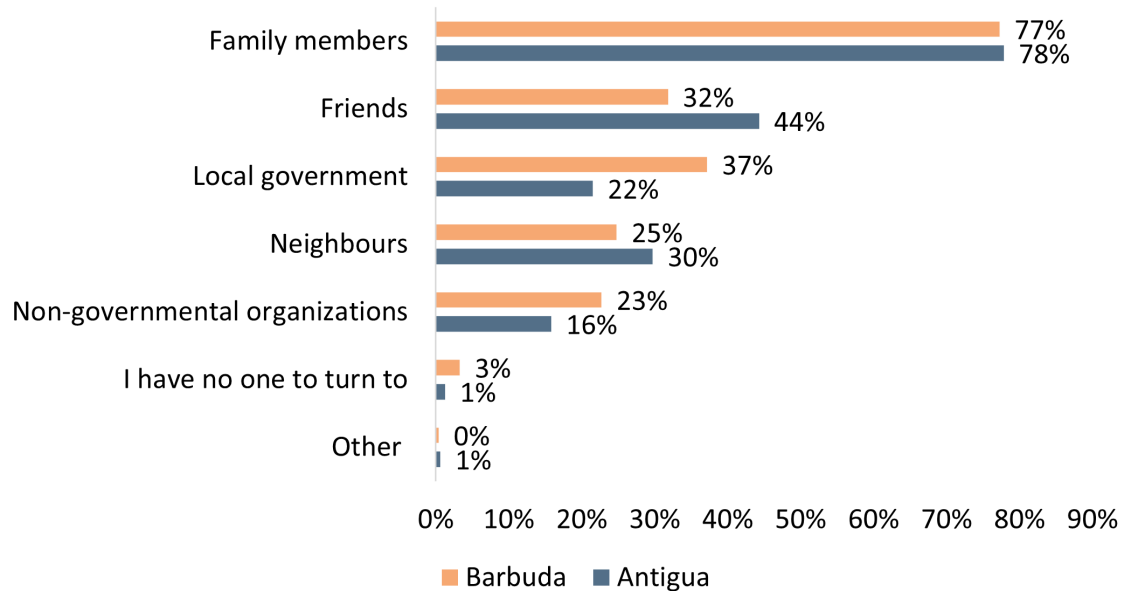


Figure 7: Weather events or phenomena resulting in damages

Respondents in Antigua and Barbuda experience significant emotional distress as a result of climate change impacts. Emotional well-being and stress levels are the primary effects of climate change on households (55%), followed by health (37%) and access to natural resources and land (34%). About 1 in 4 respondents (24%) report that their livelihoods have been affected, particularly in Barbuda (43%). Additionally, one in ten respondents report that their safety and security have been impacted by climate change. The following graphs and explanations outline both the household and community impacts.

How has your household been affected by climate change?

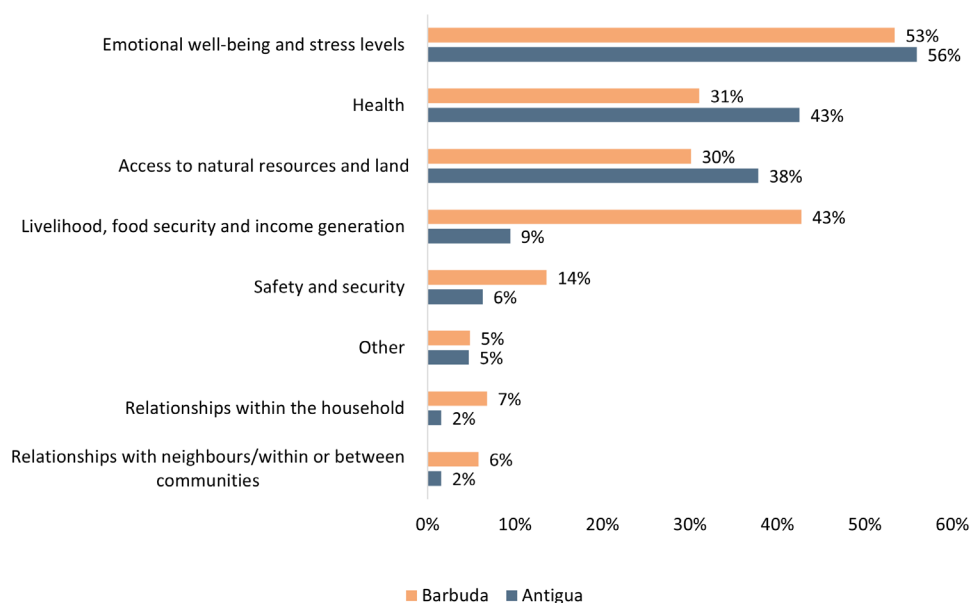


Figure 8. Climate change household effects

Social impacts

Emotional well-being is intricately linked to social relations within communities, which when strong, can help someone to adapt in a situation of emotional stress.

About 1 in 4 respondents (26%) report that climate change has had both negative and positive effects, while 10% report exclusively negative effects and another 10% report exclusively positive effects on social relations. In Antigua, the main negative effect on social relations is changes in traditional community gatherings or ceremonies (49%), followed by reduced accessibility to natural resources and land (36%), and migration or displacement leading to shifts in community demographics (32%).

Resource access strains social relations. In Barbuda, the main negative effect on social relations is reduced accessibility to natural resources and land (67%), followed by changes in traditional community gatherings or ceremonies (52%), and strained relationships due to the loss or damage of property (31%). Conflicts over access to community resources are particularly common in Barbuda, which can aggravate emotional stress within the community.

In addition to mental health, participants also underline the significant impact of climate change on physical health, particularly through air pollution and extreme weather conditions. Breathing problems, such as asthma, are exacerbated by heat, drought, and dust, especially in Barbuda. Dust was a recurring concern mentioned across focus group discussions. Heat stroke is also a health issue linked to climate change, as reported by an Antiguan participant:

*"When rain comes down and because of soil erosion that is taking place, that and the hot and cold, it is affecting me. I get sick when I get hot, hot, hot and then cold. It's hot flashes."*²⁰

In Barbuda, the increasing frequency and intensity of hurricanes over the past five to six years have been noted, with hurricanes becoming stronger and more frequent. This has had profound negative mental health impacts, with residents struggling to overcome the trauma caused by Hurricane Irma. **The uncertainty and destruction brought by these events underline the connection between emotional stress and health issues.**

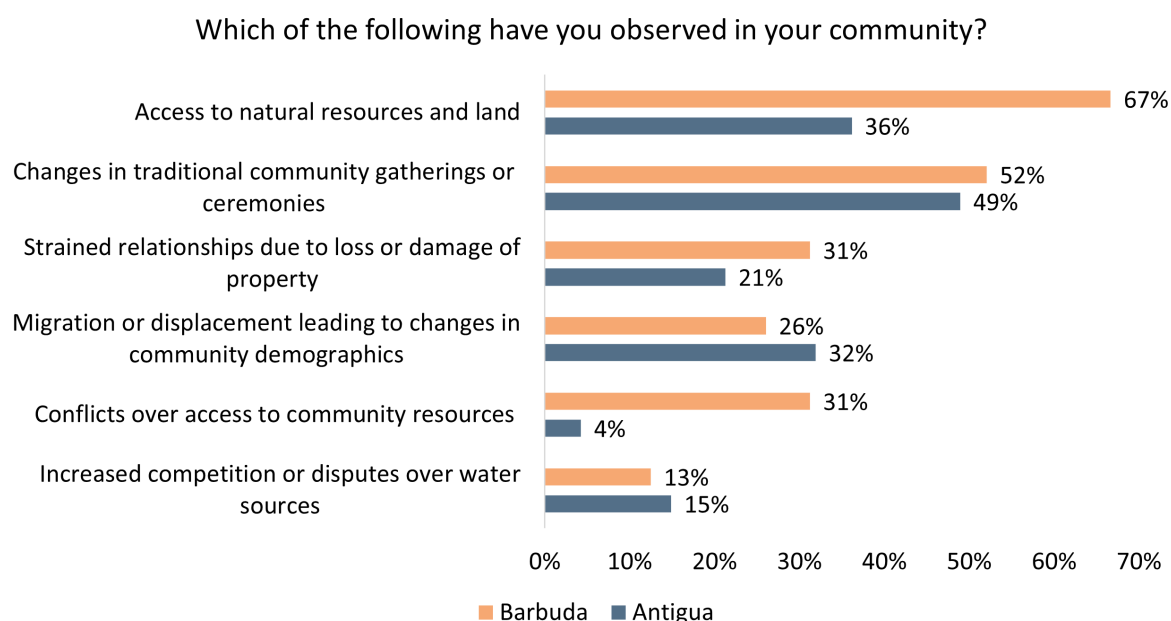


Figure 9. Which of the following negative effects have you observed in your community?

Impact on resources, land and knowledge

Climate events pose a serious threat to food and water security in Antigua and Barbuda. Hurricanes disrupt the provision of supplies to the islands, leading to shortages of essential food stocks. Respondents highlighted that,

*"Supermarkets, bakeries, maybe farming to a lesser extent, when the island is struck by a hurricane, maybe two weeks or so we can't get anything from outside. So, we have to go back to the backyard gardening, so dig up some soil and plant two spinach. We can't get rice, flour, any provision."*²¹

Farming and fishing yields are adversely affected by climate changes. Extreme heat, droughts, and unpredictable seasonal patterns impact food production and alter crop growth cycles. For instance, crops like plums now ripen simultaneously instead of in distinct seasons: "They used to say, red plum season in this time, yellow in this time well, if you notice all two plums literally come in at the same time."²²

Increased threats from plant diseases and pests during hot and rainy weather further heighten agricultural challenges.²³ In Barbuda, certain fruit trees are gradually disappearing due to heat and drought. Fishing is also heavily impacted, with rising water temperatures reducing fish numbers, forcing fishermen to travel farther distances and subsequently resulting in higher fish prices. These varied impacts create significant food insecurity threats. Additionally, climate change affects the availability of clean water, with droughts lowering underground water supply and causing salt-water intrusion into freshwater sources.²⁴

²¹ FGD20

²² FGD20

²³ FGD20, 21, 22

²⁴ FGD20

Climate change significantly hinders land access and post-disaster rebuilding.

Respondents noted the difficulty of rebuilding in Barbuda specifically, where land tenure is based on traditional (non legally binding) community- based ownership, making it nearly impossible to secure loans for reconstruction. As one key informant working in disaster response explained: *“The financial institutions would not furnish us with a loan, so we have no access to financial support because we don’t have a title deed, our land doesn’t have an institutional value.”*²⁵

This reality for many Barbudans means that the preparation and response efforts are not designed with their community practices or values in mind, thereby making the return, reintegration, and post- displacement phase so challenging. **Reconstruction efforts also often lack climate-conscious planning, with homes being rebuilt in the same vulnerable, low-lying areas.** For example, a key informant reported that: *“all the homes built by UNDP were built in the old Codrington level at the lowest point. No one who got an opportunity to build a new structure decided to move to higher ground.”*²⁶

An awareness and preparedness gap persists. This decision to not rebuild on higher, safer ground reflects a possible dissonance between the high level of experience and awareness of climate change events, and lower level of preparedness.

A key informant described this discrepancy of how awareness of climate change impacts among older generations is supposedly limited although they live with the effects of extreme heat daily. She cited that this is in part due to the language used to present the phenomenon, sharing that she heard one participant in her program remark on the misunderstanding, saying: *“When they talk about climate change I cannot connect to that because they are using highly polluted language!” Messaging is a threat if language isn’t clear.”*²⁷

This approach serves as a short-term response but fails to provide long-term sustainability, leaving inhabitants vulnerable to future climate risks and displacement.

Low-income communities are particularly affected by housing vulnerability as they are often forced to live in low-lying areas prone to flooding, simply because these are the only lands they can afford.²⁸

Additionally, **extreme heat compounds with the insufficient available infrastructure and lack of resources,** resulting in a threat to the quality of education. School buildings are not designed to handle the current temperatures, making it difficult for teachers and students to concentrate. This combination of factors highlights the ongoing challenges and vulnerabilities faced by the inhabitants of Antigua and Barbuda in adapting to the impacts of climate change.

25 KII14

26 KII14

27 KII14

28 FGD20, FGD21

The effects of climate change on traditional agricultural patterns in Antigua and Barbuda are multifaceted, impacting access to natural resources, land, and both emotional and physical health. This cyclical disruption further affects other aspects of life—loss of local knowledge impacts community health, which can in turn affect emotional well-being. The resulting heat and drought from climate change have reportedly upended the agricultural patterns farming communities usually follow. Focus group participants described how rainfall that is usually expected in the first few months of the year now arrives later, altering planting and harvesting schedules due to dry land.

This shift poses a threat not only to livelihoods and food production but also to historically prevalent practices and local knowledge. One participant shared their experience of no longer being able to rely on the validity and appropriateness of their local knowledge, passed down through generations:

*"I have a book that my father gave me, the book that farmers usually use. And just as how it outlines what you're supposed to do, what was supposed to happen, the prediction was accurate. From about 2020, everything changed."*²⁹

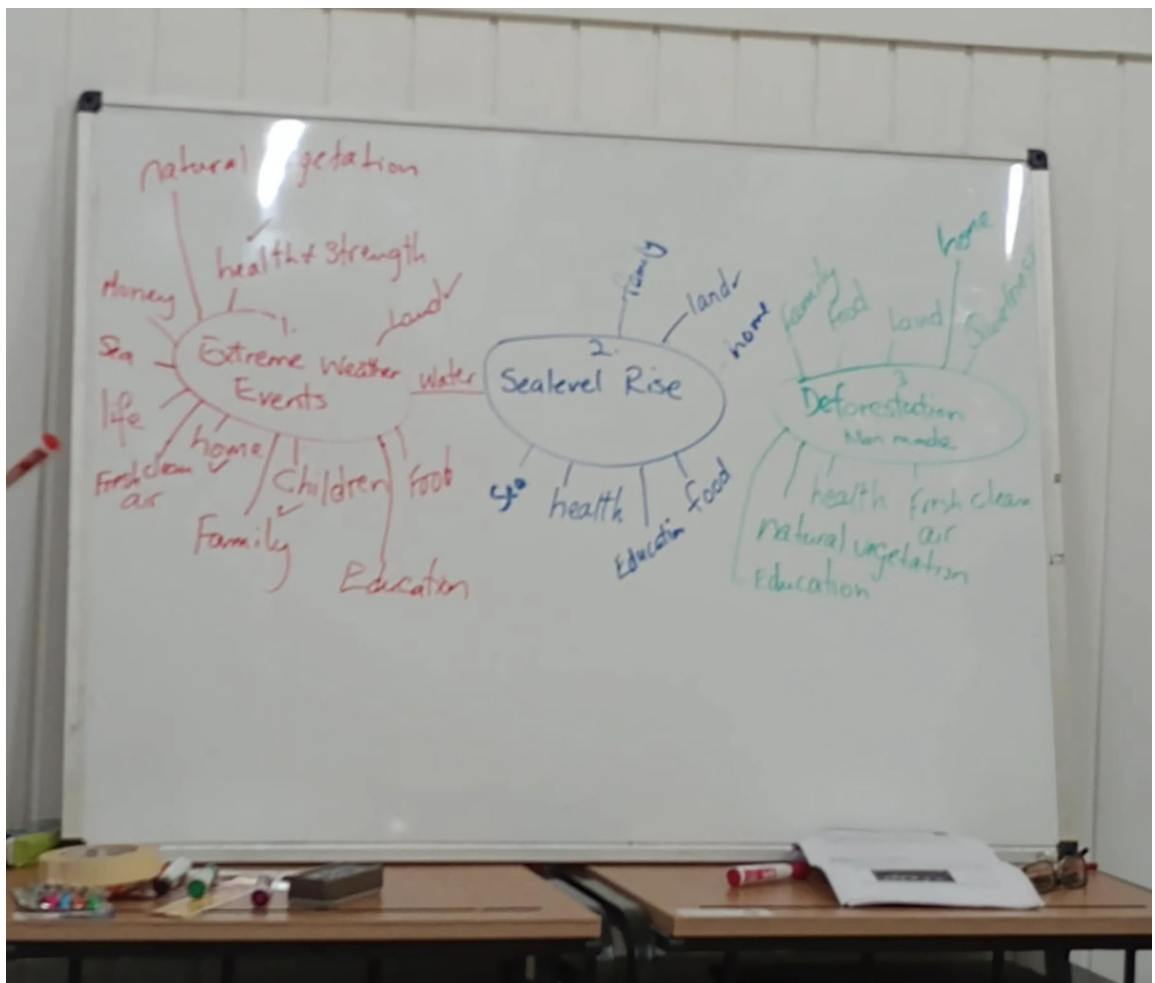


Image 5. Focus group discussion, climate impact discussion, Codrington, Barbuda. Photo credit: Charlene Harris 2024

Responses & Adaptations

Adaptations and Strategies

In response to the significant impacts of climate change, people in Antigua and Barbuda have adopted various adaptive strategies and support mechanisms at the community level. **These strategies include shifting agricultural practices, environmental conservation efforts, upgrading infrastructure, and relying on community solidarity.**

At an individual level, household preparedness varies. More than half of the households in Antigua (58%) have taken steps to prepare for or adapt to the impacts of climate change, compared to only one third (31%) in Barbuda. This discrepancy is likely due to more households in Antigua reporting direct impacts and exposure to climate change in the last five years.

Overall, there seems to be a higher distrust of community preparedness. A total of 43% of respondents don't think their community collectively takes steps to adapt or prepare for the impacts of climate change. However, the sharing of numerous examples of adaptation strategies during data collection suggest that these may be more isolated instances rather than streamlined practices among all community members. For instance, in Tomlinson (a parish in St. John's, Antigua), one participant highlighted the use of hydroponics and water catchment tanks as solutions to drought and flooding. Another participant mentioned:

“Most persons have their own water catchment or a well dug in their yard or on their farm to ensure a constant supply of water. And persons are utilising certain farming techniques like the drip irrigation system to be fruitful in the dry weather.”³⁰

For hurricanes, people reportedly use applications and warning systems on their phones.

Early warning systems are designed to enhance awareness and prepare communities for responding to climate disasters. Despite only 2 out of 5 respondents believing their community collectively takes steps to adapt or prepare for climate change impacts, **there is a clear need for increased awareness, coordination, and capacity for community adaptation planning.** One participant underscored this by saying,

“If we are not aware of all these things, climate change and how it affects us and all these things then we don’t know how to adapt to it. So, we need to have more consultations. Town Hall meetings; we need to have public announcements and all these things so people become aware of what is happening.”³¹

Community support prevails in emergencies. Despite the distrust in community preparedness, most respondents still turn to close community members, like family (78%) and friends (37%), in times of emergencies. Only about a third would turn to their local government, with Barbudans more likely to do so at 37% compared to 22% in Antigua, a possible result of a small population in Barbuda and limited alternative resources besides the government.

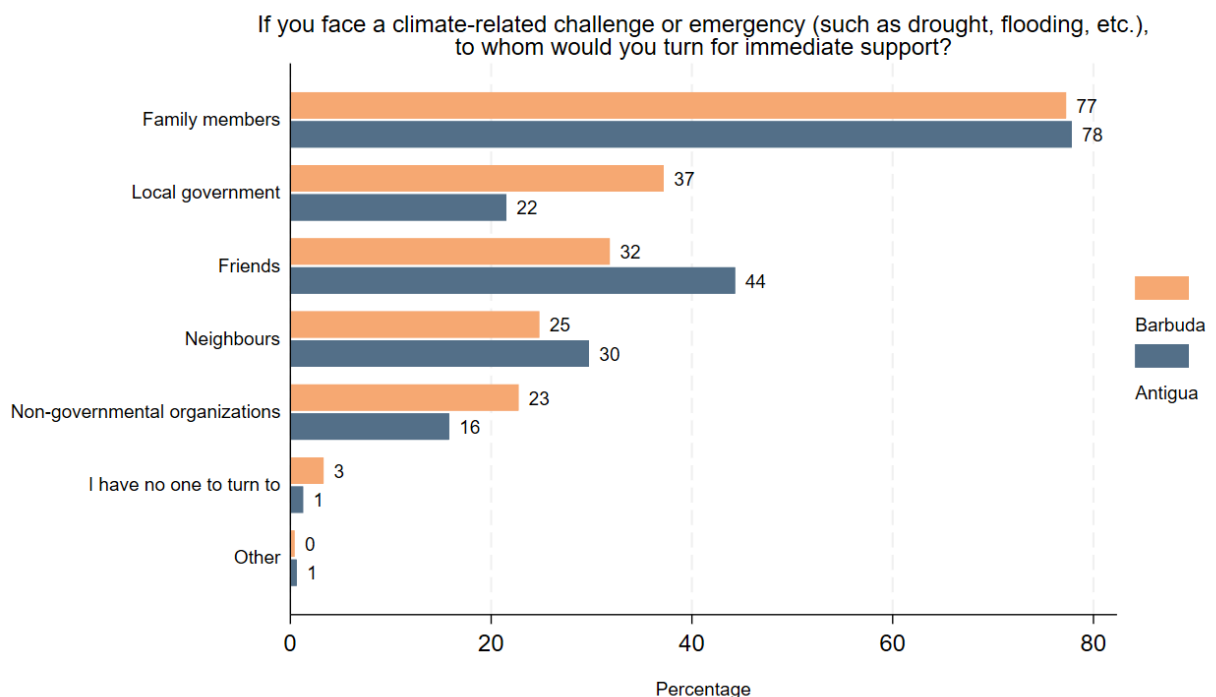


Figure 10. Support mechanisms

30 FGD22

31 FGD21

Community solidarity also plays a role in infrastructure adaptations, needing to make rebuilding efforts available for all community members. Data collection revealed that the process of awareness and preparedness needs to include disabled people and other vulnerable groups. One participant explained: *“When you look at shelters used during hurricanes, most of them are not accessible to persons with disabilities and even though we have talked about it, they don’t take us seriously.”*³²

Participants also discussed the need to upgrade shelters to prevent hurricane impacts, because: *“Most structures throughout the nation are not built to withstand category 5. This is because until recently we never had a category 5, so our building codes say build to category 3 or maximum category 4”*³³ To withstand these impacts, community members had suggestions like adding concrete roofs or higher foundations to counter flooding risks.

Despite the need to enhance infrastructure to withstand hurricane impacts, excessive development for the tourism industry is causing environmental harm. Some participants noted that the spread of mangroves, which increase resilience, has been *“nullified by harmful developments that have converted wetlands to golf courses and residences.”*³⁴ There was a discussion about shifting the tourism industry towards eco-friendly practices to adapt and potentially benefit from sea level rise. This approach recognizes the benefits of wetlands in increasing marine resources, wildlife, and biodiversity, and providing shoreline protection.

One participant summarised the need for environmental conservation efforts:

*“Our adaptive strategies such as engaging in EcoTourism can make climate change work for us in Barbuda if we choose the pathway to sustainable development activities that preserve rather than destroy our natural resources.”*³⁵

Mobility as an adaptation?

As both field research and literature confirm, **the frequency and intensity of storm events in Antigua & Barbuda are expected to increase over time, leading to more instances of displacement.** The Internal Displacement Monitoring Centre (IDMC) estimates that over 3,300 individuals are at risk of displacement annually due to sudden-onset hazards.³⁶

These movements are primarily internal. Fieldwork findings from this data collection encountered more past experiences of temporary displacement due to major storms, rather than permanent. For instance, Hurricane Irma in 2017 led to the displacement of most Barbudan residents to Antigua, due to 95% damage to infrastructure. However, a key informant explained that most displaced people viewed this as a temporary solution and did not see a need to move permanently, as the majority wanted and were able to return to Barbuda.

³² FGD21

³³ KII13

³⁴ FGD22

³⁵ FGD22

³⁶ IOM (2021), Migration, Environment, Disaster and Climate Change Data in the Eastern Caribbean: Antigua and Barbuda Country Analysis.

In Barbuda, temporary displacement is framed as ‘emigration’ rather than inbound migration. This type of migration is primarily driven by economic factors. An informant described this mobility pattern:

“They have migrated for economic reasons because there is a construction and development boom on the island. They are coming from the globe, right across the region, from the Bahamas, the BVIs, UVIs, OEC islands, Belize, and this is the first time the community would have seen such a multicultural movement coming to Barbuda- so that is regional and then that is international movement, from the US, from the UK and Australia, and from Mexico as well.”³⁷

Involuntary and voluntary immobility

For those who remain in place, whether by choice or necessity, disaster response workers perceive this as a coping strategy rather than an adaptation.³⁸ Despite a moderate to high individual capacity to adapt—based on factors like stable income, housing, essential resources, and climate change awareness (as indicated in a previous section)—many still do not consider or feel able to move.

A key informant explained that local resources are insufficient to support mobility, leading to increased dependence on external support and community systems. Given the perceived capacity of individual households, combined with the high level of distrust in community capacity, the insufficiency of resources likely refers to inadequate information from the government and the absence of tailored rebuilding efforts.

This lack of local planning and resources appear to inhibit the desire and capacity to move. While current living conditions are stable, climate change poses a significant future threat. A key informant noted,

“[Climate change] is not affecting our present living conditions, but it is a threat. As a community, we don’t have access to move ourselves out of the threatening zone, even if we understood that we need to.”³⁹

There is a distinction between resources provided immediately after a climate disaster and those for long-term adaptation. High-level decision-makers typically support storm-affected communities promptly in emergencies. However, long-term impacts of climate change, such as temperature rise and sea level rise, are rarely considered in resource allocation, according to fieldwork participants. Key informants reported that this undermines the sustainability of (potential) responses and reduces community adaptation capacity. After Hurricane Irma, agencies like NODS (Antigua & Barbuda government mandated disaster response organisation), Samaritan Pulse, and UNDP provided initial assistance, but their support was cut after a few years, leaving the community without resources to return to normalcy. This pattern reflects a reliance on aid and a lack of community-centric rebuilding efforts.

³⁷ KII14

³⁸ KII14

³⁹ KII14

The most significant example of inadequate response efforts is the failure to account for Barbuda's community land ownership structure. Without legal property ownership, residents cannot apply for loans to finance storm-resistant constructions or replace damaged homes on higher grounds. This failure to develop a community-focused rebuilding plan makes mobility impossible for most Barbudans, who were displaced to Antigua and needed to rebuild upon their return.



Image 6. Focus group discussion, asset mapping activity, St. John's, Antigua. Photo credit: Charlene Harris 2024

Looking Ahead: Decision- making

Factors Influencing Decision-making

The decision to stay and cope, or move and adapt, is shaped by factors like economic stability, livelihood opportunities, and past migration experience. Other influences include connections to home, community, government support, and climate change impacts:

- **Economic Stability:** A resounding majority, 9 out of 10 respondents, feel secure that they can continue engaging in their primary activities (income-generating or not) for as long as they are able, while 8% do not. This suggests an inclination to stay based on the sustainability of their livelihoods.
- **Connections to home:** People's attachment to home is a significant driver of staying and returning. With such a small population (1,630), Barbuda is a close-knit community: *"Barbudans are very tied to Barbuda, desire to be home was why they wanted to move back. A desire to rebuild their home and be back home."*⁴⁰ The ability to return is seen as an exercise of freedom, evidenced by 56% of Barbudans wanting to remain because of stronger ties to home and possibly that sense of freedom to live where they choose, compared to 41% of Antiguans.

- **Community influence:** Attachment to place appears stronger than attachment to community, as 74% of respondents said they would not consider moving if their neighbours started to move. This varied by island slightly for those who said they would move (16%), with 1 out of 4 respondents in Antigua indicating they would move if neighbours did. These numbers align with the earlier finding that half of the total respondents had no desire to move.
- **Past migration experience:** Regarding past migration, most people who had migrated did not factor in climate when moving (80%), particularly in Antigua (92%). However, those who did consider climate cited an increase in extreme weather events (such as flooding and hurricanes) as the primary reason, followed by sea level rise and health concerns, illustrated by Figure 11.

Which climate-related factors would make you consider moving?

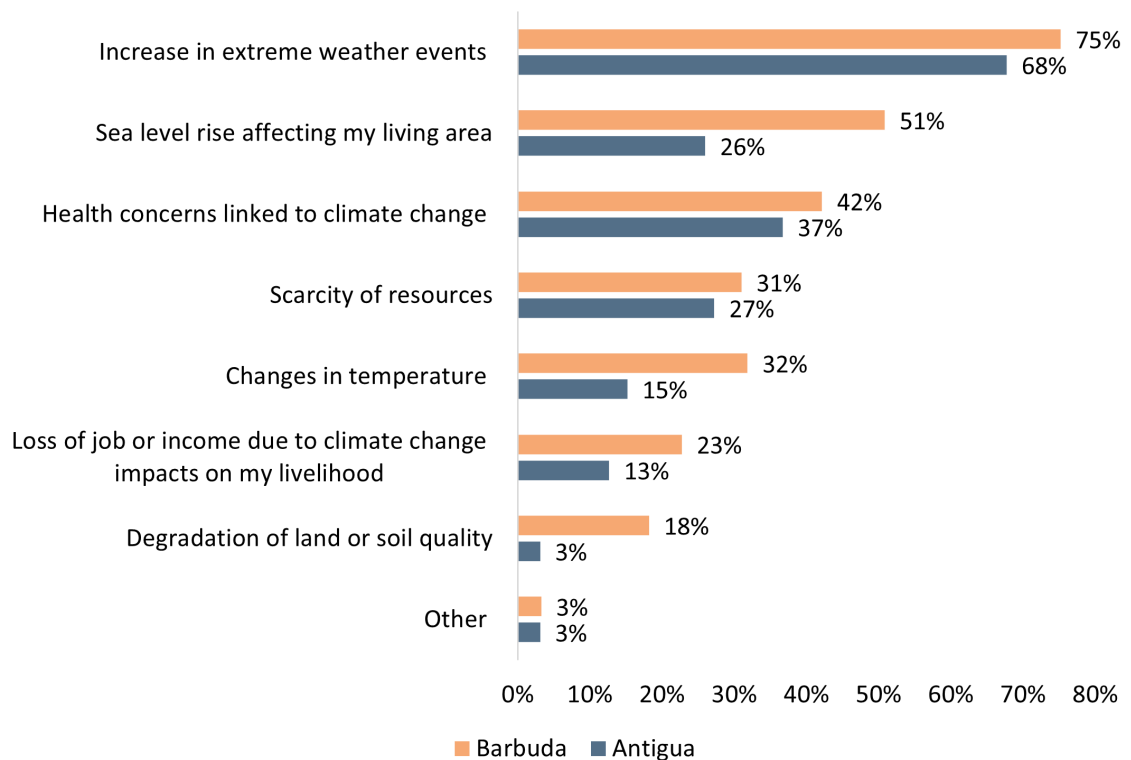


Figure 11. Climate-related mobility factors

- **Perception of conditions:** Attachment to place is further reinforced by the fact that the majority don't have a desire or plans to move, despite many believing they would find better or similar conditions if they moved: 44% saying they would find better conditions and 41% saying conditions would be similar. Men were more optimistic about finding better conditions than women, possibly due to differing measurements of what constitutes better conditions.

- **Government support:** In line with the previously mentioned lack of resources and information from the government, more than half of respondents (53%) report that local authorities do not provide enough support, and 23% are unaware of any support provided, totalling 76% of respondents who do not feel or are unaware of government support. The low percentage (5%) who do feel supported reflects qualitative interviews revealing a lack of confidence in response efforts and community capacity. This likely also influences people's preference to stay, as they do not feel informed about or capable of pursuing mobility options.
- **Climate change impacts:** While current living conditions are stable, climate change poses a significant future threat. A key informant noted,

*"[Climate change] is not affecting our present living conditions, but it is a threat. As a community, we don't have access to move ourselves out of the threatening zone, even if we understood that we need to."*⁴¹

Climate and mobility decision-making nexus

Despite past displacement and climate threats, strong ties remain to peoples' current residence in Antigua and Barbuda. This is evident in that the majority of respondents (57%) have no desire or plans to move, particularly in Barbuda (63%), and supported by similar findings in qualitative discussion. This sentiment is echoed at the household level, with 56% in Barbuda and 41% in Antigua expressing a desire to stay put. Notably, more host respondents (48%) had no desire to move compared to migrant households (38%), possibly due to their past migration experiences.

However, a smaller but significant proportion of respondents are considering moving: 14% are considering but feel unable to, and 12% are considering but are able to move. **Only 1% feel forced to move without the desire to do so, indicating that the majority of those considering moving view it as a voluntary decision.**

Strong connections to home prevail. Among those considering relocation, 36% of Barbudans would move to a different neighbourhood or village within their area, while 28% of Antiguan would move to another country. Additionally, 18% of respondents, particularly 25% in Antigua, would move to a different area within the country. About 17% of migrant respondents would return to their previous place or country of residence. These figures highlight strong ties to home, as many would choose to move within their country or return to their origin.

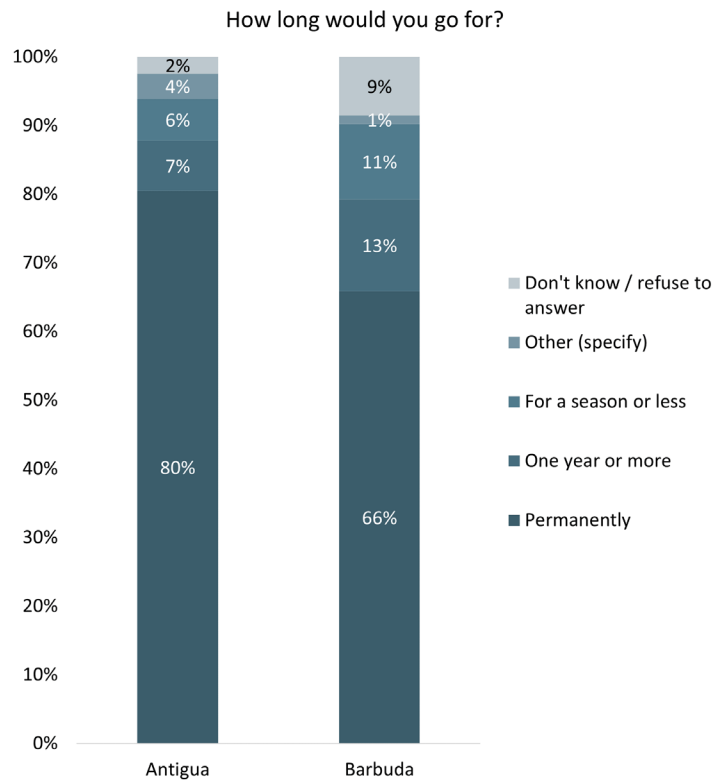


Figure 12. Mobility Duration

Relocation decisions involve significant commitment. The effort and resources needed for such moves are significant, as most respondents considering relocation view it as a permanent decision. In terms of potential future migration, climate change influences the decision-making of about a third of respondents (34%), with 5% citing it as the main reason—higher than the regional average.

Climate change does not alone drive decisions. Conversely, 27% have not considered climate change in their decision, and 37% report it does not influence their decision at all. This total of 64% indicates that while climate change is a factor for some, it is not the primary driver for most respondents. There remains room for improvement in raising awareness and understanding of the interconnectedness of climate and other factors affecting their living conditions and community dynamics.

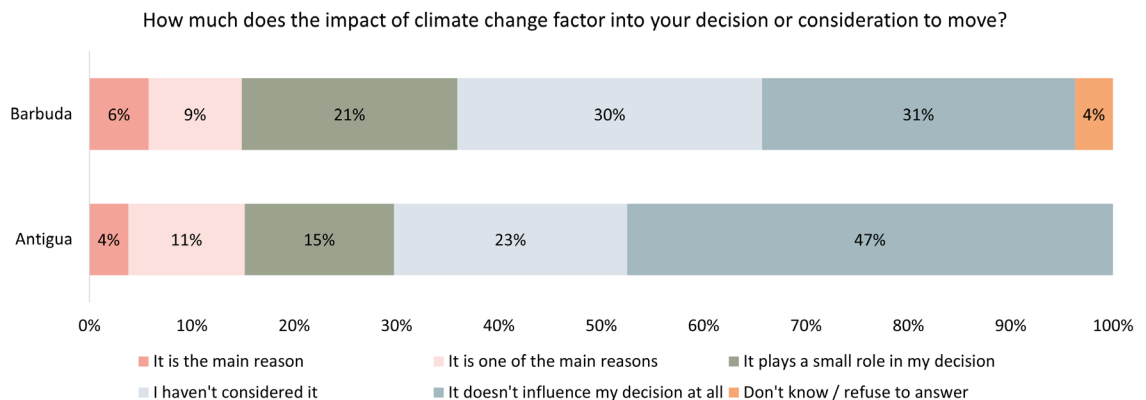



Figure 13. Climate mobility decision making



Conclusions: Findings on Climate Mobility

As one of the smallest countries in the Greater Caribbean, it is no question that Antigua and Barbuda is ranked as the fourth most vulnerable country to climate change impacts, and faces increasing risks from hurricanes, flooding, and droughts.

These climate events have intensified in both frequency and severity, leading to significant economic losses, and most relevantly, patterns of displacement— at one point within the last decade displacing an entire island. The islands' vulnerability is heightened by the erosion of natural barriers like reefs, sandbars and mangroves, heightening exposure to rising sea levels and storm surges, which threaten coastal communities and key economic sectors such as tourism and agriculture.

In addition to economic sectors, data collection revealed that the threats to maintaining agricultural practices, food and water security, and being able to remain on their land is also damaging to the emotional well being and community-centric values of these small islands.

In Antigua and Barbuda, despite facing increasing climate change threats such as extreme weather events and sea level rise, the majority of residents (57%) have no plans to migrate. Economic stability, strong connections to home, and community cohesion outweigh immediate climate concerns, indicating that local factors heavily influence migration decisions over environmental risks. This conclusion is supported by the following key findings:

- Despite facing climate change impacts, including the potential need for relocation, only a small percentage of respondents have concrete plans to move, with some considering relocation but unable to do so. However, a significant majority perceive their household income as stable and themselves as living comfortably, indicating a baseline of economic security that could support adaptive measures in the face of environmental challenges.
- In response to climate change impacts, residents of Antigua and Barbuda have implemented diverse adaptive strategies, including hydroponics, water catchment systems, and enhanced community infrastructure. Despite significant awareness of climate change (96%), only about 43% of respondents believe their community adequately prepares for climate impacts. Community solidarity plays a crucial role, with residents relying more on family and friends during emergencies than on local government resources.
- Mobility is primarily seen as a coping strategy rather than a long-term adaptation to climate change impacts. Despite increased risks of displacement due to rising storm intensity and frequency, most movements are temporary and internally within the islands, such as Barbudans relocating to Antigua after Hurricane Irma.
- The ability to permanently relocate is hindered by inadequate local planning and resources, including difficulty in accessing land to rebuild on because of response efforts not being tailored to the communities' traditional land ownership practices, limiting access to financial support and perpetuating vulnerability to future climate risks. As a result, mobility remains constrained and reliant on external aid, rather than being a comprehensive adaptation to climate change threats.
- Climate change is a significant consideration for a third of respondents in Antigua and Barbuda when making migration decisions. However, only a small number cite climate change as the primary reason for considering relocation, highlighting that while it influences some decisions, other factors such as economic stability and attachment to home play more dominant roles in migration choices.

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image 7: Sunset in neighborhood surveyed in Codrington, Barbuda. Photo credit: Charlene Harris 2024

About Us

Samuel Hall is a social enterprise specialising in research, program evaluation, and data analysis in migration and displacement contexts. Since 2010, we've focused on understanding the disproportionate impacts of climate change on vulnerable communities. Our work across Africa, South, and Central Asia shows that real change often begins at the grassroots level, where local activists, migrants, and displaced people lead constructive dialogues and actions.

The Greater Caribbean Climate Mobility Initiative (GCCMI) is a joint undertaking coordinated by the Global Centre for Climate Mobility and the Association of Caribbean States, bringing together 25 countries, amongst them numerous Small Island Developing States, whose people are most at risk from the impacts of sea level rise and other climate related stressors. The initiative's partners include the World Bank, the UN Development Programme, the UN Office for Disaster Risk Reduction, the UN Framework Convention on Climate Change and the International Organization for Migration (IOM).