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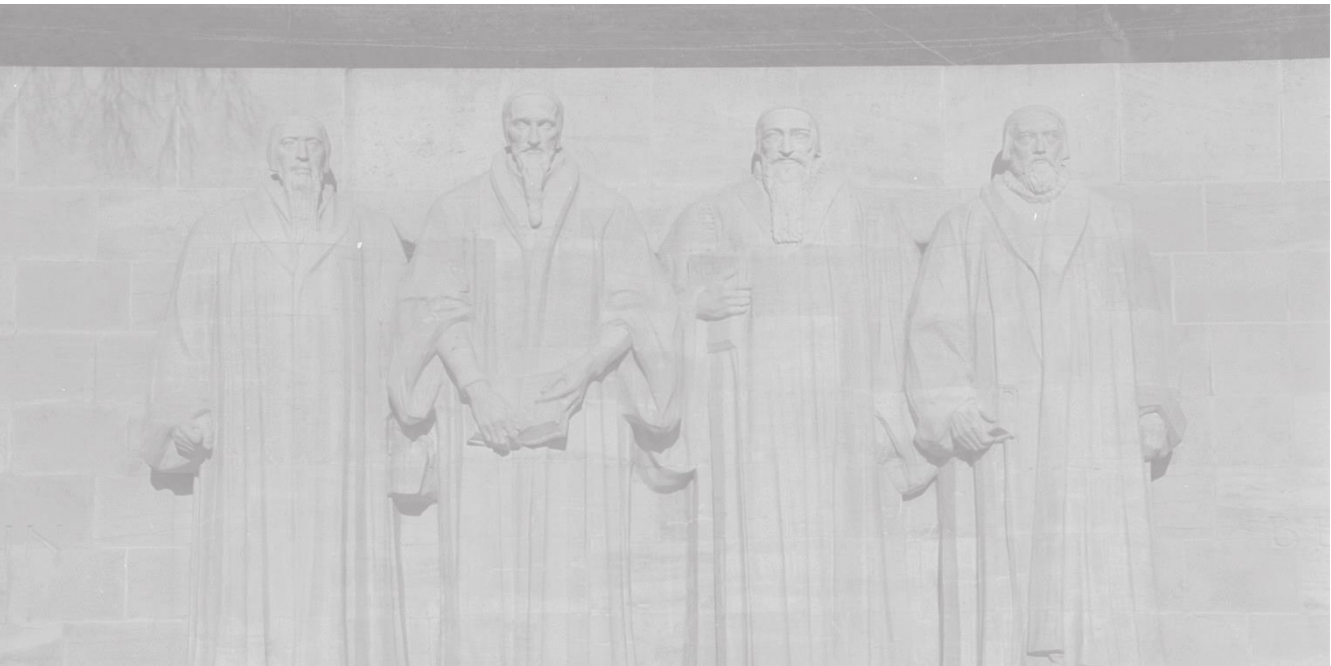
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Insular Community Resilience :

a geography of social exclusion and hurricane displacement in Barbuda (2017-2021)

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in Barbuda (2017-2021)

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John Marazita III

Thèse – 25 novembre 2022

Abstract : Devastating hurricanes frequently hit the small island states of the Eastern Caribbean. In 2017 alone, three hurricanes cumulatively displaced an estimated three million people. In some islands, tourism revenue or access to insurance provide the financial capacity to rebuild quickly in the aftermath of a storm, build up the infrastructure to mitigate further events and protect people and livelihoods. In other places, the same financial safeguards do not exist. However, less is understood from these fringes of the market economy, the rural island cultural processes, whether during early warning, displacement or the eventual reconstruction. This dissertation examines a case study of sparsely populated and undeveloped Barbuda, the smaller sister island in the twin-island state of Antigua & Barbuda, four years after Barbudans were completely displaced by Hurricane Irma while questioning: How is resilience negotiated in hurricane-prone islands? Using an ethnographic approach relying on expert and survivor episodic interviews triangulated through participant observations and stakeholder social media posts, a localized resilience framework will be constructed, demonstrating that resilience embedded in displacement processes is negotiated.

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La Faculté des sciences de la société, sur préavis du jury, a autorisé l'impression de la présente thèse, sans entendre, par-là, émettre aucune opinion sur les propositions qui s'y trouvent énoncées et qui n'engagent que la responsabilité de leur auteur.

Genève, le 25 novembre 2022

Prof. Pascal SCIARINI

Le doyen

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Terms

Barbudan: Persons either born in Barbuda and with at least one grandparent born in Barbuda or born outside of Barbuda with at least one parent born in Barbuda (Barbuda Land Act, 2007).

Collective shelter: Either newly-erected sites (camps) or pre-existing buildings used as collective, non-permanent accommodations for displaced persons (IASC, 2010).

Disaster: The disruption of society at any scale due to: “hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts” (UNDRR, no date).

Disaster management: the collective group of government agencies, international organizations and stakeholders working together to manage any aspect of an emergency (IASC, 2010).

Disaster risk reduction: Prevention of new and reduction of “existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development” (UNDRR, no date).

Durable solutions: The point at which displaced persons no longer require displacement-related assistance or protection (IASC, 2010).

Evacuation: The, either forced or facilitated, transfer of survivors aimed at ensuring security, safety and well-being (IASC, 2010).

Hazard: “The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources” (IPCC, 2014).

Hurricane: Cyclonic storms in the Caribbean Sea, Gulf of Mexico, North Atlantic Ocean or North Pacific Ocean that reach maximum sustained winds exceeding 119km/h (NOAA, 2021b).

King tide: A non-scientific term used to describe abnormally high tides, often the highest tide in a lunar cycle or higher than normal seasonal tides (US Department of Commerce, 2021).

Preparedness: “The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters” (UNDRR, no date).

Resilience: “The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management” (UNDRR, no date).

Traditional knowledge: “Knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation” (UNESCO, 2007).

Abbreviations

ABLP – Antigua & Barbuda Labour Party
ABRC – Antigua & Barbuda Red Cross
ABST – Antigua & Barbuda Sales Tax
BPM – Barbudan People’s Movement
BVI – British Virgin Islands
CARICOM – The Caribbean Community
CDB – Caribbean Development Bank
CDEMA – Caribbean Disaster Emergency Management Agency
CDERA – Caribbean Disaster Emergency Response Agency
CMO – Caribbean Meteorological Organisation
CNMI – Confederation of the Northern Mariana Islands
Col. – Colonel
DTM – Displacement Tracking Matrix
ECD – Eastern Caribbean Dollar
EU – European Union
GOES – Geostationary Operating Environmental Satellite
IASC – Inter-agency Standing Committee
ICRC – International Committee of the Red Cross
IDMC – Internal Displacement Monitoring Centre
IOM – International Organization for Migration
LGBTQI+ – Lesbian, gay, bisexual, transgender, queer, intersex, and more
LT – Lieutenant
NASA – National Aeronautics and Space Administration
NODS – National Office of Disaster Services (Antigua & Barbuda)
OECS – Organisation of Eastern Caribbean States
PAHO – Pan American Health Organization
PDD – Platform on Disaster Displacement
SDG – Sustainable Development Goal
UK – United Kingdom
UN – United Nations
UNDP – United Nations Development Programme
UNDRR – United Nations Office for Disaster Risk Reduction
UNFCCC – United Nations Framework Convention on Climate Change
UNICEF – United Nations Children’s Fund
UPP – United Progressive Party
US – United States
WASH – Water, Sanitation, and Hygiene
WHO – World Health Organization
WMO – World Meteorological Organization

Résumé

Des ouragans dévastateurs frappent fréquemment les petits États insulaires des Caraïbes orientales. Rien qu'en 2017, trois ouragans ont déplacé cumulativement environ trois millions de personnes. Dans certaines îles, les revenus du tourisme ou l'accès aux assurances offrent la capacité financière de reconstruire rapidement après une tempête, de mettre en place les infrastructures nécessaires pour atténuer d'autres événements et de protéger les personnes et les moyens de subsistance. Dans d'autres endroits, les mêmes protections financières n'existent pas. On sait peu de choses sur les îles rurales en marge de l'économie de marché lorsqu'elles sont confrontées à des ouragans anormalement forts, que ce soit lors de l'alerte précoce, du déplacement ou de l'éventuelle reconstruction. Cette dissertation présente une étude de cas sur Barbuda, l'île sœur la plus petite de l'État jumeau d'Antigua et Barbuda, peu peuplée et non développée. Contrairement aux îles voisines, Barbuda n'a pas d'industrie touristique à grande échelle, les ménages dépendant des moyens de subsistance locaux, de l'emploi par le conseil local de Barbuda et des relations diasporiques.

En 2017, l'ouragan Irma de catégorie 5 a touché terre sur l'île, causant des dommages à 95 % des habitations. Alors qu'un deuxième ouragan se profilait à proximité, le gouvernement de l'État a ordonné l'évacuation immédiate des 1600 résidents de l'île avec déplacement obligatoire vers Antigua, devenant ainsi l'une des rares îles à être entièrement déplacée par un risque naturel. Bien que l'état d'urgence ait été levé deux mois plus tard, l'absence de services de base a entraîné le déplacement prolongé de nombreux Barbudiens. Dans les années qui ont suivi, la reconstruction a dépendu de la volonté des partenaires donateurs et des dirigeants de l'État et s'est heurtée à des obstacles logistiques et pandémiques. En conséquence, Barbuda peine à se reconstruire quatre ans plus tard, et des solutions durables prolongées restent insaisissables pour certains des quelque 1 200 Barbudais qui rentrent chez eux. Cette étude de cas se concentre sur cette perspective longitudinale de quatre ans de préparation, d'évacuation, de déplacement et de solutions durables potentielles à travers une lentille de résilience et pose la question suivante: Dans quelle mesure les barrières sociales empêchent-elles les survivants d'accéder à des solutions durables ? À l'aide d'une approche ethnographique reposant sur des entretiens épisodiques avec des experts et des survivants, triangulés par des observations des participants et des messages des médias sociaux des parties prenantes, la dissertation reconstruit le récit longitudinal, construit un cadre de résilience empirique et encadre le processus communautaire de négociation de la résilience dans un paysage culturel post-catastrophe. À travers ce paysage inégal, les résultats clés ont révélé des disparités dans l'accès à l'assistance post-ouragan qui ont entravé non seulement les Barbudiens vulnérables, y compris les personnes âgées, les handicapés et les ménages sans réseau de parenté utilisable, mais aussi les jeunes à des étapes transitoires de leur vie où les moyens de subsistance et l'indépendance ont été interrompus, dont beaucoup

sont tombés en dehors de l'assistance établie et font face à l'incertitude. La résilience du paysage culturel post-Irma n'a donc pas été universelle et, à mesure que les saisons des ouragans passent, le risque de nouvelles interruptions et de déplacements aggravés persiste.

Abstract

Devastating hurricanes frequently hit the small island states of the Eastern Caribbean. In 2017 alone, three hurricanes cumulatively displaced an estimated three million people. In some islands, tourism revenue or access to insurance provide the financial capacity to rebuild quickly in the aftermath of a storm, build up the infrastructure to mitigate further events and protect people and livelihoods. In other places, the same financial safeguards do not exist. However, less is understood from these fringes of the market economy, the rural island cultural processes, whether during early warning, displacement or the eventual reconstruction. This dissertation examines a case study of sparsely populated and undeveloped Barbuda, the smaller sister island in the twin-island state of Antigua & Barbuda, four years after Barbudans were completely displaced by Hurricane Irma while questioning: How is resilience negotiated in hurricane-prone islands? Using an ethnographic approach relying on expert and survivor episodic interviews triangulated through participant observations and stakeholder social media posts, a localized resilience framework will be constructed, demonstrating that resilience embedded in displacement processes is negotiated.

"A hurricane is the most dangerous and destructive of all storms on the earth. It does not cover nearly as large an area as the ordinary storms that make our week-to-week weather, nor can it match the concentrated fury of a tornado, but it combines violence and sweep to spread devastation over a huge path." RH Simpson, 1954.

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I. Introduction

Since early adulthood, I have been drawn to islands, whether for work or pleasure, an imagined tropical paradise with sandy beaches, fresh fruit, and ukuleles. A migrant in Switzerland, my first close friends, upon arrival, came from Kiribati, a central Pacific atoll nation. Growing closer to them over the years, I came to appreciate their construct of the world, their culture, which seemed outside of my plane of thinking and challenged my perceptions which, like many, saw the world as something akin to nurture vs nature. After travelling to Kiribati for masters-level fieldwork, I found myself morphing into a constructivist, viewing all knowledge as constructed and mediated, a construction that, in the most interesting of cases such as Kiribati, seemed unreconcilable with my Eurocentric background.

As I began to appreciate these ontological nuances, my exoticised view of island (paradise) culture transformed into a sphere of personal growth. Constructivism thinking allowed me to see small island communities and households through a very different role flipping my position as an expert, based on years of education and professional background, to schoolboy intently listening and trying to grasp the remedial parameters of knowledge constructed in a context of remote and cut-off living. With new tools for observing the world, there was ultimately self-reflection and questioning of dominant and uncontested Eurocentric truths. Alternate island realities confronted conventions that I had not realised were assumptions and forced me to question even basic scholarly concepts with curiosity, allowing me to explore other truths on broadly accepted conceptualisations such as the environment, climate change, livelihoods, gender, and sexuality. Islands, I have found, that are remote and cut off from market economy normalcy remain a utopia for constructivist researchers longing to subjectively challenge our societal assumptions.

This dissertation is thus an exercise at the nexus of constructivism and island ontologies within a scholastic space of hurricane and disaster studies, longing to record alternate realities. From its inception, it aimed to look beyond the Eurocentric experience at a relationship between remote island communities and the resilience to internal stresses. One stress shared by most islands located in the tropics is the mediation of natural hazards increasing in line with climate predictions, leading the topic of insular disaster displacement to trend among academia and policymakers. I chose, early on, to focus this dissertation on tropical cyclones where the stress was distinctive, short-term and definable, and in which the displacement had a singular driver and was not impossible to observe. Although I have more experience in the Pacific islands, the study was limited to the Caribbean region due to ongoing restrictions from the pandemic.

The annual (Caribbean) hurricane season is well publicised throughout the US due to trajectories across the US eastern seaboard. My earliest recollection of hurricanes came from US news outlets when I distinctly remember sitting in my family's living room as nonstop coverage of Hurricane Andrew warned of catastrophic threats to Florida. I remember seeing images of the endless lines of cars on the freeway, the violent thrashing of palm branches, and the areal views of widespread damage. We now know that Hurricane Andrew caused extensive damage, destroyed homes, and led to casualties. At the age of seven, however, hurricanes were a distant hazard reserved for the tropics that I only knew through the viewpoint of an armchair observer. My shortsighted perception of disasters was that impacts were short-term, no matter how severe. Florida was merely Disneyworld, and Disneyworld would reopen tomorrow. This assumption may have primarily formed based on experiences from the highly localised nature of tornados in the US Midwest.

It was not until early 2018 that this perception became contested when I personally observed hurricane impacts for the first time in Puerto Rico. I travelled with two of my closest friends to the US territory decimated by Hurricane Maria seven months earlier. Although much of the vital urban infrastructure was rebuilt by the time we arrived, we encountered pockets of destruction in the island's hilly interior, where homes stood damaged beyond repair, and electricity had not yet

been restored. As we parted ways in Old San Juan, my friends returned to the US, and I continued to St. Thomas in the US Virgin Islands (USVI) with the intent of island hopping and relaxing on idyllic Caribbean beaches. On my second day in St. Thomas, I woke up early, aiming to make a day trip to Tortola in the British Virgin Islands. Arriving at the dock in Charlotte Amalie, however, I quickly realised there were no boats, and an attendant outside of the wharf explained that schedules had been impacted due to the hurricane.

Following the advice of a taxi driver, I ventured to the Red Hook pier on the eastern side of the island to catch a ferry to Cruz Bay, where connections to Tortola via St. John were still running. As the ferry pattered out of the harbour, I took my first glimpse of damaged sailboats littering the storm-ravaged beaches. As the ferry sped toward Cruz Bay, I noticed a well-dressed North American expat moving quickly between passengers with a discrete box of costume jewellery. I could not help but eavesdrop on her conversation with another passenger as she recounted having lived her dream of sailing into retirement only to lose everything when her boat sunk during the hurricane. As I continued my trip east into the British Virgin Islands, I was not prepared for the damage I was about to witness. While the damage I had observed in Puerto Rico and St. Thomas was minimal, the British Virgin Islands seemed more like a warzone. Seven months after being struck by Hurricane Irma, buildings were heavily damaged, cars were left overturned, and provisional services were operating from tented headquarters. Could this really be British territory? I spent less than a day on Tortola, but the impact of prolonged reconstruction greatly impacted my career interest.

My second chance encounter with disaster displacement came on New Year 2019; I would unknowingly visit a second island hit by a tropical cyclone, Saipan, following Typhoon Yutu, arriving on an island still in the early stages of rebuilding and still experiencing protracted displacement. Waking up on my first morning in CNMI, I looked out my window to see palm trees left branchless by the ferocious winds. In the distance, I noticed the flotilla of US aid ships assisting in reconstruction efforts. Following the unplanned trip, my research interest pivoted more toward disaster displacement and the social process and impacts of prolonged displacement. With support from the Internal Displacement Monitoring Centre (IDMC), I travelled to the Bahamas later in 2019 on the tail of one of the Caribbean's most powerful hurricanes to date. Shortly after Hurricane Dorian devastated Abaco and Grand Bahama islands, I conducted thematic research, offering rare insight as a social scientist into short-term displacement and the social exclusion of minority Haitians and the LGBTQI+ community.

Influenced by my work in the Bahamas, I have grown ever more fascinated by climate as a driver of migration in small island states. Over a decade, scholarship has built a foundation on the climate migration nexus where an assumption that climate change, over time, is slowly eroding island livelihoods, exasperating living conditions, and contributing to out-migration (Fornalé, 2020; Piguet, 2021). As I began the journey of my doctoral studies, I aimed to isolate climate as a driver of migration and seek a case study where the choice to migrate would be rapid and observable. Thus, the focus quickly became tropical cyclones, where the natural hazard was temporarily bound, displacement immediate and

singularly in response to the natural hazard, and migration through either integration in the place of displacement or elsewhere, an expected outcome. It was hoped that by identifying climate migrants post-disaster, the barriers to returning could be deduced, offering not only an improved understanding of the process but an interdisciplinary approach to predicting climate migration.

Thus, through an interdisciplinary legal and cultural geography approach, an assumption was formulated that multilevel governance through vertical integration between local, national, regional, and international disaster management bodies and horizontal integration between government, civil society and academia lowered the risk of initial displacement through disaster risk reduction mechanisms. Additionally, as stakeholders embedded in multilevel governance sought technical and legal means to reduce risk, communities also reduced risk within their capacity through adaptation based on local knowledge and lived experience. When the combination of the multilevel governance approach and community adaptation was insufficient to cope with the extent of damages caused by the, in this case, tropical cyclones, displacement would ensue [see Figure 1].

The proposition continued that, from a legal perspective, land rights would become a limiting factor in deciding where displaced persons would seek shelter, with, for instance, receiving communities having more public property more capable of accommodating overflow from displacement. While nascent in academia at the time, popular media reports revealed narratives following Hurricane Katrina of the limited capacity to absorb overflow leading to displaced individuals often relocated thousands of kilometres away, and removed from support networks, thus putting pressure on households to integrate into the receiving community. Thus, the proposition became that highly privatised local property regimes in areas impacted by tropical cyclones would leave little room to absorb displacement overflows, resulting in displacement further afield away from social support networks and leading to integration and climate migration.

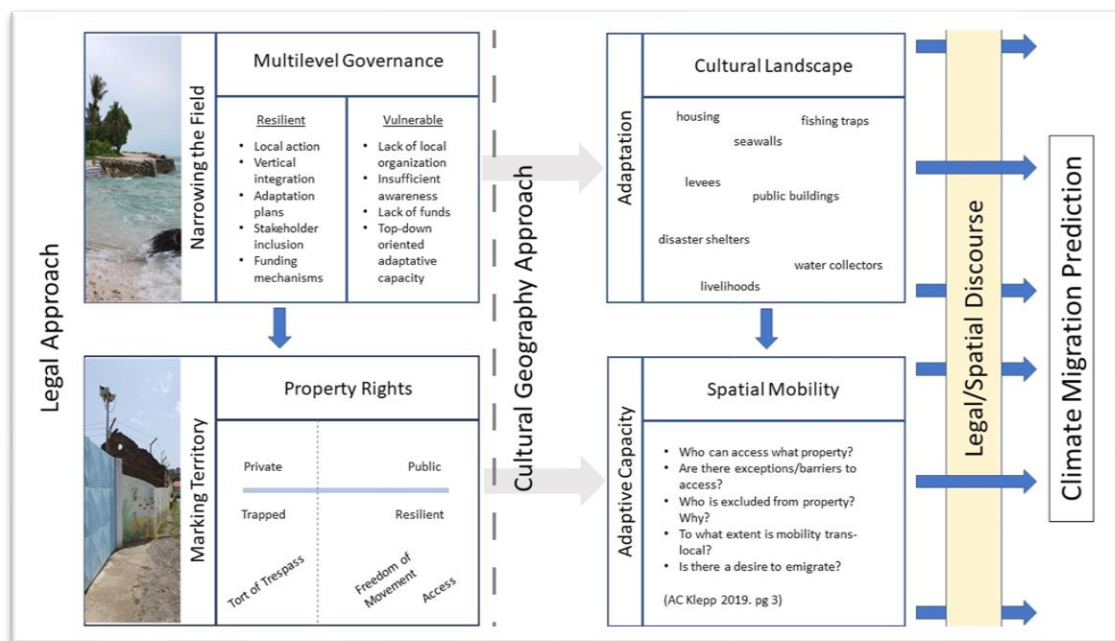


Figure 1: First proposition

An interdisciplinary study between law and cultural geography assuming that climate migration could be predicted through a combination of multilevel governance, land rights, and social negotiation.

In order to explore the proposition, the focus of the dissertation would be centred around identifying community vulnerabilities. With further reading, informal discussions with stakeholders, and chance fieldwork in the Bahamas following Hurricane Dorian in 2019 supported by IDMC, the vulnerabilities approach seemed increasingly problematic. Instead, island communities were demanding a shift in narrative from vulnerable victims to resilient fighters, and the project aim shifted to why survivors return instead of why survivors leave. This shift in focus elucidated a research question based on survivor agency: How is resilience negotiated in hurricane-prone islands? Following evolving pandemic-era border closures, the case of Barbuda following complete displacement induced by Hurricane Irma was chosen as a case study with an updated proposition that well-integrated multilevel governance and local knowledge were the basis for resilience opposing the stresses caused by hurricanes and that access to resilience required negotiations embedded in some sort of post-disaster landscape.

Resilience, a key theme for this dissertation, is broadly a reaction framed by multiple variables, whether event-dependent and localised or ontologically informed and through a disciplinary lens; depending on the field, resilience has, for instance, been further moulded to complement conceptual frameworks on vulnerability, adaptive capacity, and social adaptability within contexts in disaster

management ranging from hurricanes to slow-onset natural hazards associated with climate change (Adger, 2000; Cutter *et al.*, 2008; Aldrich, 2011; Davis and Robbin, 2015; Hofman *et al.*, 2021). Thus, conforming to a singular resilience conceptualisation, even in a narrow scope such as hurricanes, eludes scholarship and theoretical underpinnings depend greatly on temporal, spatial, and disciplinary bounds. For instance, Demiroz and Haase elaborate on three prevailing schools of thought where resilience is framed as a system's capacity to either resist, absorb, or adapt to a disturbance (Demiroz and Haase, 2018). Generally, these systems' capacities are subdivided between socio- and ecological attributes, with Adger suggesting that social resilience is rooted in a community's ability to endure external disturbances (2000). Tariq *et al.* further argue that resilience scholarship can follow either objective or subjective logic; although scholarship mostly approaches the topic through an objective/positivist lens, due to the broad field of resilience scholarship in an inherently interdisciplinary and stakeholder-driven setting, more subjective approaches where resilience is left to self-definition based around localised perceptions are consistently lacking (Tariq, Pathirage and Fernando, 2021). Cutter *et al.* (2008) further contend that variations lead to adaptive resilience, a process that impacts the overall recovery of a community.

Within social resilience, two divergent schools of thought have emerged between urban and community resilience. Practitioners of urban resilience focus mainly on metropolitan and infrastructural solutions in adapting to the risk of natural hazards and, among other things, climate change; urban resilience has been critiqued for a tendency of being exclusionary to global south perspectives (Chen and Cheng, 2020; Heinzlef *et al.*, 2022). Contrarily, community resilience has a broader application and mainly focuses on resilience in relation to social cohesion, such as the use of networks following disasters (Cutter, 2016; Robertson *et al.*, 2021). In recent years, community resilience has expanded to look at the role of traditional and indigenous knowledge (Hiwasaki *et al.*, 2014; Kurnio *et al.*, 2021). As theory has matured over the last decade, case studies looking at how resilience is manifested in communities have been expanding, with broad empirical evidence showing the importance of, for example, the role of nonprofit organisations and local governance structures, social media, and the importance of disaster preparedness (Roberts, Archer and Spencer, 2021; Abenir, Manzanero and Bollettino, 2022; Lin, Chao and Lin, 2022; Ómarsdóttir *et al.*, 2022).

Although there is a wealth of case studies on community resilience, there is a lack of longitudinal perspectives to understand how the previously mentioned nodes of resilience are connected and to begin divulging the process of negotiation embedded in community resilience. This has led to a lack of empirical evidence to draw links between theory and practice. As the focus of this dissertation is on community resilience, I seek to fill three research gaps at the nexus of hurricane and disaster studies. First, a void in qualitative data on the lived experience of hurricane survivors that could complement volumes of quantitative data or be a foundation for future comparative case studies. Second, a longitudinal perspective offering empirical evidence to connect the nodes of social resilience elucidated by prior thematic case studies. Lastly, also due to the

longitudinal viewpoint, the study adds to the growing literature on the process of negotiating resilience.

Coming from a constructive ontology, where I believe theory production, not least of all in the case of remote island communities, is inherently reductive through generalisations built on Eurocentric academic traditions of excluding island states of being, I favoured a subjective approach to conceptualising resilience. Thus, a strategy was implemented from inception, whereas resilience would be concise enough to be clearly demarcated within disaster management but broad enough to allow for self-identification by Barbudan survivors of Hurricane Irma. As used throughout this dissertation, social resilience is defined as “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change” (Adger, 2000). By using the term stress as opposed to external shocks, vulnerability or a pre-determined event, I aimed to purposefully take a step out of the field of highly charged jargon and give space for my interviewees to dictate perceptions with little limitation. The results elucidated two key stress-inducing events and, as defined by survivors, this dissertation on hurricane resilience focused on self-identified quality of life during displacement and, following return, barriers between reconstruction and durable solution. From the field back to scholarship, the resilience of Barbudans following Hurricane Irma can be further situated to span the system’s social capacity to not only absorb stress but, on a smaller scale, also to resist and absorb disruption.

The study on resilience was supported through fieldwork delayed due to Covid-19. As pandemic-era border closures in the Caribbean began to ease, ethnographic fieldwork became increasingly feasible. By May 2021, I was headed to Antigua & Barbuda with the aim to document resilience in the Barbudan context and elucidate the process of negotiating access to local resilience within a scope of Afro-descent Barbudans having returned to Barbuda following Hurricane Irma. With nearly four years having elapsed since the displacement-inducing event, I assumed that Barbudans wanting to return would already have fully rebuilt. I also expected that the compelling resilience narrative would be embedded in the divergence between the community returning and the survivors having remained and integrated into Antigua. However, this would not be the case, and it became quickly apparent that a much more important story of resilience was to be told bounded within Barbuda between the survivors having returned to almost pre-Irma normalcy and returnees, some of whom continued to live in relief tents, unable to obtain durable solutions and continuing to be internally displaced. As data was analysed, taking into account continued internal displacement, the **research question** became: to what extent did social barriers prevent survivors from accessing durable solutions? To explore the research question, five sub-research questions were posed, mainly:

- What barriers prolonged or prevented durable solutions?
- To what extent does community resilience contribute to recovery following a disaster?
- How was community resilience manifested between preparation for landfall and recovery?
- How was community resilience negotiated?
- Who was excluded from negotiated community resilience?

Although I had prior contact with the twin-island state, the field trip was my first time visiting the country. I went to Barbuda with few contacts and little expectations of what I would observe and experience, only with the recent memory of the damage caused by Hurricane Irma in Tortola, BVI. Unlike Kiribati, where I had a network and came into the country shadowing a ministry, I aimed to collect data with a positionality from the perspective of Barbudans as an outsider, a European neither from the region nor from familiar diasporic centres. Furthermore, I wanted to keep the impact of my reflexivity as a participant-observer to a minimum so as not further to unravel what I assumed would be a politically charged and sensitive topic. In the short term, I initially kept this distance to gauge the local political context and quickly realised that I would be working in polar conditions. I thus chose my close contacts carefully, aiming to remain in an apolitical sphere so as not to be seen as a pawn from either side and compromise the objectivity of the study. I left my participant observation to the role of sort of a taxi driver, as I had a car; I took the chance to build local bonds by driving people and goods around the island, engaging in impromptu conversations and offering a service.

At this early fieldwork stage, I noticed a peculiarity in Barbuda in that surnames were distinct from other Caribbean islands. Knowing that the diversity in datasets that I would need to answer the research question would rely on building trust with the community and conducting interviewees with survivors having diverse social networks and durable solution outcomes, a localised approach to sampling was constructed. Given that surnames seemed distinct, archival research was performed to elicit Barbudan surnames. From this data, 15 surnames were identified, and interviews were conducted to build family trees identifying external kin networks and current v pre-Irma living situations. Prospective interviewees were identified, along with backups in the event interviews were declined. Additionally, to triangulate data, expert interviews with stakeholders were conducted as identified through snowball sampling, beginning with the Barbuda Council and including all levels of government, taking into account party divides international organisations and the diplomat corps.

As I began collecting data, my interviewees, both survivors and experts, saw me more for my end product to write a dissertation based on personal narratives and as a means to publicise their own narratives. A trust developed between the Barbudans and myself in which interviewees became compelled to recount detailed experiences and provide commentary and personal analyses of thematic processes. Many interviewees recalled their experience from preparation for the incoming hurricane up to reconstruction in great detail. Protagonists abound within the narratives, and interviewees seemed eager to sway my perception of the political landscape. With local elections only a few months prior, care had to be taken to avoid the divergence between personal narratives and political rhetoric. After fieldwork in Barbuda and Antigua, I returned home with diverse data sets ranging from survivors and stakeholders to policymakers and donor partners and thus, the dissertation was born.

To commence answering the research question, this dissertation will begin by contextualising the uniqueness of the fieldsite with a case study-centred approach in which Barbuda and Barbudans are at the centre of their narrative.

Thus, the first chapter introduces the unique physical geography and social bounds contextualised by isolations and autonomy from economic integration and mass tourism and far removed from any pre-conceived imagery of Caribbean identity. On this foundation of the unique Barbudan identity, using an ethnographic approach relying on expert and survivor episodic interviews triangulated through participant observations and stakeholder social media posts, this dissertation presents exceptionally detailed narratives revealing a longitudinal vantage beginning with pre-Irma preparations up to return and reconstruction. Cumulatively composing the dissertations *Part I*, the complete narrative of Hurricane Irma through the narratives of Barbudan survivors and involved stakeholders offers rare and unique insight into the social processes at play during pre-hurricane preparations, hurricane landfall, evacuation, displacement, and return and reconstruction periods and offers invaluable reference both of documented experience and for future comparative studies.

Following the vital contextualisation of post-hurricane displacement from a rare, longitudinal point of view, data is drawn from survivor interviews to begin defining localised resilience manifested as an opposing force to processes following Hurricane Irma. As pre-Irma preparations were minimal and evacuation mostly controlled by the state, the scope of resilience was limited to periods of displacement and return/reconstruction. *Part II* of the dissertation focuses on these post-Irma periods using improved quality of life as an indicator for resilience from the stresses of displacement and factors promoting access to durable solutions following return to Barbuda as indicators for resilience from the stresses of return/reconstruction. A Barbudan resilience framework in response to Hurricane Irma is then presented as a sum of stress-opposing factors.

Based on the presented Barbudan resilience framework, four survivor narratives are chosen from the pool of interviews. The four survivor narratives are presented as both the most resilient household examples (survivors eight and eleven) and the least resilient household examples (survivors two and nine). From these narratives, the dissertation elucidates the process of negotiating resilience, setting a foundation for answering the research question and revealing the negative impacts of stark, socially and household-induced isolation from vital, extended support networks. In the final chapter, the vulnerabilities in isolation from external networks are further contextualised through the experience of survivors who continually wait for homes supplied by the constantly delayed EU-funded housing scheme that allocated € 5 million to the reconstruction of Barbuda's most damaged homes.

Finally, the conclusion brings together data and arguments presented throughout the dissertation to situate knowledge learned, answer the research question and provide a foundation for future thematic studies. Thus, within the final section, the Barbudan resilience framework is further discussed, taking into account resilience negotiated through external support networks. Then, using data presented from interviews with disaster management experts both responsible for Barbuda and the subregion, the Barbudan resilience framework is further contextualised at a Caribbean regional level. Finally, perceived barriers to conducting qualitative research in the context of disaster displacement are revealed in an effort to begin the dialogue on further ethnographic approaches.

Displacement induced by natural hazards, including hurricanes, continues to increase in line with the projected impacts of climate change (IDMC, 2018b). As displacement increases, it is imperative that case studies from a qualitative approach are conducted following displacement events to better understand the social processes behind disaster risk reduction, displacement, and facilitated durable solutions. Not only does the topic offer a compelling foundation for scholarship, but it offers much-needed primary data and lessons learned to inform policy at all levels. As previously-unaffected communities lacking lived experience are displaced, the resilience manifested by Barbudans and their detailed narratives will serve as an invaluable reference.

II. Methodology

This chapter outlines the rationale behind my interest in conducting a cultural study on the topic of disaster displacement and validates the choice of an ethnographic approach and case study in the Caribbean island of Barbuda. The chapter is divided into six sections that, although presented in a sequence, were developed in an iterative process linked to the ethnographic approach. In the first section, I will describe the process of choosing the topic and fieldsite that became subject to the constant threat of further natural hazards and pandemic-era limitations. Then, the study will be situated in hurricane studies through a literature review that aims to define hurricanes, identify the social science state of the art, and justify an ethnographic investigation. The following section will then elaborate on the ethnographic approach adapted to the fieldsite and discuss sampling strategy, episodic and expert interviews, participant observation, and locally contextualized archival research. The chapter then looks at analysis methods and the need for data preservation in the context of political sensitivity before a final summary.

II.1 Choosing the topic and fieldsite

From inception, this project aimed to observe displacement as a social process responding to the stress of a natural hazard. This section elaborates on the term parameters of natural hazards in the context of this project through a discussion on slow and sudden-onset hazards and builds a case for a focus on tropical cyclone events. The acute vulnerabilities of islands to tropical cyclones will then be discussed as a justification for an island ethnographic study before discussing the critical criteria in the first choice of Ha'apai island group in Tonga. Finally, following unexpected events and the need to change fieldsites, justification will be given for moving the project to Barbuda, a Caribbean island that continues to rebuild four years after being displaced by a category-five hurricane.

Natural hazards are an underlying protagonist of this dissertation that, when impacting a community, become a stress to which there must be a reaction. While stresses are common in everyday life at even micro levels, natural hazards are unique in that the stress is pervasive, affecting neighbourhoods, communities, countries, and even regions. Natural hazards have become an essential topic in both policymaking and academia because, with the multiple, often intersecting impacts of climate change, there is no longer a consensus on disaster preparedness. Hurricanes in the Bahamas, for instance, are once again leading to high casualties while countries like Colombia, historically outside of hurricane trajectories, grapple with the first instances of landfall events. In addition, as the Pacific region experienced El Niño in 2022, constant coastal flooding and king tides increasingly led to extended displacement.

In discussing natural hazards, it is crucial to subdivide and disambiguate between slow and sudden-onset and coinciding natural hazards. Slow-onset hazards develop over time, and the duration can be difficult to define (PDD, no date). They may include sea-level rise, ocean acidification, salinization, desertification, increasing temperatures, land & forest degradation, loss of biodiversity, and glacial retreat (IDMC, 2018b). Impacts can slowly erode livelihoods in affected areas as arable lands recede, swampland and brackish water encroach, land erodes, and livelihoods become untenable. The World Bank predicts that the ongoing impacts of slow-onset natural hazards in line with climate predictions will lead to mass migration and relocation of urban centres, distinguished under the umbrella term climate migrants (Rigaud *et al.*, 2018).

On the other hand, sudden-onset natural hazards are short in duration and often have little warning. These hazards are not always directly linked to climate change, and impacts on society predate recorded memory. In some cases, highly destructive natural hazards can last only a few seconds, such as the 2010 earthquake in Haiti, measuring 7.0 on the Richter scale and causing nearly 160 thousand fatalities (Kolbe *et al.*, 2010). They can be acutely localized, as in Tornadoes fastidiously impacting individual households in the US Midwest. In other cases, they may last days or weeks with tropical cyclone systems, for instance, moving slowly and impacting several countries. Tsunamis, additionally, may last a short time but impact large parts of the globe, such as the Indian Ocean

Tsunami in 2004, causing widespread damage across multiple regions (PDD, no date).

Increasingly, however, natural hazards can be coinciding or multicausal. As temperatures continue to rise and the world's oceans expand, there is increasingly a nexus between sea-level rise and sudden-onset natural hazards. For instance, abnormally high tides have been known to exacerbate storm surges, increasing the impacts of sudden-onset natural hazards. As a result, communities remain unprepared; in 2019, Hurricane Dorian made landfall over the Bahamas, coinciding with a seasonal king tide and resulting in a storm surge several meters high, leaving survivors perplexed as hurricane-force winds blew above and raging storm surges increased from below (Marazita, 2020). Such events are also increasingly common in the Pacific Islands, such as in Tuvalu during Cyclone Tino in 2020. In addition, urban cities in developed countries, such as Miami (USA), are increasingly concerned with infrastructural damage caused by coastal flooding events resulting from coinciding king tides and tropical storms.

Terminology plays a key role in this sensitive topic, where many events are life-transforming for survivors, and casualties may be high. Although thematically of interest across several disciplines, this project is firmly confined to cultural geography within the subdiscipline of island studies, further subdivided into disaster studies and, finally, hurricane studies. In this context, 'natural' is an often-contested term within the discipline when referring to natural hazards, as there are increasingly non-natural factors. However, more controversial are the terms disaster and natural disaster in which disaster cannot be natural as there must be a human-hazard relationship where stresses lead to an often-unplanned reaction. For example, if a category five hurricane passes through the North Atlantic, although it may be the strongest recorded storm, there is no disaster unless people become impacted. Therefore, this dissertation utilizes disaster displacement terminology strictly defining a disaster, in the thematic case of this study, as a displacement-inducing natural hazard.

In order to observe cultural processes reacting to natural hazards in the most unambiguous form, sudden-onset natural hazard events are the focus of the project. These events, with clear temporal distinction and immediate impact on communities, do not require deciphering the multicausal responses of devolving events associated with slow-onset natural hazards and thus alleviate many critiques of ethnographic approaches. Furthermore, to simplify data collection, a fieldsite with the fewest non-thematic variables is warranted, and parameters were thus further reduced to island micro-states¹ where displacement requires added formalities of government-assisted transport and thus displaced survivors cannot so easily elude enumeration. This approach limits grey areas or frontier lands between places of origin and displacement. This ability to limit social variables is just one of the reasons that, in the last decade, islands have increasingly attracted climatologists and researchers interested in disaster studies.

¹ Island micro-state, in this context, is defined as a population under 200,000 so as to remove regional hegemonic centres.

Baldacchino (2007) describes the scholarship shift toward island fieldsites as moving from perceived romanticized and exoticized paradise to quintessential fieldsites on the frontlines of knowledge production. Islands as bounded systems have become rightful incubators of vulnerability, resilience, and opportunism (Baldacchino, 2015). In more remote contexts, indigenous island communities are bearers of valuable ecological knowledge that adapts to the ebb and flow of climate change impacts (Nunn and Campbell, 2020; Farbotko and Kitara, 2021; Graham *et al.*, 2021; Jarillo and Barnett, 2021; Nunn *et al.*, 2021). Pugh and Chandler (2021) suggest that the imagined Anthropocene island is no longer on the periphery but central to debates. Island caretakers are increasingly cast in roles of protagonists, on one side: vulnerable, victims and refugees, and on the other side: resilient and warriors (Baldacchino, 2015; Farbotko and Kitara, 2021). The required fieldsite would thus be void of land borders where movement is unregulated and in which the bounded island is small enough to be entirely impacted by the natural hazard event.

To begin choosing an island fieldsite, the first limiting factor was identifying sudden-onset events linked to displacement, including tropical storms, earthquakes, tsunamis, and increasingly king tides. In an early effort to consider linkages between the event and climate change along with climate migration debates, the focus of research became tropical cyclone events as they are regular, contribute to significant instances of displacement, and have in recent years, been growing increasingly intense while impacting communities not generally affected by tropical storms. To be considered, the tropical storm had to have occurred within five years so as to be in the recent communal memory and, most importantly, the fieldsite must not have witnessed another instance of displacement since the identified tropical cyclone.

Tropical cyclones, as the name implies, are subequatorial forming storm systems that, when acted upon by an effect known as the Coriolis force, become cyclonic; it is important to note that although tropical cyclones are of subequatorial origin, the Coriolis force keeps cyclones from passing the equator where the rotation would be flipped (cf. Persson, 2005). Although tropical cyclones forming in the Northern and Southern hemispheres have similar characteristics, they do not cross paths and have different general zones of impact and varying classifications depending on the zone. In the Southern Hemisphere, tropical cyclones impact both the Pacific and Indian Oceans. In the Northern Hemisphere, tropical cyclones impacting the North Atlantic, including the Caribbean region and Northeast Pacific Oceans, are referred to as hurricanes, while tropical cyclones impacting the Northwest Pacific, including East Asia, are referred to as typhoons. Tropical cyclones are seasonal [see Figure 2].

Storm system	Region	Season
Tropical cyclone	S Pacific, Australia	1 Nov – 30 Apr
	Indian Ocean	ongoing
Hurricane	N Atlantic and the Caribbean	1 Jun – 30 Nov
	NE Pacific Ocean	15 May – 30 Nov
Typhoon	NW Pacific	ongoing

Figure 2: Storm system nomenclature

Classifications are based on geographic region and have varied seasonality. For example, hurricanes are limited to the N Atlantic Ocean and the Caribbean Sea and can occur annually between 1 June and 30 November.²

According to Shultz *et al.*, small island states have unique barriers to implementing disaster risk reduction in that they are small, acutely vulnerable to disaster, and often physically isolated; a top-down approach is thus often warranted, where although negotiated at the state level, requires the assistance of donor partners, stakeholders and international organizations (Shultz *et al.*, 2016). Due to the abnormally high cost per capita of implementing development projects, there are disparities in funding mechanisms available between and within states. For instance, Kiribati, a central Pacific island state comprised of atolls over an area of three million square kilometres, must prioritize urban centres for climate-resilient infrastructural upgrades. In contrast, less remote Caribbean Island states, such as Dominica, can implement stringent building codes and infrastructure upgrades that significantly decrease vulnerability to natural hazards for all residents (Commonwealth of Dominica, 2018). While infrastructure and top-down development projects have significantly reduced vulnerability for many islands, the role of local knowledge in disaster risk reduction is increasingly being evaluated (Audefroy and Sánchez, 2017; Kieslinger *et al.*, 2019).

In an effort to reduce variables and to observe disaster displacement through a social lens, a list of proposed fieldsites, remote enough to have few top-down infrastructural advantages, was compiled, relying on relevant stakeholder input from international organizations, states and personal experience. In addition, data from the IDMC's immense archives on internal displacement was consulted to evaluate potential sites. As tropical storms impact swathes of coastal communities in both the northern and southern hemispheres and the Atlantic, Pacific and Indian Ocean basins, the comprehensive list of candidate fieldsites was long and included Saipan in the Northern Mariana Islands (CNMI) following Typhoon Yutu, various islands in the Caribbean following Hurricanes Irma and Maria, Efate Island in Vanuatu following Hurricane Pam and Ha'apai island group in Tonga following Cyclone Ian. Ultimately, the candidate fieldsites were reduced to two options: Ha'apai island group in Tonga and Barbuda, the smaller sister island in the Caribbean state of Antigua & Barbuda. These islands were chosen primarily because of the small populations that would give an ethnographic study

² Compiled from the World Meteorological Organization (WMO, no date).

more impact (Ha'apai with roughly 5,000 and Barbuda with approximately 1,400)³, the strength of the tropical storms, both being category-five, exclusion from market economies and dependency on local livelihoods, and the unusually high level of damage. With consultation from advisors, the Ha'apai island group was chosen due to Tonga's acute but under-studied vulnerabilities to natural hazards and climate change, vindicated by the 2022 Hunga-Tonga – Hunga-Ha'apai volcano eruption and resulting tsunami.

Initial fieldwork was then undertaken on Ha'apai and Tongatapu islands in Tonga in January and February of 2020. Interviews were conducted with relevant government stakeholders and with survivors displaced by Cyclone Ian, along with participant observation on impacted areas, including housing reconstruction funded by the European Union. The field visit was intended to be a short assessment trip and a chance to meet with stakeholders and situate future in-depth ethnographic fieldwork, as very scarce scholarship, to my knowledge, existed neither on the Ha'apai island group nor the impact of Cyclone Ian. However, two events would force the abandonment of the Ha'apai island group as the focal fieldsite of this study. First, shortly before the preliminary field visit, Cyclone Tino, after striking Tuvalu and Fiji, made landfall over Ha'apai, causing infrastructural damage and displacement. Second, and the most defining of this dissertation and the entire study period, Covid-19 significantly reduced access.

Returning to Europe in February 2020, borders had already begun to close. The Covid-19 pandemic was quickly sweeping across the globe. The Pacific islands and, in particular, Samoa, which had just emerged from a deadly measles outbreak, were among the first states to shutter borders, first to Asia and then to the rest of the world. Flying back to Europe, all flights were rerouted from Hong Kong to Los Angeles, and unknowingly, this would be the last trip to the Pacific islands. At the time of writing in 2022, although the pandemic has spread to most small island states, borders to most islands, including Tonga, remain strictly closed, with exceptions made for repatriation flights. The Caribbean, however, with economies and livelihoods heavily dependent on tourism, began reopening borders in 2021.

For the next year, what had been expected to be a period of ethnographic fieldwork turned into intensive data mining, monitoring not only the pandemic-era restrictions to small island states but also instances of displacement that would render previous tropical storm events obsolete for the purpose of the study. By early 2021, however, Barbuda seemed to be a safe option as no instances of displacement had occurred since being struck by Hurricane Irma in 2017 and as hurricanes impacting the island usually are late-season (September-November). Therefore, fieldwork during the European spring and summer seemed ever more likely. From early 2021, pandemic border restrictions were constantly monitored, and after several postponements, a window opened for travel in May, pre-Delta variant, when the government of Antigua & Barbuda had effectively, but only temporarily, eliminated local Covid-19 transmission.

³ Compiled by various sources in the field. Due to circular mobility, figures are not easily numerated in these islands.

It is important to note that Barbuda was not merely a fieldsite of convenience. The small island that pre-Irma was estimated to have a population of around 1,600 was one of the first instances of an island being entirely displaced by a natural hazard. Upon further investigation, Barbuda shares many characteristics with remote Pacific islands, and unlike its tourism-driven neighbours, Barbuda lacks significant development. The treacherous strait separating Barbuda and Antigua and the island's unique history kept the small community, descended from enslaved people, isolated with unique governance and land laws privy to Barbudan descendants.⁴ Due to the lack of development, there were few infrastructural elements of disaster risk reduction, leaving preparedness measures more a responsibility of individual households.

In the end, Barbuda offered a rare insight into the social practices reacting to the stresses not only of displacement but beginning with pre-hurricane warnings and preparedness, shelter during the hurricane, evacuation, displacement, and reconstruction. However, four years on, to my astonishment, for an island population numbering less than two thousand, the community based around the village centre, Codrington, continues to rebuild. Four-year on, tents can still be found in some settlements, remnants of Irma's ferocity abound, housing projects funded by the EU are still in progress, and the Prince of Wales funded houses for which Prince Charles touted in media briefings shortly after the hurricane remain a barren field next to the island's only secondary school. The cultural geography of a hurricane, as experienced by Barbudans, elicits narratives of resilience, community and the few left behind that together make up the post-disaster cultural landscape and thus beg the overarching research question: to what extent did social barriers prevent survivors from accessing durable solutions?

II.2 State of the art: identifying a qualitative research gap between Hurricane and Disaster Studies

II.2.1 Hurricane Studies

Hurricane studies is intrinsically trans-disciplinary since technical barriers of entry to the field are prohibitively high, and the topic is of grave importance to both state security and regional cohesion. To investigate the cultural geography of a hurricane, one must first define this extreme event to elucidate its imagined space of reflexivity between landfall and the impacted community, the destruction and resulting displacement, and the lessons learned and adaptation. Although, as a constructivist, I approach all theoretical concepts with caution, seeking meaning from alternate ontologies in the field, hurricanes are among the few natural

⁴ Barbuda Land Act, 2007.

hazards for which, due to the need for top-down preparedness measures, there seems to be a broad regional consensus.

States continue to play a key role in post-hurricane data collection where fieldsites are often damaged to the point that basic infrastructure, such as access to sanitation, shelter, food and medicine, is compromised and must be controlled out of public safety. To further complicate entry into hurricane studies, research is event dependent, with some hurricane seasons producing several large tropical cyclones, and in other cases, several years may pass without a noteworthy event. This literature review of hurricane studies thus has three goals. First, the section aims to define the term hurricane; this will be accomplished by reviewing early literature from government repositories and atmospheric and natural sciences, mainly between the 1950s and 1970s, orchestrated by urgent military intervention to quickly reduce casualties. Second, this section aims to identify the qualitative state of the art and research gap; qualitative scholarship that gained prominence in the 1990s, beginning with psychology and sociology, followed by other disciplines, will be reviewed to accomplish this. Third, the section will seek to justify an ethnographic case study; since hurricane studies evolved out of a symbiotic research relationship between government and academia, where policymaking drove research, and vice versa, literature from scholarly sources, state bodies, and international organizations will be weaved in a chronological scape segmented by data-rich hurricane events.

The WMO defines hurricanes as cyclonic storms in the Caribbean Sea, Gulf of Mexico, North Atlantic Ocean or North Pacific Ocean that reach maximum sustained winds exceeding 119km/h (WMO, no date). Price *et al.* add that hurricanes are “the most deadly storms, causing tremendous devastation around the globe every year” (Price, Asfur and Yair, 2009). Damage caused by these storms is costly and long-term (Emanuel *et al.*, 2006). While research-informed policy has greatly averted loss of life in the Eastern Caribbean, impacts associated with climate change increasingly contest best practices and disaster risk reduction mechanisms.

The North Atlantic (including the Caribbean) hurricane season affects the region annually between June and late November; although some hurricanes form in the Caribbean Sea, most of the late-season storms spawning intense cyclonic action associated with damage and displacement originate along the West African coast near the island state of Cape Verde, located north of the equator, where storms meet warm oceanic surface waters and are influenced by the Coriolis effect and begin cyclonic circulation (Persson, 2005). Should conditions along the path be ideal, circulation increases and what started as mere thunderstorms grow into tropical disturbances, depressions, storms and finally hurricanes (cf. UCAR, no date). Should a hurricane intensify, the Saffir-Simpson Hurricane Wind Scale categorises storms on a scale of one to five (categories three-five being classified as major hurricanes) based on sustained wind speed (NOAA, no date c). This literature review offers a six-decade snapshot of what may often be serendipitous research, where researchers have the (un)fortune to live close to the path of destruction.

At the turn of the 20th century, scholars had little understanding of hurricanes. With meteorologists lacking the capacity to forecast and warn of impending natural hazards, communities were left surprised as hurricanes made landfall. In 1900, one such hurricane striking Galveston, Texas, along the US Gulf of Mexico, caused eight thousand casualties (Frank, 2003). Modern scholarship on hurricanes began in the 1940s, spurred by the advent of aviation technology during World War II. As US interests shifted from war, in this case, to natural hazards, the National Hurricane Center under the direction of Grady Norton was established; This early predecessor to the modern-day National Oceanic and Atmospheric Administration (NOAA) under the US Department of Commerce linked meteorologists, atmospheric scientists and state agencies facilitating access to technology that foresaw breakthroughs in data collection leading to early forecasting and sudden drops in fatalities (NOAA, 2021a). Early thematic researchers linked with the National Hurricane Center employed readily changing methods that in the early 1940s would have been limited to radiosonde balloons only capable of recording temperature, pressure, and humidity in a hurricane's eye (NOAA, no date e).



Before doppler radars and sophisticated satellite imagery, radiosonde balloons gave meteorologists the earliest glimpse into hurricane structures that, up to the early 20th century, were little understood and would make landfall without warning. NOAA Photo Library (no date).

Figure 3: Radiosonde balloons

Prior to the 1940s, coastal communities had no warning of impending hurricanes. Up to that time, little was known about the characteristics of hurricanes and adequate risk-reducing preparation. As a result, casualties were often high as hurricanes surprised populated areas such as the US South and East Coasts. As early as 1943, however, radiosonde balloons were being replaced by reconnaissance flights using military aeroplanes [see Figure 3]. It was

then that Lt. Col. Joseph B. Duckwork and Lt. Ralph O'Hair, at the time, based at an Air Force base in Bryan, Texas, became the first pilots to fly into a hurricane eye; such pilots since have become widely known as *hurricane hunters* (Ward, 2017). The flight using a single propeller AT-6 Texas aircraft is widely considered the first hurricane reconnaissance flight and quickly ushered in the dawn of the group of pilots often referred to as hurricane hunters (Ward, 2017).

By the end of the 1940s, further reconnaissance flights began taking place, including following hurricane George in 1947 and a Pacific hurricane near Guam in 1951. Simpson (1954), an early pioneer in hurricane research, joined reconnaissance flights and wrote of his observations in the *Scientific American*. In his seminal article, "Hurricanes", Simpson recounted that:

"As we approached the storm, we could see long swells in the ocean coming from the hurricane's direction – remnants of the enormous wave generated in the centre. There was an ominous absence of random clouds beneath the solid overcast; they had all been marshalled into great streamers or "squall lines", which, as we could see on the radar screen, were spiralling in around the eye of the typhoon (Simpson, 1954, p. 33).

"As we came closer, the surface winds grew stronger. Two hundred miles from the centre, they reached hurricane force – 74 miles per hour – and in another 50 miles they had increased to 100 miles per hour. From here we on we could no longer see the surface, for the cloud cover now engulfed the plane completely. Only the spiral pattern of the squall lines on the radar screen enabled us to keep headed toward the storm centre (Simpson, 1954, p. 33).

"Soon the edge of the rainless eye became visible on the screen. The plane flew through bursts of torrential rain and several turbulent bumps. Then, suddenly, we were in dazzling sunlight and bright, blue sky" (Simpson, 1954, p. 33).

As meteorologists became better equipped to predict hurricanes, scholarly work focused on forecasting and early warning. To aid in communication and reduce redundancies occurring during active seasons when there may be multiple storm systems simultaneously present, US stakeholders in 1950 trialled an alphabetic system of naming storms; By 1953, the alphabetic system was abandoned and, much to the dismay of activists, was replaced by a list of female-only names, the first being Hurricane Carol in 1954 (Little, 2020). As data increased from reconnaissance flights, meteorologists developed more advanced hurricane forecast models. During the 1950s, Gordan E. Dunn, then director of the National Hurricane Center, fostered knowledge sharing between researchers and military forecasters, facilitating modern forecasting that evolved in two subsets, dynamical and statistical modelling, driven by advances in computation and supercomputers (NOAA, 2021a). As data accrued within the next fifteen years, modelling would become more accurate through added calculations from dynamical models based on computation and statistical models based on historical data (DeMaria and Gross, 2003).

Continuing with scholarly trends from the 1950s, atmospheric science scholarship of the 1960s focused on testing innovations in forecasting technology. One study by Verdeman, Hirata, and Manning, for instance, tested the accuracy of the barotropic forecast model, a theory generated from a computational wind analysis carried out through cooperation between the US Weather Bureau and Air Force group of meteorologists (Vederman, Hirata and Manning, 1966). While

such studies contributed to forecasting improvements, the focus of 1960s hurricane scholarship was driven by events linked to Hurricane Donna, which made landfall in the US state of Florida in 1960. Since Florida was the base of much research on hurricanes, the storm offered early scholars in disaster studies the ability to experience a hurricane through direct observation and determine trajectories [see Figure 4].

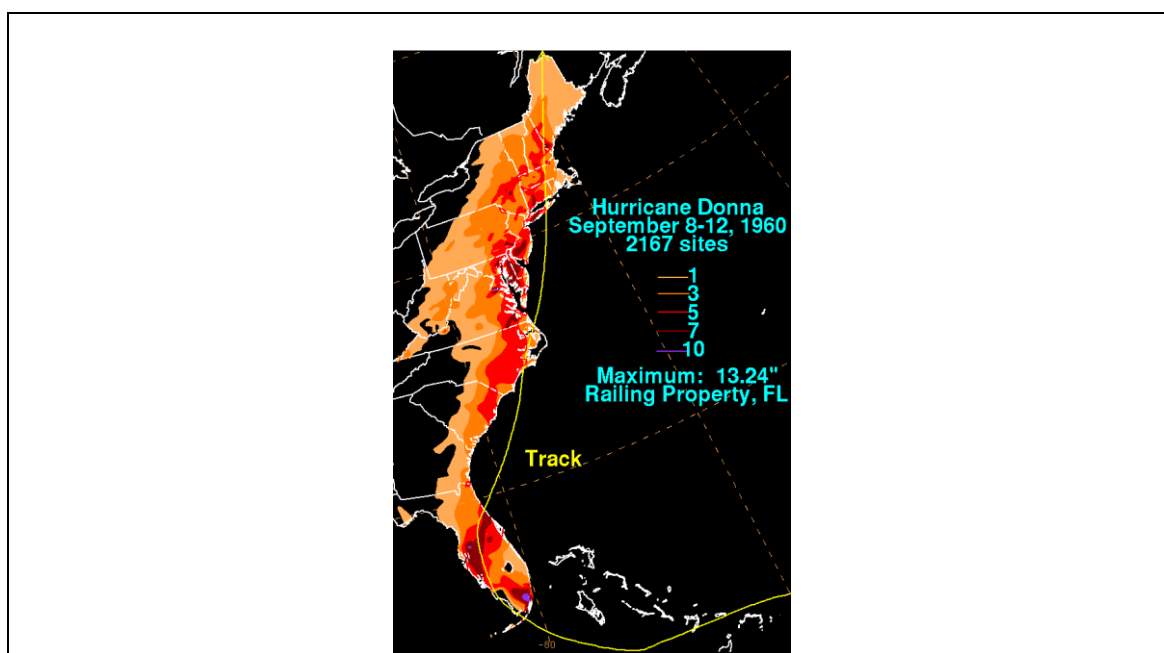


Figure 4: Hurricane Donna trajectory

(NOAA, no date a)

Between September 6 and 12, 1960, Hurricane Donna caused extensive damage to much of the Caribbean and made landfall on the Bahamas, Turks & Caicos, and the United States causing more than 364 casualties; Making landfall over Crooked Island and while passing over the southern-most islands of the Bahamas, wind gusts of up to 240km/h and rainfall up to 510 mm were reported (NOAA, no date b). Winds from the storm, the largest such hurricane in the prior two decades, caused damage and casualties in Saint-Martin/Sint-Maarten, Anguilla, USVI, and Puerto Rico; after multiple landfalls over the Bahamas, Hurricane Donna gained strength as it made landfall in the early morning of September 10 over the Florida Keys and the southern Gulf Coast of Florida (NOAA, no date b). While damage estimates of Hurricane Donna's impact on Florida are inconclusive, ranging from US\$36 million to US\$350 million, damage to the Florida Keys and Gulf Coast was described at the time as extensive and complete (Pfof, 2010). Hurricane Donna weakened while passing over Florida before regaining strength and making landfall on the US states of North Carolina and New York (NOAA, no date d). Up to that time, Hurricane Donna was the costliest storm to make landfall on US soil (Pfof, 2010).



Storm surges are a common hurricane impact but are less accounted for in disaster risk reduction. As sea level rises in line with climate predictions, storm surges compounded by high tides are causing increased damages and, in some cases, resulting in fatalities NY 1960 (Graber, 2012).

Figure 5: Storm Surge caused by Hurricane Donna

Back in Florida, as the eye of Hurricane Donna made landfall, researchers at the time, led through cooperation with government partners, were well placed to record data on energy exchanges due to the region's comparatively dense monitoring station network and saturation of pre-hurricane data. Miller (1964), for example, focused on energy data (lower boundary) from rawinsonde stations that he compared with data on wind speed, temperature and relative humidity collected by a research aircraft from the strategically located facilities of the US Weather Bureau taken from three levels. The data was further triangulated through increasingly accurate radar data constantly monitoring the eye; the study was crucial because it offered insight into the processes and weakening of hurricanes while transitioning from overwater to overland (Miller, 1964). Within the context of well-developed data-collecting infrastructure, interest in hurricane research expanded beyond the atmospheric sciences. Geologists, for instance, were able to explore the geological impacts of a hurricane, the resulting difference between day-to-day processes, and to what extent geologic records contained evidence of similar, past events (Ball, Shinn and Stockman, 1967). The data also gave geologists a baseline for further comparative studies following, for instance, Hurricane Betsy in 1965 (Perkins and Enos, 1968).

Additionally, as Hurricane Donna made landfall over south Florida, marine ecosystems were affected. As Jones (1962) explains, there were tumultuous impacts on coastal seawater with storm surges inundating land before receding, bringing mud and organic matter into marine ecosystems. The organic matter impacted salination that only returned to pre-hurricane norms after six weeks; Initially, fish and marine invertebrates were found stranded by retreating storm

surges, and in the aftermath of Hurricane Donna, drops in sport fishing were recorded (Jones, 1962). However, there was no evidence of long-term impacts on marine life; while monitoring juvenile pink shrimp, Jones postulated that following Hurricane Donna, the juvenile shrimp left nursing grounds for the shelter of deeper waters further offshore (Jones, 1962). Similar findings were obtained later in the decade when monitoring *Zooxanthellae* following Hurricane Flora in Jamaica (Goreau, 1964).

Toward the end of the 1960s, further innovative strides in forecasting technology were being implanted to improve both forecasting and continued data collection. Within three decades, atmospheric sciences evolved from a nearly complete void of predicting hurricanes, leading to unexpected disasters, to advanced computational analysis and radar technology. The US-Soviet space race of the 1960s represents the next leap in meteorologic technological advances; as the science community sat on the verge of the new decade with a new partner, the US National Aeronautics and Space Administration (NASA), nascent developments in satellite observation increased the accuracy of predictions, and the shift began in assisting vulnerable communities with dissemination, early warning, and disaster preparedness (Suomi and Vonder Haar, 1969).

Policymakers were to shift to disaster preparedness due to increased hurricane predictability, and the Saffir-Simpson Hurricane Scale, the precursor to the Wind Scale, was adopted. Due to mounting damage from sea surges, the early scale rated hurricanes based on central pressure and storm surges. Hurricane categories were also linked to expected damage and adapted to local building conditions for broader dissemination. The ascending numeric scale assigned storms with minimum peak winds of 119 km/h as hurricanes, and to mitigate the risk of casualties, descriptions of expected damage were extensive and crossed socio-economic classes. On the diminutive side of the scale, for instance, NOAA (no date b) projected that US communities in the path of a category-one hurricane should expect:

"People, livestock, and pets struck by flying or falling debris could be injured or killed. Older (mainly pre-1994 construction) mobile homes could be destroyed, especially if they are not anchored properly as they tend to shift or roll off their foundations. Newer mobile homes that are anchored properly can sustain damage involving the removal of shingle or metal roof coverings, and loss of vinyl siding, as well as damage to carports, sunrooms, or lanais. Some poorly constructed frame homes can experience major damage, involving loss of the roof covering and damage to gable ends as well as the removal of porch coverings and awnings. Unprotected windows may break if struck by flying debris. Masonry chimneys can be toppled. Well-constructed frame homes could have damage to roof shingles, vinyl siding, soffit panels, and gutters. Failure of aluminium, screened-in, swimming pool enclosures can occur. Some apartment building and shopping centre roof coverings could be partially removed. Industrial buildings can lose roofing and siding especially from windward corners, rakes, and eaves. Failures to overhead doors and unprotected windows will be common. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm. There will be occasional damage to commercial signage, fences, and canopies. Large branches of trees will snap and shallow rooted trees can be toppled. Extensive damage to power lines and poles will likely result in power outages that could last a few to several days (NOAA, no date c)."

With minimum peak winds of 252 km/h, NOAA warned that communities in the path of the most severe, category five hurricanes should prepare for:

"Almost complete destruction of all manufactured homes will occur, regardless of age or construction. A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Extensive damage to roof covers, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will occur to nearly all unprotected windows and many protected windows. Significant damage to wood roof commercial buildings will occur due to loss of roof sheathing. Complete collapse of many older metal buildings can occur. Most unreinforced masonry walls will fail which can lead to the collapse of the buildings. A high percentage of industrial buildings and low-rise apartment buildings will be destroyed (NOAA, no date c)."

Hurricane modelling reached a renaissance during the 1970s with the incorporation of satellite imaging, improved radar measuring capabilities, and more advanced computational abilities. At the beginning of the decade, scholarly interest pivoted toward the 3D modelling of storm systems, and hurricanes began to take definition. Atmospheric scientists began examining cyclonic properties of hurricanes through particle trajectory projections, whereby the projections were based on the expected pathway of small objects being released into the three-dimensional hurricane system models (Anthes, 1971; Hoffman and Duce, 1971). In 1973, Gray began studying, once again, the changes to hurricane systems as they moved overland, proposing an overland dissipation model to explain the perplexity of cyclone offshoots following landfall (Novlan, 1974). In 1974, NASA launched the first NOAA weather forecasting satellite, the Geostationary Operating Environmental Satellite (GOES), improving both forecasting and meteorology research. Previous studies on cyclonic properties were quickly supplanted by sophisticated modelling of oscillatory hurricane motion depicting a trochoidal range of oscillation with large-scale flow patterns, asymmetry, friction, tilt, and intensity (Lawrence and Mayfield, 1977). The GOES was responsible for improved hurricane modelling and would go on to confirm early fears of climate change. The first satellites would lead to the development of the Global Climate Model, the basis for modern climate predictions, and link climate change to the increasing strength of hurricanes over the next three decades (Bryan, Manabe and Pacanowski, 1975).

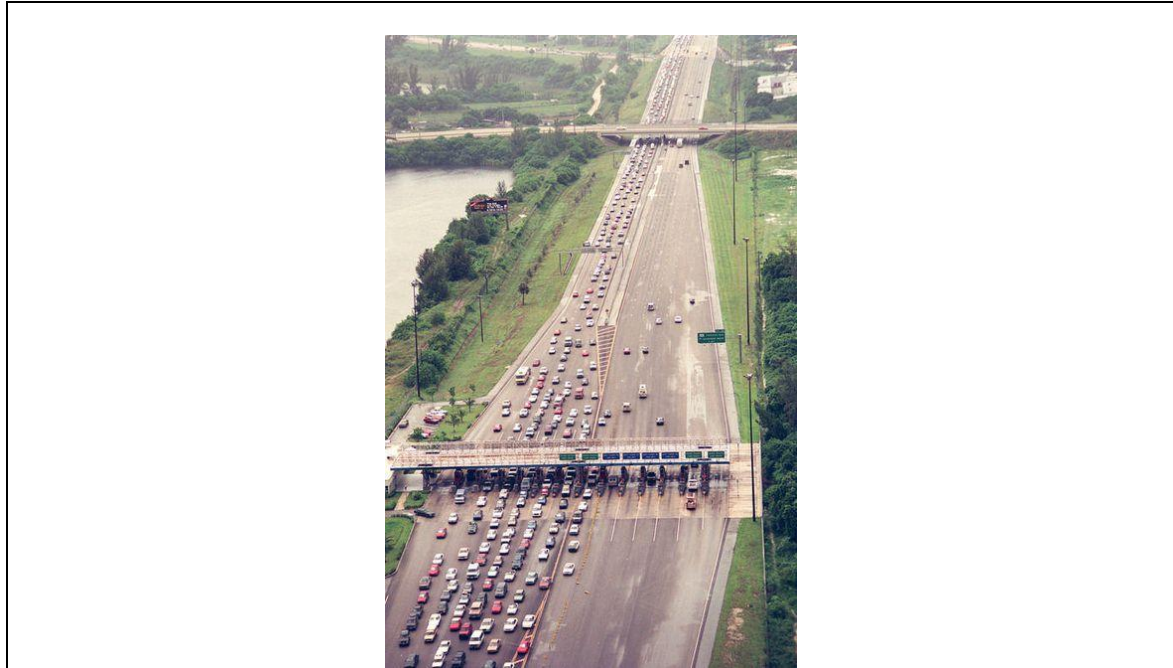


Figure 6: Floridians evacuating ahead of Hurricane Andrew

(Sun Sentinel, no date)

However, it wouldn't be until the 1990s that qualitative research in the field of hurricane studies would achieve a nascience. In 1992, scholars quickly turned their attention away from Hurricanes Gilbert and Hugo and to the most defining storm of the 1990s, Hurricane Andrew, a destructive category five hurricane that passed over the Bahamas before making landfall along the southeastern coast of Florida just south of Miami (NOAA, 2017). While there were few casualties due to accurate forecasting and disaster preparedness measures that led to the evacuation of 1.2 million residents, an estimated 160,000 survivors were left displaced as Hurricane Andrew swept across southern Florida (NOAA, 2017). The storm would go on to make a second landfall over Louisiana before continuing north, inland over Mississippi and Alabama, spawning numerous tornadoes (Verbout *et al.*, 2007).

Following Hurricane Andrew, psychologists continuing the study of disaster adolescent mental health capitalised on data-rich case studies from Dade County, a densely populated region in Florida encompassing Miami. Vernberg *et al.* found that high rates of elementary school students experienced Post Traumatic Stress Disorder (PTSD) based on self-reported symptoms (Vernberg *et al.*, 1996). Shaw *et al.* compared post-traumatic symptoms between schoolchildren in low-impact and direct-impact zones of the storm, finding that media and evacuation-related experiences led to similar stress levels (Shaw *et al.*, 1995). Following a twenty-one-month longitudinal study, seventy per cent of elementary school students continued to show symptoms of PTSD, adversely affecting female students (Shaw, Applegate and Schorr, 1996; Khoury *et al.*, 1997).

While psychological approaches to disaster research were not specifically site-dependent, the localised impacts of Hurricane Andrew spawned a genre of social scholarship at the nexus of disaster and demography, marking the transition of disaster research previously focused on natural sciences toward qualitative approaches to social impacts. The transition was primarily due to the diversity and extreme social and economic imbalances densely bound by the metropolitan area. Hurricane Andrew led to the displacement of 330,000 survivors, of which 40,000 permanently left Dade County (Smith and McCarty, 1996). Girard and Peacock found that a disproportionate number of non-white residents remained, with white survivors (forty-three per cent) leaving Dade County after Hurricane Andrew, a phenomenon Pérez referred to as *Latinization* (Girard and Peacock, no date; Pérez, 1992). During recovery, there was a high level of cooperation between, for instance, the police and neighbourhoods most affected, but although non-white stakeholders were represented during rebuilding processes, the recovery process ultimately exasperated inequalities and segregation (Shelby and Tredinnick, 1995; Morrow and Peacock, 1997).

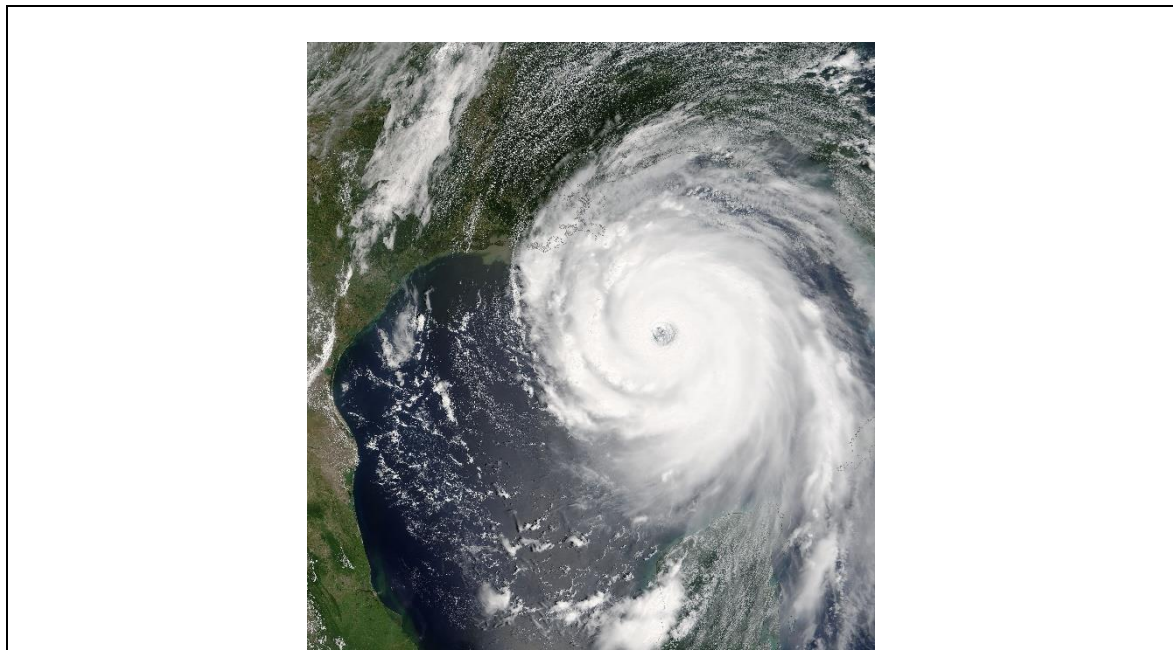


Figure 7: Hurricane Katrina approaching Louisiana (US)

Captured by NASA's Terra satellite on 28-Aug-2005 (NASA Earth Observatory, 2005)

It was not until 2005 that another hurricane would significantly impact both policy and scholarship. Like Andrew, Hurricane Katrina would also pass over the Bahamas and South Florida, but as a category one storm. After crossing the Florida peninsula and continuing a trajectory over the Gulf of Mexico, the hurricane intensified into a category five storm before weakening to category three and making landfall over the US state of Louisiana (Knabb, Rhome and Brown, 2005). On 29 August 2005, Hurricane Katrina, reaching peak winds of 200 km/h, caused levees protecting urban-New Orleans to fail; Although Hurricane

Katrina made landfall merely a category three storm, during transit through the Gulf of Mexico, the storm had doubled in size with tropical-storm-force winds reaching 260 kilometres from the storm's centre (Knabb, Rhome and Brown, 2005). In the end, Katrina was estimated to have directly caused 1,500 deaths and led to the displacement of more than one million survivors in an area of the United States roughly the size of Great Britain (Ladd, Marszalek and Gill, 2006; Beven li *et al.*, 2008). Estimates from 2015 show that the New Orleans metropolitan area population had yet to reach pre-Katrina highs (US Census Bureau, 2015).

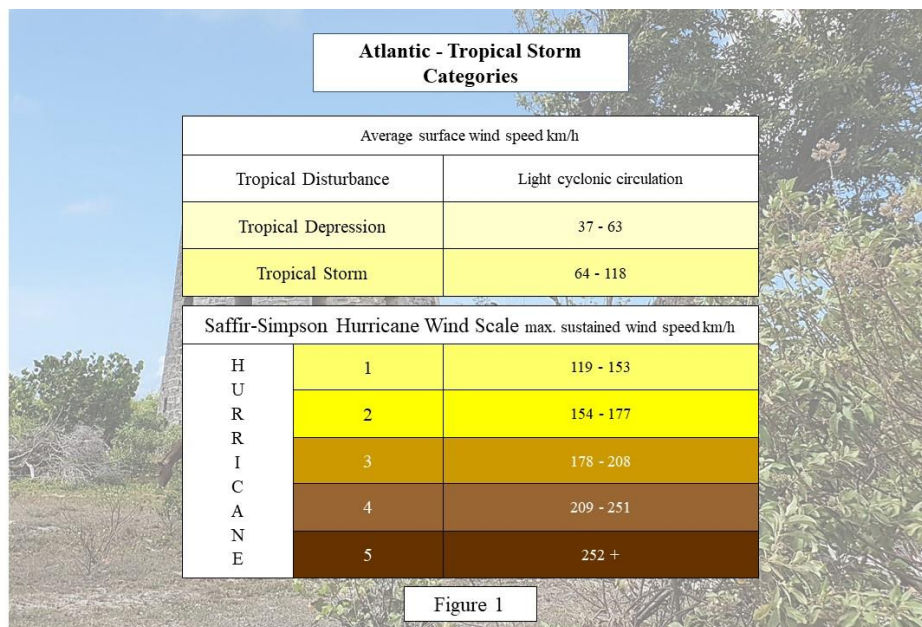
The magnitude of displacement required a national response, and the Federal Emergency Management Agency (FEMA) was activated. However, as Dave points out, the response was widely criticised (Dave, 2007). Evacuations from New Orleans were widely perceived as mismanaged, and, as Saeed and Bertsch argue, FEMA was not equipped for a displacement of such a magnitude, lacking management, funding, and even empathy (Bertsch and Saeed, 2017). Unlike previous hurricanes, the immense size of displacement could not be absorbed locally, and shelters were established across the US Southeast and as far north as Chicago, with forty-five US states providing disaster relief (Broz *et al.*, 2009). However, like Hurricane Andrew, race-based social constructs dividing the community even before the hurricane played, to some extent, a factor in displacement and reconstruction and the city of New Orleans, with an estimated black composition in 2005 of 67.3%, declined to 58.8% by 2006, where it remained steady for the next decade (US Census Bureau, 2015). Social inequalities, inclusion of broad stakeholders from across the US, and intense media attention inspired more than a decade of social research on disaster management, including displacement and reintegration, moving closer to the theme of this dissertation.

As Kahle, Yu, and Whiteside argue, media depictions of survivors reinforced negative stereotypes, and economically marginalised households faced significant barriers during recovery (Kahle, Yu and Whiteside, 2007; Godwin, 2008). For parents, the focus was on shelter and schooling of children. Due to the lack of resources by organisations such as FEMA, disadvantaged households, especially black households, became dependent on extended kin networks, often fragmented by long periods of uncertainty during prolonged reconstruction (Peek and Fothergill, 2008a). Single mother-led households without engageable kin networks were often left reliant on what assistance could be found from disaster relief providers, with Tobin-Gurley and Peek arguing that single mothers, while losing their localised safety nets during displacement and often unaware of broader assistance, faced bureaucratic barriers, and felt perceived stigmatisation (Tobin-Gurley, Peek and Loomis, 2010). Reich further found that parents of adolescents stressed by dispersion to unfamiliar locations, even when there may be perceived improved comparative access to education in relocated communities, experienced negative behaviour changes in their children (Reich and Wadsworth, 2008).

As Adams, Hattum, and English explain, New Orleans residents fell into a chronic disaster syndrome, in which there was a convergence of long-term personal trauma, prolonged disaster (disaster capitalism) and the permanent

displacement of vulnerable communities of colour from pre-hurricane societal norms (Adams, Hattum and English, 2009). Moreover, as Chaganti and Waddell found, although African American residents returned to employment following displacement, racial inequalities to access led to few full-time employment opportunities (Chaganti and Waddell, 2015). As Milles *et al.* suggest, this may have led to more significant substance abuse among, for instance, vulnerable Latino migrants (Mills *et al.*, 2013).

In the aftermath of prolonged displacement, social scholarship focused on vulnerabilities, and, like the aims of atmospheric science in the 1950s, aims were guided by top-down systemic improvements. Only a few scholars at the time looked through the narrow lens of community agency, albeit as a byproduct of vulnerability research. King, for instance, found that disenfranchised black women lacking access to assistance and adequate schools found empowerment through activism (King, 2011). Nelson examined local participatory roles in multilevel recovery governance, arguing that community groups and leaders formed under the stresses of inadequate funding mechanisms impacted policy and marginally improved conditions (Nelson, Ehrenfeucht and Laska, 2007). Hackbarth *et al.* further acknowledged the role of spirituality in family resilience (Hackbarth *et al.*, 2012). Glandon framed individual resilience in the context of Hurricane Katrina, looking at grassroots organisations such as ACORN and finding that survivors were better able to cope through religious faith, employment and the opportunity to contribute to assistance, and access to support and kin networks (Glandon, Muller and Almedom, 2008). Additionally, Fagen, Sorensen, and Anderson touted the role of disaster relief organisational support in reducing instances of sexual violence commonly experienced during displacement events (Fagen, Sorensen and Anderson, 2011).



To be classified as a hurricane, the tropical storm must have maximum sustained winds of at least 119km/h and are progressively classed on a scale of 1-5. Hurricanes with maximum sustained winds of at least 178km/h are classified as major hurricanes.

Figure 8: Tropical storm categories

Based on data compiled from NOAA and UCAR.

Other hurricanes in the decade, such as Hurricane Ike (2008), would continue to impact the Caribbean and US coast, but none impacted scholarship to the extent of Katrina. By the end of the decade, policy began catching up with novel disaster research and the Caribbean regional body, CARICOM, took more significant strides toward regional integration of not only emergency response but disaster management, leading to the ratification of the *Caribbean Disaster Emergency Management Agency (CDEMA) Mechanism* and, in 2009, the transition from CDERA to CDEMA (CDEMA, no date). While the Caribbean continued to exemplify broader regionalism, NOAA was revisiting hurricane preparedness in response to recent events, including Hurricane Katrina, and in 2010, updates modifying the Saffir-Simpson scale to purely wind-based were enacted (NOAA, 2021b) [see Figure 8]. The 2017 hurricane season would test disaster response readiness more than a decade after Katrina when category five Hurricanes Irma and Maria would hit the Caribbean in succession, followed closely by Hurricane Jose. Around the same time, Hurricane Harvey would also impact the US Gulf Coast. IDMC estimated that three million survivors in sixteen countries were displaced during the abnormally active hurricane season, including Dominica, Puerto Rico (US territory) and the small island of Barbuda, which was entirely displaced by Hurricane Irma (IDMC, 2018a).



The 2017 Atlantic hurricane season was among the worst on record, with multiple category-five hurricanes. Twin storms in the Caribbean (National Defense University, 2017).

Figure 9: : Hurricanes Maria and Irma

After mass displacement in Puerto Rico and fueled by partisan sentiment, the lack of action on the part of the US government was well documented and publicized in the media. Following Hurricane Irma, damage to the Puerto Rican power grid left untenable access to electricity and, as Onis explains, drove users to utilize and find both political and practical solutions (de Onis, 2021). Additionally, in rural parts of the island, access to aid was slow and much later than in urban San Juan; with little access to funds and materials, communities were left to rely on local networks, leading to increased stress, burnout and tensions, with Batard having similar findings in post-Irma Cuba, noting that social media offered a space where self-help and knowledge sharing bridged gaps in media voids (Batard *et al.*, 2018; Unanue *et al.*, 2020). Although Puerto Rico had long experienced net out-migration due to economic instability, following Hurricane Maria, an exodus of 2.7% of the population left the island as the painfully slow reconstruction process was protracted (Flores and Krogstad, 2019). As Puerto Rico slowly rebuilt, the smaller islands of the Eastern Caribbean focused on the political concept of building back better, a critical infrastructure concept aiming to evaluate the damage, assess building codes and reduce vulnerabilities to future storms in areas such as housing, telecommunication, transport, and other public works (Der Sarkissian *et al.*, 2021). Additionally, Hofman *et al.* added that natural hazards such as hurricanes have led to socio-adaptation over time, resulting in extra-island networks (Hofman *et al.*, 2021).

Since the 2017 hurricane season, the Bahamas was struck by category five Hurricane Dorian that, coinciding with a seasonal king tide, led to storm surges up to seven meters high, more than sixty casualties and thousands displaced mainly from the islands of Abaco and Grand Bahama (Marazita, 2020). While its

too early to know what social research will come out of the Bahamas, there is a clear gap in knowledge on social processes and the lived experience of hurricanes in Caribbean small island states, specifically the islands stretching from USVI in the north to Grenada in the south where there is a lack of social research capabilities and thematic case studies are rare. Scholarship on hurricanes and Eastern Caribbean states is primarily out of convenience and from non-disaster-oriented experts leading more toward interdisciplinary knowledge without a solid disciplinary base (cf. Boger, Perdikaris and Rivero-Collazo, 2019).

II.2.2 Disaster Studies

Unlike hurricane studies that grew out of state-led data collection over much of the last century, disaster studies is comparatively nascent, offering a concentrated social dimension to well-established indicators of natural hazards and climatology. The core of disaster studies lies in the societal need for risk reduction that often evolves from calculated, experienced, or perceived vulnerability. However, as disaster risk reduction is inherently a top-down policy process, the study of resilience incorporating both grassroots and system agency has gained relevance in recent years. This section continues from where hurricane studies leave off and will focus briefly on current scholarship in vulnerability, followed by more profound arguments on disaster risk reduction and resilience within the confines of the social sciences.

The focus on vulnerability at the nexus of islands and natural hazards grew in prominence over the last decade, spawned by climate migration debates. Within the debate, low-lying communities in states such as Kiribati and Tuvalu were written off as climate refugees (Tacoli, 2009; Obokata, Veronis and McLeman, 2014). However, as island communities revolted against the designation, studies on vulnerability pivoted toward the uneven distribution of vulnerability at an individual and sub-group scale; as Kuran *et al.* argue, owing to varying levels of hazard exposure, group vulnerability is heterogenic with intersectional comparisons warranted to reveal marginalisation (Kuran *et al.*, 2020). In support of the reduced scale of vulnerability, Lloyd *et al.* (2022) found a correlation between social and localised vulnerability following typhoons in the Philippines. Zooming in to the localised level, communities with distinct subgroups, such as Cox Bazaar, a Rohingya host community in Bangladesh, demonstrate the intricacies of intersectional social vulnerability culminating from, for example, gender and displacement (Nasar *et al.*, 2022).

Following a disaster, the complexities of intersectional social vulnerability are reproduced during recovery. Consequently, disaster management agencies at the centre of assistance regimes often face challenges adapting to the event-specific context (Manandhar, Dongol and Ganapati, 2022). Frequently, livelihoods become an early focus of recovery as small businesses vital to reconstruction face barriers, not least to accessing supply chains (Chang *et al.*, 2022). Furthermore, the capability of disaster management to overcome social vulnerabilities influences survivor perceptions of long-term impacts that, for

example, following major hurricanes on the U.S. Gulf Coast, have enraged post-disaster stress (Rammah *et al.*, 2022). Without capable disaster management, social vulnerabilities become compounded both in limiting risk to natural hazards and overcoming post-disaster interruptions and stress (Rana *et al.*, 2021).

If vulnerabilities are conceived as the social lens of risk, then disaster risk reduction becomes the vehicle used by society to reduce vulnerabilities. Within the applied context, disaster risk reduction is operationalised at all scales, including households and communities up to state and international (UNDRR, no date). As disaster risk reduction is a crucial component of disaster studies, this section will review literature currently trending in scholarship on evacuation and reconstruction, mainly state-led evacuations, the role of insurance in reconstruction, and the increasingly common practice of relocation.

Although household financial capacity reduces the burden on states and donor partners following disasters, households are not autonomous systems within a disaster landscape and disaster management, often state-driven, is responsible for filling service gaps. Again, the capability of disaster management to react impacts local perceptions and drives household decisions; even before a hurricane, for example, makes landfall, households will weigh perceptions of the warning accuracy before deciding whether to remain or evacuate (Adjei *et al.*, 2022). Dvir *et al.* add that the risk perception is compounded by access to emergency services and the condition of local infrastructure (Dvir, Vedlitz and Mostafavi, 2022). When households inevitably choose to evacuate, even the most prepared disaster management agencies are challenged by social complexity, time constraints, and budget, as evidenced by the evacuation of New Orleans ahead of Hurricane Katrina (Renne and Mayorga, 2022). With lessons learned from prior evacuation failures, normative frameworks are increasingly common in literature to promote the inclusion of displaced persons with mobility needs as well as women and children (Alam, Habib and Husk, 2022; Dema Moreno, González Arias and Pérez-Gañán, 2022).

Within the specific small island state context of tropical storms, parametric insurance and, where needed, micro-insurance has become a pillar of disaster risk reduction that is growing in popularity through programs supported by UNCDF; the aim is to increase household capacity and reduce state burden (expert interview, Suva, 5-Apr-2022). Although little is known of the long-term impact of personal insurance in small island states, Booth *et al.*, examining the example of bushfires in Australia, warn of the gross inequalities in accessing insurance that can lead to underinsured households being further marginalised during reconstruction (Booth *et al.*, 2022). However, although social vulnerabilities may be reproduced, studies largely support the positive role of insurance in recovery, such as in the agriculture industry following hail storms (Simbürger *et al.*, 2022).

The periphery of disaster studies, more formally accredited to climate studies, is occupied by the growing trend of communities and states to examine and plan for the permanent relocation of vulnerable populations. To date, most relocations have been attributed to sea-level rise and/or under-planned development (Nunn and Campbell, 2020). In 2019, the government of the Fiji

Islands initiated a trust fund to, in part, benefit communities being relocated due to the increasing impacts of climate change following the relocation of Vunidogoloa village (Bainimarama, 2019). However, the risk of exasperating social vulnerabilities through the process of relocation remains undervalued in contemporary policymaking (Girard and Peacock, no date). Thus, relocations remain controversial, and a more holistic approach to opposing social vulnerabilities has emerged in scholarship employing resilience.

In theory, resilience offers a significant pivot to empower researchers to view disaster studies through a lens of survivor agency and move away from the confines of relegating island communities to either victimhood or dependent on top-down disaster management. Agency, at least in the context of Barbuda, allows for a broader examination of traditional knowledge, household empowerment, and other dynamic narratives otherwise hidden in the narrow quest for identifying victims. As this study focuses on resilience, significant effort will be made to examine various scholarship, beginning with urban and social resilience. The section will then focus largely on the growing literature on community resilience, from which this study takes a break.

Resilience can be subdivided by ecological, social, economic, institutional, infrastructure, and community competence; as with vulnerability and risk, spatial variability of resilience abounds and, as Cutter et al. explain, the numerous drivers of disaster resilience favour well-adapted urban settings (Cutter *et al.*, 2008; Cutter, Burton and Emrich, 2010). On the other hand, Parsons et al. found that in Australia, although generally more resilient, a plurality of disaster resilience existed in metropolitan areas; for metropolitan areas lacking community capacity and social cohesion, disaster resilience in rural areas fared higher (Parsons *et al.*, 2021). Nevertheless, resilience first gained prominence with urban local governments as enshrined by the 100 Resilient City Network, and as the global north adopted resilience, Marin argues that a further theoretical void developed in the global south operationalisation of disaster resilience (Marin, 2021).

Interest in urban resilience has resulted in sophisticated modelling adapted to qualitative and quantitative case studies and, thus, extensive case studies of urban resilience (Tong, 2021). In Miami, for instance, Gosain et al. explored housing resilience (Gosain, Zhang and Emel Ganapati, 2022). Tao et al. explored the broad impact of previous California earthquakes on corporate stability, echoing a call by de Vries and Hamilton to include business recovery models in disaster management following earthquakes in Christchurch (de Vries and Hamilton, 2021; Tao *et al.*, 2022). Dianat et al., also exploring the Christchurch fieldsite, examined more holistic data collection methods (Dianat *et al.*, 2022). Of course, additional studies have focused on engineering and architectural disaster resilience (Liu *et al.*, 2021; Abbasnejadfar *et al.*, 2022). In contrast to infrastructural resilience,

As research on urban disaster resilience matured, another subset of scholarship pivoted toward social impacts focusing on subgroup exclusion both in urban and rural settings. Glade et al. add that although there is a broad understanding of urban resilience in most metropolitan areas, there is a void in thematic knowledge of, for example, incarcerated infrastructure (Glade *et al.*,

2022). Scholarship on exclusion from resilience is further supported by literature on social capital, such as findings by Panday *et al.* following the 2015 earthquake in Nepal (Panday *et al.*, 2021). Jia *et al.* further determined the intricate value of relational capital in post-disaster settings to the resilience of organisations (Jia *et al.*, 2020). However, as with studies on vulnerability, attainment of disaster resilience for persons with mobility needs remains as, even with social capital, infrastructural barriers limit consideration during both evacuation and recovery (Ssennoga *et al.*, 2022). From a gendered point of view, Saad further acknowledges that disaster risk reduction policy has not done enough to address the risk to women, especially to the vulnerabilities of living in informal settlements (Saad, 2021). However, Kadir notes that, at least in the case of women in Bangladesh, although resilience varies within communities, improvements in gendered access to public services reduce the gap (Kadir, 2021). Furthermore, although social capital contributes to disaster resilience in informal settlements, household capital exerts greater influence over outcomes (Gaisie, Han and Kim, 2021). With well-funded networks, urban local policymakers and scholars share lessons learned following disasters and increase urban resilience (Elkhidir *et al.*, 2022).

Beyond the metropolitan divide of urban resilience, a subset of resilience literature has grown around the community as the sample size. As Robertson *et al.* explain, "community resilience represents the ability of communities to use their available resources to prepare for, respond to, endure, and recover from extreme events such as floods, economic shocks and disease outbreaks", in which resilience is firmly a social process (Robertson *et al.*, 2021). Cutter *et al.* further relate the process of community resilience production as relational to inherent vulnerability, a relationship depicted by a Venn diagram; within the social process, disaster events serve as disruptions in which resilience either optimally becomes adaptive, and recovery improves or when less adaptive, falls into what Lazarus terms, a disaster trap (Cutter *et al.*, 2008; Lazarus, 2021). Marasco *et al.* further advocate for the importance of infrastructure inclusion in which resilience is relational not only to vulnerability but also to risk parameters (Marasco, Kammouh and Cimellaro, 2022).

To support theory, case studies on the resurgence of community resilience have increased in popularity. For example, Abenir *et al.*, in the case of Hagonoy, Philippines, explored the role of local leadership, noting an interplay around "the wins and limits on the practice of community leadership, upholding of human rights, funding for community-based disaster risk reduction plans, partnerships with external development actors, and inclusion of vulnerable groups, including women" (Abenir, Manzanero and Bollettino, 2022). Roberts *et al.* and Ómarsdóttir *et al.*, following examples of Australia and Iceland, respectively, repeated the importance of social cohesion, sometimes through nonprofit organisations, in post-disaster community resilience building (Roberts, Archer and Spencer, 2021; Ómarsdóttir *et al.*, 2022). In Bangladesh, Uddin *et al.* observed that livelihood flexibility greatly impacted the household's chances of recovery (Uddin *et al.*, 2021). On the other hand, Lin *et al.* found that in Nantou, Taiwan, community resilience to debris flow following heavy rain from typhoons was influenced more by (pre-)disaster preparedness than post-disaster adaptability (Lin, Chao and Lin,

2022). Choudhury et al. also admit that community resilience for coastal communities may be insufficient to overcome the projected impacts of climate change (Choudhury, Haque and Hostetler, 2021).

The increase in case studies on community resilience has led to a growing body of normative frameworks both for novel methodologies and policymaking. For example, Abdul-Rahmen et al. explored the use of critical success factors in determining community resilience, and De luliis et al. pushed for quantitative approaches based on the PEOPLES framework, while Yabe et al. explored the advantages of data-driven complex symptoms (Abdul-Rahman *et al.*, 2022; De luliis, Kammouh and Cimellaro, 2022; Yabe *et al.*, 2022). Rachunok further explored the role and limitations of social media as a tool for data collection in evaluating community resilience (Rachunok *et al.*, 2021). Amirzadeh and Barakpour further recommended stakeholder data collection to supplement the limited view of local communities (Amirzadeh and Barakpour, 2021). Methodology on community resilience is also found throughout the *UN Common Guidance on Helping Build Resilient Societies* (United Nations Sustainable Development Group, 2020).

II.2.3 State of the art

Following the tumultuous Caribbean hurricane season of 2017, both popular and academic attention turned toward Caribbean island states and Puerto Rico. As five years lapse since the record-breaking hurricane season, the slow gears of academia are beginning to churn out literature, albeit dampened by subsequent hurricanes, such as Dorian in 2019, and the Covid pandemic. For example, Brinton et al. drew attention to waste management and the barriers to removing vegetative debris in Puerto Rico (Brinton *et al.*, 2022). As Puerto Rico cleaned up, secondary school educators in the nearby U.S. Virgin Islands used social cohesion to foster empowerment and community resilience during reconstruction (Edmeade and Buzinde, 2021). Within broader disaster studies literature, scholars have become increasingly interested in 'disaster reduction for whom?', with Haque and Fatema noting the vulnerabilities reproduced when policy does not match community perception (Haque and Fatema, 2022).

Although urban resilience has been around since the 1970s, Bueno et al. explain that the topic remains relevant and is trending in disaster studies among other thematic groups (Bueno, Bañuls and Gallego, 2021). Heinzlef et al. add that urban areas, in the context of climate change, face novel risks for which the inclusion of urban resilience studies offers promising tools for climate practitioners, while Cañavera-Herrera et al. contextualise the evolution of 'smart cities' that have yet to be incorporated within broader urban resilience literature (Cañavera-Herrera *et al.*, 2022; Heinzlef *et al.*, 2022). As practitioners of urban resilience look to the future of cities, balancing disaster risk and resilience with climate vulnerabilities and technological progress at the intersection of indigenous and disaster studies, scholars are looking for clues to resilience in traditional knowledge sets.

Among the trends at the nexus of indigenous and disaster studies are case studies in Asian-Pacific island states. In Fiji, for example, Elkhartboutly and Wilkinson found that following the abnormally strong Cyclone Winston in 2016, among the 30 thousand damaged homes, in villages dominated by traditional homes, nearly half of the homes survived (Elkhartboutly and Wilkinson, 2022). Similar findings were supported by Kurnio et al. on traditional construction methods in Indonesia in response to the earthquake risks, while studies in Vanuatu have highlighted the promise of indigenous meteorology (Dundon, 2018; Kurnio *et al.*, 2021). Hadlos et al. elaborate that with increased case studies on traditional and indigenous knowledge in disaster studies, scholarship is beginning to link with mainstream scholarship on disaster risk reduction and resilience and moving increasingly toward policy relevance (Hadlos, Opdyke and Hadigheh, 2022).

A third tangent that remains nascent, especially on resilience, under the social science lens of disaster studies is the implementation of longitudinal studies to view long-term process shifts. Recently, Cedergren et al. published the results of a three-and-a-half-year study on the perceptions of risk management in public sector organisations, demonstrating that, although risk awareness grew, it remained concentrated within power hierarchies (Cedergren, Hassel and Tehler, 2022). Using data from a seventeen-year period, Fraser measured drivers of community resilience across 174 Japanese municipalities by comparing indices of social capital and vulnerability (Fraser, 2021). Additionally, Gim and Shin examined the change of life of disaster survivors in South Korea through surveys of general physical and mental wellness, arguing that community resilience impacts long-term survivor wellness (Gim and Shin, 2022). Although theory abounds of adaptive resilience, the lack of qualitative longitudinal studies prevents broader underpinnings of how resilience is accessed or negotiated as well as other thematic processes lacking empirical data.

Returning to the island context, most small island states find themselves within this conundrum where populations relative to the high cost of infrastructure solutions ubiquitous in the metropolitan setting are unrealistic; while resilience may have multiple drivers outside of urban settings, in many remote islands such as Barbuda, social resilience dominates all facets of a community's ability to overcome vulnerabilities associated with natural hazards (Parsons *et al.*, 2021). Coming out of the 2017 Caribbean Hurricane season, the strength of social resilience in the islands was evident, with Gray et al. identifying the role of social media following Hurricane Irma in Antigua & Barbuda (Gray, Weal and Martin, 2019). Thus, small island states offer promise for research on broader roles of social resilience at the nexus of hurricane and disaster studies.

As disaster studies matures on the back of an increasing catalogue of case studies, various research gaps are emerging, both within urban and rural contexts and knowledge production related to resilience in the small island state context remains a literary frontier. In the context of Barbuda and other similar fieldsites, social resilience is not only a key driver of disaster resilience but largely removed from all other drivers that otherwise complexify qualitative research in urban settings. As Baldacchino explains, the physical geography of islands limits frontier dynamics, leading to rare lab-like research settings for social scientists

(Baldacchino, 2015). Although data-rich, disaster resilience research in small island states is nascent, and as Cutter et al. state, the first step is measuring resilience not merely as a static baseline reading but as a process (Cutter, Burton and Emrich, 2010). Consequently, scholarship on social resilience still lacks the overarching vantage of the longitudinal study to test, among other things, the tendency of isolated results perpetuated by case studies and how the process of social resilience is impacted both through disaster preparedness and adaptive resilience.

On a regional level and as a basis for comparative case studies, the Eastern Caribbean islands overall hold potential for social scientists researching the social processes at the nexus of hurricane and disaster studies. From a theory-generating perspective, there is incomparable diversity within the region as, within a one-thousand-kilometre stretch, there is a collective of multiple states and territories, each with unique histories, languages, diasporic connections, and tangible and intangible culture. As hurricanes impacting the region often affect multiple islands simultaneously, comparative case studies of data-rich events are feasible. Additionally, with populations in many islands comparable to mid-sized towns in Europe and North America, in-depth ethnographic approaches that offer acute insight into social processes through immersion but are not often feasible owing to individualized dispersal of hurricane survivors are conceivable even on a national level, offering not only interdisciplinary data useability but policy relevance.

The call among scholars for social and cultural case studies on disaster and, in general, climate migration has been growing over the last decade (Piguet, 2021). Hofman *et al.* suggest that cultural practices should be included in disaster risk reduction frameworks (Hofman *et al.*, 2021). Social research in hurricanes is fraught with risk and uncertainty, but data collection is crucial to better understand the process, not only as victims of disaster but through lenses of agency and resilience. It is this risk and uncertainty that reveals the wide research gap, especially in hurricane studies; although improvements in technology have allowed for the near real-time, 3-D measurement of quantitative data beginning at the inception of tropical storm systems, there is scant access to qualitative data from survivor narratives available to social scientists wishing to bridge raw quantitative data on hurricane modelling with raw qualitative data of perceptions and lived experience.

When incorporated into reconstruction, the lived experience and local knowledge of disasters can inform policymakers wanting to adapt disaster management policy to localised experienced vulnerabilities (Nelson, Ehrenfeucht and Laska, 2007). From a general perspective, as ocean surface waters warm and hurricane trajectories broaden, as exemplified by Hurricane Iota striking Providence Island, Colombia, in 2020, local knowledge from more hurricane-prone areas could potentially be utilized by island and coastal communities without similar experiences and fiscally unable to invest in adaptive capacity. As case studies from islands on disaster displacement increase, scholars will be better informed to draw generalizations and begin constructing theory.

Furthermore, within disaster studies, this study seeks to connect the isolated nodes of community resilience that offer important insight into theoretical underpinnings but have limited contextualization due to static temporal bounds of data collection. Thus, the study adds two crucial insights for theory production, the longitudinal temporality and the uniqueness of a broader case study in the lab-like social conditions provided by the small island of Barbuda. However, from the onset, this study sought to fill a greater research gap, not merely limited by theory production but also by providing valuable raw qualitative data. While technology has greatly improved societal ambitions to reduce hurricane risk, the question still arises of disaster risk reduction for whom? In the case of Barbuda, disaster risk reduction was exclusionary. Although the survivor narratives benefit theoretical underpinnings of social resilience, the raw narratives have far broader value to hurricane studies in either challenging or supporting quantitative-data-driven theory surpassing my own disciplinary limitations. This dissertation is, thus, also a qualitative reference tool extensively documenting survivor narratives, a longitudinal and island perspective on the processes of social resilience in the context of natural hazards, and, consequently, ethnographic-based policy-relevant scholarship.

II.3 Barbudan ethnography

Before Hurricane Irma, Barbuda, situated in the Leeward Islands, was not a prominent fieldsite for scholarship outside of archaeology [see Map 1]. The island does not typically experience hurricane events, and previous hurricanes had not led to large enough impacts or mass displacement to warrant scholarly interest. The community, in itself, is relatively small, and the island has always strayed from the limelight of neighbouring resort islands, thus being attractive to royals seeking privacy in the Caribbean. Even as new development projects have spawned since the hurricane, the government's focus remains exclusivity and privacy, and parts of the island remain off-limits to researchers and even local Barbudans.

After narrowing the fieldsite to Barbuda, I began exploring background information on the site by reading literature, discussing with contacts having visited the island, and watching documentaries and old news reels. It quickly became apparent that Barbuda was socially and economically unique both from Antigua and in the greater Caribbean context. A more in-depth thematic, scholarly literature review revealed that, apart from a few studies on the communal land system, there was scant knowledge relevant to the research question. Without a basic theoretical foundation, grounded theory and ethnographic approaches were initially considered as a means for exploring the topic that would need to produce empirically-based knowledge.

Grounded theory grew out of Sociology in the 1960s as a means to improve the capacity of qualitative practitioners to produce empirically-based theory and is a useful tool for drawing novel theories based on inductive reasoning (cf Glaser and Strauss, 2017). The approach that has become a useful tool across multiple disciplines is based on an iterative process where data is continuously collected and analysed; data from the field is coded and as more rounds of data are collected, codes are grouped together, and through selective coding theory is produced grounded in data (Charmaz, 2012; Flick, 2020a). Unlike grounded theory, where data is coded to produce theory, ethnography is a more holistic approach to empirically-based knowledge production (Buscatto, 2018).

Ethnography has a basis in early sixteenth-century anthropology as a means to document the indigenous people of Mesoamerica (Peltó, 2017; Boone, 2021). The approach grew out of interest in remote and isolated societies, generally following colonial expansion; in the island context, the Pacific islands in particular, were popular fieldsites for ethnographic studies such as works by Bedford in the Gilbert and Ellis Islands and Valjavec in Vanuatu (Bedford, 1968; Valjavec, 1986). In more recent years, in the Caribbean, ethnography has become a useful tool for finding meaning in social processes, such as migration (Olwig, 2007). At its roots, ethnography is an approach that is useful for addressing underrepresented issues, populations, and fieldsites; in place of deductive reasoning used to assess theory, ethnography relies on immersion into the local context of a fieldsite where data collected is, although guided by the ethnographer, co-produced between influence from positionality and the research subject grounded in participant observation and aided most commonly by interviews, focus groups, and archival research (Hammersley, 2006). Unlike early work on remote societies in colonial hinterlands, modern ethnography has adapted focus, for example, as a means to understand processes embedded in subgroups, allowing for broader application within broader social sciences; in the political sciences, ethnography allowed Bevir and Rhodes to observe ministerial processes as a cultural practice through shadowing and interview (Bever and Rhodes, 2010).

The ethnographic approach is critiqued both by quantitative scholars and qualitative researchers. One criticism revolves around the framing of reflexivity, where researchers cannot escape their own conceptual contextualization of events, and the grey area in co-production becomes muddled by a process where on the one hand, the subject should elucidate narratives and constructs; however, on the other hand, the researcher dictates the boundaries (Brewer, 1994). As Hammersley adds, criticism also extends beyond defining spatial and temporal bounds and challenges the often superficiality of ethnographic research that becomes irrelevant to theory and generalization; ethnography has been criticized for political-leaning tendencies where research becomes either to support an ideology or in support of marginalized people, in essence, the lack of data neutrality (Hammersley, 2006).

Taking into account the wish to operationalize a constructivist ontology, the ethnographic approach was deemed more suitable for this study, as while I admit theory may exist and be supported by data, the rigid structure of data collection and analysis merely with an end goal of theory was irreconcilable. Instead, given

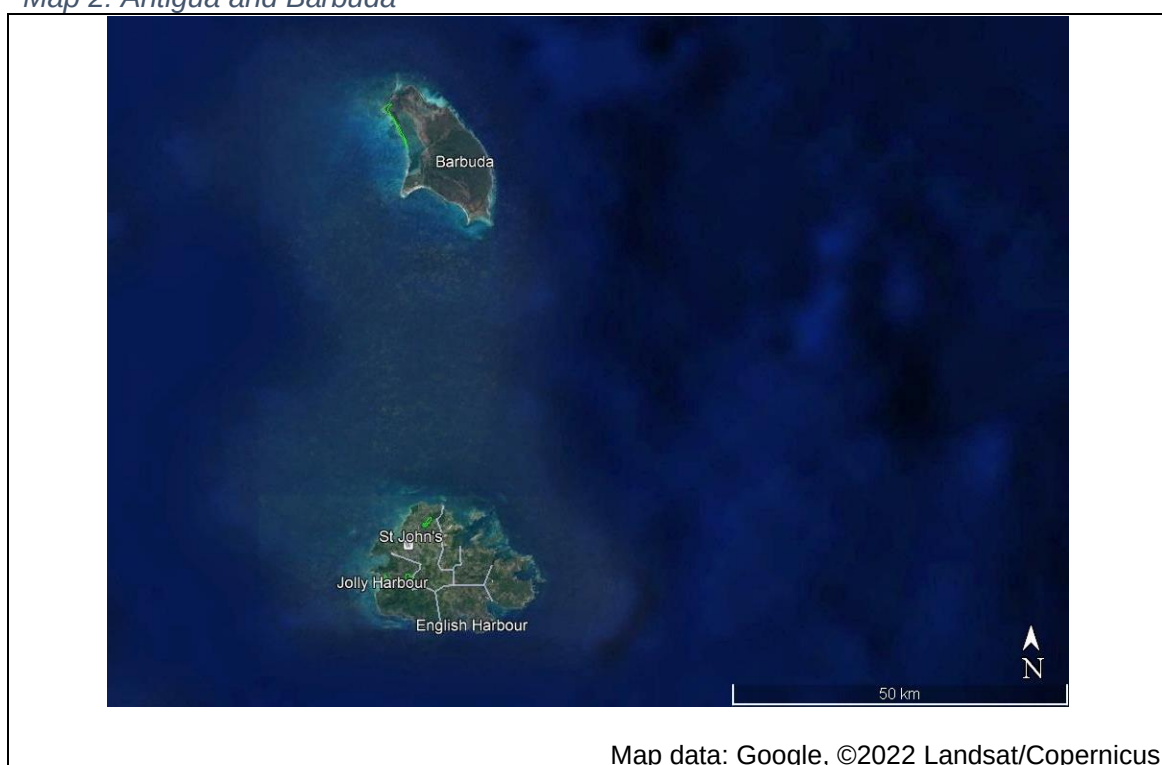
that Barbuda is relatively understudied and the history and livelihoods of the Barbudans so unique in the broader Caribbean but not all too foreign to my previous experience in the Pacific Islands, the holistic approach of ethnography through participant observations and interviews seemed a more promising basis to answer the research question.

Map 1: Eastern Caribbean



Antigua & Barbuda is a small island state located in the Leeward Islands of the Eastern Caribbean. With a population of under 100,000, the country gained independence from the UK in 1981 and remains a member of the Commonwealth. The country is a member of both CARICOM and OECS. Antigua & Barbuda's closest neighbouring islands are St. Kitts & Nevis, Montserrat (UK), and Guadeloupe (FR).

Map 2: Antigua and Barbuda



During the conceptualization phase of this project, I was conscious of ethnographic criticism and that personal positionality embedded in such a sensitive topic could negatively influence the data collected. My strategy was two-fold in that the spatial and temporal bounds of the study would be uncontestedly demarcated. In many ways, Barbuda as the fieldsite alleviated what would have been critical of the study in that there is a legal framework for deciding who is Barbudan. As the island's geographic isolation creates defined barriers for inter-island travel, which is both costly and unpredictable, temporal and spatial bounds of displacement, evacuation, and even return were undisputable and uncontested by both survivors and the stakeholders from disaster management organisations who would often organically refer to these temporal markers and life-changing events.

However, a criticism that may persist is the construct to be used throughout this dissertation, denoting the end of displacement. Even four years after Hurricane Irma, some survivors were still living in tents, and housing projects were ongoing. In repute to any criticism, I constantly reflected on this issue. When the line between who was displaced and who was no longer displaced was not clear, home visits and attempts to triangulate narratives were extended to verify interpretations, and the ethnographic approach facilitated more profound engagement with participants. Barbuda proved to be a fieldsite where ethnographic approaches could flourish. Interview partners were open and candid, recalling detailed narratives organically with few prompts other than to move between the phases of displacement, and survivors were keen to assist in participant observations or allow broad access. Even in development areas where

entry was strictly controlled, Barbudan laws guaranteeing public access to all shorelines allowed for walks into all restricted areas.

II.3.1 Interviews: from sampling strategy to implementation

In ethnography, and broader qualitative methodologies for the matter, when interviews are the key source of data on which to base empirical arguments, diversity in sampling is a fundamental necessity to limit the perplexity of data bias; to begin choosing a sampling strategy, one must contemplate social dimensions at the field site (Flick, 2020b). In the context of Barbuda, I knew that the pre-Irma population numbered around 1600 and that there had been little in-migration due to land practices. Being familiar with similar islands in the Pacific, I assumed that Barbudans might be divided into only a few families. As Reynolds explains, Caribbean identities, even in transnational contexts, are largely reaffirmed through family and kinship bonds that even impact community interaction (Reynolds, 2004, 2007). Additionally, the central role of extended kinship during hurricane displacement is well documented (Peek and Fothergill, 2008b; Angel *et al.*, 2012; Marazita, 2020; Macias *et al.*, 2021). Thus, unlike other fieldsites where demographic diversity sufficed, a real danger of sampling in Barbuda emerged of a 'kinship trap', where although demographically diverse, integration in the community, necessary in ethnography, may be falsely masked within kinship bounds with data replication not representative of the broader community.

To contend with the risk posed by the Barbudan kinship trap, preliminary archival research was undertaken targeting emigration documentation during key periods of Barbudan out-migration to the U.K to identify common Barbudan surnames. After looking through several sources, including Commonwealth repositories and digital archives available through various libraries, it was quickly apparent that the commercial registry Ancestry.com contained the largest archive of Barbudan vital records, including birth, marriage, and death certificates, as well as passenger and military registries for Barbudans emigrating to the US and UK. The archives thus gave insight into two themes related to this study, surnames and diaspora. While diasporic connections will come into play later in this dissertation, surnames were tallied as the preliminary step in sampling, recording a total of thirty-eight surnames.

While archives were useful as an initial resource, given that many documents were more than a century old, triangulating sources were needed to attest to whether the surnames were representative of modern Barbuda. Social media, an increasingly important medium of data collection in disaster studies, was chosen for further investigation (cf Rachunok *et al.*, 2021). Social media trends revealed the widespread use of Facebook, which was relatively high among all demographic groups as it has become a vital platform for disseminating news, local commerce, and diaspora engagement and in comparison internationally, the World Bank estimates that in Antigua & Barbuda, there are 193 internet subscriptions per 100 people ranking in the top four countries

worldwide (ITU, 2017; Gray, Weal and Martin, 2019). Although, as Songram (2019) admits, Facebook's personal profiles are not a reliable source of much information, seeing that the goal was to triangulate merely surnames in Barbuda, I concluded that Facebook was a valuable tool for validating initial findings from Ancestry.com. Popular Facebook groups catering locally to Barbudans, such as schools, sports teams, activities, and restaurants, were searched to gather surnames of followers with the place of origin or residence clearly stated as Barbuda. From the Facebook groups, 78 surnames were identified [see Figure 12].

Barbudan Surname - Index						
Sources:	Ancestry.com		Facebook			Surnames chosen for sampling
Ambris	John	Alexander	Daway	King	Shaw	
Beazer	Johnson	Ambris	Deazle	Knight	Spice	Beazer
Benjamin	Joseph	Anthony	Desuza	Lee	Thomas	Charles
Burton	Mansignh	Bailey	Dice	Lynch	Wadada	Deazle
Celeste	Montgomery	Barton	Dyer	Matthew	Walker	Desouza
Cephas	Morris	Beazer	Fabian	Moore	Wallbrook	Frank
Charles	Nedd	Beed	Fararah	Morris	Warner	George
Deazle	Newton	Benjamin	Fortune	Morsh	Watson	Griffin
Desuza	Nibbs-Gabani	Bestt	Francis	Myers	Weatherhead	Harris
Drinkwater	Norford	Blacque	Frank	Nedd	Welch	James
Frank	Parker	Bradley	Gabbani	Nicholas	Wilson	John
Geness	Punter	Burton	Harris	Nini	Yearwood	Joseph
George	Scotland	Cephas	Henry	Payne		Nedd
Griffin	Spice	Chambers	Hope	Punter		Punter
Harris	Thomas	Charles	Hopkins	Rae		Thomas
Hopkins	Walbrook	Chicca	Isaac	Richards		(Webber)
Issac	Walker	Chuck	Jade	Roberts		Williams
Jack	Warner	Corbin	James	Rose		
James	Welch	Cornelius	Jeffrey	Salim		
		Cuffy	John	Samuel		
		Daley	Jones	Scotland		
		Daniel	Joseph	Shatta		

Using archives from ancestry.com and searches of Facebook users, 15 surnames were determined to be endemic to Barbuda. Compiled during archival research.

Figure 10: Distribution of Barbudan surnames

Using the Facebook surname data, a user search was performed with each surname using parameters of the place of origin or residence as Barbuda. This additional step was performed as several profiles seemed to use altered surnames. The number of users was once again tallied and then compared with the surnames compiled through Ancestry.com to identify outliers from either list that may either be no longer relevant or not identified in vital record archives. A total of 15 surnames were then chosen for further sampling methods. Once in Barbuda, these 15 surnames would be reviewed by three community leaders and, based on input, *Webber* was added to the list of chosen surnames [see Figure 10]. There are, of course, limitations to this strategy in that surname outliers, such as migrants from other islands working in Barbuda, mixed-island families, and families that may be evading internet and/or social media use would not be identified. As the aim of the project of observing cultural processes would focus

on local knowledge based on Barbudans, and there would be further steps in the sampling strategy to elucidate other survivors, the risk to the sampling of missing surnames was marginal and would be taken into account in later stages of sampling.

Beyond the kinship trap, a second bias that would need to be overcome was ensuring that data represented as many outcomes of displacement as possible. Given that I would need to focus survivor data collection within the bounded island of Barbuda with only a post-Irma population of around 1400, there was a real risk that a large group of displaced Barbudans would be overlooked. To overcome this, the data on Barbudan surnames was incorporated and a mapping exercise was done with teachers from the local primary school from which all surnames were represented. In the mapping exercise, the teachers were asked to create family trees of their surname and to list whether individual members had returned to Barbuda, and, if so, whether they had returned to pre-Irma homes or had some other form of residence. Additionally, any changes in civil status were noted. A secondary advantage inherent to the family trees was that not only were the results of displacement revealed but they were contextualized in a way that revealed gender, relative age, nationality and marital status [see Figure 11].

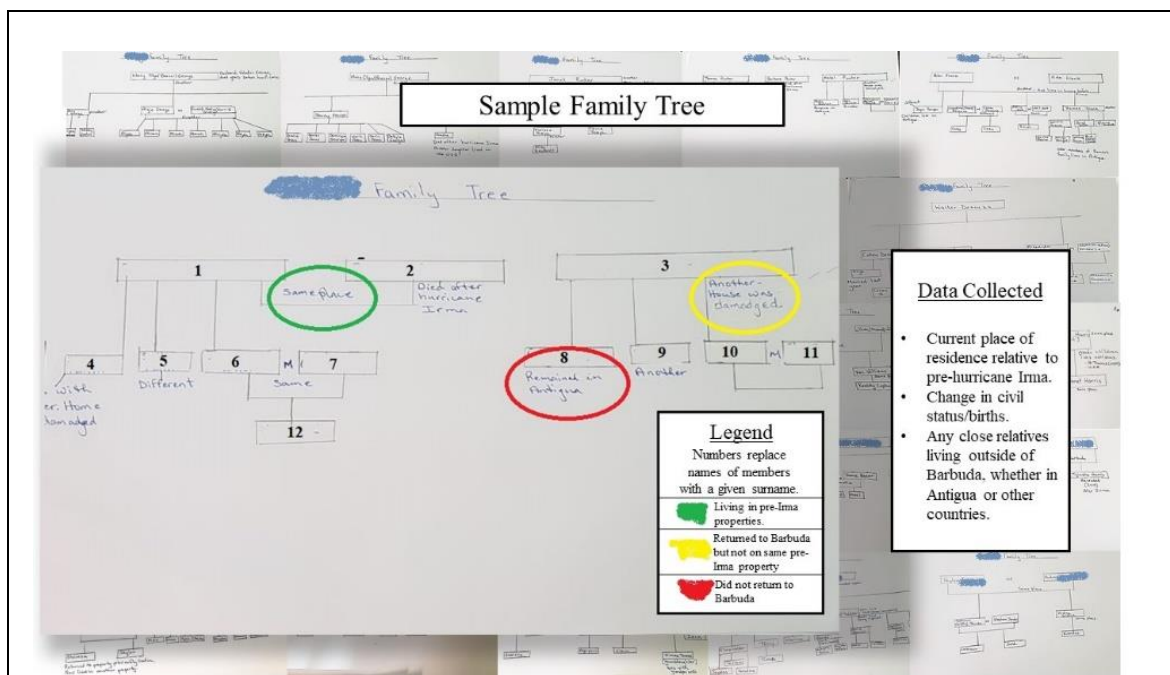


Figure 11: Sample of Barbudan family tree data

Collected in support of sampling strategy.

From the 16 family trees, information on 386 survivors (representing 30% of the estimated displaced population) of Hurricane Irma was identified. The family trees offered surprising insight into the community and the processes of rebuilding and moving toward durable solutions. In the family tree data, only 63% of

survivors reported returning to their pre-Irma place of residence, in line with the UN – International Organization on Migration (IOM) surveys under the Displacement Tracking Matrix (DTM) in 2017 (IOM, 2017). An additional unexpected result from the family trees was that of the 386 survivors; seven were still living in tents nearly four years after Hurricane Irma made landfall, pointing toward a discourse that displacement may have been ongoing with durable solutions remaining elusive four years after landfall [see Figure 12]. Given that the goal of escaping the kinship trap and providing for various displacement outcome scenarios had been met, a maximum variation sampling strategy to build a pool of interviews, based not only on diversity of demographics but also on displacement outcome and kinship, was implemented using the family trees, since, as Palinkas et al. explain, it is useful “for the purpose of documenting unique or diverse variations that have emerged in adapting to different conditions, and to identify important common patterns that cut across variations” (Palinkas et al., 2015).

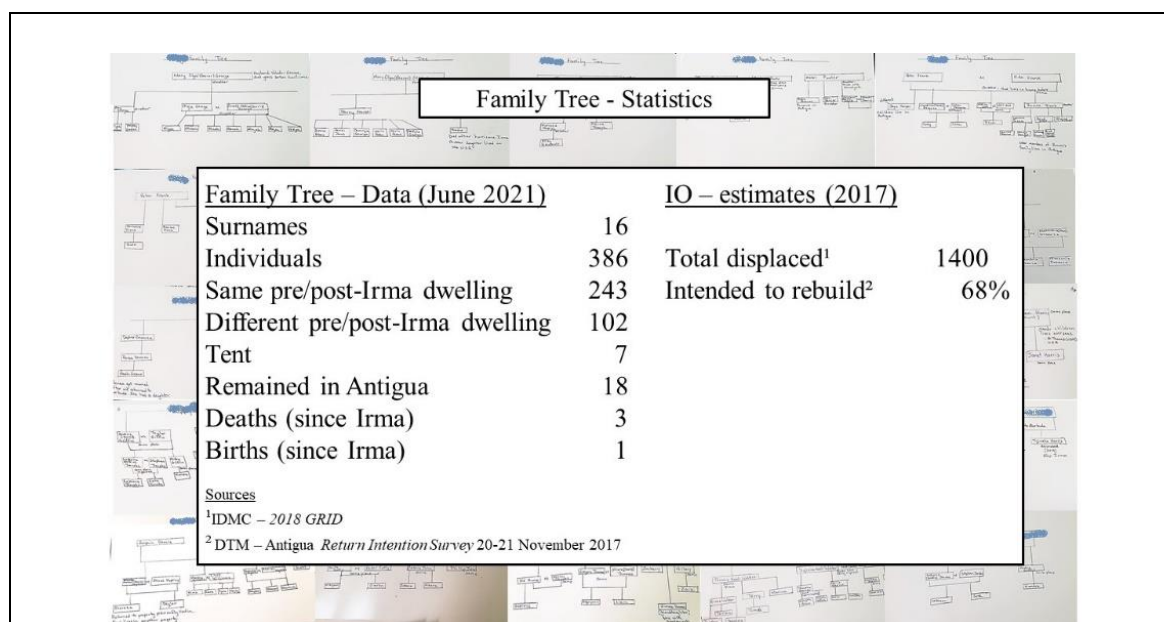


Figure 12: Statistics from family tree data

Statistics compiled from family tree data were well in line with UN estimates of survivors intending to rebuild following Hurricane Irma.

As a result of maximum variation sampling, fifteen prospective interviewees were chosen, each with two alternatives in case the interviewee declined the request or could not be located. The prospective interviewees were chosen based on maximum variation sampling, which would offer concise and strategic intel for the ethnographic process due to the small size of the target population. The group of prospective interviewees was constructed based on diasporic connections, divergent durable solutions, having been identified as still living in tents, or a

combination of these factors [see Figure 12]. From the sampling strategy, personal visits were made to the prospective interviewees in order to request interviews. Based on the constant need of Barbudans to go to Antigua for essential services at the time, a total of twelve semi-structured episodic interviews with survivors were conducted based on the sampling strategy [see Figure 13 and Interview Guide, Annexe III].

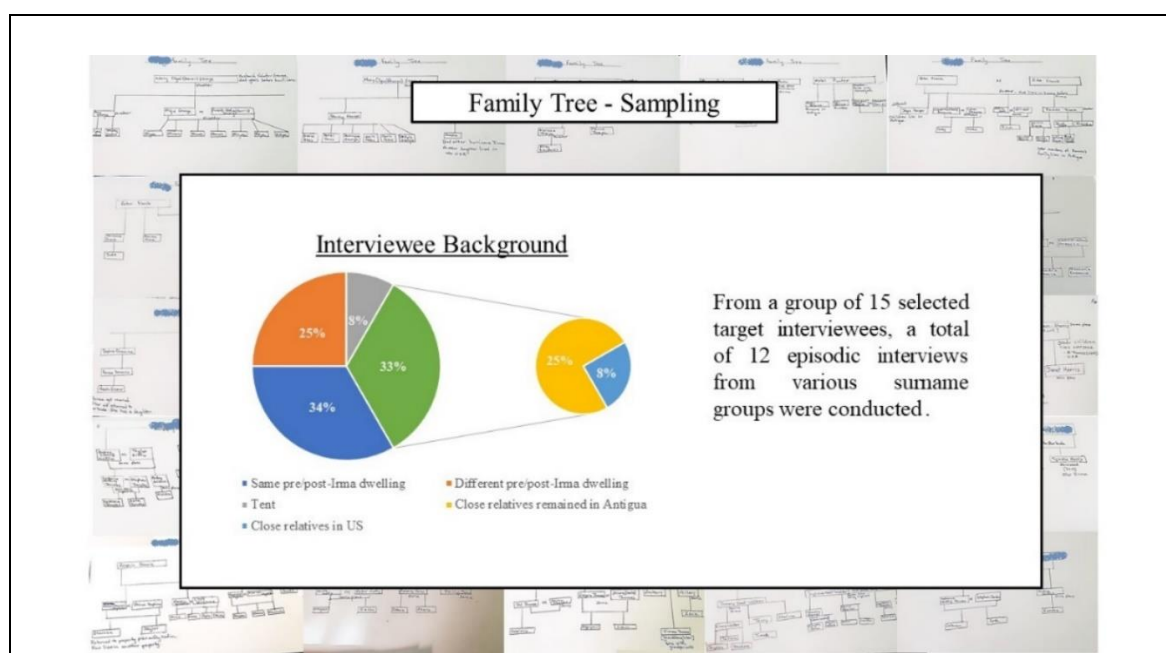
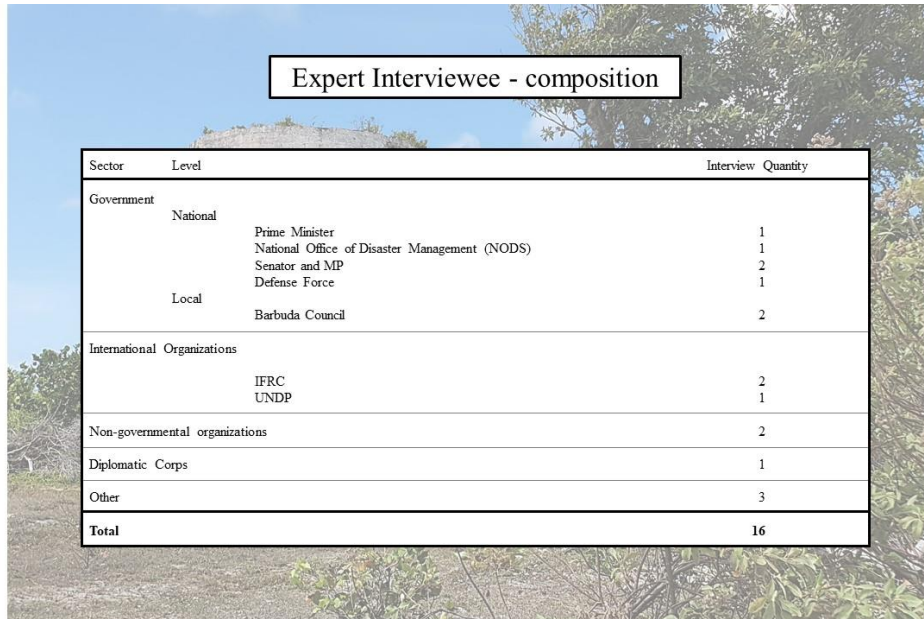


Figure 13: Interviewee sampling pool diversity

As data collection was outcome-driven based on accessing durable solutions, diversity in the sampling pool of interviewees was based on diverse durable solutions

In an effort to further triangulate data on the politicised topic and in a nod to Bevir and Rhodes (2010), I utilised an ethnographic approach that incorporated stakeholder views, and in keeping with the theme of maximum variation, stakeholders were identified until exhausted through snowballing beginning with the Barbuda Council and were contacted for semi-structured expert interviews. Bogner et al. explain that although the advantage of the expert interview differs on a case-by-case basis, they generally offer a researcher direct and accurate insight into a topic within a timely matter (Bogner, Littig and Menz, 2009). Relative to this study, the goal of the expert interviews was three-fold: offer a top-down perspective to the process, further isolate culture from stakeholder response, and offer a basis for verifying and situating data from survivor, episodic interviews. Based on snowball sampling, stakeholders identified as experts included both government officials and organisations directly responsible for any interval of displacement, whether it be during evacuation or reconstruction. The stakeholders identified fit into a multi-level governance framework, and special care was taken to ensure diverse political views were included (cf. Ishtiaque, 2021). As there are relatively few actors under these parameters, most of whom

were public figures, identifying expert interviewee partners through basic searches was straightforward, and gaining access came through a combination of cold calling and informants. Two additional experts were identified through informal conversations with Barbudans during fieldwork. In total, there were 16 expert interviews conducted [see Figure 14 and Interview Guide Annexe III].



Sector	Level	Interview	Quantity
Government	National	Prime Minister	1
		National Office of Disaster Management (NODS)	1
		Senator and MP	2
		Defense Force	1
	Local	Barbuda Council	2
International Organizations			
		IFRC	2
		UNDP	1
Non-governmental organizations			2
Diplomatic Corps			1
Other			3
Total			16

Figure 14: Background distribution of expert interviewees

As a means to further situate specific datasets, two focus group discussions were conducted. The first focus group was conducted in conjunction with Holy Trinity Primary School, the sole primary school in Barbuda. The administration assisted in arranging for six mothers of primary school-aged children at the time of Hurricane Irma to meet and discuss their narratives on displacement and rebuilding and perceived long-term social impacts. The attendees were purposefully chosen based on diverse experiences, including during displacement in Antigua (shelter-dependent and private solutions) and during reconstruction (long-term tent displacement, returning to already repaired homes, renting and building homes in new locations). The focus group offered a rare insight into the acute impacts on pre-adolescent children that would have otherwise eluded interviews under the family-tree sampling method due to ethical reasons. The second focus group stemmed from an insight gained while evaluating prospective expert interviews that there were few civil society organizations in Barbuda. Participants in the second focus group were thus representatives from such organizations. The more than four-hour discussion offered insight into cooperation between government and local NGOs, limitations of international NGOs as providers of humanitarian aid, and the multi-role dimension that local leaders often play in small islands between the private sector, civil society and government.

During fieldwork, a total of 28 interviews were conducted between (survivor) episodic interviews, and expert interviews and two focus groups were conducted with a total of 8 participants for a total duration of 23:06:15. However, it is essential to acknowledge that of the expert interviewees of Barbudan extraction, interviews ran a fine line between being both expert and (survivor) episodic interviews with processes and decision making resulting from the complex positionality of both survivor and decision-maker. Interviews, in some cases, lasted more than an hour, with respondents capable of recalling, in great detail, their narratives, including times of the storm and dates for which the respondent returned to Barbuda. Local experts keen to share their perceptions of the rebuilding process often lasted several hours and included site visits. In comparison to previous fieldwork following, for instance, Hurricane Dorian in the Bahamas, Barbudan interviewee partners seemed to have an incredible recollection of events with well-developed reflections at a household level.

II.3.2 Triangulation: participant observation and archival research

Ethnography, in general, is criticized for the risk of bias; researchers intending to observe novel processes through participant observation can be limited in interpretations by their own experience and through the process of integrating into power hierarchies that in a system may unknowingly limit access to certain data (Hammersley, 2006). Knowing that power dynamics exceeded even the community context, the risk of bias had to be accounted for at each level, including in participant observation. Therefore, an extended stay in Antigua prior to travelling to Barbuda was undertaken to contextualise myself with, not only the place of displacement, but also the national duality. The first two days were spent driving around the large island, visiting both coastal and inland communities and often stopping at local businesses to strike up a conversation on Hurricane Irma or local dynamics. From these informal discussions, a list of points of interest was compiled for which the next week would be spent visiting, from the cricket field that served as a makeshift shelter to ports where displaced Barbudans arrived and even to the supermarkets that supplied vouchers through humanitarian partners.

Informal discussions around the island, a component of participant observation, continued to provide insight into the social dynamics between Antigua and Barbuda. I engaged both locals and ex-pats who had been in Antigua during the period of displacement to gauge the often negative, Antiguan perspective. Interestingly, very few Antiguan to whom I had spoken reported having ever visited Barbuda. Sentiments were high, and notes from the field book at the time mainly revealed perspectives of Barbudans as entitled and living off the system. Engaging these topics further, there was resentment that Barbudans had free land and water and could be guaranteed paid salaries by their local government for remedial work. From the few Antiguan having visited Barbuda, the ominous warning would come that it was not a place anyone would enjoy living.

Arriving in Barbuda, the first days were spent much like in Antigua. However, unlike Antigua, road infrastructure was limited, and most of the island could only be explored with a local guide and a four-wheel-drive car. Nevertheless, I drove around the small island, exploring any roads where the small car could pass and visited the few shops that seemed to have been rebuilt after Irma to hold informal conversations with patrons and business owners and learn more about day-to-day life. However, there was a tendency among the informal conversations to quickly turn political and be based around either criticism or support for the national government, opinions on local development projects, or criticism of the UNDP-led, post-Irma housing project. Although sympathizing with the informants, I was careful not to be perceived as political, with experience from prior island studies projects dictating that this would limit future interactions or lead to removal in a worst-case scenario.

As interviews began and many Barbudans became familiar with me, other island areas were revealed. These areas required local guides familiar with the dense bushlands and *cenote*-like cave structures that covered much of the eastern side of Barbuda. It is in the dense bush where much of the local livelihoods take place, such as deer hunting, land turtle collection, and herb foraging. Another critical dynamic revealed through interviews and crucial to participant observation was the unusually early start to the Barbudan day. Particular social dynamics only occur in the food markets, and 'dumpling' stands often exist only before six or seven in the morning.

As the end of the fieldwork neared, interview recordings were reviewed to give new hints to the displacement dynamics in Antigua. These dynamics included new protagonists to be interviewed and new nodes in the individualized narratives of survivors, including various locations of shelter and bus routes that the displaced Barbudans would have taken to go from their Antiguan homes to work and schools. There was also insight into the locations where humanitarian assistance could be procured. I followed several of these nodes to better understand displaced Barbudans' lives through movement and logistical barriers. Having become accustomed to Barbudan daily life, I also found a new reflexive perspective in which to experience places visited during the first observational trip to Antigua.

Archival research, another common element of the ethnographic approach, faced limitations that may not be faced in a more urban context. Although there is an archive in St. Johns (Antigua), there seemed to be nothing closely related to Hurricane Irma. Instead, I had to rely on a digital ethnography approach and again turned to social media. In displaced communities, displacement is individualized and thus dispersed. While many survivors may, for some time, be in shelters, other survivors will have the financial or social means to self-displace. As communication between stakeholders and displaced persons is the main priority in relaying information, stakeholders are increasingly utilizing social media platforms, particularly Facebook, where use is highly saturated and posts can include visual and text messages. Thus, Facebook, in this thematic context, offered accurate insight into the processes for which the project aimed to navigate and offered a method for obtaining archival data that could be replicated in future studies on displacement.

II.4 Analysis

The ethnographic approach used in this study was both iterative and inductive. The study started from a series of events and tried to find meaning from these events in a constantly reviewed process as new data came to light. I kept a field journal and constantly noted down (memos) observations and personal thought processes through the fieldwork to aid the iterative process. At various intervals, usually twice weekly, I would organize the memos through concept mapping in an effort to reveal new leads that challenged any assumptions or initial findings that I may have prematurely reached and to constantly reflect on reflexivity and awareness of the observer's paradox, where the messages given by me may have, in some way, impacted the process, especially crucial when interacting between parties to a joint project whom may lack adequate direct communication (cf. Dale and Vinson, 2013).

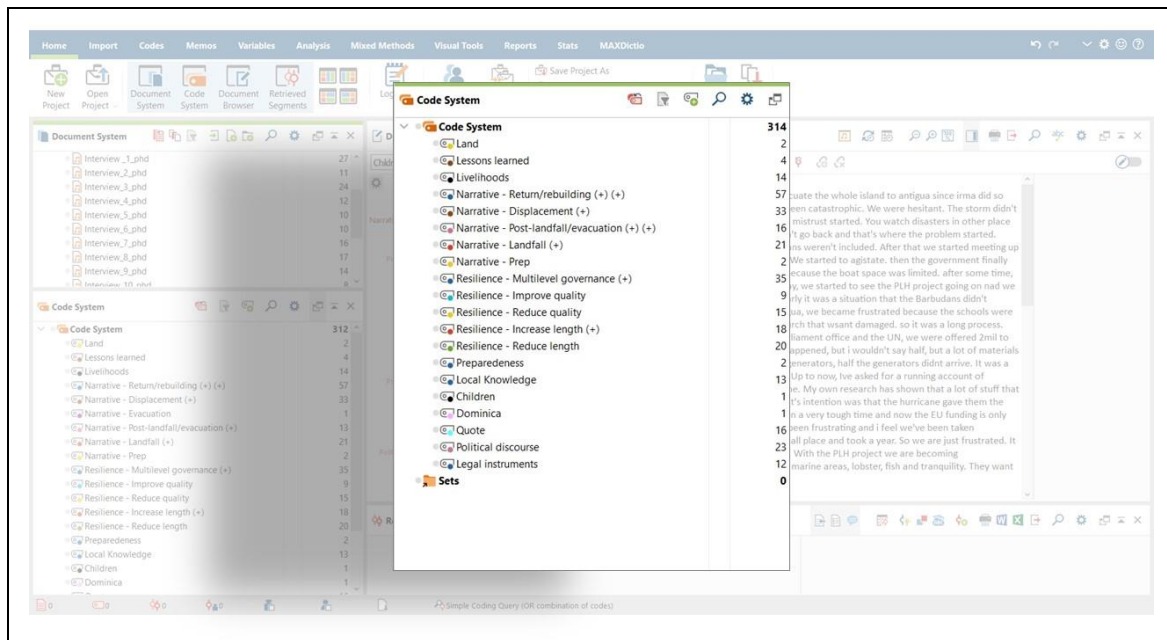


Figure 15: Coding systems excerpt

In an aim to be more objective and removed from the field, where observation was uncontrollably constant, interviews were not transcribed until returning home, and a few weeks had passed to decompose out of fieldwork mode. Within a week, all recorded interviews and focus group discussions were transcribed, and another period of decompression period ensued, after which the transcriptions were initially coded using descriptive codes. Descriptive codes allow a researcher to effortlessly categorize data as an initial categorical step (Cope, 2016); the descriptive codes were then further analyzed into analytic codes. The analytic codes were organized in relation to topics of narratives [Part 2 of this dissertation] and resilience [Part 3 and 4 of this dissertation]. Additional

categories were made for topics related to the research question, such as local knowledge, political discourse, legal instruments, and livelihoods [see Figure 15].

To answer the research question, the result of the analysis was two-fold. First, factors contributing to resilience during displacement and reconstruction were catalogued into four sets of data. Resilience during displacement was qualified by aspects reported by the interviewees that either improved or reduced the quality of life during displacement. Resilience to re-integrate into a durable solution was qualified by the reported aspect's impact, either contributing to extended displacement or reducing displacement length. The fifth category of resilience included multi-level governance factors that impacted any event from preparation to the current state that should be factored out of the cultural process. For the final part of this dissertation, the contribution to theory, I further frame the data to elicit social negotiations that took place in accessing resilience. What resulted from this analysis of displacement as a cultural process became an outside perspective akin to a cultural landscape from the vantage point of, in this case, Hurricane Irma and thus will be framed as a post-disaster cultural landscape.

II.5 Research ethics and data preservation

Collecting archival data from Facebook is fraught with ethical issues, not least of which include the inability to seek user consent (Flick, 2015). To limit the use of Facebook user information, data was only collected for posts posted by identified stakeholders [see Figure 14] to avoid ethical issues, and digital archival data was used only as a means to triangulate interview and observational data. The process used for retrieving archival data was such that events were first mapped out based on interviews. Potential stakeholders were then identified for the event, and the event was then retrieved from stakeholders' timelines. Any aspect of the post may have been used, and if another non-individual entity were mentioned, their timeline would be further investigated. Due to reflexivity in the ethnographic process, any comments on the posting were not viewed in an effort to alleviate the risk of unconscious bias from non-consenting individuals.

Although, as Murphy et al. (2021) explain, there has been a recent push in ethnography to be more transparent, displacement and qualitative data thereof in all contexts is sensitive. It is an event at which time a government is forced to intervene for the safety and well-being of impacted citizens. As response must be coordinated in precarious circumstances, civil liberties are often limited in favour of public interest. Even during pre-Irma times, Barbuda held a place of political contention with the ruling party. I was entering a space of open hostility and often paranoia between rival parties, and among the foci of tensions was post-Irma reconstruction. It was evident that, as with other disaster-related projects, I would have to take extraordinary measures to guard data and to ensure source privacy.

The first defence line was identifying and methodically predicting which data would be most sensitive. This data, including names used in sampling from family trees and survivor and expert interviews, was not kept locally. For the purpose of data protection, a network access server in Switzerland belonging to the Swiss-based NGO, EMRU, was used for the storage of recordings and family trees, to which only I had direct access. Upon uploading sensitive data, any local storage was summarily destroyed, and any access to data would then be conducted directly through the secure server. Additionally, while in Barbuda, smartphone data recording location, call logs and messaging services was deleted, with all relevant information kept only on the server. Within the field book, I was conscious of recording especially sensitive observations and thoughts in various languages to add further complexity to identifying data should the journal be lost. The data will be kept for a further five years on the EMRU server as well as in a backup format on a personal computer before deletion.

II.6 Summary

The events following Hurricane Irma and the full displacement of Barbudans to neighbouring Antigua offered compelling insight into a rarely observable process, in which data collected from a longitudinal qualitative perspective enriched knowledge in hurricane studies dominated by satellite imagery, disconnected from the lived experience and perception of survivors while at the same time offering a broader view for contextualization of emerging case studies at the precipice of disaster studies. Given that the topic and fieldsite are relatively understudied and my disposition for constructivist ontology, my own philosophical questions of theory production led me to choose an ethnographic approach over grounded theory, thus focusing methodology on participant observation, interviews, focus groups, and archival research.

Even before venturing into the field, the novelty of Barbuda as unique within the Caribbean context challenged commonly practised sampling strategies. Due to the small population and lack of in-migration, even before sampling could be conducted, more information was needed to ensure diverse data. To escape limits due to the relatively few families, archives and data from social media were used to map surnames. Furthermore, the multiplicity of displacement outcomes warranted special attention. Therefore, using surname data, family trees were compiled, providing insight into family networks, demographics, change in civil status since Irma, and displacement outcome. With the initial data from family trees in hand, maximum variation sampling was implemented to precisely reveal a diverse pool of interviewees. To contend with criticism of the inherent bias in ethnographic approaches, great care was taken to expand data collection in order to further triangulate both participant observation and survivor interviews. Thus, expert interviews were conducted with stakeholders, identified through snowballing with prior interviewees beginning with the Barbuda Council until no new stakeholders were revealed. Focus groups were also employed when possible but limited in use to triangulation due to the inherent power imbalances that inevitably form within such settings.

While the ethnographic approach offered great insight through a holistic approach, there were also some limitations. First, Barbuda was still rebuilding during fieldwork, and with limited facilities, challenged long-term deployment. Second, the nature of displacement is that not all survivors return, and thus the complete space of Barbuda's narrative is dispersed across Antigua and even overseas, out of the reach of the ethnographic process. Third, Barbuda had no archives and so possible methodologies were further reduced. However, with all the limitations, the undeniably clear memories of the Barbudans, their willingness to relive every minute detail from preparation to recovery, and the ability to interview every main stakeholder from the local government up to the Prime Minister and from all corners of the multilevel governance hierarchy offer an extremely rare, ethnographic perspective to the processes of disaster management, hurricanes, evacuation, displacement, reconstruction, and, most of all, community resilience.

Part 1

Case study: Barbudan displacement 2017-2021

Although the Eastern Caribbean small island states lie within the region's hurricane zone, landfall is rare, and few residents have lived experience of major hurricanes.⁵ In the early morning hours of 6 September 2017, category-five Hurricane Irma made landfall over the small island community of Barbuda. As the sun rose that morning and survivors left their makeshift shelters, they were overcome with an island, their ancestral island, devastated and unrecognisable. Communications were entirely cut off from the outside world. As they would later find out, ninety-five per cent of buildings were damaged. With the prospect of a second hurricane within days, the national government in Antigua decided to enact a state of emergency and evacuate the entire population to Antigua within 48 hours.

To capture the narratives covering the four-year post-Irma reconstruction period, I undertook ethnographic fieldwork in Barbuda. Survivors recounted in great detail the events leading up to evacuation, during displacement and as the island came together and rebuilt. This section of the dissertation is the island's narrative as told through those interviews and triangulated with expert interviews and social media posts from stakeholders throughout the process. While exhaustive narratives may not be commonplace in such a dissertation, they are thematically vital in this case. First, accurate longitudinal narratives of displacement are rare due to, in most cases, too many variables clouding events. Second, Barbuda is one of the first islands to be completely displaced by a natural hazard. Lastly, as this dissertation seeks a subjective approach to constructing resilience as factors opposing stresses, an argument can only be built by also elucidating the stresses caused by Hurricane Irma as embedded in narratives. Thus, this section aims to be a snapshot of the four years, the longitudinal perspective from preparations for the storm to durable solutions, separated into six chapters. First, Barbuda as a field site will be contextualised based on participant observation and literature. Three sections will then explore preparations, evacuation, and displacement to Antigua. Finally, the return and reconstruction phases will be examined before discussing stakeholder visions for Barbuda's long-term outlook.

⁵ Category three-five hurricanes.

Chapter 1. The Barbudan fieldsite

Shortly after take-off from Antigua's V.C. Bird International Airport, the BN-2 propeller plane veers north over the Caribbean Sea, and Barbuda comes into view. At first glance, the aerial view approaching Coco Point at the southern tip of Barbuda more resembles remote, low-lying Pacific Islands than the more developed, hilly Caribbean neighbours. On a clear day, most of the island is visible during the approach, and Barbuda seems flat, with dense, green bush and only a few small buildings dotting the western coast. There are no large hotels, beach-side promenades, shopping malls, or paved roads. As the flight descends toward the landing strip in the island's main village, Codrington, the aeroplane passes over Palmetto Point, where beach mining and construction on the first large-scale development visibly alter the island's landscape. The small plane lands in the village centre within a few minutes, no more than twenty minutes after takeoff.

Barbuda makes up the lesser populated half of the twin-island state of Antigua & Barbuda. While the country's total population remains just below 100 thousand, the 2011 census estimates that there were only 1,625 Barbudan residents (Statistics Division, 2014). The two islands united through independence in 1981 have varied histories and identities further subjugated through a unique governance structure and post-colonial legislation that sought to guarantee local Barbudan practices of the minority island. This section will disambiguate the distinctive characteristics of Barbuda that differentiate the island from Caribbean neighbours by discussing the island's physical geography, colonial history, relevant legislative acts extending Barbudan self-governance, and the post-colonial state. Lastly, Barbuda's demographics and disaster preparedness will be reviewed.

1.1 Physical Geography



While most of Barbuda is relatively flat and low-lying, the northeastern section of Barbuda is comprised of a cavernous highland. Here, the island's first indigenous community is thought to have settled, and the Codrington family built their estate. However, there are presently few dwellers in the area. In contrast to the Caribbean Sea calmness of the east coast, the highland is battered by Atlantic Ocean swells, and it was upon these shores that Hurricane Irma made initial landfall. (Marazita, Jun-2021)

Figure 16: Two Foot Bay, Barbuda, Antigua & Barbuda

The island of Barbuda is a primarily flat and sparsely populated limestone outcrop, lying sixty-three kilometres north of Antigua in the Eastern Caribbean; the island's area is roughly 160 sq km and is bounded on the east by the Atlantic Ocean and the west by the Caribbean Sea (CIA, 2022) [see Map 3]. The eastern coast is of higher relief, with limestone cliffs hollowed out by Atlantic waves revealing cavernous underground passages that have prevented large-scale development but served as a shelter for pre-colonial Carib settlements (personal interview with local BPM; Codrington, Barbuda; 31-May-2021). The calmer seas of the Caribbean shore are of lower elevation and are well-known for white and pink sand beaches and the centre of much of the island's recent and past development, including the main village of Codrington.



The fisheries building stands, with its concrete façade and flat roof, in stark contrast to neighbouring structures. The building was one of few structures to survive Hurricane Irma and served as a community centre in the days following landfall as Barbudans awaited evacuation. Codrington village, Barbuda, Antigua & Barbuda (Marazita, Jun-2021).

Figure 17: Fisheries building on Codrington Lagoon

Barbudan social life is centred around Codrington. The village is located along Barbuda's western coast, protected from the open sea by the Ramsar-registered Codrington Lagoon, which also serves as the base for the island's fishing industry. Along the lagoon's harbour, fisherfolk, as they are locally known, bring in their daily catch to the village fishery's building. Barbudan lobster and, to a lesser extent, conch provide the fisherfolk with a vital source of income and are the island's only significant exports. The densely packed village is a mix of both well-planned, quadrilateral neighbourhoods and windy alleyways dating back to the island's early-colonial era. The town is also the island's economic centre with small shops, restaurants, churches, schools and government buildings.

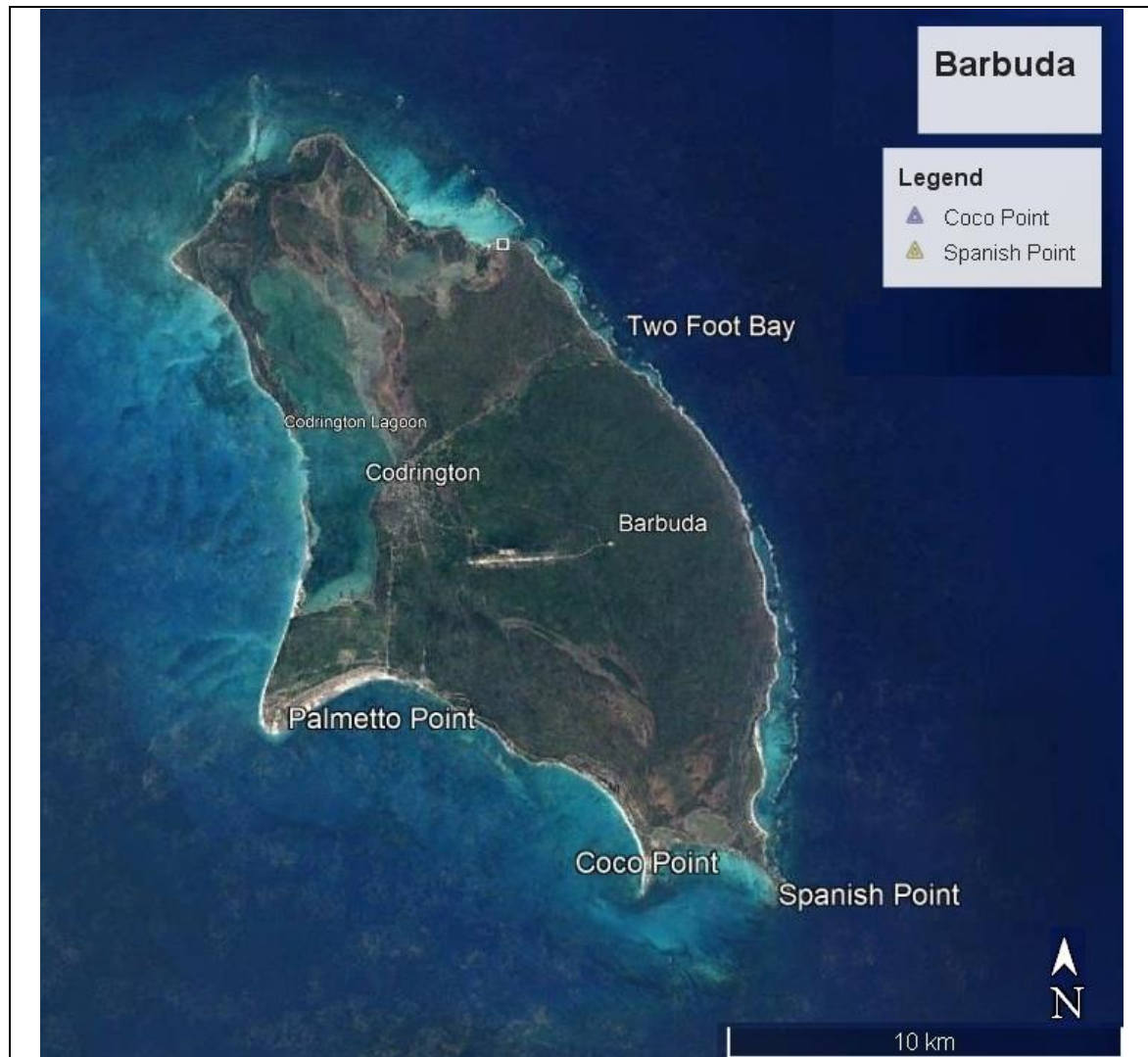


Unlike neighbouring Antigua, there are relatively few paved roads in Barbuda. The main route linking Two Foot Bay (east) to Coco point (south) is pictured above. It is a bumpy, dirt road that comes alive early on Sunday mornings with the local-speciality fish fries and in the late evenings as bars open up. Codrington (Marazita, May-2021).

Figure 18: Barbuda's Route 1 through Codrington

The Codrington airport bounds the village's southern limit. Following any road running parallel to the runway, one eventually reaches Route 1, the major thoroughfare stretching from Coco Point, in the south, to Two Foot Bay in the eastern highlands, offering a cross-section of the island's relief. Turning south on Route 1 out of Codrington, homesteads become larger, and livestock sightings increase. Donkeys and goats roam the streets freely, searching for edible vegetation on the arid island. Much of the route south, paralleling the Caribbean coast, is unpaved and surrounded by dense bush. However, approaching the southern point, an entirely foreign scene unfolds with what seems to be border fences restricting access to gated communities under development. Beyond the barrier lies the Barbuda Ocean Club, with a helicopter landing pad and all the amenities expected of an exclusive community sealed off from greater Barbuda.

Map 3: Barbuda



Barbuda Island
Landsat/Copernicus

Map data: Google, ©2022

Barbuda is the smaller sister island in the state of Antigua & Barbuda and lies 48km north of Antigua. The island's total area is 176km² and is mostly flat, except for elevated highlands in the NE. An accurate population is unknown due to out-migration following Hurricane Irma, with the last census having taken place in 2010, but it is estimated to be between 1200 and 1400. Most of the population lives in Codrington. Although comprising a single state, Barbuda enjoys relative autonomy negotiated during state-building and is governed, to an extent, by the Barbudan Council, the only local governing entity in the state. A significant Barbudan diaspora exists in Leicester, England dating back to the colonial era and, increasingly, in the United States.

1.2 Colonial-era settlement

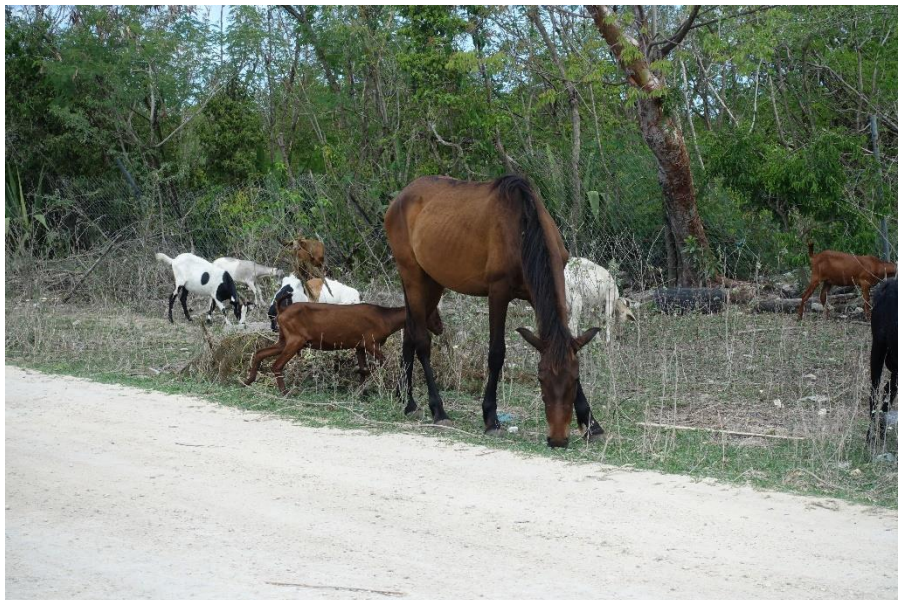


The Martello Tower, built in 1745 by William Codrington, remains the island's tallest building. It is one of the last physical remnants of Barbuda's colonial past. With few tourists visiting the site, Martello Tower is largely overgrown and, like the ruins of the Codrington Estate, serves mostly as grazing land for Barbudan livestock. (Marazita, Jun-2021).

Figure 19: Livestock grazing in front of Barbuda's Martello Tower

Although the human history of Barbuda extends to pre-colonial Carib aboriginal settlement, the modern Barbudan population has roots entirely in colonisation. In the seventeenth century, much of the Caribbean was under the control of the British empire. Barbuda's sister island, Antigua, was first settled by British overlords in 1632. Although the governance was bitterly contested by Carib aboriginal settlers and other European groups, the British would eventually subvert power. Due to Antigua's advantageous physical geography allowing for the construction of harbours and defence installations, the island grew in colonial importance and by 1696 became the regional seat of government, uniting the Leeward Islands under crown law; among these laws included the allotment of land holdings at the discretion of the King, and thus land on the islands were divided up through long-term leases; beginning in 1685, the Codrington clan, an aristocratic family of English origin that had already acquired leases on vast plantations in Barbados and Antigua, secured a fifty-year lease on, at the time, uninhabited Barbuda by King Charles II as a means to expand agriculture holdings (Sheridan, 1994).

By 1677, Christopher Codrington II was Antigua's leading sugar cane producer with five plantations and nearly a thousand acres of land; however, unlike the Antiguan plantations, Barbudan soil was not viable as arable land and did not support sugar cane cash crop cultivation (Sheridan, 1994). In its place, Sheridan explains that Barbuda became a colonial-era supply chain hub for livestock and the slave trade, a "stud farm" supplying provisions to plantations in Antigua and beyond; the Codrington Estate's success was thus fueled by imported labour from western Africa that supported its Barbudan enterprise, marking the beginning of a tumultuous two-century association between European management and Afro-descent enslaved labourers, the ancestors of present-day Barbudans (Sheridan, 1994, p. 185). Tweedy (1981) argues that the slave community, numbering 172 in 1746, developed strong social bonds that prevented the Codrington family from transferring enslaved Barbudans to other islands. By the time of emancipation in 1834, the Afro-descent population had grown to more than five hundred (Tweedy, 1981).



Livestock has been a traditional staple livelihood for Barbudans in practice since the Codrington era. It is not uncommon to see horses, donkeys, and goats even in the village centre. Although the livestock grazes openly, they are all accounted for by owners. Miraculously, the livestock largely survived Hurricane Irma. (Marazita, May-2021).

Figure 20: Livestock grazing outside of Codrington

During Codrington's proprietorship, long-lasting attributes of Barbudan livelihoods were instilled, many resulting from the uniquely harsh environment that menaces the island with threats of drought. The barren limestone island was transformed during settlement with the importation of livestock for economic gain and the introduction of fallow deer for leisure and hunting; to overcome the harsh local climate, Barbudans were employed not only in livestock-related work but increasingly in fishing, deer hunting, and small-scale cultivation with Afro-descent

Barbudans encouraged to be self-sufficient, allowing them livelihood diversification and independence that reduced vulnerabilities associated with the Codrington's responsibility to support the island (Berleant-Schiller, 1978).

Emancipation marked a social turning point for pan-regional communities of Afro-descent. Still, Berleant-Schiller argued that although the Barbudans gained greater legal freedom, the strong community bonds built through the process of settlement had always provided Barbudans with an elevated level of autonomy (Berleant-Schiller, 1978). Within the Barbudan network, little is known about the self-regulation and determination of Barbudans outside of the few legal challenges against the island proprietors. Still, the Barbudan community persisted and grew through the constant threat of environmental vulnerabilities to drought and hurricanes, threats of slave transfers, and constant attempts to subjugate crown land laws. By 1870, the Codrington leases over Barbuda had lapsed; although other proprietors would be granted land leases in the years leading up to independence, none were successful in subjugating Barbudan ad-hoc local governance (Berleant-Schiller, 1978).

In essence, the colonial-era establishment of the Codrington Estate on Barbuda laid the framework for contemporary Barbudan social constructs. The harsh environment, lack of arable soil, and threats to the way of life from various overlords seeking to capitalise on crown land leases created a backdrop for Afro-descent Barbudans to form strong social bonds with flexibility and diverse livelihoods. During times of prolonged drought and adverse climatic impacts, a unique land system that existed in parallel to crown law allowed the flexibility for Barbudans to move to greener pastures. Strong and uncompromisable social bonds protected community members in disputes and altercations with European settlers. Diverse formal and informal roles allowed flexibility to, on the one hand, serve the mission of estate proprietors and, on the other, to ensure food security through small-scale cultivation, marine livelihoods, hunting and gathering, and livestock rearing for household consumption. Until the mid-twentieth century, the Barbudan population remained in solidarity with little out-migration. However, the promise of employment, education and relief from the arduous task of sustainable livelihoods in the rough Barbudan climate served as a push for waves of Barbudans to emigrate in the mid-twentieth century to the small town of Leicester in the United Kingdom, and following independence, to the United States, leading to concentrated diasporas.

1.3 The Antiguan & Barbudan state

At the beginning of the twentieth century, the British Empire spanned the world with fifty-seven colonies ranging from the vast frontier of Arctic Canada to small atolls in the Gilbert and Ellis Islands. Over the previous centuries, the Caribbean islands had been divided by various European powers, and many of the small Eastern Caribbean islands had remained firmly under British rule through the governance of the British West Indies, including Barbuda. In 1960, membership

in the United Nations began to grow as new states, mainly in Africa, began achieving independence; led by these new states, there was a call for unilateral decolonisation of the remaining colonies (White, 2014). The draft resolution on decolonisation was quickly passed in the general assembly leading to the *Declaration on the Granting of Independence to Colonial Countries and People*. Following the declaration, many small islands faced a dilemma in negotiating statehood rights but with populations often unable to surpass small European villages. Thus, the first Caribbean states to form following the UN declaration were the most populous, with Jamaica and Trinidad and Tobago emerging in 1962. It would be another two decades for the smaller Leeward Islands before the dream of autonomy was realized. To this day, five British colonies and several French and Dutch territories remain under uncontested external colonial rule in the Caribbean [see Figure 21].

Independent Caribbean States			Br. Territory ⁶
1962 Jamaica	1974 Grenada	1981 Belize	Anguilla
1962 Trinidad & Tobago	1975 Suriname	1981 Antigua & Barbuda	British Virgin Islands
1966 Guyana	1978 Dominica	1983 St. Kitts & Nevis	Cayman Islands
1966 Barbados	1979 St. Lucia		Montserrat
1973 The Bahamas	1979 St. Vincent & the Grenadines		Turks & Caicos

Figure 21: Caribbean decolonisation

Table of Caribbean states sorted by independence dates and current British dependencies.

The cornerstone for Caribbean independence among the region's smallest island colonies was laid in 1967 with the passage of the West Indies Act, following the advice of a series of constitutional conferences held in London. The act conferred association status to six Eastern Caribbean colonies, including Antigua.⁷ Although not yet independent, the status aimed to give the small islands of Antigua, Dominica, Grenada, Saint Christopher (Kitts) & Nevis (& Anguilla), Saint Lucia, and Saint Vincent greater autonomy to regulate domestic affairs. The Act outlined the separation of powers between the crown and the newly autonomous associate states, leaving the responsibility for international relations

⁶ Current British dependencies as of March, 2022.

⁷ Up until independence, Barbuda along with uninhabited Redonda remained dependencies of Antigua.

and defence under the UK and conferring a new category of citizenship for the islands' inhabitants as 'citizens of the United Kingdom, Associated States, and Colonies' as defined in section 4(12) of the Act (West Indies Act 1967). However, most notably, associate states under the West Indies Act were granted the power to dissolve the association with the UK through legislation, thus framing a pathway to independence, for which by 1983, all associated state parties to the act would pursue except Anguilla, formerly constituted with St. Kitts & Nevis.

The relationship between Antigua and the small Barbuda community had never been strong. Although there had been important trade connections during the Codrington era, Barbuda's Afro-descent community remained insular since the time of settlement, with little contact with the larger Antiguan population. In this context, the two islands separated by sixty kilometres of the Caribbean Sea socially evolved distinctly with divergent norms, rules, and land tenancy. The ad hoc system of Barbuda stood in stark contrast to the colonial laws strictly adhered to in Antigua. As the Antiguan colony gained greater autonomy as an associated state with the UK, Barbudans felt their own autonomy threatened. Discussions of secession from Antigua gained traction, causing delays to independence and statehood. To alleviate the contentious issue, Barbudan autonomy was guaranteed and regulated by the Barbudan Local Government Act 1976, which set out the legal framework for the establishment of the Barbuda Council with the right to administer the island of Barbuda. However, the sister islands continue to contest the limits of this Barbudan autonomy. Battles have raged between Barbuda and the national government, with court cases elevated to the Privy Council even predating independence, recent complaints lodged with the UN Human Rights Council, and further threats of Barbudan secession [see Indexes I + II].

The Barbudan Council was unique to the Antiguan associate state as there were no other allocations for local governance. To this day, Barbuda is the only jurisdiction in Antigua & Barbuda to have local governing autonomy. According to section 4(1) of the Act (Barbudan Local Government Act 1976), the Barbudan Council was comprised of eleven members, nine of whom would be elected and two members appointed by the council to serve in the national House of Representatives and Senate. To be eligible for a seat on the Barbudan Council, prospective candidates would need to fulfil specific Barbudan citizenship requirements. Thus, the preliminary legal requisite for Barbudan identity was drafted identifying Barbudans as being both a Commonwealth citizen and either born in Barbuda, the child of a parent born in Barbuda, or a resident of Barbuda for a period not less than three years in accordance with section 6(1) of the Act (As Barbudan entitlements were expressed in subsequent legislation, the legally defined Barbudan identity would become increasingly restrictive). Those meeting the legal threshold for Barbudan identity and elected to the Barbudan Council were tasked under Part V of the Barbuda Local Government Act 1975 with the following responsibilities:

- “(a) to administer agriculture and forestry;
- (b) to administer public health, medical and sanitary facilities and services;
- (c) to administer and regulate the provision of electricity and water services and other public utilities; (d) to construct, improve and maintain roads;

(e) to raise and collect revenue pursuant to the provisions of this Act to enable the Council to meet expenses necessarily incurred or to be incurred in the performance of its powers and functions under this subsection except to the extent that financial provision in that behalf may be made from time to time by Parliament (5,1,2)."

The first election for the Barbudan Council was mandated by the act to take place in 1979, with Hilbourne Frank from the Barbuda People's Movement Party (BPM) elected chair, a position Frank would hold for much of the next two decades. Council elections were held on a revolving schedule, with terms set at four years and split elections held bi-annually; additionally, chairs would come to be affirmed annually in January (personal interview with local BPM; Codrington, Barbuda; 31-May-2021). To fulfil the mandates set out by the Barbuda Local Government Act, much of the resident population was and continues to be formally employed to some extent by the council.

A second crucial stalling point to independence negotiations revolved around funding the activities of the Barbuda Council. As a current member of the council explained:

"When independence was first discussed, the British wanted to look after Barbuda., so they had an economist work on it, and a formula was produced of how much Antigua had to transfer back. It's called the transfer grant, and it's based on a few things. When you shop in Antigua, you pay tax; when you come here, you pay again, so that double taxing is taken to the treasury, and therefore you have money in the treasury, and that comes back to Barbuda. There's also the transfer grant for education levy." (personal interview with local BPM; Codrington, Barbuda; 31-May-2021)

The transfer grant became Barbuda's most crucial funding mechanism, funding not only the upkeep of council assets but also education, healthcare, and much of the income paid to the majority of Barbudans employed by the council. With the autonomy to govern Barbudan local affairs and maintain local practices and a mechanism for funding self-autonomy, there were no longer domestic barriers to an independent Antigua & Barbuda state and section 10(2) of the West Indies Act of 1967 was activated, leading the way for independence on November 1, 1981, while retaining the monarchy as head of state as a member of the Commonwealth of Nations.

The process of negotiating independence lasted more than a year, beginning in July 1980 and culminating in the order to terminate Antigua's association with the UK. When the demand for Antigua's termination as an associate state was announced in the British House of Lords, Lord Skelmersdale made specific reference to Barbuda's particular circumstances, explaining that:

"There is a population of about 1,200 souls, some 400 of whom are adults. In recent years the Barbudans have raised complaints about the inadequate level of their economic development under Antigua and, generally, about the unsatisfactory working of the relationship between the Barbuda (Local Government) Council and central Government. The Antigua Government's decision in 1978 to seek independence intensified those complaints and led to demands from the island for secession. The Minister of State, with the agreement of the Antigua Government, invited a Barbudan delegation to participate in the Lancaster House Conference and to air their grievances again there. Accordingly, nearly half the time of the conference last December was devoted to the unique problems of Barbuda. The Barbudan delegation were able to achieve very substantial advantages for their island, including substantially increased devolution to the local

Barbuda Council of responsibility for the running of the island's affairs and much greater financial autonomy.

"This year, the Antigua Government have taken steps to implement the conference decisions. A revision of the 1976 Barbuda Local Government Act of the Antigua Parliament has been introduced to give effect to the new provisions, and safeguards for Barbuda's future have been provided by entrenched clauses in the new constitution. Although every effort is being made by the British Government and will continue to be made to urge the Antigua Government to maintain a constructive dialogue with the Barbuda Council on points which remain at issue, we are satisfied that the future social and economic development of Barbuda has now been properly and constitutionally provided for. Meanwhile, the measures which have been taken this year will confer on the tiny adult population on the island of Barbuda a unique degree of devolution of authority to allow them to conduct their own affairs within the state. This does not exist anywhere else in the Commonwealth Caribbean.

"The British Government have, of course, given very full consideration to various Barbudan requests for separation from the associated state before Antigua becomes independent. We are satisfied. However, that separation would not be justified for a tiny island of 1,200 people, which was an integral part of the colony for over 100 years, and which has been an integral part of the internally self-governing associated state for the past 14 years." (Lord Skelmersdale, 1981)

The results of Barbuda's negotiations as outlined by Lord Skelmersdale were enshrined in the Antigua & Barbuda Constitutional Order of 1981. In the constitution, the validity of the Barbuda Local Act 1976 was guaranteed, and sections 123(3) to (7) explicitly outlined the process of amending the act that would further require the confirmation of the Barbuda Council. However, following independence, a political ideologic divide remained in place between Antigua and Barbuda, and as Vere Bird of the Antigua & Barbuda Labour Party (ABLP) was sworn in as the country's first Prime Minister following independence, control of the Barbudan Council would remain with the opposing BPM party for most of the next three decades.⁸

In 2004, Baldwin Spencer from the United Progressive Party (UPP) became the first non-ABLP Prime Minister, and relations between Antigua and Barbuda improved. During Spencer's decade-long tenure, Barbuda's senator, Trevor Walker, would be appointed a cabinet role, serving in various Ministerial appointments between 2004 and 2014, the only time a Barbudan would serve as a Minister. It was also during Spencer's tenure as Prime Minister that further steps would be taken to legitimise Barbudan autonomy, most notably the Barbuda Land Act 2007 that conferred Barbudan land to be held in common under the discretionary use of the Barbudan Council with section 5(1) of the Act explicitly forbidding the sale of Barbudan land. In principle, the Barbuda Land Act 2007 provided Barbudans over the age of eighteen with three tracts of land:

"(a) to the grant of an exclusive right of occupation of a plot of land for a dwelling in the areas of land in Barbuda designated by the Council for residential development;

"(b) to graze animals in the areas of land in Barbuda designated by the Council for grazing;

"(c) to the grant of an exclusive right of occupation of a plot or plots of land in Barbuda for cultivation in the areas in Barbuda designated by the Council for cultivation; and

⁸ ABLP gained control of the Barbudan Council briefly following elections in 1996.

“(d) to the grant of an exclusive right of occupation of land in the areas in Barbuda designated by the Council for commercial purposes other than major developments” (sections 7(a-d)).



Access to land is a fundamental part of Barbudan society. As the land is held in common, Barbudans don't have to buy land. To claim land, a Barbudan must clear land after the property has been surveyed and interest registered with the Barbudan Council. Once the land is cleared and a structure, even if only a foundation, is built, the land is generally considered private property. Even in cases where homes have been left abandoned as Barbudans go overseas with no next of kin to take over the home, there is an unwillingness to confiscate the land.

Outside of Codrington village, Barbuda (Marazita, May-2021).

Figure 22: Laying claim to land

Under the land allocation regime, Barbudans are entitled to claim land with maximum dimensions depending on location by conducting a survey, registering intent with the Barbudan Council, and clearing the land of bush. The act also allowed the Barbudan Council discretionary power with advice from the national Cabinet and under the wishes of Barbudan constituents to grant land leases for major development projects conducted by non-Barbudans under sections 6(1-6) of the Act. However, after the UPP lost national elections in 2014 and both the Barbudan Council and parliament came under the leadership of the ABLP with Gaston Browne as Prime Minister, section 6 of the Barbuda Land Act, 2007 came under criticism, and further amendments were enacted in 2017 and 2018 much to the opposition of the Barbuda Council.

Following the passage of the Barbuda Land (Amended) Act 2017, the Barbudan legal identity was narrowed to include persons born in Barbuda and persons not born in Barbuda but with either a parent or grandparent born in Barbuda. However, most notably, the amendment redistributed the ownership of land from “[confirming] that all land in Barbuda is owned in common by the people

of Barbuda” (Barbuda Land Act 2007) to “All lands within the Island of Barbuda [being] hereby vested in the Governor” (section 3(1) of the Barbuda land (Amended) Act 2017) thus, Barbudans became crown tenants of land with the right to lease land as lessees to the crown, laying a framework for a land registry and the trade of residential real estate.⁹ It’s been argued that due to the local land practices, “even though they had concrete properties in the past, they weren’t properly constructed because they didn’t have titled land and couldn’t get mortgages. We found they were cutting corners and using inferior material without putting in steel” (personal interview with Prime Minister Gaston Browne; St. John’s, Antigua (Zoom); 21-Jun-2021). Nevertheless, the amendment also sought to bring land leases for development projects in line with Antigua by giving sole power to delegate commercial leases to the Cabinet with only advice from the Barbudan Council (section 6(1-6) of the (Amended) Act).

The Crown Lands (Regulation) (Amendment) Act 2018 further cemented the rights of the Cabinet to grant leases on major development projects based on a threshold set in 2007 for projects costing in excess of 5,400,000 ECD (section 3(a)). The 2018 amendment had further consequences for privately held Barbudan land. The land in Codrington village became distinct, formally recognising that the village properties occupied since early settlement needed regulation due to varying lot sizes, entrusting allotment issues to the Barbudan Council. The amendment also paved the way for the council to receive rent for village properties and allow for eviction in the event of non-payment. There is local opposition to the Barbuda Land Act amendments, and court cases have ensued, mainly on the grounds of Barbudan opposition to a development Act, the Paradise Found Act (2015), that BPM claims nullified parts of the original Barbuda Land Act with the matter expected to reach the Privy Council (personal interview with local BPM; Codrington, Barbuda; 31-May-2021). However, as the Prime Minister explained:

“Previous administrations would have left Barbudan people on its own without showing interest to develop a vibrant private sector, develop good public infrastructure. We felt that wasn’t sustainable. The example that Barbuda would literally rely on a grant from Antigua; there is no way you can sustain an island state in that way. We wanted Barbuda to have a vibrant private sector to generate its own taxes and provide sustainable economic opportunities.” (personal interview with Prime Minister Gaston Browne; St. John’s, Antigua (Zoom); 21-Jun-2021)

Unlike Antigua and most other places in the region, the unique land regime has empowered Barbudans to be custodians of their land and invest more in homebuilding. The last national census gave some insight into the pre-Irma housing trends in Barbuda that stood in contrast to Antiguan norms. Unsurprisingly, a key difference was that most homes were owner-occupied, with 537 out of 543 households owning their land, where the national average stood at only fifty-one per cent; additionally, Barbudan houses were larger on average, with five rooms (national average: four) and four bedrooms (national average: 3); where Antiguan houses were often formed using wood walls and metal sheet roofs, Barbudan homes mostly consisted of concrete walls and metal sheet roofs (Statistics Division, 2014). In comparison to Antigua, Barbuda would probably

⁹ This is contested between the Barbuda Council and the national government.

have been more prepared for the direct impact of a hurricane. Irma, however, was no ordinary hurricane.

1.4 Demographics and disaster preparedness of pre-Irma Barbuda

According to the 2011 Antigua & Barbuda census, while the total population of the Antigua & Barbuda state was 84,816, only 1,654 people resided in Barbuda (Statistics Division, 2014). Thus, the larger island of Antigua served as the unitary centre for much of the state's activities, including governance, commerce, and tourism. In stark contrast to the well-known beaches of Antigua's tourism industry, Barbuda remained rural and cut off from key economic sectors and, as previously discussed, was mainly dependent on the Barbuda Council for paid employment. With little earning potential, Barbudan households have been and continue to be reliant on the Codrington Lagoon as a key local resource, providing both sustainable and paid livelihoods through marine-based industries, most notably lobster hunting; additionally, households supplement marine livelihoods through home gardens and the ubiquitous livestock that graze freely among Barbuda's low-lying brush (O'Marde, 2017). Like other small islands dependent on subsistence livelihoods, labour migration in households is common with nodes of the Barbudan diaspora concentrated in Leicester, U.K. and around the New York metropolitan area (Potter, 2015).

The remoteness of rural Barbuda from the economic centre in Antigua exuded past livelihoods, with the 2011 Antigua & Barbuda census showing that Barbuda lagged behind the rest of the country in many public services, including education and health; while Antigua was a regional centre for advanced medical training, the rudimentary clinic in Codrington was supported largely through Cuban aid schemes supplying medical staff to the most disadvantaged healthcare systems (Statistics Division, 2014). Although a unified state, while Antigua was well-developed and provided access to world-class services, Barbuda more resembled a remote Pacific island. In the absence of service and owing to the unbroken lineage of Barbudan descendants maintained by limited migration since colonial times, social cohesion was a vital component of social resilience and livelihoods (Gray, Weal and Martin, 2019).

Within a regional disaster management context, Antigua & Barbuda has long been a leader in disaster risk reduction through the National Office of Disaster Services. However, the regional policy had not penetrated the local context of Barbuda, a place only rarely impacted by major Hurricanes. O'Marde admitted that up to 2016, there had been no well-defined hurricane and storm surge risk scenarios for Antigua & Barbuda, with Barbuda's risk merely aligned to regional hazard maps based on hurricane return periods of 10, 25, 50, and 100 years; within the hazard map, Barbuda fell under the 50-year return category, noting that "Barbuda is subject to moderate vulnerability with an area south of Codrington in a low vulnerability zone. The long-term vulnerability of Barbuda is similar to the 50-year return storm with a small section on western Area/Palmetto Point

experiencing low vulnerability to wind” (O’Marde, 2017). As supported through fieldwork, the perceived risk of hurricanes at the time remained low, and households were left to weigh the added cost of risk-reducing building practices.

In the decade prior to Hurricane Irma, Antigua & Barbuda experienced no significant displacement events (IDMC, 2022). Although the National Office of Disaster Services in Antigua was well aware of regional risks with past managerial experience across the region, neither hazard risk mapping nor Barbudan lived experience would have prepared the island’s residents for the ferocity of Hurricane Irma. Thus, Barbudan perceived risk to the impacts of major hurricanes remained low and little importance was given to disaster risk reduction steps. The lack of lived experience further eroded survivors’ ability to adapt to the serious and abrupt impacts of Hurricane Irma. Additionally, as events would later show, even state and regional management measures were left ill-prepared for the evacuation, displacement, and recovery of an entire island.

Chapter 2. Preparing for Hurricane Irma's landfall

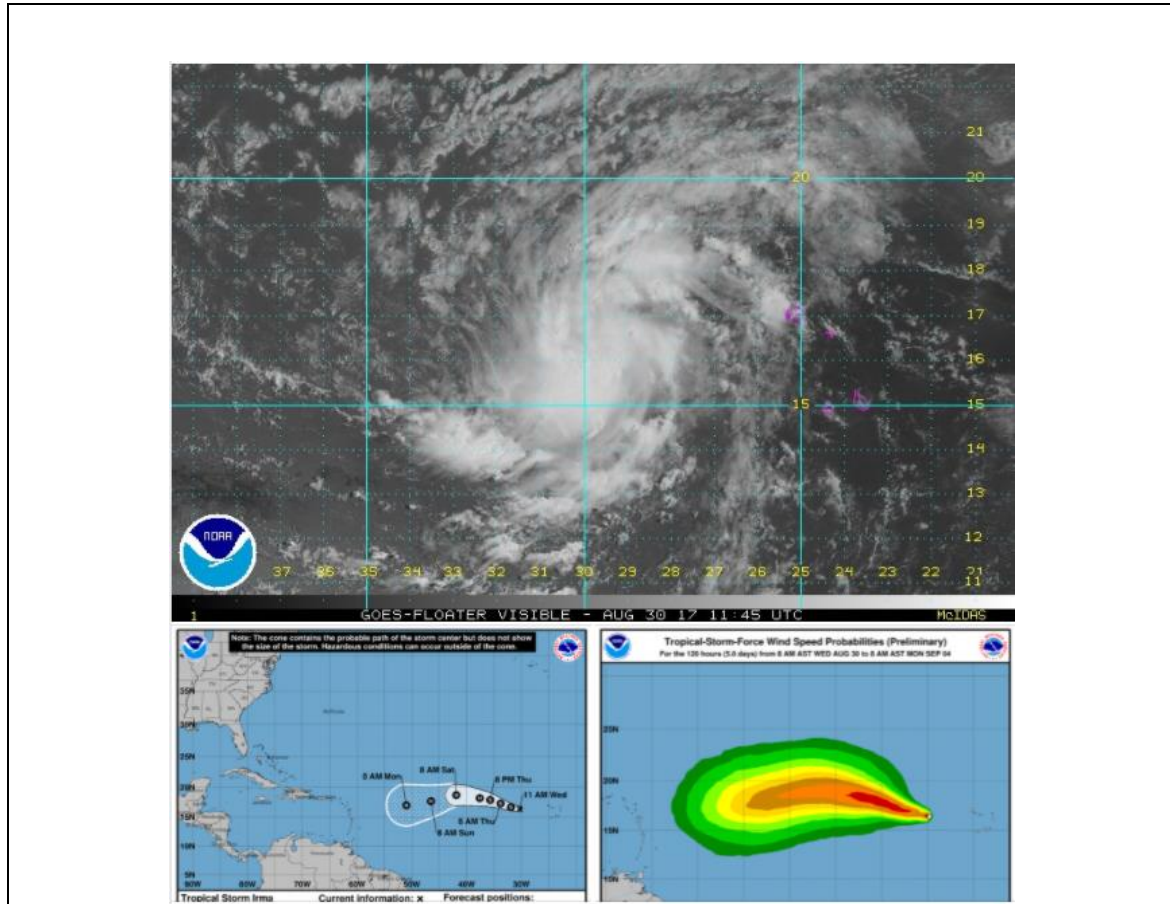


Figure 23: The first images of Irma

Shared by NOAA on social media (NHC, 2017),

On 30 August 2017, the National Hurricane Center based in Miami issued the first advisories for, at the time, Tropical Storm Irma. The storm had developed out of a storm system over the Cape Verde islands. It was slowly moving west with maximum sustained winds of 85 km/h (NHC, 2017). Within a few hours, Tropical Storm Irma had begun intensifying and, by 31 August, had reached maximum sustained winds of 155 km/h, being designated a category-two hurricane (NHC a, 2017). As trajectories began predicting the direct impact on the Leeward Islands, the National Hurricane Center began issuing advisories. By the evening of 31 August, as the storm remained three-thousand kilometres from the Leeward Islands, with maximum sustained winds of 185 km/h, Hurricane Irma was upgraded to the status of a major hurricane (NHC a, 2017). By 4 September, category-three Hurricane Irma had centred on the northern Leeward Islands. The Antigua & Barbuda Meteorological Services issued a hurricane warning for Antigua & Barbuda, St. Kitts & Nevis, Montserrat, and Anguilla (NODS, 2017).

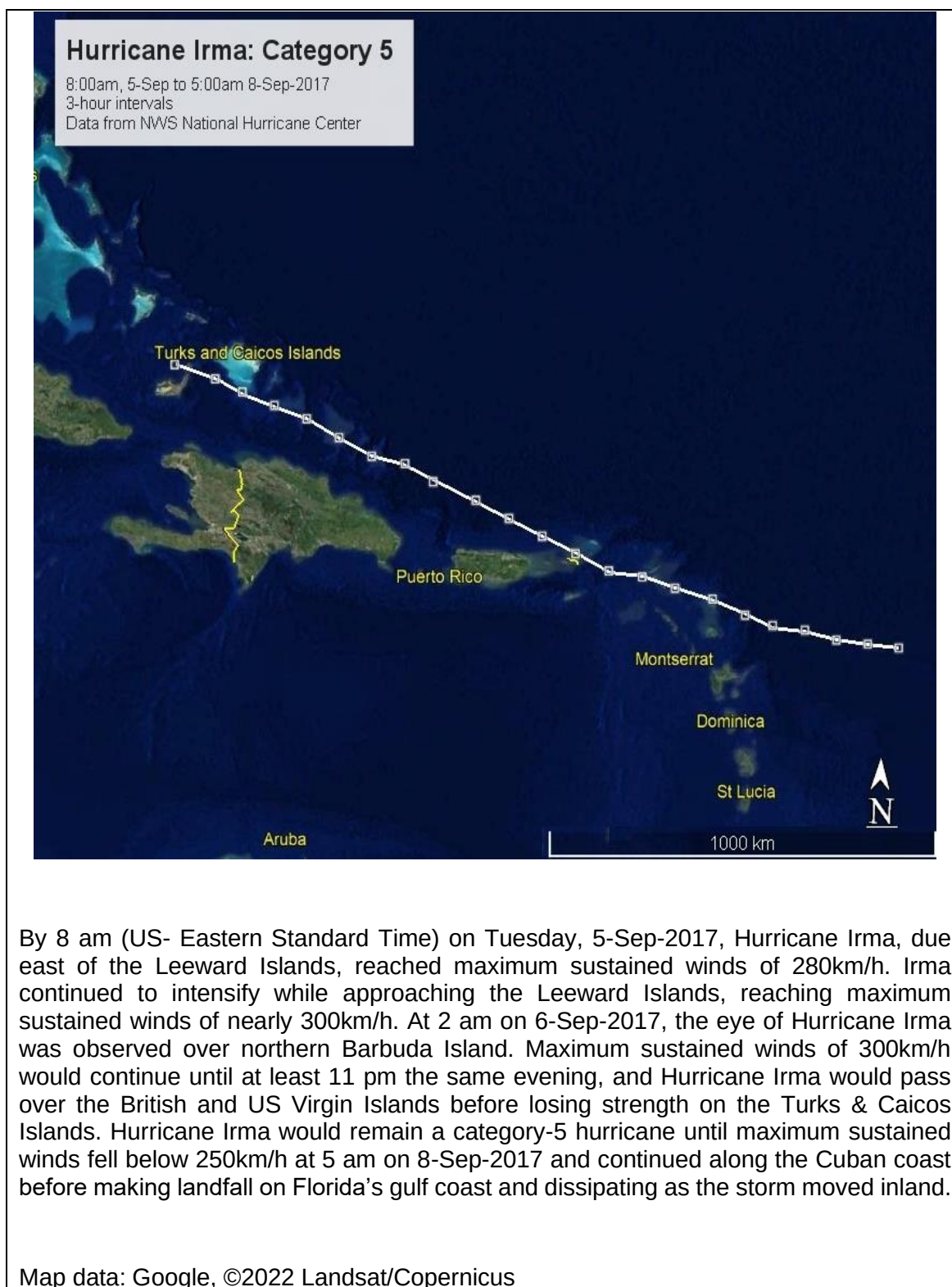
"It was easily one of the most ferocious storms we would have experienced in the region. When we recognised it was heading for either Antigua or Barbuda, we became very concerned. One of the things my government did at the time was that myself and several ministers travelled to Barbuda and encouraged a greater level of preparedness. I think it was the first time in our history that Cabinet would have had seven of its members going over and warning of the impending storm and warning them to secure homes. I believe if it wasn't for that level of preparedness, the outcome would have been far more serious even though it was very serious in that ninety per cent of the homes would have been decimated. The island lost roofs, and parts were destroyed. I have to admit, when we did the inspection forty-eight hours before the storm hit Barbuda, we were of the view that Barbuda was reasonably well prepared. The properties there were resilient because they were primarily concrete structures. We didn't anticipate in the event that a direct hit the carnage would be as bad as eventually materialized." (personal interview with Prime Minister Gaston Browne; St. John's, Antigua (Zoom); 21-Jun-2021)

As Irma neared the Leeward Islands, the hurricane intensified sharply. By the morning of 5 September, it had become a category-five hurricane with maximum sustained winds of 280km/h and Caribbean residents from Guadeloupe to the US Virgin Islands began preparing for impact (NHC b, 2017). The national government based in Antigua engaged with the Barbuda Council to prepare for expected impact and possible displacement [see Map 3].

"Everyone met [in Barbuda], and there was community awareness. We went to churches and held different awareness outreach about how to get prepared...What you should have in your homes and have to feed animals, but no preparation could have prepared us for what was to come. The Prime Minister came over with Molwyn Joseph¹⁰, and we had a meeting with the council, and after that, we went to Abundant Life, our T-V station. Then we went on to the radio station so the general community would be fully aware. That was two or three days before the storm. We prepared the shelters the community centre. That was to be used as our main centre, along with the Pentecostal church and another church. We used the fisheries complex as well. All the preparedness was going on, and everyone was checking everyone." (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

¹⁰ Minister for Health and Environment, Antigua & Barbuda.

Map 4: Hurricane Irma, path with max. sustained winds above 252 km/h (cat. 5)



By the morning of 5 September, it was still not certain whether Hurricane Irma would make direct landfall on either Antigua or Barbuda. Still, as the maximum sustained winds increased, storm surges would have been estimated

to reach ten meters in height on the island and attempts were made to evacuate Barbudan residents of low-lying areas ahead of impact. However, the community resisted evacuation efforts as there was no prior lived experience of sea surges of such magnitude [see Map 5].

“Down along the coast of the [Caribbean] sea, they were advised to move to higher ground, but they were stubborn and thought they were safe.” (personal interview with local ABLP; Codrington, Barbuda; 3-Jun-2021)

Even as Hurricane Irma neared the Leeward Islands as a category-five storm with dire warnings from the National Hurricane Center, the Antigua & Barbuda Meteorological Services, and after Cabinet-level delegation visits to Barbuda, perceptions at the household level of the approaching storm remained relaxed. For many Barbudans, daily life continued uninterrupted with little expectation of the predicted impacts materialising.

“The week before and everyone was like there’s a hurricane coming, and you must get prepared. No big deal, and [Barbudans] including myself, wait until the last moment. We didn’t take it serious. We didn’t see it as a threat. My mom said we had Hugo that destroyed Antigua and Barbuda, but Irma was my very first. The week there, everyone was talking, and we kept...cool. Closer to crunch time, the place still looked the same. Work was more laid back. They sent everyone home early to do what you need to do, get water and fix leaks in the roof. At the time, it was my mom and daughter, and still, we didn’t see the need to do anything. The day before, the place was exactly like [today].” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

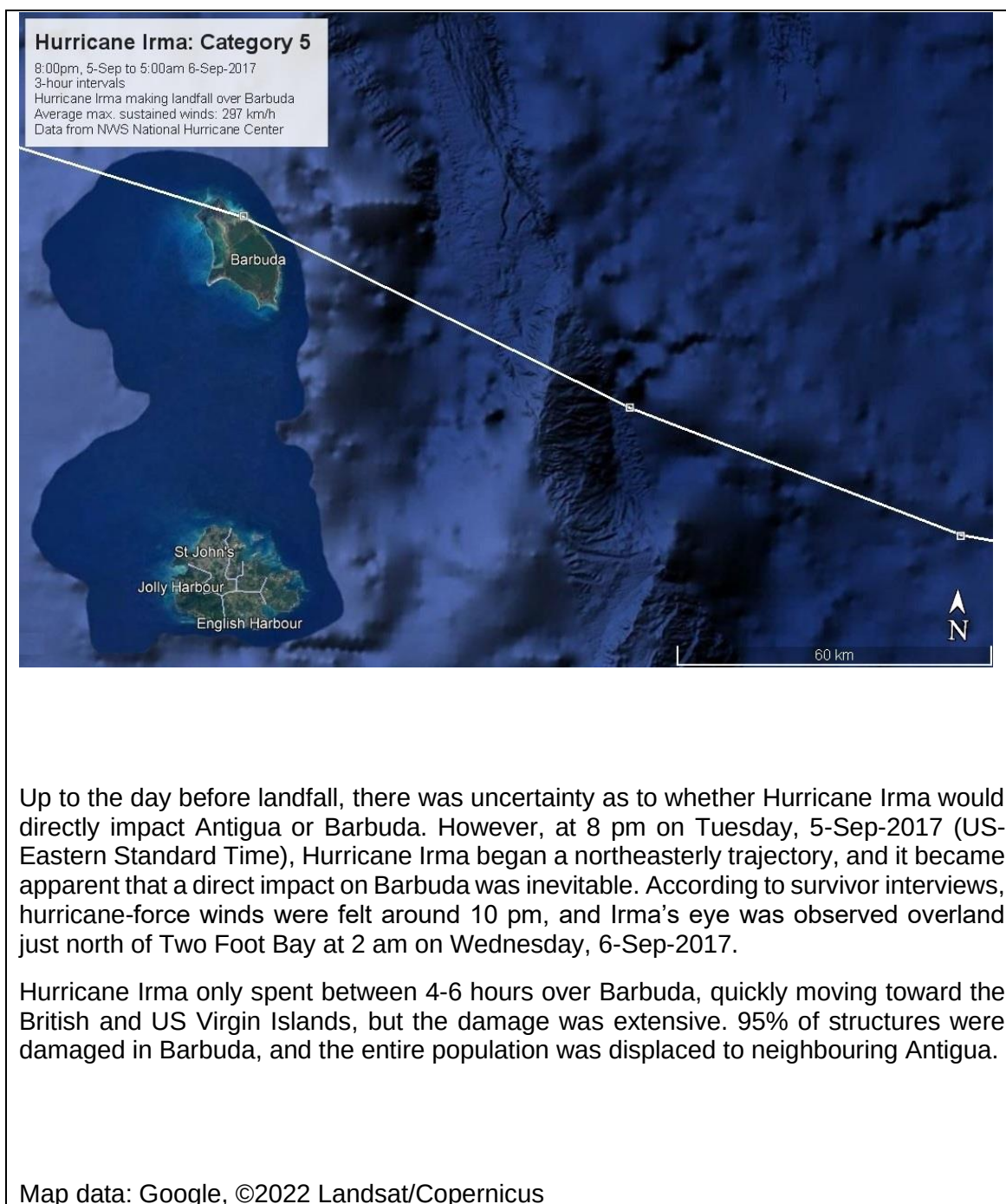
However, as Hurricane Irma neared Barbuda in the late afternoon, the sky began to change. There was growing concern among the community that precautions may be necessary to mitigate the risk of warned impacts.

“I was right here [in Barbuda], and I had family coming over. My cousin came over. During the day, we went to the wharf, and I saw from the water it would be something serious. We went to the river dock, and you look on the western side, you can really tell something is going on. We went shopping for what we needed, batteries and food etc.” (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

As night fell, Barbudans anxiously remained in their homes.

“I have a girlfriend and a son. We were all staying together the night of Irma. my son was just about nine months old. It was devastating something I would never want to go out again.” (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Map 5: Hurricane Irma approaching Barbuda



In anticipation of the hurricane, the Barbudan Council mandated that Police and Fire Stations be on call throughout the storm; the hospital would be staffed by two teams of medical professionals (Barbuda Council, 2017). The council's disaster management protocol required these frontline workers and first response personnel to assist the community throughout the storm. Thus, some families were separated when Hurricane Irma made landfall. For many split households remaining home and other Barbudans in precarious living situations, extended kin

absorbed overflows. As Irma made landfall, there was a sense of panic within the extended families. As a police officer separated from their immediate family recounted:

"My wife and the boys were by my in-laws because I had to go to work. I was at the community centre working. I was scared by the reaction of the other people in there. During the eye, I didn't check on her because I was stuck at the community centre and had to make two trips to the hospital with the elderly. I didn't see my wife until the afternoon. There were no injuries, and the only damage there was flooding. Water came into the in-law's house. They live close to the lagoon in a flood area." (personal interview with survivor 5; Codrington, Barbuda; 9-Jun-2021)

and another survivor without adequate shelter explained:

"During the hurricane, I was at my mom's home. We were going to stay in the big house, and the hurricane came. During the eye, we came out through the window, and everything was destroyed. We went to the hospital during the eye." (personal interview with survivor 10; Codrington, Barbuda; 11-Jun-2021)

While there was a great deal of uncertainty leading up to that night as to which island would bare the largest impacts of Hurricane Irma, late that sleepless night between 5 and 6 September, Irma chose to make direct landfall over Barbuda with maximum sustained winds of 295km/h aircraft. Between ninety and ninety-five per cent of structures on the island would be damaged, and many households struggled to find secondary shelter following Irma's first wave [see Map 5]. In the trauma of the night, survivors recounted detailed narratives:

"The day it happened, the final hours it was still. You look outside the window; the trees didn't move; it was quiet, a very still, quiet day. About 5:30 [PM], work was finished early, and I was on my way home; the clouds looked dark. There was no rain, just still still still...you could hear a pin from a mile away. It started to darken. The district doctor came over and boarded up our windows, and it was just sit and wait. After 8 or 9 [PM], my daughter asked if it came yet, and I was still waiting. If we only knew what we were waiting for. It was very quiet, 9:30 [PM] came in, and the place was still dark and quiet.... my daughter was waiting up for the hurricane. My mom was talking to my brother in Canada after 11, 11:30 [PM] and the connection was still there. They turned electricity off at 7 [PM] just to be ok. The radio was on. Exactly midnight, the antenna, you could have seen it, it was just up the road here, the antenna for Digicel, exactly at midnight it came down, and we lost contact with the world. The winds picked up. We had felt on our roof, and each one kept flying off, flying off, flying off.

"My brother came over to check on us. If he wouldn't have come, I don't know. He had to sit on a chair by the door to keep it from coming in, and he's a big guy. It started to get wild after midnight. It got extremely wild. The wind, and there wasn't a lot of rain, just wind. They say there was a tornado in there as well, and I don't know how to put it; you just hear people screaming but couldn't see anything outside. Everyone in the area had left, but there was a family in front of us, and you could just hear them screaming. My brother got up, and the doors and windows came in at the same time. I put [my child] in the closet, and she didn't cry; you could see she was scared in her face, but she didn't cry. We were looking for car keys because it was getting really bad. We went outside and looked at my neighbour's house, and it wasn't there, and then he was like they're not there. At 7 [pm], it was there, and at midnight, it was gone. There was a house in front of us, and it was gone. My brother had a bus, and we tried to get it in. I had a t-v that I bought the day before, and my brother told me to take up [my daughter]. Even though the wind was still blowing, we had to leave because eventually, the roof was going. I grabbed my t-v too, and we got in the bus, and he drove. All we heard was people crying and screaming for help. People's houses were gone, and people were asking for help. Then the whole place got quiet; at about 3 or 4

o'clock [AM], the eye was coming. I thought it was all done, but it was only half." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

Households positioned further from storm shelters which were either in the Codrington village centre or immediately south of the village, and without transport, were unable to leave the immediate vicinity of their homes despite untenable damage. As structures during the hurricane's first wave were compromised of roofs, doors, and windows, survivors outside of the village relied more on reflex than planned evacuation. A survivor who had been living in a rental property recounted:

"I lived in a housing scheme, eight housing projects there. Mine and six other destroyed, and one survived. That one house had to store everyone occupying the other houses. Like Irma during that night, I watched my roof up and down and saw the sky. I had a nine-month-old baby in the house. At one time, there was only part of the roof left. We wanted to run but couldn't. It was too crazy outside. I literally took my son from the mother; I gave up my life because I never thought I'd survive. There was no windows, no roof; we were just in the closet. The closet is the only thing that remained. The little piece of roof got blown off, and the closet was built to a concrete wall. I told myself, father, it's your will. And soon as it calmed down, I took the opportunity to run to the house. The neighbourhood was destroyed, but we couldn't see that from the inside because it was all white, so I ran with my neighbours to the next house through galvanised and nails and with my baby. We got into the house; there were teams, families in the house not even the size of this place [referring to the small room where the interview was conducted], seven households inside. We took off down to the village, you couldn't move in vehicles, but I couldn't stay in that house because we saw how bad it was. So me, my girlfriend and cousin ran down the road and got shelter at the next house. When we got there, that house was already filled, but God gave us a break until the next part of the storm came. So we took shelter in the next house, a house I'd never been to in my life. I never knew that someone would just take me into their open arms. My son, the first chance to get out of Barbuda, I got my son out of Barbuda." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

as a survivor from the same neighbourhood added:

"At 9:00 [PM], my mom and I was in the living room, dad sleeping and [my daughter] was just a baby. She was eight months [old]. This was my mom's first hurricane because she was in the States during Luis. At 9:00 [PM], outside was white. We couldn't see anything. The trees were broken down, and we heard on the radio it's coming, it's coming full force, and we're going to get most of it. During the first period, the rafter was going up, and my mom in the kitchen got hit. I had to push my daughter in the bedroom because water was coming in. My dad had to take off an inside door and put it on the kitchen door, and I had to move the deep freeze. We then went to get my cousins. When I looked outside, although I couldn't see anything, we had to get the table and everything to try to keep the door. My mom passed out over the deep freeze. After that, the glass from the bathroom exploded. The roof wasn't off, but it was going up and down. Then the eye came, and we were trying to keep it together. Then we went outside during the eye and trying to get things together to keep safe. There was nowhere to go. The second half was the longest part of it. I felt [that] if it would have lasted for a few more minutes, it would have been all gone. When I came out, I could see everywhere on the island because everything was gone. I thought many people died. There weren't bushes or fences, and I was so confused as to where I was. It was like a different world." (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

Hurricane Irma left households both unprepared and unsure of how to react to the storm's impacts. Barbuda, whose households were mainly based around nuclear families due to ease of access to land, met that many survivors were cut off from parents, children, and other close relatives. The extent of damage brought a panic

as families emerged and had no way of contacting close relatives, adding to disaster-induced trauma.

“This was a bad experience. I think I’m the strongest one, myself. There was my husband and son, and I think they were scared. I knew what not to do when the storm hit. He wanted to get out of the house during the storm because the roof left. We still had the central part of the roof, so I told him to stay. At the time, the eye, the stillness, and I heard voices. Then I knew it was the time, so we went next door. I could not imagine in my mind that everyone got the same or worse damage than mine. One came from one direction and said we couldn’t cross that way and another from another direction. I asked someone; he said he thought the whole island was destroyed. Then I thought about my elderly parents, and they’re alone. I asked someone to go check on them, and they were ok; they didn’t stay in their home.” (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

Within five hours, the dense green bushlands of Barbuda were bare. Satellite images and aerial views from popular media sources would later show a brown, apocalyptic post-Irma landscape. Survivors, many of whom had only ever known Barbuda, awoke to unfamiliar surroundings with homes destroyed, barren and fenceless gardens, flooded low-lying areas, and the death of some of the island’s ubiquitous grazing livestock.

“What I saw was not what I knew. You’re raised up in a place you know your whole life; you get up, sit down, and you just watch and wonder, and how it feels to wake up the next morning to know where you were born and raised just disappeared, I cried and was depressed for a long time. Just in a night, by 5 am, everything was done with. Everything you knew in twenty years was gone in five hours. That was hard for me to cope with.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

Survivors assessing personal damage reconciled the previous night’s experience with category-four Hurricane Luis in 1995, in which Barbuda was impacted by maximum sustained winds of 217 km/h.

“Irma started around 10 pm and was done by 2-4 am the next night. So, you got up in the morning; it was a powerful storm. Where Luis, the utility poles were pushed down whole, Irma they were just smashed like match sticks. The damage was sharp hard, and powerful.” (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

another survivor added:

“[compared to Hurricane Luis] Irma was more powerful. Much more powerful. The damage that Irma did in the time, Luis was on us for two nights but didn’t do as much damage as Irma in three hours. It started from about 10 pm to 1, 2:00 in the morning. After that, it calmed down. After the storm, we went to Antigua. There was another storm coming, so the P-M, in his wisdom, said it’s the best thing to go to Antigua. Ninety-five per cent of the houses were damaged. You could count the houses that didn’t lose their top.” (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

As Barbuda awoke to the impacts of Hurricane Irma, local government officials from the Barbuda Council were left to negotiate the dual roles as both survivor and policymaker. Like the rest of the community, local officials also had to contend with damaged homes and an immediate need for secondary shelter. During the storm, local officials who weren’t frontline workers remained with extended families as the first phase impacted Barbuda. As it was clear that damage from the first phase was to the extent that warranted an official response, local officials aided as disaster management leadership. As one member of the Barbuda Council at the time explained:

"After eight or so, I was at home with my family, and I had a family member come over and stay with me. We were there, and the rain started falling, then the wind. Then things started to really get out of hand when water started coming under the door. We tried to wedge a sheet under the door, but the water was coming in with such force that it didn't help. Then we realised the water came in through the roof. Little droplets of water became more persistent, and then one of the windows broke. One of the doors came undone, and we had to push it back in. We had about two to three broken windows. We were going from room to room because obviously there was a lot of water. We realised we couldn't go anywhere else, so we stayed in one room. That was six of us. Water was coming in ferociously from the roof and under the door, and flooding started taking place. The whole ground was saturated with water. The kids started to become frightened, so we took a mattress and just put it over their heads. They were terrified. We were also frightened, but we tried not to show it. There came a moment, though, where we were all afraid. The storm continued, and the battering of the wind was outside. When it cooled down a little bit, I don't think we had a signal on the phone; we were wondering what to do. It wasn't fully calm yet. My husband wanted to go outside, but I told him he couldn't because he didn't know what he would put his foot on. From peeping outside, we realised there was a lot of debris. We looked outside and saw a flashing light coming down the street.

"We shouted at them, and they said they were taking people down to the centre or hospital. When they came for us, we realised they were taking us down to the hospital because one part of the hospital has a concrete roof. And when we went down there, we were surprised to see almost the whole village. Everybody was there sheltering from the hurricane. We were authorised just to go in there because the other half was coming. It was a bit tough because we had a tragedy.¹¹" (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

As Hurricane Irma moved from Barbuda toward the US and the British Virgin Islands in the early hours of 6 September, community leaders focused on low-lying areas near Codrington, where floodwaters remained, and households had refused pre-Irma advice to evacuate. Although damage in the low-lying areas was extensive, just as in the rest of Barbuda, there was only one fatality: a child who had drowned in the advancing storm surges. However, the flooding had widespread consequences for Barbuda as a catalyst for magnified damage to already devastated structures, a threat of waterborne diseases and drowning of livestock, a key livelihood for Barbudans.

"What I saw was mostly in the village and neighbouring areas, but what I know is it was in the low-lying areas... Barbuda is flat. During hurricanes, we've had flooding, but during Irma, I think it was the worst flooding we've got because a lot of animals drowned." (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

Barbudans had no lived experience of hurricane-induced storm surges to such heights as during Irma, with much of the most densely populated village experiencing at least some flooding. However, survivors seemed to have been well aware of the risk faced in the low-lying communities and questioned the decision of homeowners who would go on to rebuild on the same properties.

"We had so much flooding along the coast; it's normal but not to that extent. Seawater came down. We were surprised that they rebuilt homes in the same area. Some people think I'm a bit harsh, but the death could have been avoided because they were given several warnings to move." (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

¹¹ Referring to the one Barbudan casualty.

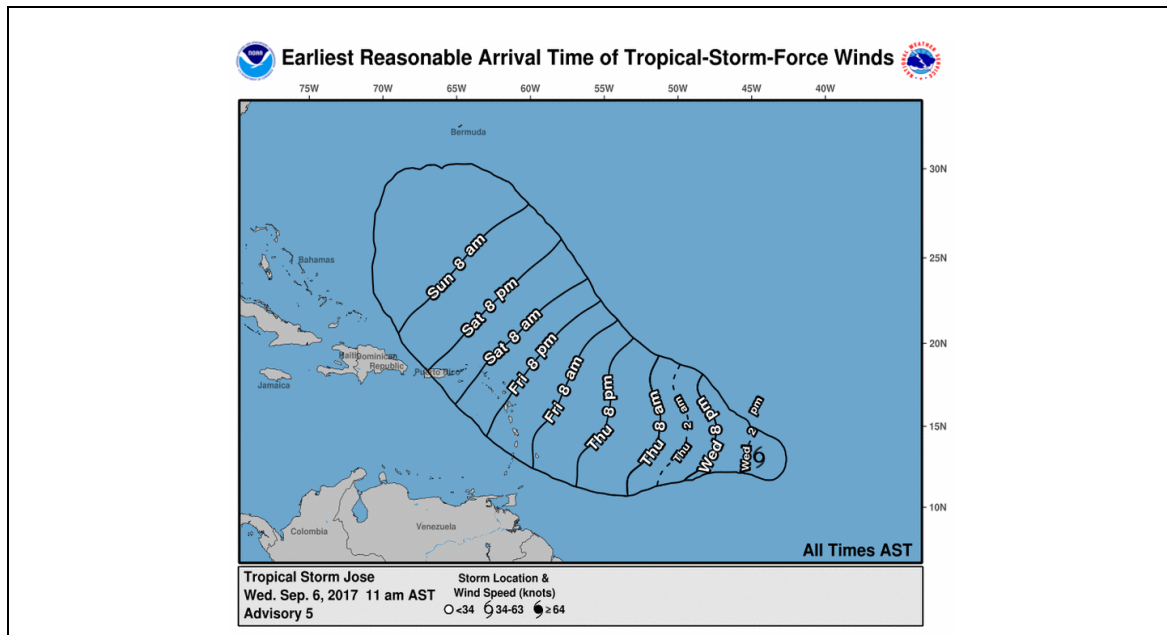


Figure 24: Hurricane Jose trajectory

The trajectory of Hurricane Jose followed closely after Hurricane Irma (NHC c, 2017).

As community leaders evaluated the damage, there was an uneasiness not only to the extraordinary level of damage but also because shortly before communications had been lost, the National Hurricane Center had alerted the Leeward Islands to the risk of a second hurricane following Irma, Hurricane Jose. By the time the first delegations would arrive on Barbuda from Antigua, predictions from the National Hurricane Centre held a trajectory for Hurricane Jose with possible landfall on Barbuda by the evening of 8 September [see Figure 26]. With the threat of Jose looming, without communication and unaware of the extent of damage caused by Hurricane Irma, local officials decided to assess the situation.

“We decided, myself and Senator Nedd, who was the chairman of the town council at that time, we decided to, we had to because it was our responsibility, we took a walk into the village. We couldn't drive. There was trees, roofing material; anything you could think about was on that ground. There was never a clear path. You had to pick places to walk. We made our rounds and saw the total devastation and all the trees down. It was really hard. Some persons got emotional. It was the day after, remember, there was a pending storm Jose, and we couldn't get out any word. With the general manager of Abundant Life, we were frantically trying to get out a signal. So, what we did, we went down by fisheries. Some people were down there. We were climbing the tower and trying to get the signal. Finally, there was a signal, and we got out to the relevant authorities, and the Prime Minister made a trip over. I'm sure you've heard that he wasn't advised to, but he didn't have a choice because he couldn't get any communication. He came over by helicopter. At that time, everyone was there hopeless. He came in with the defence force, and NODs came in. We had the commissioner of police. They came, talked to us, and tried to assess the situation.”
(personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

Meanwhile, as the second storm veered toward Barbuda and communications were lost, policymakers and the disaster management team in Antigua that had been monitoring Hurricane Irma's trajectory since 31 August

grew restless with a lack of information coming from Barbuda. Knowing that the island had experienced direct landfall and maximum sustained winds categorised Irma as a category-five hurricane, multiple government agencies remained alert to respond.

“Once the emergency operation was stood up by Prime Minister, we were monitoring the situation because it was projected to hit us, but it hit Barbuda. We lost contact with Barbuda sometime in the morning. We weren't able to make contact until sometime after.” (personal interview with NODS expert; St. John's, Antigua; 25-Jun-2021)

a member of the Royal Antigua & Barbuda Defense Force at the time added:

“When we heard about Irma coming across, there was a lot of concern. The first reports were that it would impact Antigua. It was 5+++; it was a monster. We heard that it set off the Richter scale in Guadeloupe coming over. We were preparing for the worst. As we and the National Office of Disaster were preparing, we realised we were not feeling the effects, and it shifted. The slight deviation put it right over Barbuda. We were concerned. We tried to reach Barbuda, there was no communication whatsoever, so it was a greater concern for us.” (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

On the morning following landfall, there was uncertainty among the various government divisions about how to respond to Barbuda as the current situation was unknown and continued rough seas compounded logistical barriers to assess the situation. Up to that point, response and relief efforts following Hurricane Irma were directed by Prime Minister Gaston Browne. With the threat of a second hurricane nearby, the Prime Minister, against the wishes of advisors, flew by helicopter to hurricane-ravaged Barbuda early on the morning of 6 September.

“After the storm struck Barbuda, several hours passed, and we couldn't get ahold of them which was of particular concern to me as the head of the country. At the time, a few hours after the passing of the storm, law enforcement and even the Antigua & Barbuda Defense Force took the position it was unsafe to travel to Barbuda. However, I decided to risk it, and I took a police officer and a cameraman from A-B-S, and we flew over to Barbuda, thinking though that perhaps it would have just been some temporary telecommunication interruption and not realising until we got there that the entire island was decimated. So, I was along with three others who would have witnessed the firsthand devastation in Barbuda. I have to tell you, not even those on the ground would have experienced the extent of damage because they would have been limited to the area they were living. I actually did a circumnavigation of the island before we landed. I have to tell you; it was heart-wrenching to me because, at the same time, I didn't expect that level of carnage. When we eventually landed on Barbuda, we addressed the people and reassured them we would provide them with the relief that is necessary. We made arrangements to start flying over or sending by boat supplies to the Barbuda people. I took over a satellite phone. At the time, they were happy to see me, but there was another storm on the horizon that was projected to travel along the same trajectory as hurricane Irma. The Barbudan citizens and residents expressed concerns and told me they felt unsafe being on the island. Recognising there was an impending storm within a 24-hour period that could actually hit Barbuda and could find them in an extremely vulnerable position where their homes were already destroyed. So, there, and then that decision had to be made to evacuate them to Antigua.” (personal interview with Prime Minister Gaston Browne; St. John's, Antigua (Zoom); 21-Jun-2021)

As the Prime Minister returned to Antigua to update stakeholders and to continue monitoring the situation, Barbudans were left in an untenable situation where the island's only hurricane shelter had been compromised, few structures stood unscathed, and uncertainty surrounded the eventual trajectory of Hurricane Jose.

Together with national stakeholders and international partners, the Prime Minister began planning for the full evacuation of Barbuda's estimated 1800 residents¹² within a forty-eight-hour period. As an official from NODS added:

"Once [Hurricane Jose] was threatening them there, the decision was to bring them here. It's one country because it was threatening to impact within 2-3 days. There were no shelters there; we had to bring them over here." (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

However, some Barbudans looking back at the events of that day, questioned the decision of the Prime Minister to evacuate Barbudans citing experiences following Hurricane Luis.

"The other major difference was the involvement of authorities. After Luis, there was a week or two that communications were cut, and Barbudans had to be underground and start reorganising themselves. With Irma, a policy decision was made another storm coming and move everyone off the island. On the face, that would be logical if the motives were in our interest. Unfortunately, I suspected the motives weren't pure because things didn't add up. In terms of preparations for hurricane, there's a set procedure of information and prep, so when Irma is coming, you know days before it's forming, the tracking is on target, you sensitise people to mobilise prep. the day before you get hourly updates and that day you get them every minute. Jose, which was coming after, the excuse to move; the difference is that we wouldn't hear updates. The official updates were that Leeward Islands were in danger. Normally they will say specific islands are in danger and need to prepare. With Jose, no, you didn't hear islands or anything from MET office. That's why I refused to move. In my mind, I came through Irma, and I had sufficient supplies. Based on information, Jose was nowhere near the strength or trajectory, and you're asking me to move to a place I have no guarantee, and I'm suspicious of the motives, so I refused to move." (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

Nevertheless, the evacuations of stranded Barbudans would ultimately become one of the first examples of an island being entirely displaced by a natural hazard. As the sky cleared and the community waited for evacuation, Barbudans improvised short-term normality.

"The night after Irma, I remember my mom, we had a dining table, we turned it over for [my daughter] to change because the beds were ruined. We slept in our home that night." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

Down in the Codrington village centre, where the Prime Minister had spoken early in the day, survivors came together, cooked meals, tended to children and prepared for what would unknowingly be a prolonged displacement in Antigua. The following four chapters serve the purpose of exploring the sub-research question, what barriers prolonged or prevented durable solutions? Additionally, the chapters fill the knowledge void in hurricane studies where data on lived experience during the temporality of evacuation to durable solutions is lacking.

¹² There are varying estimates of displaced people from Barbuda due to Hurricane Irma. The estimates ranged from 1200 (UNICEF, 2017), 1400 (IDMC, 2022), and 1600-1800 from varying local sources. Due to mobility and the seven year gap since the last national census, there were no accurate figures of residents, but the figure given by the national government is generally 1800, including 1600 Barbudans and 200 other residents, which seems to be inline with 2011 census data (Statistics Division, 2014).

Chapter 3. Evacuation

As Barbudans awaited evacuation ahead of what could be the landfall of a second hurricane within the next forty-eight hours, a government-led coalition of national disaster management teams engaged donor partners to quickly implement an evacuation strategy. Among the first donors responding, the Venezuelan government quickly offered both personnel and logistical assistance. However, ahead of any evacuation, the Antigua & Barbuda Defense Force quickly moved to assess the post-Irma state of infrastructure on Barbuda.

“We got a Helo¹³ to go over and see what had happened. It was a disaster zone. In trying to come up with a plan, with a report that Jose, a category-four [hurricane], was on the way, we realised Barbuda was in no position to take a hurricane of that magnitude. The seas were rough, choppy waves, so trying to move all the people off in a short time was almost impossible. We looked at alternatives, about a Helo. The runways were damaged, and so we mobilised the ferries around, private ferries, but as I said, moving people back and forth over the seas took quite a while. The Venezuelans had offered support in the form of a medical team, and they also had a C-130. There is a grass strip on Barbuda, so we asked the persons there to verify and the persons there to clear it and the pilot to do a flyover.” (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

While the Antigua & Barbuda Defense Force liaised with Venezuelan operations, NODS began planning for the immediate influx of evacuees arriving in Antigua. Various ministries in the government-led coalition coordinated the response as Barbudans would need basic supplies and access to services such as healthcare and education for an undetermined length of time. NODS attempted to implement registration on arrival to facilitate access to relief services. However, registration proved difficult as not all evacuees passed through official points and shelters.

“We had set up certain points on Antigua to register Barbudans, but some people, if they had a friend, they would ask them to come to pick them up. That person would come to

¹³ Type of helicopter.

their own personal wharf. Some people had family members, so once they got to the wharf, they went to their relatives. It wasn't until those people started running out of food that they came here and started to get an idea of the micro-sheltering.” (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

The evacuation challenged the Antigua & Barbudan government's ability to cope with the impacts of natural hazards. There had been no pre-emptive plan for such an evacuation, neither in state nor regional disaster management mechanisms. To complicate efforts, the paved runway at Barbuda's main airport was damaged and unsuitable for the arriving military aircraft. A gravel runway in the south of the island at Coco Point had to be used for evacuations supported by any available seaworthy vessels at various points around Barbuda [see Figure 27].



Figure 25: Barbudan evacuation

Barbudans being evacuated over rough seas by barge customarily used to transport aggregates. (ABS a, 2017).

“Prior to that, we had no contemplation of any evacuation. In fact, our own hurricane recovery plan did not involve any template for evacuation because we have never experienced any mass evacuations here. We were unprepared. We didn't have the assets. We had to get creative and improvise a number of small vessels; we even utilized a barge that ordinarily would have been used to transport aggregates because we had to remove the people within a 24-hour period. We also asked the Venezuelan Government for assistance, and they made available a military aircraft which was able to land in Barbuda

and do a few roundtrips. I have to tell you the aircraft actually got stuck in a sand strip because, at the time, the airport got damaged and was too small to accommodate a military aircraft. Again, that image of Barbuda struggling on this aggregate barge was just something else to see. That too is an image that was etched in my mind and forever will be. You could see very vulnerable people literally accessing any form of transport available in order to avoid being trapped in Barbuda with all the decimation of Hurricane Irma, with all the debris and rubble, and again have to deal with another hurricane in less than 24 hrs.

"In any case, the evacuation was successful. It wasn't easy because there were individuals who insisted they wanted to stay. At the time, Barbuda had about six inches of water on the ground, so we were also very concerned about waterborne diseases such as cholera, and the conditions were such that we had to evacuate them to safety and bring them to Antigua. We were successful in evacuating about 1800 people in a 24-hour period. Utilising any assets we could have put our hands on, including small boats, the barge, and military aircrafts made available by the Bolivar Government of Venezuela." (personal interview with Prime Minister Gaston Browne; St. John's, Antigua (Zoom); 21-Jun-2021)

Although much of the region would become impacted by hurricanes in the month of September 2017, the Venezuelan government focused assistance during that period on Antigua & Barbuda, in which the Venezuelan government has a significant investment.

"On September 7, 2017, the delegation from Venezuela came to provide humanitarian aid. It was a big team, and they landed in Antigua Airport because Barbuda was devastated. The delegation was 64 people, including civil protection workers, firefighters, doctors, and nurses. The medical team stayed here in Antigua because the evacuations were to Antigua. Venezuela helped in two ways, first sending these 64 people staying in Antigua because at some point, they said they would need these people in Barbuda, but it was not necessary. So they stayed [in Antigua] and helped all the people who were coming. [The government] used two military aircraft from Venezuela. One went four times to Barbuda; it was hard to land there. It was amazing, especially when they were departing. They went four times to Barbuda and evacuated 420 people. Actually, there were other boats doing the same. The other plane we offered. It was to go to Saint Lucia and bring supplies because all of these people were evacuated from Barbuda to [Antigua] to shelters. So systems were put in those places. Some people came with minor injuries, and if it was big, straight to the hospital. In terms of humanitarian aid, that's what Venezuela offered. Also, in the previous plane that came, it came 20 tons of supplies, including water, medication, nonperishable food. I think it was two weeks after that, the evacuation started September 8. or September 15, the [Venezuelan] Minister of Foreign Affairs came to Antigua & Barbuda to meet with the Prime Minister and see what else could be done, and they made a donation of 1 million USD that came from annual dividends of Venezuela in the West Indian Oil Company. That was the last help that Venezuela offered. What's important is that Venezuela was the first country to offer help. After that, some countries offered help, but not fierce like Venezuela." (personal interview with expert diplomat corps; Antigua; 28-Jun-2021)

As the governments of Antigua & Barbuda and Venezuela began preparing for immediate evacuations, Barbudan community leaders, themselves survivors of Hurricane Irma, were left increasingly unable to coordinate local responses. Their focus became survival and the well-being of their households. Power structures became negotiated primarily at the household level and dictated by gatekeepers of food and basic necessities.

"At that time, when the P-M made it mandatory to evacuate, there was still confusion. Our representative at the time had to step up and take the role to put things in place, and he had his own personal problems and family to take care of, and it was disorganised as to who would be the first out. It should have been sick, pregnant, elderly. My family worked together, and at least we had water. At the time, the supermarket was helping. The community is very small, and since we all lost everything, we all came together to help one

another. And we have to give thanks to the Antigua government because they reacted fast. The Prime Minister came and reacted fast. There was another hurricane pending, and we couldn't stay here." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

In the time leading up to evacuation, a local supermarket that sustained little damage supplied much of the survivors' food, and the community congregated in the Codrington village centre, near the wharf that in pre-Irma times would have been bustling with fishers bringing in lobster and conch. At the fisheries complex, Barbudans improvised communal living as survivors were slowly evacuated to Antigua.

"I think it was the other day now arrangements were made for transportation out of Barbuda. It took two days for us to be evacuated. We had a plane from Venezuela as well as all the vessels out of Antigua. The main ports we were using were the airport, the river dock and Coco Point. Vessels were at the river dock. Persons were advised to take minimal [belongings]. If there's anything valuable like a document because we had to leave due to the pending storm. We didn't get time to think about it. If we would have stayed with the pending storm, I think it would have been dangerous because there was no shelter here... There wasn't adequate shelter. What also happened the morning after, we had to find food for people. We went over to the supermarket and asked for credit. Because they have a concrete roof and their roof wasn't damaged. We had to make arrangements, but there was no power, and we didn't want the food to go off. So, we had to get frozen and dried food. Some people were cooking at the fisheries." (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

Fearing the threat of the impending hurricane, there was little reluctance to leave Barbuda. By the end of the week, only security personnel would remain as a means to deter looting.

"It didn't make a lot of sense with another storm coming. So [the Prime Minister] evacuated us by the weekend. The storm was on Tuesday, and by Friday/Saturday, everyone was in Antigua. Only the police and security was [on Barbuda]." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

a second survivor added:

"My family, the day after Irma happened on Tuesday, we left on Thursday on the coast guard boat. Everyone was hustling to get out and try to get to safety. Everyone had to get out within 48 hours because of the next hurricane." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

Knowing that evacuations would be commencing and unsure of when they would be able to return or if there would be looters, some survivors moved quickly to secure what remained of their homes with the intent to improve the odds of rebuilding. However, in many cases, houses had been damaged to the extent that, as physical deterrents, they offered little security from looters. Thus, survivors sought out extended kin with comparatively less damage as a means for safe storage during displacement.

"We were told there was another hurricane coming, so we got caught off guard, but in the process, ninety per cent of things got thrown out...somethings that could have been saved, like my washing machine and my stove. I was looking at things I can't easily replace. Everything was saturated, but I got the fridge, kitchen appliances and whatever I could take in plastic to my sisters. There were no doors on the house so people could take it, so we took those things to my sister, and it wasn't too hard to rebuild." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

As kin-networks began securing the island, the fortunate five per cent of Barbudans with homes left undamaged after Irma were reluctant to be evacuated. However, authorities would not permit any survivors to remain in Barbuda due to the lack of essential services and health and safety risks. The Prime Minister enacted a state of emergency, and those not wanting to leave faced legal action.

“We stayed in the house for two days. Tuesday, Wednesday. Then we were forced to go to Antigua. There was another storm, so we were told we could leave, but after the storm, there was no damage, so we wanted to stay.” (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

Survivors able to temporarily evade evacuation became disgruntled as the threat of Hurricane Jose impacting Barbuda passed, and they perceived no imminent threat to continue staying on the island. Although everyone eventually left, rumours began to arise locally that the evacuations were a ploy to remove local opposition that may arise to large-scale development projects. These rumours intensified as survivors returned to find construction for a new international airport underway in the island’s interior in the coming months.

“The day came, Jose didn't materialize, and yet they were insisting people move. I still refused, so when you see soldiers come down to my home with assault rifles because the order was to get everybody off the island, you begin to think there's no storm; why are you taking people off the island? We were moved off, placed in Antigua, not told anything; decisions were made for students and teachers to be integrated into Antigua. The logical thing is people need to do the work [reconstructing Barbuda]. The worst thing about it was you're asking me to make a life-changing decision, and you don't ask me if I want to integrate? The intention was to get everyone off Barbuda and redevelop it for something else. Those of us aware of that, a situation where we gave no input and told nothing. Basically, you are like in a concentration camp. That's when we started to push back, and certain narratives were put out there. Barbuda was 95 per cent destroyed. It was not true. Barbuda is uninhabitable, not true. Communicable diseases and dead animals are not true. I was there; the only dead animals which were killed by the storm that I saw was a young horse, a donkey and five or six goats and a couple of chickens. What I know is that during the period of time that I refused to go, the military was shooting dogs and leaving them at the side of the street. When I now hear a narrative that there were stinky dead animals, I know it isn't true. I was in the military, and as part of training, there are procedures for what you did if something is dead, you don't leave it at the side of the street to stink. So, to me, that was deliberate. It was to paint a picture of what was not true.” (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

However, most Barbudans, especially those with young families, following the most traumatic night of their lives, did not want to stay in Barbuda. Those with diasporic-kin and relatives outside of Barbuda became desperate for communication lost following Irma. It would not be until survivors arrived in Antigua days later that contact with kin would be restored. As survivors waited to be evacuated, their siblings, spouses, and distant relatives watching constant coverage of Hurricane Irma on television, frantically tried to connect.

“Everybody was devastated, and then I heard that they were taking people with young babies to Antigua for shelter because there was another hurricane. I packed my bags and went to the airport, and I just wanted to be out of here. There were a lot of animals that died and no water. Then I got to Antigua; I had my phone, I had maybe 1000 messages. We were all over the news. It was the worst experience for me. During hurricane season, I have flashbacks. When the winds and rain come, I have Irma flashbacks. Like today [it was the beginning of hurricane season, the sky was overcast and winds had picked up], I'm not feeling myself today.” (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

and regarding communications to diasporic connections, the interviewee's spouse, who was living overseas, commented:

"I felt sad because all communication was down. Her sister in America tried to communicate, but it was two or three days without communication. Everything was down." (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

The Antigua & Barbuda Defence Force played a crucial role in evacuations. Survivors arriving in Antigua did so with well-planned arrival procedures in place. Medical staff evaluated injuries and collective shelters housed arrivals segregated by gender and distributed meals and basic necessities. Local Antiguan businesses assisted in food logistics and preparation.

"The C-130, when it got here, we had a triad set up where we worked along for social conversion. We had the issues of housing, feeding, among other things. We were not prepared for any large contingency of persons. However, we looked for, and we had both the local and Venezuelan medical teams, and from there, we started sourcing accommodations—guesthouses, hotels that were closed, the stadium. What we were looking for were big facilities that had feeding and sanitary facilities, and also, because of the regulations for shelters, you had to have separate female areas for females and children. That has to be catered for. We had to look at the accommodations for feeding, laundries/sanitation/bathing facilities and where privacy and security could be maintained. Like I said, medically, we were able to handle any minor emergencies. I think there were one or two that had psychiatric conditions, and we had to have them assessed and dealt with. We started feeding; some restaurants were providing assistance. Once we had equipment such as freezers, then we had agreements with Epicurean and others to supply." (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

During the evacuation, survivors transcended on Antigua, utilising any available means of transportation. The defence force, in cooperation with NODS, faced the difficult task of not only caring for arrivals through official means but planning for the long-term needs of all displaced persons, whether arriving on the Venezuelan military aircraft or on private wharves. The lapse in years since the last census complicated this task, as there would be no accurate enumeration of expected displaced persons. However, over the coming months and weeks, evacuation would turn into long-term displacement, and survivor needs would become apparent as children would enter schools, households would be unable to sustain long-term displacement, and reconstruction would eventually begin. An expert from NODS recounted those few days when there was desperation to evacuate:

"When we did our initial assessment of the level of damage and the threat of another hurricane, the decision was made to mass evacuate Barbuda. In doing that, we had to establish what was going to be the shelters, the medium to long-term shelter for Barbudans; we were asking Antiguan to open up their homes and house survivors. Because it was a mass evacuation by air and sea, we had assistance from the government of Venezuela providing flights, and you also had a lot of ferries and personal craft ferrying people over. A meeting point for incoming survivors was established, but because there were so many personal craft, people weren't registered. Some who came over and stayed with family and friends weren't necessarily registered by the national system. There was a micro-shelter situation that came apparent when food was given out. Antigua was a central point, and some of the people weren't registered. Registering was then encouraged. Once the national emergency centre is stood up, it is manned by emergency trained personnel from various government agencies: police, military, fire, medicine, education." (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

By the end of the week, the risk of a second hurricane would come to pass. For the first time in three centuries, Barbuda would lay in uninhabited tranquillity while the government-led coalition, donor partners, Barbuda Council, and survivors scrambled to find solutions, and evacuations turned into long-term displacement in Antigua.

Chapter 4. Displacement in Antigua

An estimated 1800 survivors¹⁴ were evacuated from Barbuda to Antigua within a few days. As the threat of Hurricane Jose subsided, Hurricane Maria would impact the region two weeks later as a category-five storm, causing similar levels of damage to Dominica, St. Croix (USVI) and Puerto Rico. As the island of Antigua struggled to cope with the influx of Barbudans, displacement was compounded as Dominicans with colonial-era diasporic links to Antigua began arriving by mid-September. Owing to the Organization of Eastern Caribbean States (OECS) multilateral Free Movement of Persons,¹⁵ they were guaranteed support by the government of Antigua & Barbuda. With an influx of 5000 displaced persons, national disaster management operations had to contend with both displacement, including facility capacity to house such a large influx, and securing and cleaning up Barbuda. Thus, the displacement magnitude of the two islands and the cleanup of Barbuda stressed public services for a small island state with a population of less than 100 thousand.

¹⁴ Including non-residents

¹⁵ The OECS was created through the Treaty of Basseterre in 1981 and currently has 7 founding members (Antigua & Barbuda, Commonwealth of Dominica, Grenada, Montserrat, St. Kitts and Nevis, Saint Lucia, St. Vincent & the Grenadines) and 4 associate members (Anguilla, The British Virgin Islands, Martinique and Guadeloupe). Freedom of movement is guaranteed within (founding) member states excluding Montserrat ([IOM](#)).

“Getting accommodations was also a challenge. A number of Antiguan opened their homes to [Barbudans], and we had to utilise a school, a stadium, and even had to rent hotel properties. We got them settled and subsequently had to provide three meals a day for them. Those who were working [for the Barbuda Council], about 800 workers, we still had to pay on a monthly basis. But we found though that cleanup of Barbuda was a challenge because Barbudans were here, and there was no one on the island to assist. We had to employ private contractors from Barbuda to go over and do the cleanup. One of the problems we had was that Barbuda didn’t have the type of equipment to do the cleanup, so we had to rent it here. That lasted a number of weeks, creating some frustration for the Barbudans who wanted to return home. Some used it to create political strife and to say we were keeping them here against their will. That wasn’t our intention; we just wanted to create a safe environment for them to return.

“At the time, there was no electricity and water because Barbuda was literally a mangled wreck. So, we had to literally spend some time to make the place livable. I mean, it was, prior to the improvements we made, uninhabitable. We also had to contend with the politics with having the Barbudans here as internally displaced persons. That in itself was one of our biggest challenges, the politics. We had a situation where we had to accommodate three thousand Dominicans too because it was decimated by Hurricane Maria. So, overnight we had to accommodate about five thousand more people. Our social services were straining, especially schools. We had about three hundred additional Dominican students, a couple of hundred Barbudans. So, these are things that happened almost overnight, creating a strain for us, but we saw it through, and I’d say the part of the program went extremely well. We provide all the necessary social and educational services.” (personal interview with Prime Minister Gaston Browne; St. John’s, Antigua (Zoom); 21-Jun-2021)

A NODS official elaborated on the context of Dominicans in Antigua & Barbuda:

“There are a lot of Dominicans living in Antigua, and when Dominica was impacted by Hurricane David in the ‘70s, a lot of Dominicans decided to come to Antigua. There is a lot of mobility between them too. The Caribbean is connected because, at one time, there was only one police force, with police and their families located in different islands. There is a well-connected diaspora. This had some challenges for us because people were buying materials and sending it to Dominica, creating a shortage here for our operations. We had to decentralise a lot of our operations, with storage at the airport for things that had to move and another at the defence force.” (personal interview with NODS expert; St. John’s, Antigua; 25-Jun-2021)

A primary concern of the disaster management operations was to secure sufficient shelter for the arriving displaced persons ahead of evacuations. Collective shelters were utilising both public and private sector properties. Special consideration was taken so that the Barbudan Council would remain together in order to continue working remotely and facilitate communication between displaced persons and the government-led coalition. While micro-sheltering was common, most Barbudans would pass through the collective shelters when arriving in Antigua. Thus, the collective shelters continued to serve as logistic hubs to access food and basic necessities even after moving on to private micro-sheltering.

“There were four main shelters: the cricket stadium, a centre in town, Anchorage Inn and another. Persons and family stayed there, and the councillors along with some of the islanders at Jolly Beach. We got a lot of assistance. We got food, everything that we wanted. We had assistance.” (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

There was two public, collective shelters to facilitate government assistance, Sir Vivian Richards Cricket Grounds and the National Technical Training Centre.

Management of the shelters fell to the cooperation of multiple government stakeholders under a government-led coalition and supported by private and civil society to ensure delivery of aid, the ability to adapt to the changing circumstances of the displaced persons, and longevity as delayed reconstruction led to a prolonged reliance on shelters.

“Shelter management, looking at necessities and how to structure and scale up rapidly. You look at not only the implementation of initiatives but how you're able to implement. Are other agencies more focused on what initiatives over procedure? Traditional agencies working with disaster management were able to adapt their work for months on end, while other agencies became fatigued quickly, especially in the public sector and civil society. Not so much private sector because they're not so regulated as public sector and civil society.” (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

Survivors without sufficient income generation or assistance to mitigate the cost of micro-sheltering became reliant on collective shelters. Although access to most services in the collective shelters was provided by multiple parties, by November, IOM found that displaced persons in collective shelters reported inconsistent access to water and food (IOM, 2017).

“It's never easy and comfortable to be away from home, but we made the best of it. You had hiccups here and there because that was the best that could have been done in a short period of time. The shelters were quite adequate, and they put the children in schools. It was a rough time and didn't go smoothly, but I don't think we could have done better.” (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

Up to 21 September, the two collective shelters accommodated a combined 305 survivors (ACAPS, 2017). In the collective shelters, households were split based on gender and male and female household members weren't permitted to co-habitate. Within this context, families were separated and lost much of the autonomy that would be enjoyed in a private household. Therefore, when the situation allowed, there was a preference to move out of shelters and toward individualised solutions, whether supported by stakeholders, extended kin, or personal savings. For those with extended networks and the means of self-support in Antigua, the reliance on collective shelters was brief and often due to a perception that registering with a collective shelter would increase access to funded support networks to mitigate the higher cost of living in Antigua.

“I was there for a night. In the shelter, you'd get the privileges and got the food packets. I went to the shelter for 2.5 nights just to be on the list because if you're in your home, you might be left out. After a while, there were some Antiguan trying to take advantage of the situation.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

A second survivor remained in a collective shelter one night as the place of debarkation when arriving from Barbuda.

“When I first went, they took me to a shelter near the stadium. I stayed for one night then I left to [Cedar Valley] where I stayed for 3-4 weeks then I rented an apartment in Clay Home.” (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

The overall experience of survivors displaced to shelters was positive. Although IOM had reported a persistent lack of access to food and water in the shelters, this was not shared by interviewee partners, having remained long-term in collective shelters. Conversely, collective shelters became a social hub for Barbudans both living in the shelters and micro-sheltering throughout

displacement as a means to access basic necessities that would otherwise not be provided for displaced persons outside of shelters. In contrast to the findings of IOM, a survivor explained:

"I was in the shelter for three months. You get three meals per day; clothes washed, everything. You don't have to go outside; everything was inside. There were problems with the people, but the shelter was Ok. They treated us good. Others came to get food assistance and clothing." (personal interview with survivor 10; Codrington, Barbuda; 11-Jun-2021)

However, among Antiguan, the shelters did receive some negative publicity, mostly by Antiguan media criticizing displaced persons. Thus, the shelters drew attention both from the public and NGOs, and the Barbuda Council frequently visited to assess and calm social issues arising.

"I went to the [shelter] near the sports track and the stadium a couple of times. I would see [my cousin] every day. I joined an organisation, something Sean Penn was involved in, and there were four of us, and we'd be collecting data on people's perception of how they're coping. I said to a friend because there were complaints on the radio that all we do is drink and sit around, but there was nothing to do because no work and their spirits were down. I went to ask a friend how he was doing, and he replied he's ok; he just had his first drink. He didn't realise he wasn't doing ok." (personal interview with local BPM; Codrington, Barbuda; 31-May-2021)

The government-led coalition extended individual support to some survivors on a case-by-case basis. As previously mentioned, members of the Barbuda Council were initially supported for a prolonged stay at the Jolly Beach resort. With the limited financial capacity to offer individualised assistance, micro-sheltering was primarily reserved for households with private capacity. However, as most national services, including financial and education, are based in Antigua, survivors often had pre-Irma networks in Antigua to fall back on, including parents, distant kin and children employed in various industries (interviews, survivors 1, 2, 5, 10, and 11). However, even with extensive networks able to cope with displacement, survivors faced unforeseen barriers that wouldn't have been experienced in Barbuda. Firstly, although in micro-shelters there was more autonomy for households to recompose, new power hierarchies manifested in which dependent Barbudan households were limited by the will of benefactors. Second, Antigua's utilities cost is significantly higher than in Barbuda. With new power hierarchies and limited revenue sources in Antigua to compensate for unforeseen expenses, households became reconfigured and, in some cases, had to be separated.

"We all went different ways in Antigua. Me and my girlfriend had to stay in two different places. She was with family members. I smoke, and they're police, so I didn't want to be there. I eventually returned to Barbuda alone. After Irma, Barbuda was the sweetest ever, no lights, no nothing. Before that, everybody had a routine, but a while back, I came back on holiday, and I had to start paying at Jolly Harbor. I was the only one working out of four in the house, and the others weren't working, and the council wasn't paying. It was expensive. The water bill was 800 and something. The second was 900, so I took a vacation in Antigua and just came back here. I told the employer in Antigua that if they wanted me to come back there and work, they had to find me someplace to stay because they were taking me out of my country, and if you take them out of their country, you have to provide some kind of stipend. After that, I realised I knew my rights and could sue them. At the end of the day, they told me it was ok to stay in Barbuda, and I was just coming down to help

with rebuilding. Slowly but surely, we got back to operation.” (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Given that Antigua, like much of the Caribbean, relies financially on labour mobility in North America and Europe, some vacant homes of Antiguan abroad were offered to Barbudans to rent as a means to increase capacity for displaced persons. The rental homes became a preference for the 800 workers still being paid wages by the Barbudan Council. However, as labour migrants came and went, the arrangement was often temporary, and some Barbudans were left transiently moving between available homes.

“First one was located in Belmont, paid through salary. It was 1000 a month. In May, the people from the house who were living abroad came back, and we had to find somewhere else. That’s when we found one in near where my wife was working. She was working in the primary school. It was hard before that because sometimes they would have to send me over, and Belmont is far from the school. Just getting to school and her not having a driver’s license was hard for them. I was there for one year.” (personal interview with survivor 5; Codrington, Barbuda; 9-Jun-2021)

Again, the unforeseen cost of utility bills or the state of homes left uninhabited for years by Antiguan living overseas became a secondary driver for Barbudans to continually seek more affordable solutions.

“In Antigua, when we just got over, we were staying with my now son in-law’s family for a little bit. I’m very independent and didn’t know them. My daughter stayed with them. I went to my cousins’ home, who is overseas. I was there alone, and then my father came to join me. He lives with my brother and wife. I stayed in the villa area in my family’s house. It was very difficult. It was one of the most difficult times in my life because at the time council was paying us, they still not paying us much but at the time, it was very hard because you were in a home, and you’re not used to the finance because of the payment. They were in Antigua. They are different from here. You have to pay light and water, and it’s very expensive. Different from us. I have my well, so I don’t pay water, just electricity. Other people do because they have gov water, but it’s not a lot. In Antigua, when my father came to live with me.. he was staying with his girlfriend’s daughter, and there was a lot of children, so he came to me. What we did was split the bills, and I remember getting the first bill, and it was a thousand or two. We hardly have water, and if you get it, it’s dripping. The problem was because the house was old, the copper pipe was old, and now I was there, it started to leak. We had to change the whole plumbing system, and it was costly. It was difficult. Because I now work in disaster, we were placed in NODS because at the time, they had a lot of relief things coming in, and we were there to give clothes what they needed. We’d get lunch at NODs, and most of the time, you’d be there all day from breakfast until 7 or 8 pm. Then you’d have to tidy up the storage for the next day.” (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

When households didn’t have the financial means or kinship network for long-term support, broad personal networks offered assistance that allowed families to at least temporarily micro-shelter. Additionally, relationships with either national or local Barbudan relief workers facilitated preferential assistance. In some cases, survivors successfully negotiated government assistance to supplement wages paid by the Barbuda Council when private solutions became no longer viable.

“My friend at that time told me he didn’t want me to go into a shelter, so he paid for a room for me and my family. We went out to a branch of Jolly Beach, the hotel. He paid for three weeks. I appreciated it, and during the three weeks he had rental properties, he gave someone notice to leave, but during that time, someone said something, and the government stepped in, and I went to them and asked for the government to pay the additional time up to November. During that time, we were working at an office dedicated

to the Barbuda Council. I went across the street to the office. We worked eight hours. Most of the people working there was a small group of secretaries, heads of departments and cashiers. I still didn't know what was happening, but they paid us whenever the funds were available. The Antiguan opened up their arms.

"When I went to pay my bills, they had already been paid, and my friend at the bank would always have things. I had so many stuff; I had to give it away from friends. Many people complained, but I didn't know why because they were helping me and I had money in my pocket. I could give 100 here, 100 there. I had my pickup over there and took kids to school and to the movies. I would not say I had a bad experience in Antigua. My friends brought sheets and towels, and I had to tell them not to bring them because the hotel makes the beds. I had a box, with lotion and roll-on, just about anything in that box, and it was from people who bring. We would share them. I had a pharmacy in my room. I don't have small children, but I had things given to me for children. My experience in Antigua was a good one; I felt the love of the Antiguan around me when I was there." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

Although the focus of assistance was shelter, civil society both nationally and internationally also sought to assist Barbudans with material donations. For local NGOs and civil partners, the shelters became a logistics hub and a dynamic space developed at the meeting point of survivors living in shelters, civil society wanting to help those survivors in the shelters, and Barbudans in micro-shelters attracted by the surplus. Thus, a perception within the Barbudan community grew that survivors in shelters had a comparative advantage.

"In the shelters, you'd have NGOs who'd go to the shelters, and they'd collect things and take them straight to the shelter. On top of that, [survivors in shelters] still get food packages from NODs. I remember one time, my sister was staying at Anchorage Hotel, and I would see her with brand new Ralph Lauren shoes. She said some people brought them, and they got towels and sheets. There were some people who got more. People staying on their own had to fend for themselves, but at the shelter, they had someone bringing them what they needed. They didn't have to cook. I remember some people at the stadium, the ladies running that shelter, and her storeroom was like a supermarket. I couldn't believe all the stuff they had. They had [baby supplies], and everything itemised like a supermarket. And an area for the children. At that time, I was the shop storage for the Barbuda Council workers union. The union representative, Mr Roberts and a secretary, they came, and I remember they asked me to come with them. Just to make sure the workers were ok and getting what they needed. That's how we got to see the shelter's storeroom. I think they got that from a relief fund." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

The government-led coalition, aware of the disparity, provided some services specifically for micro-shelterers. Still, as non-displaced persons tried to access assistance, identifying actual survivors of Hurricane Irma was challenging. With Barbudans lacking documentation to prove displacement status, items were dispersed through an informal identification process where Barbudan informants served as gatekeepers to assistance. While this worked smoothly after Irma, there are questions about whether the system would be viable if another instance of displacement occurred. A survivor explained:

"As long as you're Barbudan and you come... There was anything you could think of coming in, food, clothes, furniture, beds. They had a book, and everything was itemised and, on the receipt, and then you get what should last for two weeks. As long as you were Barbudan or living there when you were evacuated. There were a lot of Dominicans, Guyanese, Jamaicans, even Antiguan who live [in Barbuda]. Because it's a small community, everyone knows everybody, but now you don't recognise people anymore." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

However, financial barriers and access to assistance weren't the only obstacles to micro-sheltering. In contrast to Barbuda, where most of the households live within walking distance of schools, Antigua is much larger, and Barbudans had to contend with the complex public transport system from their new homes to schools and places of employment that may be in different parts of the island. By the end of 2017, as older generations without school-aged children began returning to Barbuda, households with children became ever more disenfranchised from care networks and increasingly isolated. The rebuilding of Barbuda's heavily damaged schools was slow. It would be at least another year until most households with children would begin returning and reuniting with care networks, burdening parents already suffering from mounting living costs.

"I went to Antigua just my child, my niece and myself. My parents came two or three days after. They didn't want to come, especially my dad. Antigua was the next Irma. I understand from their side that we were coming into the space. Eventually, they started to accept us, but I felt like a burden. My husband came in 2017 when I was in Antigua. I was living with my parents at the time, and then he came, and I had to find a place to live. I found a place, but I couldn't stay there because my daughter was in and out of the hospital. I stayed with my godparents first, then we packed and moved, found a place, but it wasn't suitable for her sick daughter. The next place cost 1000\$ and her salary alone to pay for food electricity. I went back to the godparents. My parents stayed for a while, but they came back to Barbuda in October." (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

Like the children, teachers from Barbuda's primary and secondary schools were also remanded to Antigua indefinitely as the Ministry of Education, Sports, and Creative Industries, the party responsible for the Antigua & Barbuda school systems, assigned Barbuda's displaced teachers to positions within the Antiguan school system. Both teachers and students found negative sentiments and discrimination in their new school settings.

"I couldn't find a place to live and just came back to Barbuda in 2018 July. I was teaching in Antigua. I hated the school with a passion. I had it thrown in my face that I was Barbudan. I had to get a ride and find a preschool walking distance. There are many times that I had problems because of transport. I arrived when the office was closed and often forgot to sign in, or sometimes I'd have to take my daughter to the hospital. The principal would say I make it look bad for Barbudans. [The Barbudan coordinator] intervened when the daughter had a bacterial infection, and I had to take her to a private physician." (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

A parent of a child placed into the Antiguan school system added:

"In the schools, they hear a narrative that you don't own anything, you're squatters and living off the state, and they hear that narrative, and the children begin to believe that narrative that they're taking up space. It was a huge trauma on everybody, psychology. Those are the things we began to resist." (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

and as displacement within Antigua persisted, both parents and children grew desperate to return:

"My kids wanted to come back; they didn't want to stay. They didn't get adjusted. The fact that we were taken from here to over there and promise that we would get help to pay rent and food, but they didn't manage it well." (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

In November 2017, IOM determined that more than 40 per cent of displaced persons living in shelters were unsure when they would return to Barbuda after three months of displacement. Barbudans began to grow agitated, and demand grew for the government to facilitate survivors returning home to secure property.

“Time passed, and we still couldn't come home. There is where the mistrust started. You watch disasters in other places, and people always go back the next day, but weeks after, we couldn't go back, and that's where the problem started.” (personal interview with national BPM; Codrington, Barbuda; 2-Jun-2021)

Again, Survivors with links to, in this case, security personnel profited from those connections.

“When my [military] boyfriend would [go to Barbuda], we would send him to make sure everything was ok while we were in Antigua trying to secure things to come home and reconstruct.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

Up to that point, NODS had been tasked with much of the disaster management operations of both the displaced persons in Antigua and reconstruction in Barbuda. The operation became a political lightning rod as Barbudans demanded a clear pathway to normality, and Antiguaners grew increasingly tired of internal displacement. As tensions rose, the government implemented day trips in which a limited number of Barbudans would be allowed to return for a few hours. The day trips aimed to secure personal property and assess the damage. In the meantime, NODS enlisted multiple organisations (both national and international) to shift the focus of disaster management from extended displacement to reconstruction and the eventual permanent return of Barbudans. However, even with assistance from international organisations, the task was a challenge for the small team at NODS. Their team attempted to liaise between Barbudans (both in collective shelters and spread among micro-shelters), government ministries and agencies, civil society and international organisations.

“Those agencies get information from community level, operatives on the ground and feeding information back to us, so we know there are people in a church and other pockets that we didn't know. This led to problems in distribution where people would need to come into the office. This led us to look for immobile people. Then you had to bring in the social service for children and place in schools with health and education. We worked with gender affairs to deal with violence. You also had to start looking at cleanup and how it's facilitated. We had to go in, stabilise with military presence and facilitate people going back. Once we picked up debris, dealt with water, the Ministry of Agriculture to look at animal husbandry and wild dogs. We made the facility as stable as possible so people could go back for short trips to collect personal items and clean up their property. That was another phase. We also had to communicate with the shelters on expectations for future timelines. Teachers were absorbed into Antiguan schools, and the public sector tried to absorb Barbuda council workers and other businesses to absorb workers.

“We had food, cash and relief programs across shelters. There were also cleanup and rehabilitation programs for water and lights. Teams were camped out over there on periods of rotation with all equipment and supplies needing to be ferried over. That was subject to the weather. Even before we start talking about reconstruction, we worked on this from 4 am to 11 pm, seven days a week for nine months. We had to facilitate the coordination platform for agencies coming in. It was similar to the UN cluster system, so agencies would be used to it. UNICEF with education, red cross and UNDP with labour, gender affairs with gender affairs here. [Ministry of] Agriculture with livelihoods, WHO with Ministry of Health.

Each had counterparts. Other agencies would sit in on the relevant cluster so that there was coordination.

“There were also socio-political issues. The political climate is polar because Barbuda is seen as the opposition to the government. We worked with UNDP as the mediating party so that they saw it wasn’t just the central government coordinating. There were still problems, but you tried to facilitate unbiased. We thus also had a public awareness platform where the public and reps from Barbuda were informed of initiatives. We also went to the shelters to get personal effects. There was a structured balance. There were these two parallel clusters. Information was public and put on TV and radio, including individual persons. After looking at rehabilitation, we looked at redevelopment and building back better.” (personal interview with NODS expert; St. John’s. Antigua; 25-Jun-2021)

From a survivor's point of view at the time:

“There were MCTTT, Jolly Harbor. There were 4 or 5 shelters. They were well taken care of. We had three square meals. The government of Antigua put themselves out to take care of us. In Antigua, it was tough because we all branched out. They tried to bring everyone back together. We had one town hall meeting at the AV Way to try to organise and get back home. In Antigua, they let us come back home but only for a day, not to sleep because it wasn’t clean. The Barbuda Express¹⁶ and a couple other boats did day trips to take you back to clean up and back to Antigua. That happened for a couple of months before they said it was safe to move back home. With the families, they tried to get everyone back together, but it was your choice if you wanted to stay and work—families as in the household. For us, my father owns a house in Antigua, a big house, so we all came together. In 2000-2002, he moved to Antigua, where he had his own construction company, so we moved there, and he bought a house for better living. So we were raised half in Antigua, and it’s always good to have two homes.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

The government-led coalition worked with local partners to begin day trips, but capacity was limited with a lack of ferries operating the segment even pre-Irma. Additionally, the ferries would have to transport relief workers charged with cleaning up Barbuda.

“[Survivors] were allowed to go for two hours a day to clean out houses, secure valuables, so what we did is rotate it. First, you had persons who had essential workers then non-essentials, but the grouping would be essential workers first, carpenters and electricians. They would go so they’d work. They went in workgroups. Then you’d have nonessential going who’d be supervised, so if you’d be in a particular area that wasn’t your home, we didn’t want people sending people, so we tried to monitor it. We wanted people to come back and secure valuables, which was also done on a list basis. In the shelters, you’d submit your name and based on the frequency; you’d be allowed to go.” (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

Few Barbudans were allowed passage on the day trips in the first few weeks. The process further polarised resentment by Barbudans of the government’s handling of displacement. With each passing ferry trip to Barbuda, survivors would congregate at the docks hoping to be chosen for that day’s sailing. Still, as ferries left each morning full of relief workers, Barbudan disappointment grew. A Barbudan expert recounted the scene from the departure on September 25:

“So, when I came back on the 25th, I had the opportunity to experience what the ferry dock was about. You arrive at the dock, and you have hundreds of Barbudans to get on the ferry, but they weren’t the priority. It was official persons, electricity, contractors, government officials. Now, this is the process. Hundreds of Barbudans waiting there, and [the military]

¹⁶ A ferry service that normally runs between Antigua and Barbuda.

would come down and look at his list. Maybe twenty-five Barbudans were allowed. So, he's looking at his list and calls names. I just stood aside and observed. We are proud people, and when we're put in that position, there was shame and indignity in the people's eyes. There was an old lady trying for over two weeks, and her name wasn't called, and she broke down and started balling...she had left her dog there, and her supermarket... I looked at her, and the anger rose. That was being done to the Barbudans. They were the minority, not the priority. Say you had fifteen members from [an Antiguan company] who were slated to go over, their names weren't called, they weren't singled out, they were just allowed on. So when you see that, it was deliberate to break [Barbudan's waiting for the daytrip]. That was the 25th of September. I wasn't going to subject myself to that, so I refused to get in to take the ferry." (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

After thirty days, the state of emergency that barred survivors from returning to Barbuda was lifted. Although government-led disaster management operations and reconstruction continued, and basic services were not yet restored, some survivors frustrated with being internally displaced in Antigua began returning home. Barbuda, at that point, lacked electricity, schools, and healthcare. Even as survivors returned, the Barbuda Council continued its temporary operation from Antigua. The rationale of one early returnee to Barbuda was that:

"The state of emergency that was declared. It has to run for thirty days unless parliament declares an extension. I was like; I'm in Antigua; it's not my choice. There was a mandatory evacuation. The conditions in which we were living, we were living in a donated one-bedroom apartment. Our children, my son and daughters were living in a brother's apartment, a twenty-minute drive away. The children had to go to school. I'd wake up, commute to them and take them to school, and that was all at my expense. The alternative was living in a shelter, and in a shelter, the conditions were...well, it's a shelter, a concentration camp. Males, you live that way, Females that. So even if you have a family, they are separated. I wouldn't live under them. Here's the government saying they made a decision that we all will be transferred and integrated into the system there. At one time, I remember speaking to my supervisor that I was being assigned to so and so. I talked to my superior and told him I have my home in Barbuda, and you're telling me I'm being transferred here. You never asked me if I wish it or if I consent." (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

They continued:

"The only reason I'm in Antigua is because of the state of emergency, so when that emergency date is expired, I'm returning home. We have a constitution with rights, and one of those is property. You're asking me to let my property rot and be transferred here, and I'm not going to do it. You don't have the right to do that. So, I went back [to Barbuda], and they refused to pay me two months' salary. That was the kind of back and forth and the conditions you live in. You had greater expense and trauma from the family being split up. My conditions were not the worse. Others had worse. Take, for instance, single mothers; here, family is close by, everyone walks to school; you're not uprooted from that. Your children are sent to different schools and have to contend with bus fare to get to the central station and another to get to school. If you miss those buses, there are no family ties. They were Stranded for the day without lunch money." (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

Among the survivors, diverse experiences during displacement drew no clear consensus. After four years, up to 400 Barbudan survivors remain in Antigua. Some of those survivors remain displaced as they wait for assistance or save money to rebuild. Others have integrated into Antigua, whether due to better education opportunities for children, long-term employment, or just in response to the trauma experienced during the violence of Hurricane Irma. However, for other survivors, the forced and prolonged displacement in Antigua itself brought trauma

as they contemplated homesteads, livelihoods and even domestic pets abandoned in Barbuda. Trauma was further agitated by a perception of Barbudans being othered by Antiguan. The perception penetrated every age group, with children isolated in new schools facing novel daily challenges and adults unable to cope with inconceivable barriers and the overarching threat of temporality in assistance regimes. An expert reflecting on the sentiments of many Barbudans explained:

“[Displacement] was awful, psychologically and otherwise. The hurricane came in early September 5 and 6. We were taken to Antigua. I returned on the 25th of September for one day. There was a group of journalists that asked me to accompany them back. During the weeks after, you left Barbuda with the mindset you're leaving because there's another storm and you'd be back in a couple of days. I had four dogs, a cat, and am a beekeeper. My hives were tossed around but not dead, and I know the sooner you can get things around, the sooner you can get back to business. The larger problems, for instance, the fisherman, the engine got in saltwater, A-S-A-P you need to get it washed out to save the equipment. All these things are natural things you do after a storm. Imagine you are taken out of your home and carried out and not told anything.

“You're thinking of your pets with no one there to feed them. It was painful, the concern. When you look at the actual figures. UNDP did a damage report. The broad figures were 1-4. Over 50 per cent were in categories 1-2; those were official figures from the UNDP assessment. A day after the hurricane, the PM was saying 95 per cent destruction and uninhabitable. You can imagine the number of persons in categories 1 and 2 would have been able to dry out beds and sheets pick up pictures. Imagine those people not able to salvage that and kept away for such a long period, not being [part of the process]. There was a meeting of our Barbudans. I got up and said we need to go home; I need to go home and look upon my pets. After that meeting, they were making a fuss, so we're going to allow you to go over for a couple of hours and come back. You have to get on that ferry back. Otherwise, you'll get arrested or shot. So eventually, after a couple of weeks, we were permitted to come back on the ferry, but just to pick up a few things and get back on the ferry. So, the process of getting on that ferry was managed in a way that there was obvious discrimination against Barbudans and an attempt to intimidate and demoralise. It was just awful.” (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

In the meantime, NODS supported an increase in services to survivors displaced in shelters through the support of regional (PAHO) and international partners and attempted to bridge communication between these partners and local stakeholders and develop methodologies to assess psychological hardships faced by Barbudans in Antigua.

“There was quite a lot done; a lot of agencies came out. Training persons to assist. Those who were trained worked with other agencies such as the Red Cross and local councillors. The shelter managers had sensitivity training. Now we're looking at the performance in schools to start looking at those issues. You also have to look at situations that lend themselves to disparities: violence, access to social equity, etcetera.” (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

Between October 2017 and July 2021, an estimated 1200 Barbudan survivors would return home in hopes of rebuilding their community. While some survivors, mainly without dependent children, returned between October and December 2017, the largest wave of returnees followed the school calendar and returned the following year before schools reopened at the end of 2018. Even after a year, survivors were often returning to temporary conditions, local displacement, living in tents or with extended kin capable of providing improved yet temporary living conditions. Often households, including children and older

persons, had limited access to sanitation and electricity, dependent on donated generators. Parents sought to reintroduce a sense of normality for their children returning to school and Barbudan life.

Chapter 5. Return phase and reconstruction

Against warnings from the national government, survivors began permanently returning to Barbuda in October to salvage any remnants from their previous life not yet consumed by decay. Although floodwaters from the sea surge had long subsided, survivors had to face homes overcome by black mould and home gardens, a staple of Barbudan food security, left barren by grazing livestock. Pet dogs left behind were no longer accustomed to domestic living and roamed the streets searching for food. Early returnees banded together to quickly assimilate normality around their common Barbudan identity.

“October 25, when the state of emergency expired, my wife and I came back to re-establish our community. There was a small group of us, maybe 10-15 people. The place was dead, only military people and airport people building. For months, Barbuda remained as if time stood still. Things were just in a time warp. Coming back in those circumstances, ten people and so on in December, a dark island, no electricity, no hospital, maybe just a few Barbudans are back. We decided to celebrate Christmas. Madison Square in the centre of the village decided to have something for Christmas. It was such an experience because of just the idea of being together as Barbudans talking like before. We had one generator running a stream of lights, and the boost we got psychologically in terms of community spirit, being together and talking. The conditions weren't great, but we were back home.” (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

The Christmas Day celebration event was a way for the returning survivors to demarcate a temporal end to their displacement. While the event was a climactic moment for the community, the clean-up and reconstruction period began earlier in September with the government-sponsored day trips that facilitated a transition period for survivors between displacement in Antigua and permanently returning to Barbuda. However, limited capacity on the day trips favoured relief workers. Therefore, a hierarchy in the reconstruction process ensued in which Barbudans with dual identities as survivors and stakeholders were the first returnees to Barbuda.

“As soon as they allowed us to clean up, I was one of the first. I didn't wait because we didn't have a lot to clean. We cleaned the fridge and leaves, and water. I remember before I left, I tar poled the roof, and someone nailed it down. There wasn't a lot of water coming in after that. What I had to do was clean the yard; there was debris all over. So, I did that from the beginning. The first time we came, we were allowed two hours. It was like that for a month or two; then, we could start spending the night. They started to do their estimations, and everything was done by NODS, and since I was working at NODS and from Barbuda, I was one of the persons they picked to come. I was here from the beginning. We'd go a couple of us to walk around the village and map which houses were 1 and 2, who was to get things first. As I work with disaster relief, I was picked to have my house fixed first. Just a couple of galvanised and rafters, so it wasn't very difficult.” (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

In offering day trips, the government-led coalition prioritised the construction of hubs of essential services. These temporary solutions were implemented to ensure access to clean water, food, and telecommunication both for visitors on day trips and eventually for early returning survivors.

“I came when they started day trips. When the [flood] water retreated, we had to get members of the government in to come and clean up the place and get the people over. There was an essential kitchen area, which was the black dome which essential workers coming over on a day basis; they would eat. That was in operation for a year, if I'm not mistaken. On those trips, I would normally come over and clean up certain areas and go back. My kids were in school, and they didn't get into school until two weeks after others because I was looking after everyone.” (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

However, although the solutions were intended to be temporary, four years later, as reconstruction continues and the island continues to lack key disaster management infrastructure, much of the temporary infrastructure is still in use, albeit continually adapted to the needs of reconstruction.

As temporary services became available, the recovery operations focused on minimising the health risks of returning survivors. These health risks included waterborne diseases that may have festered in stagnate waters left by the storm surge, rats and mosquitos, and threats posed by livestock and domesticated animals that owners were forced to leave behind during the evacuation.

“The effects of the hurricane, the amount of dogs that were packing and attacking animals and people. Pigs were roaming. So, we had a healthcare concern. Mosquitos breeding and Zika spreading and rodents. There was a general health concern. I think in Dominica, one person died of tetanus. We had scares of all the rats carrying diseases. We had to go through the area for eradication, trying to get those under control. It took a while because we had the issue of security. First, we had to secure the area because people were coming by boat from [Antigua], and all the valuables were out. All the services were down, so there were no lights, so we had to maintain a security presence with the military police. At least get things secured, then move the health services and garbage trucks utility companies back to see what was salvageable. That began. There was a lot of static from the locals there that wanted to get back home.” (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

While there are conflicting reports as to the risks posed by looters and feral dogs, it is well documented that private organisations responded quickly after displacement. Response, in some instances, outpaced protocol, and the government took steps to limit access to vetted partners.

"Sometimes there's a clash between [NGOs] and what agencies want. So there was constant coordination between agencies, and the operations centre in NODS brought everything together. So here and there, we'd have meetings, and you'd be surprised all the little things that come out; for instance, animal groups came in to try and shelter the animals, but reports were they were taking to Canada and sold. We curtailed that. We were able to round up the animals and ensure that it was taken care of, and you try to get under one umbrella group, and all wanted to get the limelight for their Facebook page. So what you saw was this group fed the dogs at ten and this at 11 and so on. There was no coordination. So, the humane society was responsible and all under them." (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

As the government began implementing disaster management protocol, they were aided by international organisations and institutions such as the Red Cross, which started supplying assistance to displaced persons and survivors rebuilding their homes and businesses. As the government compounded the assistance of various international organisations and donor partners, help from NGOs and faith-based organisations became regulated and would eventually leave Barbuda prematurely for other disaster zones across the region. As the private aid partners left, further accusations incited political infighting. As the military expert explained:

"The process went step by step by step. It took a lot in terms of resources. Just in terms of having people here providing utilities and there was a lot of discussion of money being misused, which I guess is a typical tendency, even though they did get a stipend through Red Cross and some agencies, they still wanted to see cash and not all the work that's going into maintaining. They focused on utilities and agencies like SP that came in. There's always a problem when [private] agencies come in, and they have their own mandates. All the other agencies came saying they'd give this and that without checking with the government. One agency came in with their goodwill and gave generators. There was no accountability. Some of the people on the list were dead or didn't live in the country for years. Agencies come in with all their goodwill and make a mess of it.

"Even donations, plywood sheeting came in full of termites, and we had to dump everything. People sent winter coats down. We had a case of all left foot shoes, so sometimes you have to go through these processes, and sometimes it's like dumping; containers are full of termites. It takes control, and they must understand when they come into the country that they are at the behest of the host country, so when they come in, we sometimes make them put the breaks on. Even with the China Aid project, because what they were doing, they had roofing materials, lumber but that was it. They didn't provide steel cement blocks, so even in terms of the levels they wanted to fix, it made no sense. So we, me with them, said this level of help doesn't make sense. They brought 2000 pieces of 2x4 but were only fixing level 1 houses, but we only needed 100 2x4s for level 1, so we had to have an engagement that they provide, but we need to manage with accountability. Those are the issues we had there." (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

While contending with stakeholders' regulations on the ground and vetting relief supplies back in Antigua, the military and government-led coalition of stakeholders in Barbuda began repairing damaged infrastructure to speed up logistical hurdles and assess the damage for a more informed reconstruction process.

"We started [cleaning up] at the airport so flights could come back in, then the ports. The other thing was water because there were already a lot of generators. Some places had wells; most had wells, so we were trying to get purification of some sort so people can come back. The ports and airports opened up, then food could come in, and people could start rebuilding their lives. We tried to protect their valuables, but health came first, and that is why it was necessary to have the lockdown. We progressed bit by bit. It was complete devastation [in Barbuda]. I saw four shipping containers wrapped, and during the storm,

one child died. We were aiming to get to the stage where we started allowing essential workers to come back. We looked at persons coming to clean up their homes and crews to clean the roads. There just kept coming garbage, but we were trying to get it out. There was the assessment of what was habitable and what was not—then trying to put in temporary shelters and tents for other agencies. We established a warehouse for food and building materials, so we started reconstruction for persons. The other major issue was in some houses you actually had to replace the whole roof. So, we got to the UN and China Aid and got contractors and engineers through UNDP to begin building back better.” (personal interview with military expert; Camp Blizzard, Antigua; 24-Jun-2021)

Early returnees took advantage of the support offered by numerous unregulated aid givers, both from the government-led coalition and private organisations. While access to assistance would eventually become regimented, survivors could shop around within the disconnected aid regimes in the early days. The relatively few survivors returning before the end of 2017 arrived in a Barbuda where building supplies were plentiful, the gatekeepers to the supplies were diverse, and much of the supplies remained unused due to labour shortages. In this largely unregulated context, the few returnees could quickly assess damages and procure necessary supplies. Although they may not have had access to public services, many of the returning households at the time promptly became relatively self-sufficient.

“When we came back to clean up, there was so much material. I think if we did stay, we would be further on than today. There were so many things that came and left because nobody was [in Barbuda]. We live and learn. So, the next storm, we know not to leave. The UN did the rafters, and Samaritan’s Purse put on the galvanised. Red Cross gave us 3000 ECD to go and buy windows and doors. AP way and the Wade Foundation was offering temporary electricity. So, we had that, and we went home. The water was on, the electricity was on, my shower was working, and all I had to do was finish up the inside work. Redo my kitchen and bathroom, but I decided while I was there I could do a little at a time, week by week. Because we’re small, people come in and chip in and fix the fencing and parts in the kitchen. We didn’t have to put out much because people chipped in and helped. Because how Irma caught us off guard, it made me make one room out of concrete so if it happens; we don’t have to move away, we can stay.” (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

Additionally, many early returnees had construction backgrounds, having worked with construction companies as migrant workers in the US and UK before retiring to Barbuda. Their background benefited their households in two ways. First, their homes built pre-Irma fared well, with the hurricane’s impacts leading to more minor damage. Secondly, their skillset and availability of housing materials accelerated reconstruction efforts for the small group of returnees.

“There wasn’t much damage, and my dad’s a carpenter, he fixed most of it. The days after the hurricane, my dad was already putting together. When he came back, he’d help other people.” (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

A second former labour migrant also returned to his Codrington village home. As his house was less damaged, he took in his mother, whose home was destroyed. He noted the particular lack of assistance for older survivors who had lived alone prior to displacement and the frustration of no clear resolution.

“I stayed in Antigua from September and came back in December. I came to fix up the fence, and then the whole family came over. We spent Christmas 2017 here. The windows weren’t yet in, but we put a board there. In 2018, we fixed the window. My mother-in-law, she’s 99 years old. She was with us. She lost her house, and a lot of houses around hers

were rebuilt [by donor partners] but not her house. She's lived with us since the hurricane. She's the oldest person on her island, and no one is looking to build her house." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

As early returnees rebuilt homes, signalling a return to normality, livelihoods also returned.

"My mom and dad came back a month before me; she owns a cook shop. Every now and again, you know where to get food in the day, but at night, you kind of congregated. Your days weren't too focused on themselves. You want to get Barbuda back to Barbuda. Irma sent water through the cracks; it was a beast." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

However, the early returnees also offered ominous insight even four years after Irma.

"Irma taught me personally don't cherish nothing on earth, anything you can purchase, cherish love. If you cherish your house, it'll get destroyed. Don't see yourself better than nobody, whether in a mansion in a shack." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

By early 2018, the government-led coalition had finished assessing damages to Barbudan structures, rating each structure on a scale of one (least damaged) to four (destroyed) and began concluding assistance packages from donor partners. The United Nations Development Programme (UNDP) office in Antigua managed projects funded by China, India and the European Union. The strategy was to begin reconstruction, focusing on the hospital and post office (funded by India) and the least damaged homes (categories one and two, supported by China). Due to logistical issues, the projects were delayed. As one expert explained:

"UNDP began rebuilding operations in 2018 with level one and two houses. Houses that experience just minor damage, roof, etcetera. They replaced 302 roofs; the project was funded by the Chinese government. They worked with NODS. There was also an Indian funded project to rehabilitate the hospital and post office. Those were completed last year. It took longer than anticipated. The main level of the hospital was reconstructed, there was an increase in bed capacity. There was a male, female and maternity ward. Now the hospital has eight beds. There is still some work to be done, but the funding was limited. PAHO recommended the repairs to be done. The structure of the post office roof was made more resistant and completed in 2019." (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

As displacement became protracted, households began noticing psychological degradation in older displaced persons and, by early 2018, began negotiating within the extended kin networks their imminent return to Barbuda. However, with homes of older displaced persons abandoned since September of the prior year, long-term living situations were still untenable. As the daughter of one older displaced person recounted:

"Prior to coming back, my dad was 83 or 84, and my father was starting to show mental signs associated with conflict zones, such as getting angry and anxious. It took me a long time to go back to his house; my brothers were helping. So, I came back with dad to see how bad it was, and he didn't want to go back to Antigua even though there was black mould on the walls. There was one room that worked, the kitchen and living room didn't have a roof, so I bargained with him that we'd go back [to Antigua] and get our belongings and then come back the next week. Two of my brothers helped me to get the place livable.

We were staying in our friends' house in Antigua, but it wasn't home." (personal interview with survivor 15; Codrington, Barbuda; 25-Jun-2021)

Trauma experienced by older returnees was compounded by the inevitable changes brought on by extensive damage and the loss of livelihoods. The cost to rebuild livelihoods was often too high, and older survivors became confronted with unwanted transitions. Usually, their adult children were left to assist their older parents through the trauma of the changes while also negotiating personal and household well-being.

To facilitate a smooth transition from displacement in Antigua to Barbuda, caregivers left older parents in Antigua during scouting missions to Barbuda. However, the caregivers arriving in Barbuda were often unsure of the conditions. Since during displacement in Antigua, returnees had been scattered across the island with little contact with other Barbudans to share insights and experiences. Many of the caregivers were also unaware of who had returned. Often, the caregivers, especially those returning on day trips, would only have a few hours to assess the situation their older parents would be returning to.

"I told him I needed to go back to take care of the house. He was feeling hopeless. I asked my sister-in-law who was back in Barbuda, and she told me there's no one really and invited me to stay with her, and I came back. January 6th, 2018, I came back. Some people came back. One of my friends came back on the very first trip, either the first week in October or the last week in September. I was surprised to see her, and I asked her how she did it, and she said she was losing her mind in Antigua.

"When I first arrived, I didn't know where I was. The ferry was coming around to the dock in the lagoon, and I didn't know where I was. We came around palmetto, and I didn't recognise Barbuda. On that trip, they told me I got 4 hours, so I went to check on my house and my mother's house. Let me tell you what happened, I'm afraid of dogs, and they were following me. I almost passed out. I walked past a house, and the dogs kept following me; I was scared. I flagged down a pickup truck, and it took me to the central place to get away from the dogs. It's where people came to eat, and I talked with them, and they discussed cleaning up.

"To me, it didn't look like anything had been cleaned up yet, but it had. I was later than many to come back, but earlier than most. Even today, I say to my husband, I shouldn't have left. I would have got things done, got my roof on and felt better. But we as a community bounce back faster, but I think we had quite a few deaths after, the children came back; nobody went crazy. We got the spirit back. We did." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

Conditions of returning to Barbuda were further exasperated for the caregivers of older returnees with disabilities who required constant assistance while homes were being reconstructed.

As the number of Barbudans returning increased, the local community began implementing ad hoc social services to compensate for prolonged rebuilding. In Codrington, this included schools set up by unemployed and retired teachers in available church spaces to continue educating any children returning before the end of the school year.

"Someone told me about an elderly lady who was Barbudan, and every day she'd go to the dock in Antigua, and all she wanted to do was go back. People came back for Christmas; some had generators. Someone came to me and asked me to teach their children because they didn't want to go back to Antigua but needed to continue schooling. So, we organised

school in a church and people started coming back because we had school, homes, some water, and some electricity from the generator. It was hard, but I think people would have come back sooner if they could have. We just did what we told until we were able to come back and see that it wasn't so bad." (personal interview with survivor 15; Codrington, Barbuda; 25-Jun-2021)

When it became evident by July 2018 that both primary and secondary schools in Barbuda would reopen for the 2018/2019 school year, households with school-aged children returned to Barbuda. Families that already had sent some members back to Barbuda returned to homes reconstructed to an extent where no further displacement was required.

"After the visits, I came back permanently to Barbuda at the end of 2018. That was when school closed; I think it was August or July. My roof was done just before I came over. When I came over, I didn't have electricity, but I got it the same week. The yard was not fixed, it was open, but I had to be back with my people. I took my children out of summer school because I couldn't stay in Antigua as an elected member, and the time was right; I had to come back when school was finished. In the political world, I was both a role model and also a mother." (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

However, many households returned to secondary displacement, in which their homes had been damaged beyond the point of offering any type of shelter. As construction on the more extensively damaged category three and four homes hadn't yet begun, returning survivors either had to find temporary living arrangements with extended family or move into tents provided by the Red Cross (interviewees 2 and 6).

"We had a lemon tree, but there's no fence. It's never been fenced. I was in a rented home during the storm. When we came back, we were living in a tent from July 2018 to 2019, five of us in a tent. It was tiring because when rain fell, water came in the tent. Other than that, it was comfortable and nice. The tent was on parents' land. My sister and nephew were living in tents as well." (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

Without a clear path toward durable solutions, households living in tents faced uncertain displacement durations as alternative housing and rental properties had still not been rebuilt, and any living costs remained prohibitively high. It quickly became apparent that tented living was not a viable long-term solution. The tents tended to decay under the Caribbean sun, flood during rain, and offer little protection from rats and no access to sanitation. To escape the insecurity of tents, survivors would often either set up tents in remnants of home structures or abandon the tents when even a partially standing home may be available.

"In my family's house, they were rebuilding, so I just had a bedroom and a bathroom, but the front of the house was gone. After that, I moved out to a tent because my [baby's mother] and son came back and there wasn't room with my aunt and her family, so I had to move. I came and went to live in my girlfriend's mom's yard. Then after hurricane season 2018 was coming up, I had already rented a house for 800 ECD, but I had to pay 800 ECD in gas for the generator. I went 18-months with gas. I lived in the tent for a few months, but I had a generator because my son has eczema.

"Life in the tent was good. I didn't have any worries, no bills other than the gas bill. After I got the temporary electricity at the rental property, I didn't want to return to the tent, and once the hurricane season was coming, I went to the rental property with a gas generator to keep my family safe. So now I'm in the rental property now. I've been renting since 2018, and I don't have access to running water. So, I'm trying to build my own house as we speak.

There's an inside bathroom, but I have to bring the water in bottles; it's crazy. I'm trying to start building a house; that's why I've started the jerk business. I want to have my house and get out of rent. I'm paid by the central government; I get paid but not much. I've been working here for nine months, and if you go to Antigua at the same grade, same job, you'll be making more than me. The uniform makes you look pretty, but it pays like shit. I'm also working at the plant, the solar park, but they haven't paid us." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

As the beginning of construction on replacement homes for more severely damaged structures was delayed, some households opted to build less costly (and less secure) wooden-walled homes. The houses, more associated with informal settlements in a more urban Caribbean setting, offered more privacy and the eventual addition of indoor plumbing and electricity but were perceived to be temporary until funds could be secured to build more sturdy concrete structures.

"I was one of the families to get materials and bought the rest to build my board house. It was my boyfriend's land. He had it for a long time. So, we bought the boards, and now we've turned it into concrete. We aren't getting any assistance. There's no windows or doors yet; we're just trying to work toward getting a roof over our heads. It's 2-bedroom, 24 x 30 [feet]. We've done it all by ourselves. We're working hard because, in the board house, water still comes in [when it rains]." (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

Both donor partners wishing to build homes and private Barbudans struggled to procure building supplies due to logistical barriers. The sea separating Barbuda from Antigua is often rough, leaving cargo ships unable to cross, causing delays. Additionally, due to the small population, few barges ply the route. Further, the reconstruction demanded a high volume of supplies, for which the local port infrastructure couldn't cope. These constraints caused constant shortages of building materials. When available, the shortfalls were alleviated by small allotments of, for example, galvanised roofing from NODS and the faith-based organisation Samaritan's Purse. However, as Samaritan's Purse left Barbuda early in the reconstruction phase and government-led assistance shifted to UNDP donor-funded projects, access for personal home construction was limited. One survivor explained the dilemma and how larger development companies were less impacted:

"Sometimes, getting things here is difficult. You have limited opportunity getting in big stuff, and you're always fighting the ocean. PLH¹⁷ had money to pay for other barges, but smaller people couldn't afford to rent the barge. For Red Cross, sometimes we had to wait because the port needs to be upgraded. It's not suitable for our operations. On the weekends, when the barge and ferry come in, you just can't operate. It's expensive and difficult because we don't always have the time and availability to move stuff. There's more than one barge, but recently one came off because it wasn't viable enough." (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

In some cases, NODS supported contractors to assist in minor home projects for those returning in mid-2018, but there was speculation as to whether payments for services rendered were executed.

"I got materials then from NODS. People had donated materials to reconstruct their homes. We got some materials, and we had a local person; I'm not sure if it's true, he said he hasn't been paid up until now. I had to pay him something because he said he has his workers to

¹⁷ Peace Love Happiness LLC: The development company behind the gated communities.

pay, so I did pay and got my home fixed.” (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

Before fieldwork, the final wave of returnees came back to Barbuda in 2019 when the government-led coalition operated by NODS and the Armed Forces left Barbuda, and day-to-day operations returned to the authority of the Barbuda Council. As the Barbuda Council was no longer in Antigua, all council employees either had to return to Barbuda for work or give up their salaries.

“I came back in 2019. I was working for Barbuda Council and was paid until 2019. My mom came back because the post office was in Antigua. So, she came back early last year in 2020 when the office moved back to Barbuda. They wanted to make sure their staff had their homes back. When I came back here, I didn't go back to work because we're not getting paid. They just paid November salaries last week. They are way behind. People are not being paid. While I was displaced, there was a different head at the time, and we got paid. So, you had your money and your house in Antigua. Life before was on point. Now half the payroll, I don't think there are 200 are on the payroll now.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

Speaking on personal housing conditions upon returning in 2019, the interviewee, whose father owns a home both in Antigua and in Barbuda, continued:

“The home was not 100 per cent when we came back. We had already rented our home out for a while, so there was some help to put it together for us, and then they rented it. It was some Jamaican workmen. They helped put the place back together, and the workmen stayed there until we came back and then they moved. It's still not up to our standards. It's still livable, but we need windows and interior work. It's because of money, materials are not cheap, and you have to deal with buying in Antigua and bringing them here. Cargo is a lot of money. We're getting there. We're using our own family money with no assistance. My brothers sent food barrels every two to three months because shopping in Epicuren¹⁸ will break you.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

¹⁸ A well-known supermarket in Antigua where many Barbudans frequent as access to food is limited in Barbuda which relies nearly entirely on imports of all foodstuff from Antigua.



As the grey clouds roll across Barbuda, signalling the beginning of the 2021 Atlantic hurricane season, UNDP-led construction crews have finished another house under the EU-funded housing scheme. The squarely built homes lacking finishing touches stand in stark contrast to their larger neighbours. Delays and decreases in the program have led to political polarization as desperate families without durable solutions seek entry into the already decided pool of recipients. Codrington village, Barbuda (Marazita, May-2021).

Figure 26: EU-funded home

The lack of home insurance among Barbudans increased the government's burden to rebuild Barbuda. Thus, the government quickly solicited pledges after the damage became apparent. However, it was an inopportune time in a context where multiple category-five events caused mass displacement across the region. Even as pledges came in, donor partners did not always fulfil the promises, and reconstruction was prolonged. The Prime Minister explained:

"Where we found a challenge was in the actual rebuilding. The total building cost was estimated at 220 million US\$, and as much as Antigua & Barbuda would have made a call for pledges at the UN because of the small population of Barbuda, of the millions that were pledged, we only got 22 million US\$ for Barbuda. That represents ten per cent of the total recovery cost. Now the 220 million represented 100 per cent of our tax base. It met, therefore, that with such a small commitment from the international community, the recovery would have been protracted because we didn't have the resources to face the additional 200 million US\$ needed for a recovery in a short period of time.

"So we did say to them the recovery would be protracted due to the damages, and we said too that one area where they had damage was housing and housing was unfortunately not insured. Ordinarily, what should have been a personal liability became a liability for the government because these were not insured, and the government would have to take up the cost to rebuild those homes. That was in the region of 100 million USD. We said to them

at the time, too, that we would have provided them with ownership of the land in Barbuda for one dollar as part of the recovery so they could go to the bank and borrow money to rebuild homes. We recognised that the proceeds of 22 million US\$, as well as the government itself, which was struggling financially, would have been unable to build those properties in a short period of time.” (personal interview with Prime Minister Gaston Browne; St. John’s, Antigua (Zoom); 21-Jun-2021)

By 2019, the UNDP had completed the China Aid-funded roofing assistance that focused on lesser damaged homes (categories one and two) and began the large-scale assistance project funded by the EU to rebuild small but hurricane-resistant houses to replace severely damaged homes (categories three and four). Nominations for recipients of EU-funded houses commenced shortly after the aid project was announced in 2019 [see Figure 29].

“There’s a beneficiary selection committee that uses a criterion to select persons. It is NODS, Barbuda Council, Public Works, Development Control Authority, [Ministry of] Barbuda Affairs, UNDP as an advisor, and other national offices. The committee goes through a process to select the current recipients. Once the committee does that, the names are sent to the Barbuda Council to vet to make sure that the beneficiaries owned homes before the hurricane. They give us feedback, and then the names go to the contractors.” (personal interview with expert; Saint John’s, Antigua; 29-Jun-2021)

The project initially hit labour shortages as Barbuda lacked skilled workers. As one expert explained:

“We had the EU housing project. Initially, it was to rebuild 250 homes. After the first twenty, we assessed based on the cost, based on the need to import all material, workers, and tools. Currently, there’s 115 construction workers, with forty-four from Barbuda. Most of the workers in Barbuda are labourers and not trained in construction. We have it in Antigua, and the contractor is from Antigua. We’re now doing 104...There were 20 houses last year and 21 since March of this year. We’re up to 43/104.” (personal interview with expert; Saint John’s, Antigua; 29-Jun-2021)

Labour shortages were not the only barrier to the project, and the construction of the EU-funded homes faced several delays. Like with personal procurement, UNDP faced transport barriers that were compounded by Covid-era internal travel restrictions.

“It’s difficult; it’s challenging. Unfortunately, we can’t help everyone. We have to select those that are most vulnerable. We just work with criteria. We want the stakeholders to be transparent so that those who need the help get it. It’s difficult logistically; it’s a nightmare, add Covid, and it’s been a hot mess. There are travel restrictions and a significant delay last year. There was a restriction from the council that restricted travel from Antigua to Barbuda. You couldn’t go for a period of time. If the seas are rough, the ferry can’t go. Sometimes there are material shortages. It’s really difficult. The most important thing we need to do is complete the selection of the beneficiaries so we can get the process done and over with. We don’t have full support in the process.” (personal interview with expert; Saint John’s, Antigua; 29-Jun-2021)

However, as the project was delayed and many Barbudans continued to lack durable solutions to displacement, the project became politicised during frequent local elections. New candidates continue to promise reforms and interventions not always compatible with donor-partner will. Although the council doesn’t have the power to add names to the nominated list of recipients generated shortly after the displacement, the council can delay final recipient approvals.

“The list came under Burton¹⁹ when he was there in the beginning. There's no way to add names, and they aren't giving the proper information to the community...Everybody has the names of the list. We don't live in Barbuda, so we rely on them to do it. They don't always do that, though. There's a lot of taking [names] out of them. So, when we're in Barbuda for an event, then we start hearing it. And we're asked why we didn't have the information, but we ask [Barbuda Council] why since they were part of the committee.” (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

Should the Barbudan Council finally approve a recipient, construction then commences according to EU requirements. In the case of Barbuda, the homes are constructed in a manner that:

“[Recipients] get a kitchen sink, a toilet, a shower. That's it. We give them a roof, four walls, doors, windows, plumbing up to the outside. The homeowners have to continue to the septic. We give them the necessities. Painting and tiling is their responsibility.” (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

To qualify as a recipient of these homes, the nominee cannot have received other forms of construction assistance. If the nominee had commenced construction on their own home for any reason, then UNDP is authorised to offer limited assistance to finish the house. As the expert conceded, “A lot of persons have not done anything (since 2017). The funder said, if someone has already started doing some work and they're on the list, we can reinforce and finish it.” (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

A second housing project announced and sponsored by the Prince of Wales shortly after Hurricane Irma and managed by the Barbuda Council remains a barren construction site near the island's secondary school.²⁰ However, leaked lists of recipients from the Barbuda Council have drawn scrutiny from other agencies already assisting proposed recipients.

“There's been some confusion with the Prince's project. There was a name that was on both lists, and the Barbuda council failed to let us know that her name was removed from that list. UNDP removed the name from their list because you can't benefit from two projects. No one heard about it until someone's daughter came on social media and said the council came to them and told them they would have to move to somewhere else, and the family was unwilling to do that. But Barbuda Council never shared that with anyone. No one is on that committee, so we don't have that information. That is some issues that we run into on a daily basis.” (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

Furthermore, there have been direct accusations of local nepotism:

“there's no way of knowing what's going on. It seems to be relatives of the council and their affiliates that are benefiting from that project.” (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

Recipients of EU assistance, particularly those who didn't want to wait idly for their new homes, have criticised the process that left them with unfinished homes and a perception that they would not be allowed to further modify structures due to funder restrictions and fears that modification could decrease resilience to further hurricane events. As one recipient explained:

¹⁹ Chair of the Barbudan Council from 2017 to 2019.

²⁰ The project is co-funded by the Calvin Ayre Foundation.

"This structure is my own structure. They just give me the roof, the window and the door. Nothing else. They said I can't add anything to my structure. I told them this is my structure! But they don't want me to add anything. They don't want me to add my bath. They sent me a paper that had a bathroom, but I do my part, and they don't want to do their part. There's no electricity. No one has electricity. It's not connected. I have to do the wiring myself." (personal interview with survivor 2; Codrington, Barbuda; 8-Jun-2021)



At the time of fieldwork in 2021, an estimated 10-12 households were still living in tents. While some tent-living survivors were waiting to receive EU-funded homes, other households faced uncertain futures and could only rely on replacement tents from the Red Cross. Codrington village, Barbuda (Marazita, Jul-2021)

Figure 27: Displacement continues 4-years on

The delayed onset of the EU housing scheme and fear that either building a temporary structure or other solutions could cancel out eligibility has led to a situation where nominees either live within extended kin or resort to years of displacement in tents [see Figure 27]. A local council representative explained from the council's perspective that there are displaced Barbudans unable to access needed assistance.

"The [local guide] who takes us for walks still lives in tents. When we first came back, a lot lived in tents. There might be around ten now, and they are doing that because they're waiting for either their homes to be fixed or rebuilt, depending on their situation for their houses. The roof and structural things may be done for some, but other people's houses who have had their house knocked down get a new house. It depends on the circumstance. Those who helped themselves and put up the walls, for instance, they 'll help you up to a certain size, but if you're a tent person, they'll only build you a house if you have a letter from lands that you have land.

"People are falling through the cracks, but it shouldn't be so. When I looked at the paperwork with the project, the EU said they would give 5 million euros, and when I came to the meeting, the first representative told us they'd build back 170, the second 150 and now the most recent is 104. So, there are questions about what happened to the funding. I

asked why, but there is uncertainty in the answer. SP²¹ had a team that was really good at building roofs. Where I lived, you'd see where they would do mason work, but they couldn't get the permit, so they had the capacity but couldn't do that." (personal interview with local BPM; Codrington, Barbuda; 31-May-2021)

Another local representative from the opposing party countered that:

"It's not a lot in tents. I'm sure you're aware of the UNDP project. The tent situation now is not as bad as it was. Some people opt to stay in a tent because they want more privacy and because they think they will get an urgent response. Some will go by their family, and some won't sleep in the tent. It's not as bad as actually staying in the tents like in the beginning when there was limited housing." (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

From the NODS perspective, not all Barbudans chose to live in tents merely out of a lack of other options. Instead, there is agreement with the local ABLP representative that sometimes tents are a transitory phase to ensure privacy and other times a political statement to push desired outcomes. The NODS expert elaborated on tents and the UNDP housing scheme, explaining:

"We built certain buildings for temporary shelter, but for some reason, people decided to live in tents. When it comes to decision-making, the beneficiary committee chooses homes based on a criterion. The committee goes over the list and sends off the next beneficiaries to receive houses. It's sent to the Barbuda council, and then people will come and say, 'so and so has already rebuilt, so and so wasn't living there before the storm.'" (personal interview with NODS expert; St. John's, Antigua; 25-Jun-2021)

However, there is ambiguity in the government's approach to displaced persons having rented or lived in temporary housing situations at the time of Hurricane Irma, now living in tents and unable to move toward durable solutions.

"There were persons who were living with their parents and didn't own a home. When they heard that there were houses being built, they went to the Red Cross and got tents and moved in, thinking that living in tents would qualify them for homes. I'm not saying there aren't legitimate persons living in tents. We know who they are, but there are also significant amounts that are living in tents, thinking they would qualify for houses. One of our criteria is that you must have been living in Barbuda in a home that got destroyed at the time of the hurricane." (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

Another expert added in response to criticism from one of the EU housing recipients:

"There are some people who wanted more done, and they are still living in tents to get UNDP to build more. [The recipient's relative] was a recipient, but their home wasn't even fully destroyed. UNDP gave them the windows and roof, but they wanted [more]. So, they chose to live in a tent as a protest, and that's their choice. When donors see this, they become hesitant to help." (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

Delays in salary payments by the Barbuda Council limited household assistance to more vulnerable extended kin. It also limited the ability of Barbudans to save for future storms and to commit to monthly payment plans required, for instance, by home insurance plans that would significantly reduce the burden of future home damages. The survivor continued:

²¹ Antiguan-based construction firm.

"[The Barbuda Council is] trying now to give wages, and last week they paid two wages at a time. It hampers the lifestyle; you can't do the norm. I wouldn't say I get help from the US. I had a niece that offered, but you've got to be realistic. When they shop and send a barrel, I have to pay for a ticket over to Antigua to collect it, then I have to pay customs taxes, and then freight back and sometimes when you calculate it back, it's just not worth it. It may cost over 1000ECD to get to my house. I don't eat canned foods, so it doesn't make sense. Just after Irma, they were duty-free, but there was a lot of misplaced things. Once they got to NODS, you couldn't find what was yours. Some peoples' barrels mistakenly got open and got distributed that were supposed to be personal." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

To lessen the burden of future hurricanes, the government-led coalition introduced a building back better strategy that sought to reduce future impact through adaptive construction and improved legislation. Thus, damage assessments were reviewed to inform reconstruction efforts so that new structures built through donor-funded initiatives would address vulnerabilities experienced during Hurricane Irma. For instance, home foundations in low-lying areas where storm surges had the most significant impact were raised above projected flood levels. The reconstruction of structural roofs was adapted so that they would be more resilient to category-five strength hurricane winds. Although still ongoing, building codes and disaster management plans are expected to include these adaptations in personal home projects and establish code enforcement.

As the government-led coalition implanted building back better, the coalition had to address the long-term social impacts of both displacement and reconstruction. An expert from NODS explained the focus of the policymakers during reconstruction, and at a time when there were still some Barbudans displaced in Antigua, was integrated:

"As part of the Comprehensive Disaster Management (CDM), the tenant is to build back better, so they aren't as susceptible. Before we rebuilt, we did a damage assessment, P-D-N-A, Post Disaster Needs Assessment, but we decided to do a single coordinated team comprehensive assessment and using the format, UNDP formatted a PDNA tool that was used in Dominica. That gave us an idea of the level and type of damage. We knew who was displaced, but we had to determine who owned the land since Barbuda has a different type of land arrangement.

"That reconstruction phase, working with, for instance, Prince's foundation, we aimed to build people's homes. It's national policy to build homes and not businesses as they are expected to have insurance. A multi-sectoral committee thus began looking at rebuilding based on household size, children, income, disabilities. People were prioritised. When we did the assessment, a lot of damage was because building standards were not enforced because of a lack of personnel. We thus consulted with professional associations, architects, contractors and engineers to reflect in building codes. We determined grades of galvanised and screws, and over a period of time, we brought together a training workshop to harmonise standards.

"A separate guide was made for laymen to be able to check contractors' work up to standards. So, the general public was empowered. We also looked at communication and sustainable energy. We looked at improving livelihoods in fishing and agriculture, introducing hydroponics. We looked at vulnerabilities in living next to the lagoon and how to move structures into safer areas. We looked at vulnerabilities in utilities and water groundwater sustainability. There was a multisector community formed looking specifically at development, including UNDP and the Barbuda Council, and architects and public works, including both homes and everything around them. It is still ongoing.

"All of those things happening, you still had to look at the social impact. Was performance impacted for students and for livelihoods? As people began coming back, teachers had to return, and we looked at how schools would open up. We had to make it sustainable. Then there was the political process, and we had to facilitate Barbuda local council elections, that was difficult because Barbudans were displaced in Antigua. We had to also address transportation and making it more reliable with the harsh weather conditions. We had to work on all those things at the same time, but because we're a subregional focal point for the SEDEMA mechanism." (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

Reflecting on the rebuilt homes, the NODS expert added:

"Some of the houses being built in Barbuda may be of higher standard than those on Antigua. If there's another storm, we don't expect another damage like Irma. They have been built back in a better way, including community centres. And this goes for the Chinese government, Indian government assistance, that is how it's being managed." (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

However, the building back better approach focusing on rebuilding houses was limited by household intentions. Projects sometimes faced backlash when wanting to relocate families away from storm surge-prone areas. For example, the parents of Barbuda's only casualty refused an offer to move.

"It was a touchy subject. Because of the nature of the impact, the government offered other land, but the person living there refused, so they built it in a better way. Disaster management is humancentric. When the volcano was going off in Montserrat, some people had to be brought off kicking and screaming. They had to send in loved ones to help." (personal interview with NODS expert; St. John's. Antigua; 25-Jun-2021)

In these cases, reconstruction strategy had to be adapted to support resilience to future hurricanes.

"What we did, we lifted the foundation. We have a number of persons living in those flooded zone. Sometimes all of people's lands are in a flood zone. In that case, we took the extra cost to raise the foundation. Most of Barbuda is in a flood zone because it's flat. Unless we have a tsunami, it will be ok." (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

However, some policymakers criticised the move to rebuild homes when the homes would not be sufficiently insured against future storms.

"We have the situation with the land where houses aren't insured. I don't think there are a lot of people who have insurance yet. I know people are not titled to the land yet, and the P-M has offered it. There is a state-owned insurance company, and he has advised Barbudans to become involved and get insured, but I think a lot of [Barbudans] haven't gotten insured. It's sad. [Barbudans] are fortunate because we have a government that went out and got funds. I'm sure you've heard about the misappropriation of funds, but you have to know what is politics and what is not politics. You don't go to any other place and see a government building back homes. You're not getting a perfectly finished home, but you're getting a home with a roof, a concrete home. I don't see any other government or person who would probably help a person. Remember there was the Chinese roofing project, and I think they constructed about 250 roofs." (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

Furthermore, Barbudan survivors question the resilience of building back better policy that didn't take into account what survivors described as local knowledge.

"I don't think it was looked at in terms of, not only Barbuda, people are living in a place for a long time, and they know about the rainfall. If you're building a road, I think it's important to ask the people when it rains, where does the water go? How does it flow? Because for example, if you look at the crossroads, a lot of water stays there, but if you ask the elderly, there wasn't water before. There was a system where the water would go. But they built up the area and stopped the flow of water. So, we need to use local knowledge to know what happened. It's not necessary that you always use what they say, but when you go in, it gives a better understanding. In terms of rebuilding, normally, we have storm surges, and we know how far water comes in. Nobody should have been allowed to build in the same area, but people still rebuilt. So, they're putting children in a waterlogged area. I'm not sure if anyone has mapped the water. A lot of information was not shared. In cases like that, we shouldn't have to search for information; it should be there. It would make work much easier. Many times, you waste resources doing what other people did." (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

Although building back better has improved home reconstruction for most, Barbuda still lacks public infrastructure for future storms. The secondary school, built before Irma to withstand category-five hurricanes, remains intact, but there are no designated shelters or adequate storage for disaster relief supplies. The Chinese-funded community centre, damaged during Irma, remains unusable, with the grounds littered by clay roof tiles that acted as projectiles during the height of Irma's storms and the doors boarded up, blocking entry. A Barbudan survivor lamented that:

"At least one major facility can make a big difference. You have a command centre, a shelter in case people need a place to go. The school here was built for a category-five, and it withstood Irma mostly there was just a bunch of water. There was minor damage, but you need somewhere proper. In the Caribbean, we use a lot of schools as shelter, but it is not ideal. We need a shelter (designed for it). The places we have could not sustain people for 2-3 months. A family needs to live comfortably, with a stove and kitchen and food for themselves. I think when we were in Antigua, we had issues with people not living in main shelters that weren't taken care of. A lot of people struggled." (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

In the village centre, the Japanese-funded fisheries building also received minimal damage and was used temporarily by survivors in the days prior to evacuation. However, given that a vital sand bar protecting the Codrington Lagoon from storm surges was eroded during Hurricane Irma, the fisheries building built along the coast may now be prone to flooding in future events [see Map 6/7].

"Fisheries is not declared a shelter. It is where we are hoping to have a command centre, but my concern is that now we have the gap of sand in the lagoon." (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

There remains no clear plan for collective shelters and environmental rehabilitation of the protective sand bar and local ecosystem. The survivor continued:

"I wouldn't say they aren't thinking about sea-level rise and sand bar reconstruction, but the action is like they are not. Sometimes after things die down, we go back to normal, but for people involved in these things, I know there are talks to build a facility, but they are just talks. The Prince's Foundation also plans to build houses. I'm on that board. They're supposed to build houses here, but they're presently doing the clearing work." (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

Instead of building disaster response capacity, one expert explained that the focus shifted to private development projects. The government expects these

projects to transform Barbuda's ability to cope with future natural hazards while offering stable, paid employment for Barbudans.

"It's going to be interesting. They're investing money into the community, making people more sufficient. Long-term building the island better, the council needs to be keen on development." (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

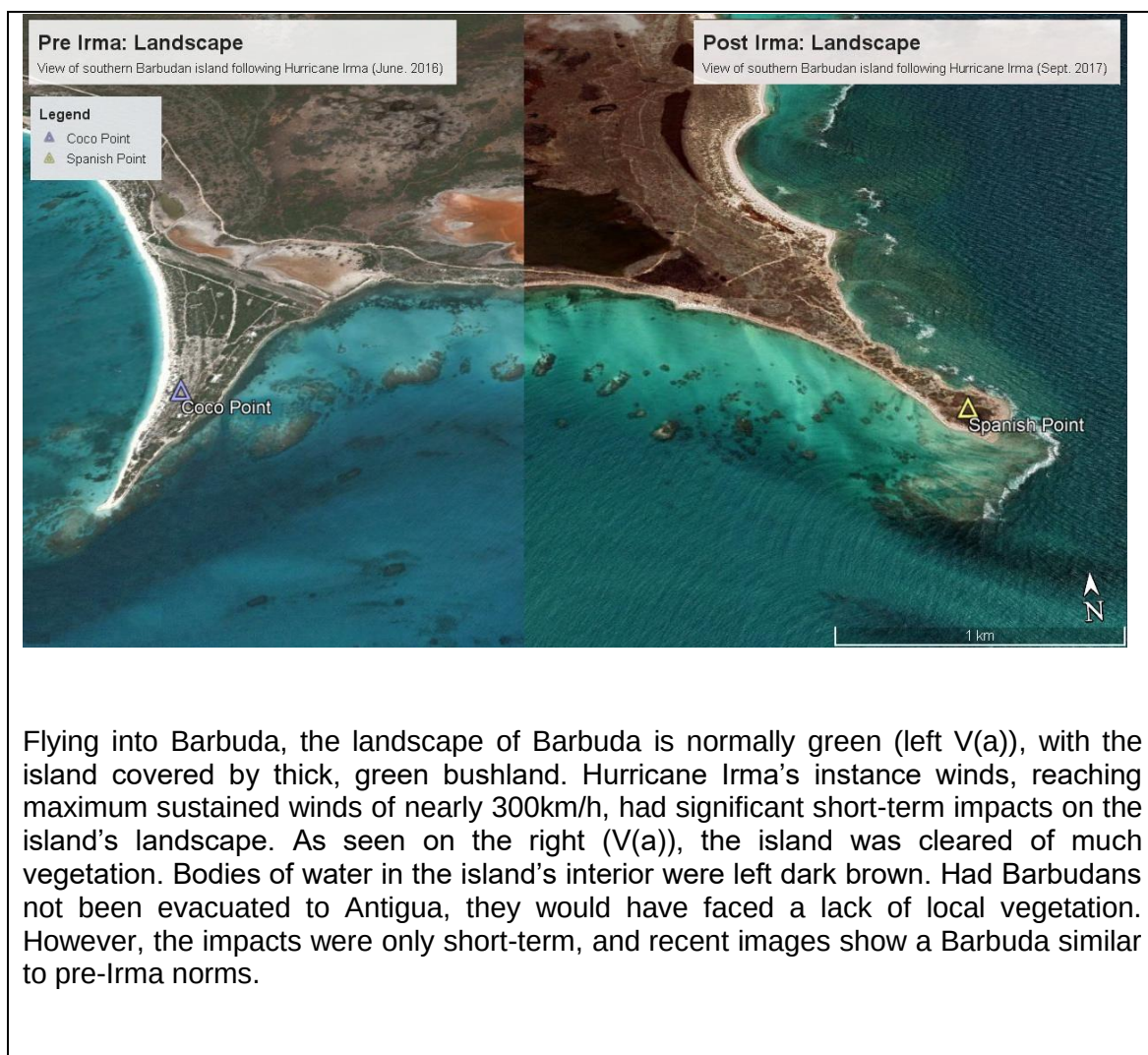
Barbudan development focuses on real estate development and tourism that attracts high-end seasonal residents. The government expects that developments will build resilience through increased employment and low-impact development that enhances natural barriers to the impacts of hurricanes. The developments would thus decrease reliance on the government. However, there is resistance to the projects from the Barbuda Council.

"Barbuda right now is set to displace Saint Barts as the country with the highest wealthy persons per capita in the world. Infrastructure has been built out. P-L-H is now building one of the finest golf courses in the entire Caribbean. They built sand dunes that are fourteen feet high to mitigate against storm surges. It has been environmentally friendly, but even that too, the council has made controversy to the extent I said to them they could control the politics but stand out of our way to develop the island. The idea has been planted that a small island with a small population has been victimized by its sister. So, when they sell these stories to the international community, people buy into them. Trying to get behind the truth without getting the facts is the intent of the administration. I'll tell you; our intentions are pure, and we have sacrificed in the short run to develop the island, knowing that in the long run, when the Barbudans will experience the fruits of our labour, sentiments will change. Already the sentiments are changing for the better." (personal interview with Prime Minister Gaston Browne; St. John's, Antigua (Zoom); 21-Jun-2021)

In 2021, reconstruction continued in Barbuda, and displaced persons continue to live with extended kin, in rental properties or in tents as they wait for a durable solution that will see vulnerabilities to future natural hazards reduced. However, ultimately, not all Barbudans wanted to return. For Barbudans remaining in Antigua, the government can only assist in finding solutions to integrate. Even so, they remain in Antigua whether for access to better services, employment, out of fear of future storms, or, most likely, a multi-causal combination of drivers.

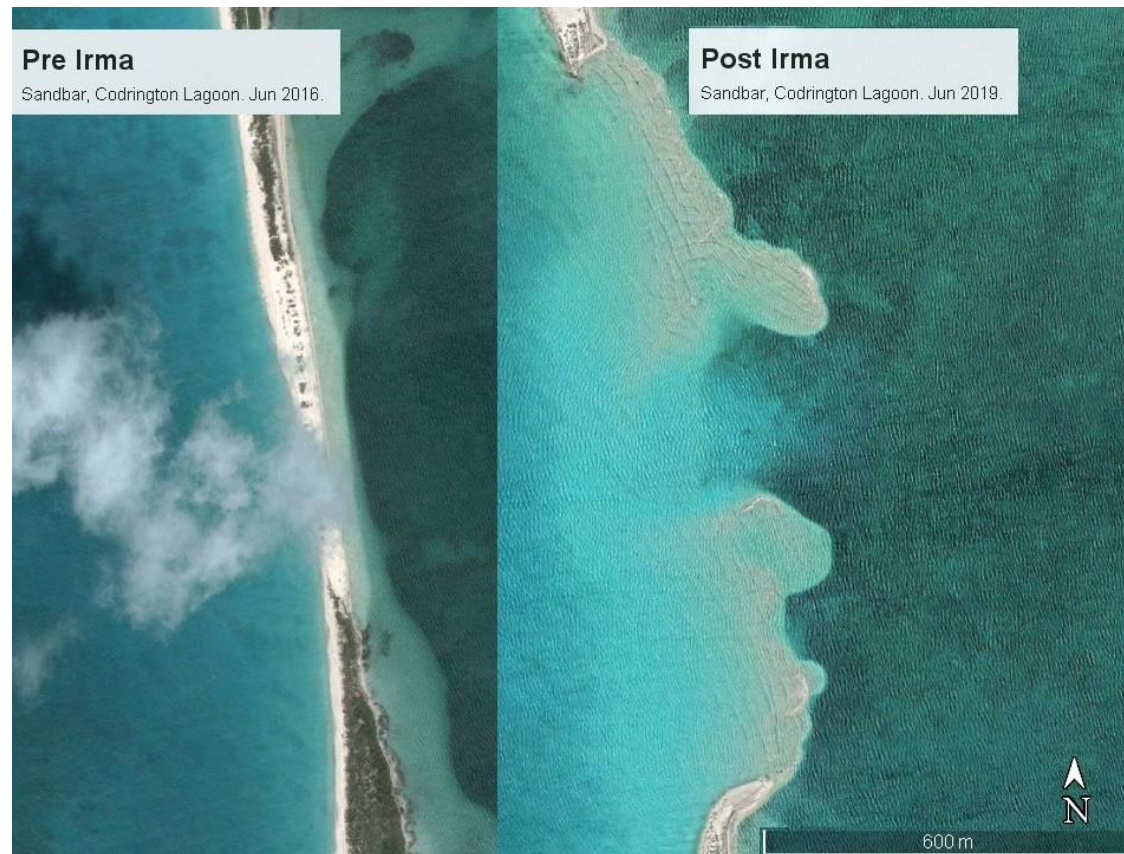
"Operational officers came in under the defence force. In terms of Irma, there were a lot of things running in the background because a lot of agencies were involved. In the long term, some people decided not to go back to Barbuda. We worked with Antiguanians that had properties for rent to try and situate Barbudans. Barbudans renting in Barbuda, we had to make arrangements, including offering to rebuild homes in return for free rent for those renters losing property to Barbudan homeowners not immediately returning. We also checked quality and access to services for renters. Shelters received supplies twice a week based on how many people lived there. We kept constant track of the demand for food and supplies that were needed. Sometimes people would leave shelter into private solutions, only to have to return to the shelter. In Barbuda, the Defense force was stationed for about two years to manage reconstruction." (personal interview with NODS expert; St. John's, Antigua; 25-Jun-2021)

Map 6: Pre/post-Irma landscape



Unlike local vegetation, the sandbar protecting the western wedge of the Codrington Lagoon remains open (V(b)). Various local reactions to the eroded sand bar blamed a hotel development close to the channel that had previously collapsed due to erosion. However, judging that both the north and south sand bars were eroded, it is increasingly unlikely that the poorly planned development was to blame. With the broader opening of the channel, there is fear that future storm surges may no longer be mitigated. The Codrington lagoon protects Barbuda's largest village, Codrington, from storm surges.

Map data: Google, ©2022 CNES/Airbus



Map 7: Sand bar, Codrington Lagoon: compromised during Hurricane Irma in 2017



Remnants of Irma abound in Codrington. With only an estimated 63% of survivors returning to their homes, decay dots the Codrington village, where homes abandoned face uncertain futures. It is unknown where this family may have moved, whether building in a new location, staying in Antigua or living with extended kin, but memories of 5 September 2017 are not easily avoided. Codrington, Barbuda (Marazita, Jun-2021).

Figure 28: Irma's destruction

Four years after Hurricane Irma forced the evacuation of Barbudans, there is a perception among survivors that Barbuda is not prepared for a second Hurricane; when the hurricane season begins in June, the skies and sea change every year. As if overnight, winds pick up, blowing from every direction, and there is fear among survivors that another hurricane is imminent. When asked what precautions will be taken when faced with the next storm, survivors often confess they would pre-emptively travel to Antigua. Building back better seems of little solace, and community leaders and teachers are charged with reassuring nervous residents and children when they themselves are worried about what may come. Four years on, as only an estimated 1200 out of 1600 Barbudans have returned to reside in Barbuda permanently, gated communities are filling population gaps with seasonal migrants living in multistory beachfront mansions that stand in stark contrast to Codrington, with its single-story, three-bedroom homes dotted amongst the ruins of houses destroyed by Irma and abandoned by their owners to decay. And for the ten occupied tents rotting in the same Caribbean sun that attracts tourists and the wealthy seasonal migrants, durable solutions are just a myth.

5.1 The other Barbuda: (re)constructing a gated dream²²

Long before Hurricane Irma reached Barbudan shores, Barbuda's isolation from the broader Caribbean tourism dream of all-inclusive resorts and ever-larger cruise ships did not go unnoticed. Throughout the 1990s, the secretive K Club resort capitalised on Barbuda's combination of isolation and pristine pink sand beaches. Although most of the resort's exclusive guest list will remain a secret, the K Club was well known to be a favoured vacation destination for Princess Diana and is rumoured to have been frequented by various other royal houses, including from the United Arab Emirates, who have invested in post-Irma reconstruction. While the K Club closed in 2004, the lasting image of Barbuda's exclusive beaches continues to draw allure, and in 2014, the remaining lease was purchased by a consortium, including Robert De Niro and James Packer, in an effort to expand the Nobu chain of restaurants (Dean, 2016).

²² Exhaustive attempts were made to visit the developments and speak with management to no avail. The methodology used to write this section is based on observations from walking along the public coastline of Coco Point, areal views of Palmetto Point, visits to the international airport and Nobu restaurant, interviews with experts, and the development's website.



While Coco Point may be off-limits to visitors, the beach up to the waterline remains public access. At the edge of Coco Point, along the Atlantic Coast, another home is being built. In contrast to the 104 homes being built by UNDP for € 5 million, this single home is thought to cost more than \$10 million (USD). However, as Coco Point closes seasonally during the hurricane season, the family that will occupy this home may never know the trauma experienced by their neighbouring community. Coco Point, Barbuda (Marazita, Jun-2021).

Figure 29: Coco Point development

To contextualise K Club in the general Barbudan experience, informal discussions reveal a general reluctance to allow non-Barbudans to develop the island due to the perception of 'land in common' owned exclusively by descendants of Barbuda. Although there are allowances in all relevant legal acts for land being allotted to developers, the general consensus that came out of informal discussions pointed toward reluctance. While there is no certain conclusion that could be drawn during fieldwork as to under what circumstances the K Club would have been an exception, newer leases for development projects are linked to a recent Barbudan Council in power before, during and immediately after Hurricane Irma that was, and for the only time in the council's history, in line with the ruling ABLP.

"[the Barbuda Council] realised council was the sole employer on the island, and that wasn't sustainable. [The council] didn't have any revenue source other than sand mining, and the area the sand was mined from was getting low. [The council] knew [it] had to bring some other revenue source on board. So that's why [the council] got that agreement with PLH at Coco and Palmetto points. Politics paid a role, and Barbudans now most feel comfortable seeing familiar faces in Barbuda, and they don't want to change that. So, they made a big

political thing about it.” (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

During the period of the ABLP-led council, approval was given for outside developers to obtain leases, not only for Nobu but also for two gated communities at Coco and Palmetto Points by Peace, Love, and Happiness LLC (PLH) [see Figure 31].

Even prior to Hurricane Irma, there was legal opposition to the allotment, led by BPM party founder Mackenzie Frank. However, with Barbudans displaced in Antigua and the community focus being disaster management, developers of the approved development projects capitalised on the political landscape and construction ensued. By the time of fieldwork in mid-2021, the projects under construction would include Nobu (the restaurant opened in 2021 with plans for a hotel), two gated communities at Coco Point and Palmetto Point, and an international (private) airport having a runway capable of landing most aircraft [see Map 8]. While Nobu is open to the Barbudan public, the gated communities managed by the Discovery Land Company are off-limit enclaves, inaccessible to the general public and off-limits to the Barbudan Council, with all governance aspects handled directly by the national government in Antigua.



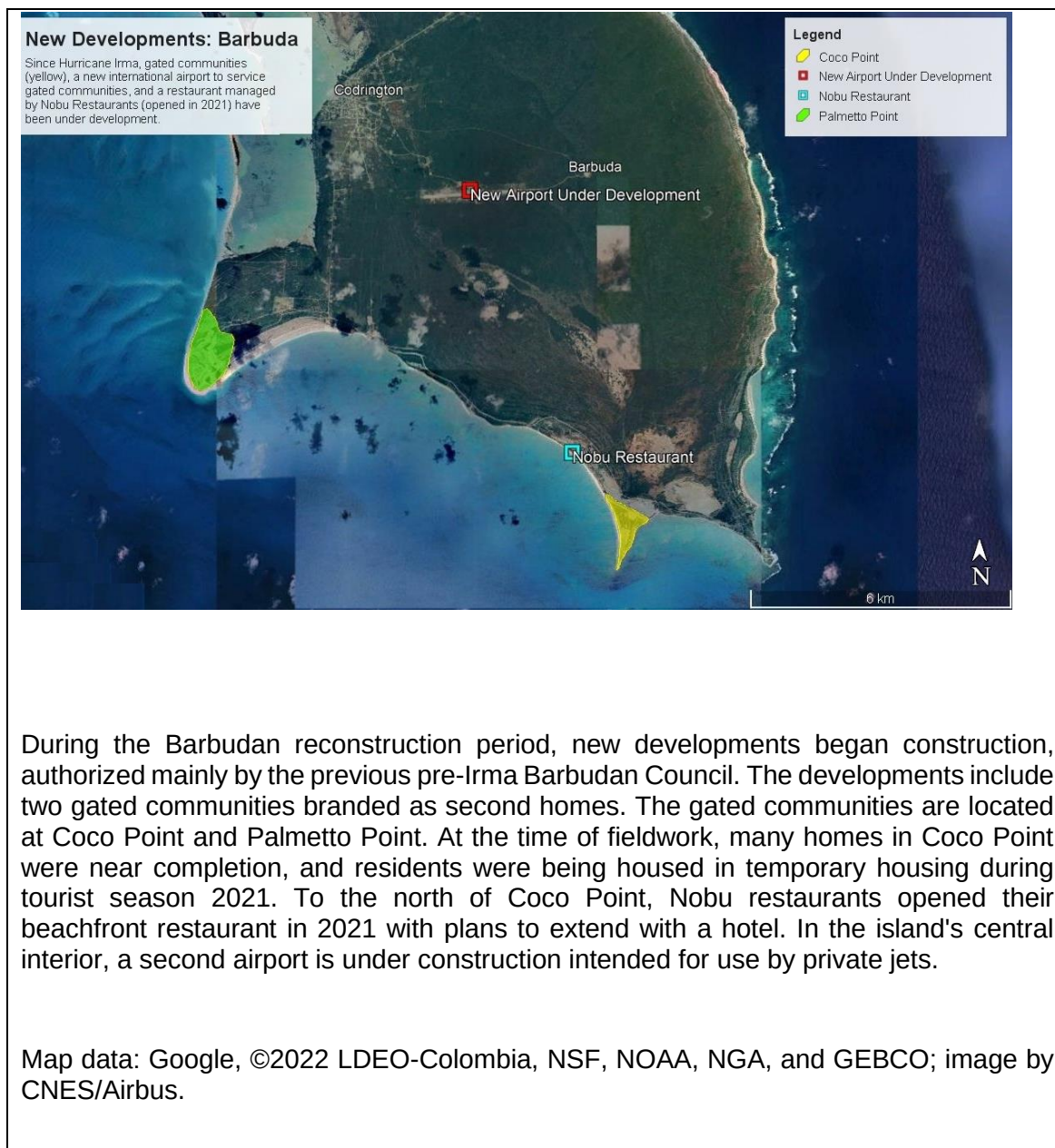
Figure 30: The first gated checkpoint to the Coco Point development

(Marazita, Jun-2021)

The gated communities stand in stark contrast to anything imaginable in Codrington and seek to replicate permanency to the exclusiveness of the K Club. At the southernmost development, Coco Point, a large gate leads into the community with a helicopter landing pad immediately in view along the western Caribbean coast [see Figure 32]. Within the 164-acre land parcel, there are plans for 100 houses, and although there is no public information on the layout or specs of the homes, most informants discussed the average home price to be above 10

million USD. Whether the prices are accurate or not, it is well known locally that famed heads of Fortune 500 companies have purchased the homes, and the developer's website reveals that only a few properties are left for purchase (Discovery Land Company, 2022) [see Map 8].

Map 8: Post-Irma developments on Barbuda



Less is known about the more isolated development of Palmetto Point, built on a 700-acre land parcel south of the Codrington Lagoon. Flying over the development from Antigua to Barbuda, the development's golf course is apparent, with the distinctly green grass and sandpits contrasting the island's dense, dark green bushland. Although Palmetto Point will also be a gated community, it will be less exclusive than Coco Point, with more houses and property prices far below the latter. Together, development based around the two gated communities is expected to attract significant investment to Barbuda and reduce dependency on subsidies from the national government.

"We thought that we had to accelerate the development of Barbuda because Barbuda has remained undeveloped compared to Antigua. Previous administrations would have left Barbudan people on its own without showing interest to develop a vibrant private sector develop good public infrastructure. We felt that wasn't sustainable. The example that Barbuda would literally rely on a grant from Antigua. There is no way you can sustain an island state in that way. We wanted Barbuda to have a vibrant private sector to generate its own taxes and provide sustainable economic opportunities. That's where we've attracted very interesting developments, PLH, the Discovery Land brand, this project is 3 billion and, as homeowners, they have some of the wealthiest people on the plant. They are 10 - 20 million dollar homes. You'll see when this project is fully realised; it will generate ABST tax to ensure the sustainability and obligations of the Barbudan Council." (personal interview with Prime Minister Gaston Browne; St. John's, Antigua (Zoom); 21-Jun-2021)

Vocal local opposition to all developments has focused on three arguments. First, the developers are not taking into account Barbuda's unique ecology resulting in wetland degradation and the construction of the development's runway over cavernous limestone deposits. Second, the development agreements largely between the national government and developers run afoul of the laws protecting Barbuda's local land rights. Third, the Barbudan Council is being bypassed by the national government, and all Antigua & Barbuda Sales Tax (ABST) and lease revenue are going to the national government instead of benefiting the council. While there is no evidence to support or refute environmental degradation, as Palmetto Point is closed to visitors, it seems highly unlikely that an experienced property development company would degrade land for which the main selling point is the pristine landscape. In response to legal criticism by Barbudans, UN-HRC has sought clarification from the national government; additionally, a case challenging the development is, as of May 2022, being heard by the Privy Council in London [see Annexe I + II].

Although opposition to the development is strong from the BPM-led Barbuda Council, the developments offer much-desired employment, and the broader Barbudan community is showing increasing acceptance.

"PLH and the project at palmetto, It can be done in the right way. At the end of the day, no offence, when the rich people come, they're thinking about their legacy. If we give them everything, who's going to carry on our legacy? We're one of the most fragile communities. We had those hotels before Irma, and they weren't owned by us. Coco Point was older than me, and we never heard any problems between them and the council. The agreements made with PLH and Robert De Niro, it's a multibillion-dollar agreement. I know a few locals working there, but I don't know about the wages. Some people don't [care], as long as they get paid. because the council is not giving anything, no money and not paying, so people want to go to PLH." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

With a reliable income source, Barbudans will be better off rebuilding homes, increasing resilience through disaster risk reduction, and procuring sufficient homeowners insurance. With the Barbudan Council unable to offer reliable salary payments, jobs are the motivating factor behind community support for development projects. As the gated communities near completion and more Barbudans become dependent on employment by developers, the council's continued opposition risks community alienation and further exclusion from power hierarchies.

Chapter 6. Barbuda's long-term outlook

The temporal focus of this dissertation is on post-Irma Barbuda, a period between September 2017 and July 2021. While the previous sections have gone into greater detail about the lasting impacts of Hurricane Irma, it is important to contextualize the island of Barbuda as being in a period of transition. In the elections following the storm, the Barbuda Council returned to BPM control aligning with the national opposition. As Barbudans returned to rebuild their homes, development projects, many of which were authorised in pre-Irma normality with support from the ABLP-led Barbuda Council of the time, had begun construction in full force. Barbuda is thus transforming from being one of the Caribbean's least developed islands into a segregated space with the legal heirs of Barbudan descent occupying many of the historical places of their ancestors and gated communities creating elite enclaves in desirable, Caribbean beachfront locations. Access to the gated communities is blocked to most locals, including the Barbuda Council unless employed by the developers. Segregation extends not only to the gated communities but to transport to the island. Whereas local Barbudans rely on choppy ferries and small, turboprop aircraft, the gated communities have a helipad with a second airport capable of accommodating private jets under construction in Barbuda's interior.

Within the context of a national government leading development of Barbuda, the Barbuda Council has sought to fight back, challenging amendments to land rights. However, the fight has elucidated the bounded power of the council, not only with respect to the national government but also through the ability to subjugate its laws to Barbudans. Thus, in political infighting, local Barbudans are empowered to take matters into their own hands. The once inconceivable private

sale of the property is increasingly common to the council's behest. The current trends in communal land ownership are nothing like pre-independence, when Barbudans moved freely between plots as an adaptive mechanism to drought. Instead, Barbudans claim land and become de facto and uncontested owners if there are no other claimants. Ownership is then established once the land has been cleared and a foundation laid. Even with the legislation allowing the Barbuda Council to repossess land, it is not widely practised. Thus, Codrington homes, long abandoned and in states of disrepair following Irma, remain at the whims of the elements. Therefore, even local development in the village centre is limited.



Nobu restaurant opened its doors in 2021 and quickly became a favoured venue, with clients often flying in by helicopter from Antigua. Even for a Nobu restaurant, the setting is unique, with tables set up directly on the beach and patrons able to jump in the pristine waters at will. Nobu restaurant: Princess Diana Beach, Barbuda (Marazita Jun-2021).

Figure 31: Developing paradise

As construction on major developments increases, there is constant political infighting around land lease revenue. Local lawmakers claim that all sales tax and lease payments are being paid directly to the national government. As Barbuda is a unique situation in the nation and there is no legal precedence for communal land, the government argues that:

“When you look at the fact that Antigua & Barbuda is a unitary state. We have a common constitution. The constitution states clearly that we are a unitary democratic state, and all the land that is not private is vested in the crown. Prior to independence, in a sense, the land was owned by the British crown. When Antigua & Barbuda became independent in 1981, the British crown would have transferred the ownership to the state of Antigua & Barbuda.” (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

Additionally, following Hurricane Irma, only around sixty per cent of Barbudans returned. With the national government arguing that the island of Antigua

continues to carry the burden of nearly four hundred Barbudans, it further moved to reduce Barbuda Council's transfer grant from an estimated 10 million ECD to circa 6 million ECD, thus leaving the Barbuda Council unable to meet commitments and the council's four-hundred Barbudan employees without regular salaries (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021). Without paid wages, Barbudans are abandoning positions with the Barbudan Council in favour of the security of paid employment in the gated communities where unskilled labour positions are plentiful. As households increasingly rely on jobs in the gated communities, the BPM-led council remains defiant. It has turned to sand mining for added revenue while shunning requests from developers in 2021 for permits to mine limestone (maul) for use in construction (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021). As the Barbuda Council seeks increased jurisdiction, the national government continues to implement a long-term plan to eliminate Barbuda's dependency on Antigua through development:

"We want Barbuda to have a vibrant private sector to generate its own taxes and provide sustainable economic opportunities. That's where we've attracted very interesting developments; PLH, the discovery land brand (describing where they have props). This project is 3 billion USD, and as homeowners, they have some of the wealthiest people on the planet. They are 10 - 20 million USD homes. You'll see when this project is fully realised; it will generate ABST tax²³ to ensure the sustainability and obligations of the Barbuda council. In the past, it was basically providing work for all the Barbudan people through the council, and the council would struggle to pay its people. It would be 20 weeks in a rear, and this is a situation that persists up to now. The only way is to have a vibrant private sector to generate money. That too came with a lot of pushback, but we persisted, and today, the PLH project has over 200 million invested, providing work for 450 people, half of whom are Barbudans. I think the sentiments are changing to some extent. We have been able to recover the island to an extent where most of the properties are rebuilt.

"Just after the hurricane, we saw all these decimated properties, and now we're seeing them rebuilt. And we also have the DeNiro project, even though it hasn't fully realised its potential. It's an international brand, and Barbuda is the only place in the Caribbean that has a Nobu restaurant. Mr. dinero has reassured me that commencing later this year, he will build villas in order to commence reconstruction of what will be a resort. Again, the ABST revenue will help to fund the dev in the future. There are several other projects, including an international airport that will accommodate jet traffic; it's 6100 linear feet. It should be completed by the end of this year, no later than the first quarter of next year. So, Barbuda will be able to accommodate jet traffic, and that will make Barbuda able to accommodate more tourists. Even those wealthy people with homes there, they'll be able to fly directly to Barbuda. by august of this year, we'll be commissioning one of the most exciting solar plants. It will make Barbuda run on 100 per cent solar energy during daytime hours, and it even has battery storage for a few hours. We intend to scale up the battery storage so that by sometime next year, barb will be fully operated on solar energy, making it the first country in the entire Caribbean, and one of only in the world, for that matter, not small resorts like Nectar Island, I'm taking a community of people that will enjoy 100 per cent solar power. That will take another 10 million in investment. We are spending about 13 mill ECD to ensure a hybrid project between the battery storage and a standby generator. that too is extremely exciting because ultimately, we want to make Barbuda green and organic.

"We will soon start to plant more coconut trees on Barbuda because Barbuda had a coco plantation prior to the hurricane, but they were destroyed. in fact, we have about 50 thousand palms that will be imported in a few months, 10-20 per cent will be brought to

²³ National sales tax.

Barbuda and at least 100 thousand by the end of the year. Plus, we'll be planting fruit trees, and the whole idea is to green both islands because these will help to reduce the carbon footprint. We're also building back better, so you'll see homes in Barb are being built with more steel and reinforced concrete. Even though they had concrete properties in the past, they weren't properly constructed. Because they didn't have titled land and couldn't get mortgages, we found they were cutting corners and using inferior material and didn't put in steel. When we did an inspection prior to the hurricane, we didn't realise that properties weren't built structurally sound, and that's one of the reasons the extent was so bad. So we're building back better, more climate-resilient infrastructure in Barbuda. We also would have expanded water storage facilities there. There was significant coral reef destruction. So we're now working with one of the ambassadors, who is one of the main investors in PLH as well, to restore the coral reefs. That was recently launched a week ago. He pledged 1 million in the project to develop artificial reefs and help to restore the marine ecosystem. So we did all we can to make sure by 2040, Antigua & Barbuda will be a green country. by solar energy and wind energy, we hope to be carbon neutral by 2040. we are starting now and accelerating our transition using our limited resources to fill our obligations under the Paris Accord. At the same time adapting and mitigating against the effects of climate change." (personal interview with Prime Minister Gaston Browne; St. John's, Antigua (Zoom); 21-Jun-2021)

Barbuda's transition is not only in development and politics but will be increasingly spatial as diasporas expand and mould to the ebbs of global migration. Barbuda is not a singular place but a space rooted in pre-independence migration to the UK and neo-colonial routes to North America. Irma led to the most significant single reduction in Barbuda's population, and the long-term impacts are yet to be seen. As Barbuda struggles to rebuild, the local community has noticed a changing social scene driven by skilled labour shortages of post-Irma reconstruction.

"It's scary because you're not sure who's who, so you keep doors and windows locked. Before, we never locked doors. Now you can't do that. I've heard people, like my son in law the other day, met a guy at the port. I think off the ferry...and asked what is he doing there. He said he used to live in our area, and his hands were very sticky. He's working with one of the construction companies. It's hard over in Antigua to get jobs, so they're coming over here." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

Thus, the long-term prospects for Barbuda will depend on the ability of Barbudans to protect their autonomy and negotiate contested spaces between national ambitions, developer needs, and diaspora will.

Part II

Negotiating Resilience

In the Eastern Caribbean small island states of the Leeward Islands, major hurricanes are rare and sustained damage normally minimal. When hurricanes do strike, regionally integrated disaster management governance responds, all the while benefitting from improved building codes that reduce damage and widespread enrollment in homeowners insurance schemes that provide financial security when structures fail. Within the regional framework of disaster management and disaster preparedness at the local and national levels, fatalities have become rare, and communities are often well-equipped to limit risk. Although the outside world may perceive hurricanes as a major threat, perceptions in Caribbean communities with hurricane lived experiences, knowing that damage will probably be minimal, preparedness measures are often minimal, and landfall events are remembered more for the social gathering of extended families sheltering together, than for impacts.

Although lived experience dictates the subdued threats posed by hurricanes, storm systems, in line with climate predictions, are increasing in strength and, as Caribbean surface sea temperatures rise, previously unaffected or rarely affected coastal areas are increasingly experiencing direct hurricane landfall. In 2017, Barbuda faced this dilemma where lived experience and disaster preparation measures left broad vulnerabilities to the impacts of a category-five hurricane, further contextualised by households lacking the financial capacity and extended homeowners' insurance that would mitigate the cost of rebuilding. Given that damage led to complete displacement and that the household burden to reconstruct was abnormally high for the region, the case study focuses on the social processes behind household resilience that in most Caribbean contexts would be hidden behind insurers and, in larger islands, more uneven damage in which, although displacement would have been widespread, no modern events compare to the complete displacement of Barbudans.

This section begins by reviewing thematic literature and seeking to frame the social aspects of resilience in scholarship juxtaposed against discussions through multilevel governance and local and traditional knowledge. The section will seek to build on scholarship with data collected through an ethnographic case study aiming to identify resilience manifested at a household level to oppose stresses caused by Hurricane Irma. As preparations for landfall were minimal and evacuation controlled mostly by the national government, the case study will focus on post-Irma periods of displacement and return/reconstruction. With the Barbudan contextualised framework in hand, the section will then explain how resilience was negotiated and look at persistent gaps four years after landfall by identifying survivors facing uncertain durable solutions due to barriers to negotiating resilience.

Chapter 7. Framing Resilience

Interest in the role of resilience in the context of hazards has surged in the last decade across disciplines and, most recently, in political arenas. However, like many political buzzwords, at a theoretical level, nuanced divisions remain due to a lack of empirical data. Within the broadest of terms, Martin-Breen and Anderies define resilience as “the capacity of a system to continue to function given external shocks” (Martin-Breen and Anderies, 2011). Adger further situates social resilience as “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change” (Adger, 2000). Although it is well understood that resilience is a dependent process not manifested unitarily but in a dynamic system, within theory, there is no consensus on the origin of the manifestation, whether it be relational to vulnerability, risk or external; furthermore, the role of resilience in adaptation and adaptive capacity, or as Cutter et al. (2008) term adaptive resilience, has long been disputed (Bahadur, Ibrahim and Tanner, 2010; Brown, 2014).

With the increased popularity of case studies on community resilience in the social sphere, unconnected nodes in the resilience process have been revealed, including the importance of disaster preparedness, local/traditional knowledge sets and access to assistance both through extended kinship and at the organization level (Davis and Robbin, 2015; Roberts, Archer and Spencer, 2021; Elkhartboutly and Wilkinson, 2022; Lin, Chao and Lin, 2022). As the role of social networks in resilience has been addressed in previous sections, this chapter will build on the previously revealed nodes of community resilience in scholarship by exploring island-relative literature related to local knowledge and multilevel governance, including organizational roles in both preparedness and post-disaster reactions. With a solid theoretical base, Barbudan resilience will then be deciphered and combined into a framework to connect the foundation of results from other community resilience case studies and build empirical evidence of resilience as relational to vulnerability/risk/external stress debate. This introduction and the following section explore the sub-research question, to what extent does community resilience contribute to recovery following a disaster?

7.1 Exploring a theoretical base for known nodes of community resilience

Before a hurricane cell even forms across the Atlantic, lived experience of natural hazards dictates both top-down and household approaches to risk reduction in which homes and businesses are built and adapted to perceived risk experienced during natural hazard events. Nevertheless, abnormally strong sudden-onset natural hazard events can lead to unexpected losses and damages. When damage is not locally manageable and access to public services disrupted, displacement results and survivors must leave their homes, either internally within the state or across borders; displacement, whether internal or external, is expected to be temporary and short-term, concluding as the survivor attains durable solutions (IASC, 2010). While most durable solutions result from reconstruction in the place of origin and a resumption, at some level of pre-displacement normality, durable solutions may also include rebuilding in a new location, integration at the point of displacement or further migration in search of work, study, or extended kin support networks (Ambrosetti and Petrillo, 2016). However, durable solutions are increasingly unattainable due to either a lack of support to rebuild and integrate or secondary displacement-inducing events leading survivors into a state of prolonged displacement (IDMC, 2021, pp. 77–28).

Stresses triggered by a hurricane or other natural hazard contest household normality, challenging both infrastructure of place and social interactions in space. To begin engaging with thematic topics related to resilience, it is important to frame resilience in the context of natural hazard-induced displacement and within the scope of this dissertation as the ability of households to cope with external stresses. In the household narratives, from preparation to durable solutions, there are three distinct stress-inducing processes for which survivors must negotiate;

for the purpose of the dissertation, these three phases will be defined as initial and/or compounding damage to personal property and livelihoods resulting directly from natural hazard impacts, stresses related to being displaced whether locally or externally, and securing access to durable solutions. Although this chapter and the dissertation as a whole focus on community resilience, communities are connected through both vertical and horizontal multilevel governance (Ostrom, 2012). Thus, this chapter reviews community resilience literature through both local knowledge and an integrated approach embedded in multilevel governance structures. Since research on the topic of resilience opposing the stresses of natural hazards is nascent in the Caribbean context, and even if it weren't, Barbuda's lack of economic integration would make it a regional anomaly, the scope of this literature review has been expanded to incorporate more plentiful scholarship from island states with similar contexts to Barbuda in the Pacific Islands.

However, to begin reviewing the literature on islands, it is vital to set an ontological-based interpretation of island systems. In this personalized context, an island is a dynamic system, no matter how small and isolated. In popular imagery, they may be poetic, even deserted, and timeless; the imagined island from a Eurocentric context may be tropical, exotic, perfection, but in reality, islands are systems, like others, where discontinuities constantly threaten normalcy and regardless of how little physical human presence may have penetrated a system, global human processes, such as pollution and global warming, are assumed stresses (Sheller, 2007; Pugh and Chandler, 2021). The stresses of constant discontinuities within a system interrupt long-term trajectories, but as long as a system remains, discontinuities are opposed, revealing the system's resilience (Adger, 2000). Within the island context, the nexus of economic, environmental and social development was addressed in 1994 by the multilateral Barbados Programme of Action (United Nations, no date)

Scholarly debate on resilience, beginning largely in the 1970s, was grounded in the field of ecology and continues to grow, for example, through studies on social-ecological systems [SES] (cf Holling, 1937). To an extent, resilience theoretical frameworks have been contested and, as Brown explained, have often been criticised for not questioning 'resilience for whom?' and for focusing on external disturbances to a constant system; within this context, power between local agents both to control and access resilience becomes homogenized (Brown, 2014). Thus, scholarship often ignores intrinsic social and cultural constructs and heterogeneity, favouring patriarchal, heterosexual, and exclusive power structures more in line with a British post-colonial context. However shortsighted, resilience has been helpful in comparing, for example, inequalities in accessing water between communities; Langridge *et al.* engaged social resilience, for instance, in revealing inequalities between four communities in drought-prone northern California (Langridge, Christian-Smith and Lohse, 2006). For knowledge production aiming to understand specific inequalities between communities adapted to take into account the community histories, Langridge *et al.* successfully formed normative arguments.

Faced with the dilemma of conceptual gaps in resilience, Adger (2000) built on the nexus between social and ecological resilience, offering a preliminary

methodology. This initial attempt to methodically observe resilience focused heavily on institutions, demographics, and livelihoods (Adger, 2000). Over the following decade, increased interest in resilience allowed the concept to further mature along the lines of climate change discussions; Katrina Brown explained that the social science approach to resilience had evolved around three key foci: community resilience, transformative resilience, and resilience transitions; Brown further acknowledged that criticism of past approaches had led to rich scientific dialogue and the conceptualisation of resilience, although not entirely inclusive, begun successively challenging preconceived assumptions (Brown, 2014).

Parting from a previous focus on limited community scopes, themes coming out of literature on the climate change/island nexus focus more on the top-down technical role of international donor partners; in a context of competitive funding, resilience has been constructed by donor-dictated projects to contest the physical vulnerability of climate change; externally-managed resilience is thus more positioned around hegemonic innovation than around unique, cultural constructs with donor countries preferring streamlined and repeatable projects (McDonnell, 2019). Although recently there have been some shifts favouring grassroots initiatives, aid-funded projects for island communities mostly follow familiar pathways, beginning, for example, with rainwater collection and mangrove planting to seawalls and foreshore strengthening and most recently to land reclamation and large-scale, reverse osmosis plants (SPREP and UNDP, 2013). Put another way, adaptation in the context of climate change has been referred to as a systemwide ability to adapt to the stresses of adverse sudden- and slow-onset impacts of anthropogenic climate change; In the current context of climate change discourse, adaptation is often linked to human-engineered, and governance-related solutions; However, Gallopin argues systems' adaptive capacity to climate change depends on a broader range of actors, whether it be subgroups of the community implementing indigenous measures or natural processes such as erosion and shifting sands, the system attempts to cope to the unexpected threats (Gallopin, 2006).

Realising the gap between resilience embedded in adaptive capacity and resilience embedded in local knowledge, some islands, such as Vanuatu in the Pacific Islands, have taken steps toward inclusivity, forming community committees to engage local knowledge sharing. However, McDonnell stresses the inherent shortcomings of Community Disaster Committees (CDCs) that were involved in the Post-Cyclone Pam disaster response; while the goal of the CDCs is to improve the local agency of communities in disaster planning, the political construct of the committees perpetuates the generalisation of communities and ignores internal hierarchies and cultural constructs; as McDonnell further explains, the success of externally imposed resilience in which CDCs control access depends greatly on the cohesion of the community and can lead to further tensions and re-perpetuate pre-existing vulnerabilities among certain factions (McDonnell, 2019).

While the conceptual framework of resilience has evolved over the past half-century, stakeholders in island states have only shifted to resilient narratives in the last half-decade. The 'stay and fight' position replaced 'migration with dignity.' Thus, resilience is seeing a resurgence in island-centred climate change

research. This resurgence has renewed interest in the lessons learned through local knowledge systems about disaster preparedness and response, particularly concerning resource management that promotes food security, access to fresh water sources, and land usage, among others. Communities across the region faced with increased erosion assumed to be linked to climate change, for example, have taken local action by protecting flora, strengthening foreshore measures and, in some cases, relocating (De Souza *et al.*, 2015). Recent scholarship has also advocated resilience as a negotiated process to challenge homogeneity generalisations. The focus of this process is generally political and based on power, decision-making, and hierarchies; again, the question that scholars of climate resilience continually seek to answer is grounded in 'resilience for whom?' (Harris, Chu and Ziervogel, 2017). Even with this social shift from resilience as a supreme, static shield against the system's vulnerabilities, the concept of resilience as a negotiated process highlights a potential for observing systematic inequalities. The study of resilience inequalities is still in its infancy and has mostly been limited to gender, albeit very rarely in the island context (cf Green, 2015).

7.1.1 Framing local knowledge

The role of local knowledge in resilience and building adaptive capacity to climate change has long intrigued researchers. Literature on local knowledge in the social sciences dates back to early work in ecology, such as Stephen Forbes's icon paper "The Lakes as a Microcosm" in 1887 (Schneider, 2000). Since the 19th century, mobility, both physical and virtual, has accelerated and geopolitical landscapes in a post-colonial epoch have shifted, leading to a need for multiple conceptual frameworks on local knowledge systems that are not merely methodological tools for collecting data but appropriately give recognition to knowledge system producers (McMillen *et al.*, 2014). For many of the more isolated island communities still dependent on resource-based livelihoods, like Barbuda, and with limited external support for adaptation projects, community resilience can only be manifested through local knowledge systems (Nakashima *et al.*, 2012).

Digressing to the ontology of island systems, in contacted islands where island systems share social spatiality and become island communities, stresses have multiple drivers expanding beyond environmental factors and may include overpopulation, stresses on food systems, pollution, and social disputes; although these stressors are discontinuities in the system's stable trajectory, they may or may not threaten the future system (Pugh and Chandler, 2021). The ability of the bounded island system to absorb these stresses, no matter how dramatic they may seem, is also an example of resilience, and according to Gallopin, the social capacity of response includes system resilience, coping mechanisms, and opportunism (Gallopin, 2006). Thus, the resilience of the island system becomes weaved with internal social constructs and demonstrates agency to not only confront multiple stresses and cope but even adapt.

Furthermore, island communities have adapted resilient island systems through local knowledge production to confront the impacts of natural hazards. For example, early clan-based atoll communities utilised external social networks in the Pacific context, negotiating inter-island relations as a guarantee during periods of drought with resilience embedded in mobility (Macdonald, 2001). It is even well-documented that indigenous settlers developed methods of accurately predicting and reacting to tropical cyclones to minimize risk (Jackson, McNamara and Witt, 2017; Nalau *et al.*, 2018). Although the environment was harsh, indigenous settlers survived, and some islands, such as Samoa and Tonga, established thriving kingdoms that remain active today.

Since little remnants of indigenous communities remain in the Eastern Caribbean, indigenous knowledge sets have been replaced by local and traditional knowledge sets (Beckford, 2017). With the arrival of European colonisers in both the Pacific and Caribbean, indigenous and local knowledge was contested through integration and the proliferation of Christianity; colonial overlords re-imagined the island systems within their own constructs, exporting perceptions of exoticism that still fuel tourism to this day while dissolving local food systems into broader, colonial supply chains, perpetuating dependency on imports (Harrison, 2004; Feyrer and Sacerdote, 2009). While island communities in strong, tourism-driven economies may have financially benefited from post-colonial regimes in which technical capacity acutely reduces natural hazard risks, communities forcibly or choosing to be excluded from advanced economies continue to manifest resilience to natural hazards through local knowledge gained from the lived experience of past events (Mercer *et al.*, 2010; McNamara and Westoby, 2011; Hiwasaki *et al.*, 2014; McWilliam *et al.*, 2020).

Scholarly interest in local knowledge systems has led to a divergence in terminology between disciplines and partly by geographic and historical distinctions and include indigenous knowledge (IK), traditional knowledge (TK), and local knowledge (LK) (Parsons *et al.*, 2018, p. 852). The knowledge producer often differentiates the conceptualisation of local knowledge systems, whether it be indigenous-based knowledge, indigenous in the context of post-colonialism, or knowledge production that is not necessarily indigenous but is localised. From the three broad local knowledge system groups, specialised concepts have been developed, including traditional ecological knowledge (TEK), indigenous and traditional knowledge (ITK), and so on, depending on ontologic principles and fields of study. It should be noted that in both disciplinary and transdisciplinary writings, deriving terms are often re-invented to describe local practices.

Within the foundation of local knowledge studies, the nuanced boundaries often overlap. As the concept of Indigenous Knowledge (IK) is straightforward and not applicable to the field site, this section will not elaborate on IK. However, it is important to note that the isolation of indigenous groups significantly diminished IK through colonisation and later through neo-colonialism; there are broadened overlaps in scholarship between the usage of IK and TK, in which TK had formerly been rooted in a conceptual framework around areas characterised by an indigenous majority in a context of post-colonialism (Nalau *et al.*, 2018). The ever-growing overlap has led to scholarship often referring to a combined indigenous and traditional knowledge (ITK) approach. The approaches have also been

adapted for discipline-specific research, such as concepts of traditional ecological knowledge (TEK); Although both IK and TK approaches have broadened, the underlying indigenous narrative parameter remains. IK and TK, for instance, are not generally applied to local knowledge produced by settler communities (Nalau *et al.*, 2018).

As mobility increases and there is greater knowledge sharing between communities, IK and TK systems are increasingly influenced by external influences. On a broader scale, academia has adopted a conceptual framework of local knowledge (LK). Unlike IK and TK, LK does not assume nor require that knowledge production be of indigenous origin; from this point of view, the focus of local knowledge systems is more geographic than ethnographic, and thus, LK production does not discriminate between knowledge systems built over centuries and knowledge that may have been built over decades (Geertz, 1992; Turnbull, 1997; Canagarajah, 2009). For the purpose of this dissertation, TK systems will be considered knowledge built over time and through generational knowledge sharing, as is the case with Afro-descent Barbudans, and LK as place-specific knowledge production. However, there are key underlying distinctions between the parameters of ITK and LK that are sometimes unresolved in analytical applications. While the concept of local knowledge may be straightforward and often suitably utilised to overcome discourse on indigenous and traditional knowledge production, there are examples where ITK may not be local, especially in the environment domain. In island systems, post-colonial identity has pushed a legitimisation of nationality, but the reality is that individual island communities have unique cultural practices, languages, and histories. Due to remoteness and sparse population, inter-island and international mobility have increased due to labour, education, health, religion, and marriage.

Additionally, research on local knowledge systems has witnessed a resurgence due to interest in indigenous communities' unique climate change vulnerabilities. For example, the applications of ITK have been hyped not only in academic circles but on a transdisciplinary scale for use by international organisations and donor-partners developing more inclusive localised climate adaptation plans (UNFCCC, 2013). There is a need for further reflection and debate on conceptualising indigenous, traditional, and local knowledge production within the specific context of the island states. Like resilience critiques, island states are overgeneralised with dominant nationalist cultural narratives being purported as indigenous, traditional, or local knowledge, leaving scholars to often overlook the regional histories of nation-states as a Eurocentric construct. Although there may be overlaps, the relationship between national identity and ITK/LK cannot be assumed without reflecting on dominant mobility narratives and indigenous and local social histories.

This section has widely discussed the importance of local knowledge in island resilience research. Island systems are potential qualitative data mines in which risk, vulnerability, and local knowledge systems convene with variable-reducing factors of remoteness, cut-off islands, and isolated heterogeneity. Even under the limitations of previous SES approaches to resilience, the potential for understanding cross-cutting issues at the nexus between local knowledge systems and resilience has drawn significant attention. For example, a thematic

literature review by McMillen et al. in 2014 revealed fifteen research priorities in three inter-related areas linking a framework of indigenous and local knowledge (ILK) and resilience, including local observations related to climate change, local resource management, and power structure (McMillen *et al.*, 2014).

The second impact of local knowledge is the perplexity of isolated island communities to embody resilience through mobility and form trans-local or increasingly transnational spaces to increase remittances, either intentionally or unintentionally, to climate resilience. While remittances may have roots in contemporary post-colonial origins, the space of trade and exchange allowed pre-colonial communities in clan-based societies, such as previously mentioned in the Pacific Islands, to survive during times of food and water scarcity (Macdonald, 2001). The contemporary labour mobility system focusing on monetisation still has fundamental constructs dating to pre-colonial pasts; As money flows in from the diaspora and temporary migrant workers, island-based home communities reciprocate through cultural remittances to sustain bonds (Marazita, 2019). Recent scholarship has improved the understanding of localised social and cultural constructs embedded in climate change vulnerabilities. However, significant local knowledge gaps in thematic research face ontological barriers in the inherent Eurocentric process of knowledge production. Research on local knowledge systems has not yet moved past the assumption of island-based local knowledge as a singular narrative and has largely ignored the ability of subgroups and of women, sexual minorities, and other groups to produce ITK and LK (Nalau *et al.*, 2018).

7.1.2 The role of multilevel governance in building adaptive capacity

Until recently, climate change policy negotiations were limited to the national and international stages. Beginning in 1988 with the establishment of the Intergovernmental Panel on Climate Change (IPCC) and continued by the United Nations Framework Convention on Climate Change (UNFCCC) that culminated in the iconic Earth Summit in 1992, climate change adaptation policy slowly filtered down to regional, national, and local governments over the past three decades. More recently, significant steps have been taken through the Paris Accord and Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts. However, the adverse impacts of climate change resonate at every political level. Local governments are increasingly being confronted by damage to infrastructure, national governments are being pressured to reduce emissions, and various organisations in between are being called to action (Bulkeley and Kern, 2016).

As the impacts of climate change are becoming increasingly measurable, the political space of climate change is contested by stakeholders at various levels simultaneously, leading to increased integration, often referred to as multilevel governance (Bache, Bartle and Flinders, 2016). Integration can be either horizontal or vertical and can be driven by top-down or grassroots-level

calls to action where broader inclusion is associated with greater resilience; scholarship on multilevel governance describes vertical integration as cooperation between local, sub-national, national, and international policymaking structures, and horizontal integration as being cooperation between various actors at the same level, exemplified by the *C40 Cities Climate Leadership Group* (Corfee-Morlot *et al.*, 2009, 2011).

From the top-down island state perspective, multilevel governance structures are limited in states lacking financial capacity and, thus, relying on foreign intervention for most expenditures and development, as well as adaptation projects; most aid is provided to the independent states, depending on the geographical spheres of influence, from the United States, Australia, and New Zealand (Overton *et al.*, 2018). Increasingly, however, multi-national donor-partners, as well as a growing number of European and Asian partners, have been filling aid gaps left by historic donor countries and aid is driven increasingly by geopolitics, with stakeholders involved increasingly in decision-making processes, as island states navigate the diplomatic showdown between Taiwan and China over recognition (Wallis, 2017; Wallis *et al.*, 2022). However, island states' dependence on foreign aid diminishes the power of island governments to steer adaptive capacity. A further limitation of multilevel governance in the island states is politics of scale, where populations are too small and spread out to effectively drive policy at a local level. In Barbuda, for example, the population pre-Irma had only reached an estimated 1800, thus any organisation of local leaders at even a national level to promote horizontal governance integration faces pragmatic and financial barriers; In an effort to be more inclusive, national governments in the island states often implement national strategies for the inclusion of local government input (Hepburn, 2012). Such efforts are supported by the Commonwealth Local Government Forum.²⁴ The small populations also tend to limit horizontal integration where, in Barbuda, civil society organisations are not common, or in Tuvalu, a lack of stakeholders leads to individuals filling multiple leadership roles in government and civil society.

7.1.3 Discussion

Scholarship suggests localised lived experience compounded over generations leading to resilience embedded in place-based local knowledge. From a grassroots level, local knowledge is then complemented by increasing technical adaptive capacity from a top-down level. However, when structural adaptations to mitigate risk are insufficient and displacement inevitably occurs, several outcomes may occur, including rebuilding, migration or prolonged displacement. In the context of this dissertation, island systems face stress from both the threats of natural hazards and natural hazard events. Theory dictates that increased resilience to stresses manifests when a thematically well-integrated multilevel governance structure works together to oppose stresses. In place of financial capacity and from a grassroots, island perspective, indigenous, traditional and/or

²⁴ Further information on the organization website: <https://www.clgf.org.uk/>.

local knowledge sets improve community natural hazard risk reduction and their ability to cope with the impacts of a natural hazard. As well-integrated multilevel governance systems are supported through local (horizontal) integration, multilevel governance informed by local knowledge, when not contradictory, should increase resilience to the stresses of natural hazards. Data presented from a case study on Barbuda following Hurricane Irma in the coming chapters will offer a point of reference between literature and lived experience. Frameworks of Barbudan and Caribbean resilience will then be constructed while considering prior criticism of homogeneity.

7.2 Framing Barbudan Community Resilience

Instances of natural hazard-induced displacement events continue to increase in line with climate change impacts (IDMC, 2021). However, capturing qualitative data sets from sudden-onset events remains challenging. In continental settings, survivors span out in unverifiable trajectories utilizing both public and personal assistance networks, returning to uncontained disaster sites at will. Thus, the processes defining displacement [evacuation, displacement, and durable solution] become individualised and stifled. In the Caribbean context, observing displacement processes is further limited by the frequency of events, compounding the processes through multiple events in which the next displacement-causing event occurs before communities can fully rebuild. The Barbudan narrative following displacement caused by Hurricane Irma offers rare insight into a specific displacement event and, owing to the small population, feasibly facilitated a rare qualitative approach at a whole island scale. The rest of this chapter explores the sub-research question, how was community resilience manifested between preparation for landfall and recovery?

As this project aimed to observe Caribbean resilience, being that resilience is a reaction to opposing stresses, the post-disaster period must be divided into distinct segments: onset/landfall, evacuation, displacement, and durable solution. Since nearly the entire Barbudan community survived landfall and the evacuation process was mandatory and primarily facilitated by the state, the Barbudan resilience perspectives to the stresses of onset/landfall and evacuation lack diverse datasets necessary for analysis. However, data from fieldwork revealed two distinct processes that constituted stresses on Barbudan survivors, mainly the period of displacement between evacuation and durable solution and the reconstruction process. Although the stresses in some cases overlap, they are integrally divided in contributing to survivor well-being and the temporality of displacement. The resilience framework offered in this section collected and analysed through an ethnographic approach is thus the sum of factors that facilitated durable solutions in the context of Barbudan reintegration confronting the stresses of, in this case, displacement and reconstruction.

7.2.1 Barbudan resilience framework

Reflecting on the long road to recovery, stakeholders and survivors were keen to share lessons learned and perceptions post-Irma recovery. However, as Prime Minister Gaston Browne lamented:

“We never contemplated evacuation; we had no history of mass evacuation. That is one area we lacked preparedness. It was a lesson for us, even in the Caricom community. That was a significant lesson. I think, too, that perhaps before we had completed the clean-up and gotten Barbuda ready, we should have allowed people to go back earlier. It wouldn't have been the most ideal circumstances, but at least get the trucks there to pump the water off the ground and the mosquitos (to reduce disease) because the political message that was created was one in which that we didn't get cooperation of Barbudans. We had to rely entirely on private contractors. Another problem in terms of a lesson was how long it took us to receive the proceeds of the 22million U-S-D. It was extremely long. I don't know that we made any mistakes to avail ourselves of these funds but what we are doing now is to speak with the international community to be a little more responsive so, in the future, these funds could become more readily available. I believe it to be four years later, and we're still rebuilding homes. Those funds only became available a year ago. So three years would have already elapsed. What is happening is the government has taken a significant amount of criticism even though we've tried our best to get the program moving. We've been drafted within the Caribbean region to ask these agencies to be far more proactive in reducing bureaucratic structures that would have delayed accessibility to these pledged funds.

“And it's not only down to Barbuda. It's something that has been a problem that these institutions and countries pledge these funds. Those are some of the lessons we had learned. Hopefully, next time we'll be in a better position in terms of preparedness. I think, too, in the future, I believe individuals will be more responsive to warnings from leaders at that time. Even though we went over before the storm, they took the request for greater vigilance for granted. There's one particular family who didn't heed our call, and we had one death. At least that single death could have been avoided if that family would have listened to the calls we made to evacuate on time. We now have concrete structures with reinforced concrete and steel. The engineers have assured us they can stand category 4 and 5 storms, category 5 plus. So again, an experience for us to be far more resilient for the future.” (personal interview with Prime Minister Gaston Browne; St. John's, Antigua (Zoom); 21-Jun-2021)

As previously discussed, scholarship suggests that resilience to stresses caused by hurricanes results from a combination of local knowledge and multilevel governance reinforced through disaster preparedness mechanisms. Households are constituted in a way to mitigate risk, and when inevitable displacement-inducing events happen, they are supported through well-integrated local, national, and international governance, integrally working with survivors and civil society donors toward quick, durable solutions. However, how does resilience play out in practice where access is unequal, and losses and damages dwarf assistance? In the case of Barbuda, disaster management efforts to raise funds contributed merely an estimated ten per cent of calculated losses. With households largely lacking the financial capacity to rebuild and without household insurance to cover damages, Barbudans were left to cope with stresses caused by Hurricane Irma at a household level, and reconstruction has been slow [see Map VII in Annexe VI].

This section utilizes data from narrative interviews with survivors, triangulated through expert interviews to disambiguate resilience in the context of

post-Irma Barbuda during the displacement and reconstruction/return phases. Resilience during displacement will focus on interviewee responses that impacted either the quantity or length of displacement, with greater resilience favouring a shorter duration. With Barbudan households nearly completely lacking homeowners insurance or sufficient household savings to finance reconstruction, Barbudan resilience during the reconstruction phase is multifaceted, including rehabilitating physical structures and returning to livelihoods and social reintegration. Data collected during fieldwork revealed limitations to theoretical assumptions and insecurities in multilevel governance integrated disaster management.

Within the multilevel governance approach in which the national government convened national disaster management stakeholders, international donor partners, and the Barbudan Council as local intermediaries to survivors, ongoing political tensions between the state, controlled by the Antigua & Barbuda Labour Party (ABLP) and Barbuda that would become led by the opposing Barbuda People's Movement (BPM) left fragmentation in local representation to disaster recovery processes. The position of the Barbuda Council was further paralysed by constant election cycles that, while the national government remained under the leadership of Prime Minister Gaston Browne for the entirety of the four-year reconstruction period outlined in this study, the Barbuda Council changed hands annually with the general council elections further held bi-annually. While local candidates capitalised on any Barbudan discontent with reconstruction, elected officials were left powerless to enact campaign promises either due to a lack of funder willingness or due to the limitation of such short council terms.

The breakdown in multilevel governance concentrated power between the national government with limitations from donor partners and households, which either negotiated assistance through national disaster management entities or personal networks/capacity. With access to reconstruction and, thus, durable solutions left to household negotiation, the data further cemented the research gap elicited within scholarly circles calling for cultural approaches to understanding the process of negotiating displacement processes in the context of natural hazards and elucidating community heterogeneity, which, in the case study of Barbuda left local policymakers in a largely ceremonial position and at the scrutiny of both the national government with power uncontested by Barbuda (representing less than 2% of the national populace) and voters politically frustrated with prolonged displacement and barriers to reconstruction.

Returning to the scope of this study which remains Barbudans returning to Barbuda following Hurricane Irma, data from fieldwork revealed specific, perceived or actual opposing forces during the four-year longitudinal process to both displacement and reconstruction as stresses restricting entry into durable solutions. Thus, Barbudan resilience in the context of hurricane Irma became a sum of these stress-opposing factors, further realising the household reliance on public services and assistance and the importance of household capacity embedded in external networks in reducing stresses [see Figure 34].

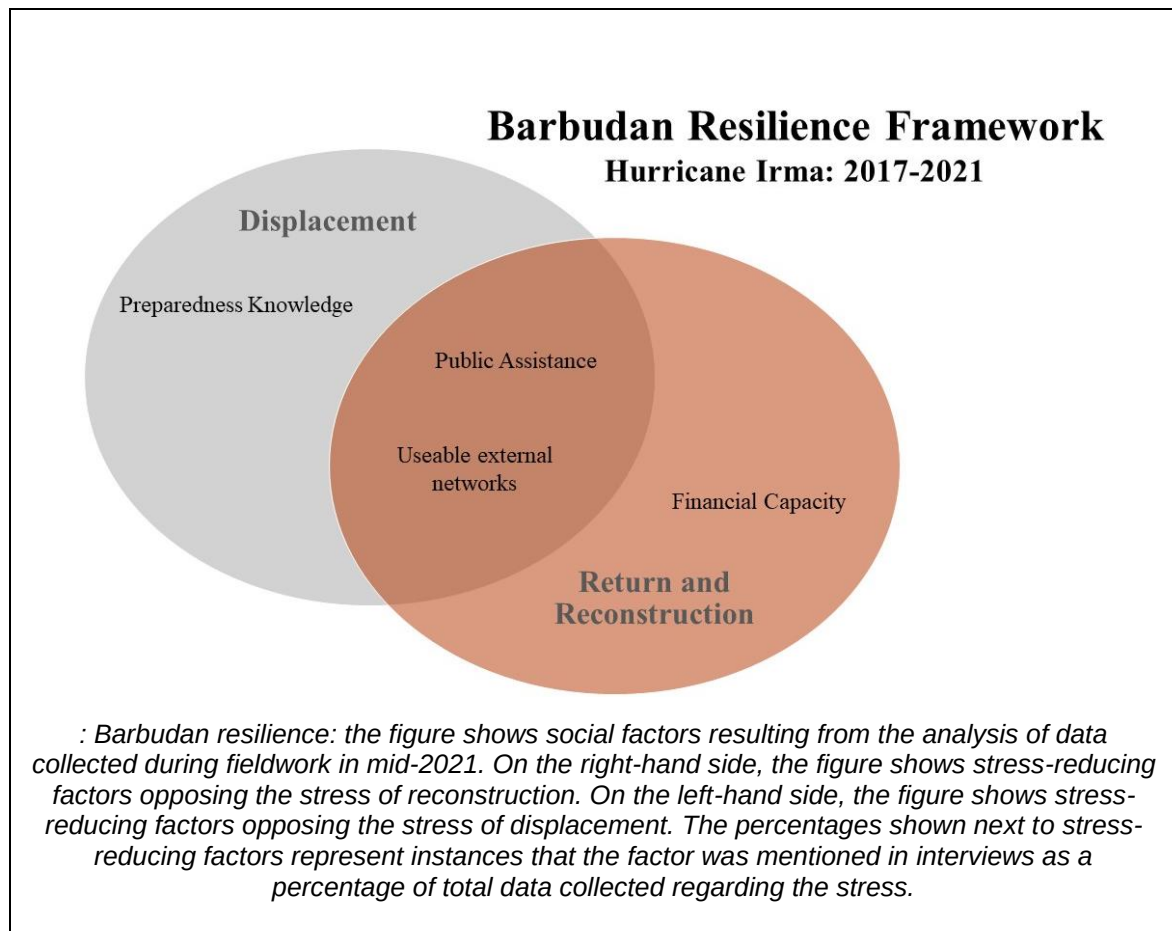


Figure 32: Barbudan Resilience Framework

From this household-centred perspective, theoretical underpinnings of the importance of local knowledge were somewhat validated. Although younger survivors seemed to lack any specialised knowledge specific to either the impacts of hurricanes or specifically Barbudan knowledge sets such as local and indigenous food systems, some early-returning survivors relied on local knowledge both in short-term survival and even in long-term post-construction livelihoods. However, Barbudans overtly utilizing local knowledge skill sets remained in the minority of returning households [see Figure 32]. In the following sections of this chapter, Caribbean resilience will be further disambiguated between displacement and reconstruction as stresses. Finally, the opposing factors to the stresses, for which the sum is the cumulative resilience of Barbudan households, will be described at length based on the analysis of data collected in the field.

7.2.2 Resilience during displacement

Within a few days, the entire Barbudan population residing in Barbuda at the time of Hurricane Irma had been evacuated to Antigua largely under the national government's assistance in partnership with their Venezuelan counterparts. As the survivors stepped foot in Antigua, a period of displacement ensued. For some survivors, displacement lasted merely a month until the state of emergency was lifted, but most survivors would not return until the end of 2018 when schools in Barbuda reopened. However, returning to Barbuda did not necessarily represent an end to displacement and returnees yet to rebuild were further displaced within extended kin and non-kin networks or into relief tents lacking access to water, sanitation and hygiene [WASH]. With most homes sustaining major damage and household without the financial capacity to procure construction material, displacement continued and, by the time of fieldwork in 2021, continues in line with findings from IDMC showing that durable solutions to displacement often remain elusive for survivors (IDMC, 2018b) [see Figure 33].

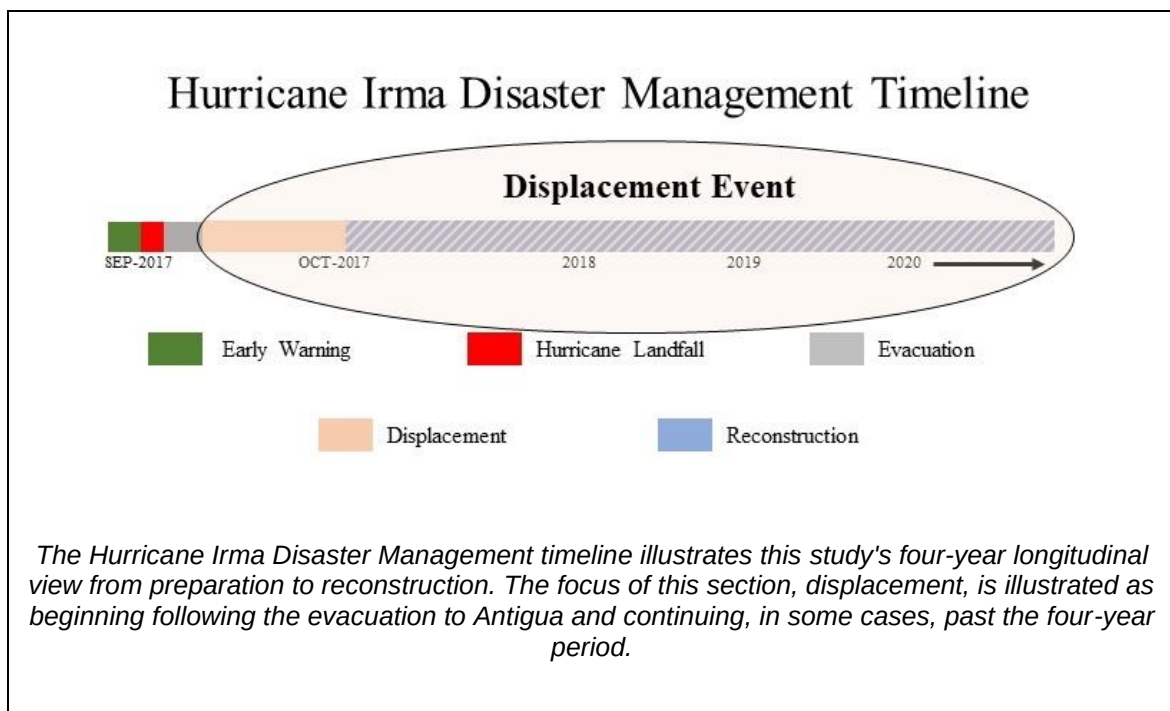


Figure 33: Hurricane Irma Disaster Management timeline

Following most displacement-inducing events, communities and, thus, households will be unevenly impacted by a disaster and resilience embedded in post-disaster management becomes individualized as stresses are not universal. However, in the case study of Barbuda, displacement was complete and the homogenised outcome allowed for a streamlined analysis. Therefore, in an effort to capture data necessary to determine Barbudan resilience confronting displacement, quality of life indicators were assessed. In line with the data, life quality included access to essential services, stability during displacement, and an ability to maintain autonomy and decision-making power.

Although responses from survivors and stakeholders were individualised based on household experience, data extracted to answer the research question showed that factors opposing the stresses of displacement fell mainly into two categories, useable extended networks and access to public services. A small minority of respondents also indicated the role of preparedness as a risk-reducing factor pre-Irma based on either prior local knowledge or technical knowledge in home construction and relevant to disaster risk reduction. This section examines the opposing forces following an approach presenting the data ordered by most to least common responses.

Extended networks

Leaving the trauma of hurricane-ravaged Barbuda behind, survivors faced the short-term necessity of shelter and basic needs while mediating long-term realities of uncertainty. Questions arose, both at a household level and within the disaster management task force, including where survivors would sleep; how they would access clothes, documents, and other possessions left or lost in Barbuda; where children would go to school; how would survivors return to a sense of normalcy; and how could normalcy be dignified concurrent with pre-Irma norms. At a time when Barbudan displacement coincided with multiple regional displacement events and the disaster management task force was charged with not only survivor well-being in Antigua but assessing, fundraising, and securing losses and damages, budget and personnel constraints restricted government capacity to intervene, and Barbudans quickly began negotiating the spatial dimensions of displacement bounded within their sister-island.

Although Antigua & Barbuda are a combined country, divergent histories and Barbudan isolation led to stark societal differences readily reproduced in governance, media, and even language. Additionally, Antiguan livelihoods that follow the common Caribbean narrative as a tourism-driven economy seem foreign to Barbudan livelihoods, where most adults work in some capacity for the Barbudan Council and supplement meagre earnings and periods of interrupted wages with gig-employment and traditional livelihoods. National institutions mirror these dual realities; thus, higher education, advanced hospitals, banks and national government are centred in Antigua.

As Antigua is the centre of service and opportunity, Barbudans often weave a dependent relationship with their sister island. It is out of this thesis's scope to

identify Barbudans' internal migration habits. However, through observation and impromptu discussions with informants, a perception arose of Antigua as a place of temporality in Barbudan everyday life, where they and members of their household would go to work and study. As most food is imported from Antigua and choices are limited, Antigua was perceived as a space of recreation and shopping, much as in a continental, North American sense of going to a mall or cinema. However, Antigua was never described as a destination but as a place from which Barbudans would return or continue onward to diasporic centres in the US, UK, and Canada.

Arriving in Antigua, Barbudans were forced to confront this temporality in place, albeit on an undetermined scale. Quickly, the survivors assessed social assets in Antigua and began weighing the choice between government assistance, almost entirely limited to shelters and extended networks. One survivor explained:

"I don't like to be around my siblings in the shelters. I prefer by myself. My daughter was raised here, and I lived down the road. I tried to get back my home there, but they didn't want to give it to me. It's gone flat. My daughter was in Antigua, so I just stayed with her." (personal interview with survivor 2; Codrington, Barbuda; 8-Jun-2021)

With kin networks quickly activated and utilised, immediate relief began arriving from extended networks overseas, whether in the form of remittances (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021) or barrels of food and clothing.

"I lived in my family home. My aunt lives in the states. Her kids, her daughter, lives in Antigua and the other four live in the states. What they did after Irma, they sent clothes, food, and toiletries. It was sent for us to distribute between the family. They did that a couple of times, so everybody got a little something." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

and:

"My brothers send food barrels every 2-3 months because shopping in Epicurean will break you." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

However, kin assistance networks were not always reliable solutions and survivors were left to contend with Antiguan realities not preconceived based on Barbudan lived experiences. Moreover, for some survivors, the short-term solutions led to transient behaviours with frequent variants in a period lacking stability and in which households separated and reconstituted based on opportunity. In contrast to the instability of extended kin networks, survivors with close kin real estate assets in Antigua experienced prolonged stability, often from arrival until return.

"We weren't in the shelter. My father owns a house, a big house, so we all came together. In 2000-2002, he moved to Antigua, where he had his own construction, so we moved there, and he bought a house for better living. so we were raised half in Antigua, and it's always good to have two homes. So we have one in Antigua and one here in Barbuda." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

However, close kin assets had limitations when multi-household confrontations occurred. As a result, fragmentation ensued where access to stability was restricted, and non-conforming household members were left transient. In cases

where multiple close kin held assets in Antigua, transient survivors may be absorbed in secondary close-kin households.

My father's side of the family, grandparents and his sister. My oldest sister also bought a house in Antigua, so my mom's sisters were at her house." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

As displacement continued and survivors needed to (re)negotiate long-term solutions to interrupted life, assistance networks moved beyond housing and essential assistance from close and distant-kin. Within Antigua, acquaintances began filling gaps in accessing basic needs and externally, diasporic kin transitioned focus to long-term strategy and reconstruction, but as pandemic border restrictions mounted, extended network assistance faced mounting barriers.

"We got a lot of support for food and water from the neighbouring islands. The family helped; my son came down and came over to clean up. My daughter came down as well to see how it looked. I haven't been back to New York since Irma. There was Covid." (personal interview with survivor 10; Codrington, Barbuda; 11-Jun-2021)

In summary, when evacuation interrupted access to Barbudan social structures, survivors were left alone to negotiate uncertain displacement in Antigua, relying either on extended networks or public assistance. With public assistance limited and the perception of living in a shelter not being ideal, most displaced survivors turned to local networks during the portion of displacement in Antigua. They found improved comfortable conditions when their close kin had suitable personal assets in place of displacement. In the absence of close-kin assets or during points of intra-household confrontation, survivors were left looking to extended networks for secondary shelter, often resulting in transient periods where accommodations were changed based on stresses in the support system. As the survivors perpetually sought long-term solutions to housing, acquaintances and overseas-based kin offered a safety net for accessing basic needs and long-term planning for reconstruction.

Public services

While extended networks offered survivors some stability, most Barbudans aimed to return home and begin reconstruction. Given that the distance between displacement safety nets in Antigua and their homes in Barbuda was, unlike in the continental context, unfeasibly large, Barbudans returning to the most severely damaged and uninhabitable homes left displacement in Antigua, only to continue a secondary displacement in Barbuda. Returning to Barbuda, extended networks were of little use as an estimated 95 per cent of structures were damaged and, thus, demand for shelter far outweighed supply. With little housing on offer, survivors turned to services and assistance offered by the national government and external donor partners on the ground.

Unfortunately, following the experience of returning Barbudans, there is more evidence of anti-resilience and thus could make a compelling 'lessons learned' section for future practitioners. With homes left uninhabitable, relief

agencies dispersed tents, as is common in post-disaster landscapes. While by no means meant for long-term displacement events or as protection against even minor hurricanes, the tents offered viable shelters as Barbudans returned. However, the drawback of a community in tents manifested through the extreme temporality that, for the sake of speedy shelter, lost any ability to provide individualised access to WASH facilities and electricity.

It would be at least three years before most of Barbuda would be reconnected to an electricity grid, and to avert at least a partial lack of services quickly, relief-focused NGOs working in Barbuda began providing generators to returning Barbudans.²⁵ However, the survivors were left facing unsurmountable fuel costs:

“The light, it took a long time to get back the light. Every day we had to spend 50-60 dollars for fuel. Samaritan’s Purse gave us all generators and we had to supply that with gas until we got our light.” (personal interview with survivor 10; Codrington, Barbuda; 11-Jun-2021)

Meanwhile, just as electricity would not be restored for years, WASH facilities remained ad hoc, with survivor two noting up to the time of the interview, “we just [go to the toilet] outside, bathing as well.”

Just as returning survivors began to realise the limits faced in accessing basic services after return, displaced survivors back in Antigua began receiving water bills for a service that in Barbuda would have been cost-free. Without preconceptions of the heavy financial burden water would incur when agreeing to private accommodations within external networks, resilience embedded in external networks was confronted.

“What we did was split the bills and I remember getting the first bill and it was a thousand or two. We hardly have water and if u get it, it’s dripping. The problem was because the house was old, the copper pipe was old and now I was there, it started to leak. We had to change the whole plumbing system and it was costly. It was difficult.” (Interview_3_phd, Pos. 7)

With fierce budget constraints limiting the ability of disaster management to provide even basic access to utility services, social services such as mental health and well-being were greatly reduced or non-existent both in Barbuda and Antigua. Faced with the stresses of displacement, uncertain futures and the threat that breakdowns in external networks or assistance could lead to transient uncertainty, vulnerable segments of the Barbudan community, such as dependents and older survivors under care, were left unable to cope with the trauma and continued angst. Without access to sufficient social services, households were left to treat both pre-existing conditions and new issues arising from the stress of displacement, including behavioural problems and substance abuse which, in some cases, resulted in household fragmentation and further vulnerabilities in entering durable solutions. Households struggled to cope and assist traumatised members.

“My mother had the hardest time. She [has health problems]. My father accepted what happened; my mother didn’t. She had a business at the time, and when she came back, all

²⁵ At the time of fieldwork in mid-2021, electricity had still not fully been restored to settlements outside of Codrington.

she talked about was getting the business back. And she has memory problems. Sometimes she remembers; she'll say something that happened 20 years ago but not something that happened last year. She can't remember short term. When Irma came, and she came back and didn't see her business...She came back and lived in a tent when they came over the first time. My family is small; I don't have a big big family, but my family is small and most are here. My two sisters in Miami. My older son is still living in a tent. The tent is on my sister's land. He just got a new one; it's his third or fourth. I told him, I did everything I could to register him when I came back. I took the union up to where he was living and showed him that there was a floor. I was asked if he wanted to build back here and I told them it was family land. He was there waiting and just recently I asked the people working on the 2nd phase of houses, I told him every time it rains, I worry. He can't really stay in the rain and then I go to pick him up and he has to stay at the house for a few days. Nobody has called us, and it's hurricane season again. The girl who works with Barbuda Affairs, I placed a call with her because I can't just go around and make him be on the street. She said she'd look into it. I called Red Cross so when they get a tent. He's 27 out there doing his thing and he's not going to be moving back. Hopefully, I'll hear from them.

"It's almost four years now. I'm trying to help him out. Not a concrete structure, but a kitchen, a bathroom, but we're so far behind I'm in no position. I don't mind him coming home, especially when it rains, but my husband was raised in a strict time and because my son smokes. I don't have problems with him smoking, just not in the house. He went to Miami; he was there for one week and then wanted to come home. Because he was the first, we spoiled him. I think he took advantage of it. At 22/23, he didn't want to do anything constructive. I think after the hurricane, his priorities shifted so he doesn't want to go back there and work. Yes, he's in a tent, but I tried everything, and he didn't want to do right by his dad. He works with a guy doing trucking at the docks, but it's not enough...I don't know how people get by. Everyone has so many bills and by the time you pay them, and I have to send money to my daughter every month, 400\$ every month. I don't know how I'll always get by. We use my money for that and my husband's in an account and use for groceries. But cost of living is so high, we're not really seeing it at the bank. The last time my wages was collected was for the third week of October. They're trying now to give wages and last week they paid two wages at a time. It hampers the lifestyle; you can't do the norm. I wouldn't say I get help from the US. I had a niece that offered, but you've got to be realistic. When they shop and send a barrel, I have to pay for a ticket over to Antigua to collect it, then I have to pay customs taxes, and then freight back and sometimes when you calculate it back, it's just not worth it. It may cost over 1000 [ECE] to get to my house. I don't eat canned foods, so it doesn't make sense. Just after Irma they were duty-free, but there was a lot of misplaced things. Once they got to NODS, you couldn't find what was yours. Some people's barrels mistakenly got open and got distributed that were supposed to be personal." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

While dependents and older survivors requiring care were most susceptible to mental illness and trauma-related vulnerabilities, general angst penetrated the broader community regarding the future of living in Barbuda under the threat of a second category-five hurricane. As the 2021 hurricane season commenced shortly before fieldwork, an interviewee explained that:

"Every time the hurricane season comes, you just think, because I can't go through another Irma. It's not ready. If another one comes, I would go to Antigua." (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

...and go they have. Following threats in previous hurricane seasons, fearful Barbudans returned to Antigua until threats had subsided.

Although the government, with the support of NGOs and external networks, were unable to guarantee access to basic services during displacement, a

positive note manifested through the experience of survivors having chosen displacement in government-operated shelters in Antigua.

“In the shelter, you’d get the privileges and got the food packets. I went to the shelter for 2.5 nights just to be on the list because if you’re in your home, you might be left out. After a while, there were some Antiguan trying to take advantage of the situation.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

However, even with access to food and WASH facilities, a perception grew of Barbudans as outsiders, taking advantage of Antiguan generosity and survivors, regardless of the lack of basic services in Barbuda, and Barbudans wanted to go home.

“My kids wanted to come back; they didn’t want to stay. They didn’t get adjusted. The fact that we were taken from here to over there and promise that we would get help to pay rent and food, but they didn’t manage it well.” (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

In summary, with limited financial capacity, disaster management focused on securing access to shelter by providing tents for returning Barbudans. However, the constant insecurity in accessing basic services, including WASH facilities and electricity, reduced the quality of life during displacement. As the stresses from displacement compounded with trauma experienced during Hurricane Irma’s landfall and subsequent evacuation, a lack of mental health facilities impacted households’ capacity to cope, leading, in severe cases, to fragmentation with vulnerable survivors lacking the safety nets of households and facing uncertain access to durable solutions.

Preparedness Knowledge

Barbuda, and the Leeward Islands, in general, experience direct hurricane landfall less frequently than more northern islands, such as the Bahamas. The last major hurricane having struck Barbuda prior to Irma was category-four Hurricane Luis in August 1995, with maximum sustained winds of 217 km/h. The combination of hurricane infrequency, a tendency to participate in labour mobility and not always be present on the island, and a disproportionately young population led to a lack of local memory of the impacts of major hurricanes.

“In 1989, we had Hugo. For people my age, 1961, before 1989, the other storms were in the 1960s, so I never saw a full-fledged hurricane until 1989. It was a big thing because people want to see what a hurricane is. In 1995 hurricane Louis was severe, with the eye passing over Barbuda. It had the same force as Irma. Since that time, Barbudans built a particular way, even though there was a building code. There was a USAID study in the years that followed in Eastern Caribbean. After 1995, we had storms, two per year since then and people started to look at climate change as well. So, we looked to see how to mitigate. Hazard maps were made and building codes amended.” (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

The lack of local knowledge permeated the previously discussed topic of reactions to preparedness measures but also penetrates deeper at a societal level where lax enforcement of construction codes left Barbudan structures vulnerable to abnormally widespread damage. Had building codes, amended after previous hurricanes, been utilised, the resulting losses and damages may have been less severe.

“We started using hipped roofs, for instance. I built my house in 1993, a wood pile house according to building codes and it survived both storms.” (personal interview with local expert; Codrington, Barbuda; 15-Jun-2021)

The role of disaster preparedness knowledge at a household level was weak among interviewees but became apparent through knowledge associated with survivors employed in disaster risk reduction programs prior to Hurricane Irma. Although they may not have implemented disaster risk reduction measures prior to Hurricane Irma, employment within the field allowed access to current expert networks, facilitating sufficient procurement of food and basic needs throughout displacement.

“I now work in disaster; we were placed in NODS because at the time, they had a lot of relief things coming in and we were there to give clothes, what they needed. We’d get lunch at NODS and, most of the time, you’d be there all day from breakfast until 7 or 8 PM. Then you’d have to tidy up the storage for the next day.” (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

A secondary and unrelated field for which interviewees reported preparedness knowledge countering stresses came in local knowledge of food systems and food procurement. While most Barbudans relied on imported foods both pre and post-Irma, thus experiencing acute vulnerability as transport disruption impacted supply chains, interviewees with knowledge of traditional livelihoods became self-sufficient during reconstruction.

“My family, we’re survivors; we don’t need nothing. I do hunting and my dad used to do deer. To be a Barbudan, you’ve got to know how to hike, swim and ride a horse. I can do them all. You used to do them as a kid. It’s also going to be crab time. You catch them and you feed them to get them fat. They cook the goat. Back in the day, you’d grab a goat and that was dinner. Barbuda is small; here, we know you from your walk. We know you from your voice. Even going down the road, when you’re walking with your back toward people, the gossip gets around.” (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

In summary, since hurricanes in Barbuda are rare, households did not prioritise disaster risk reduction measures in everyday life. Even survivors having experienced prior hurricanes could not perceive the risk of landfall by a hurricane approaching the strength of Hurricane Irma. Although anecdotal, the narrative of the only interviewee discussing implementation according to hurricane-resilient building codes shows promise if codes are taken into account during reconstruction. However, constructing more resilient structures that consider Hurricane Irma’s experiences does not entirely reduce risk. In addition, local knowledge and the reliable dispersal of aid access contribute to interruptions in procuring food and basic services.

7.2.3 Resilience during recovery

In more continental examples of displacement, disaster management is rarely capable of securing disaster boundaries, and household access to damaged properties continues *ad hoc*. However, the combined effect of the entire island resident Barbudan population being displaced with a state of emergency preventing return and lack of transport to facilitate clandestine travel led to a clearly denoted start to household return and reconstruction. Return to Barbuda continued on a revolving basis over much of the next two years as households balanced access to essential services, education for dependent children, and livelihoods with the will to return home [see Figure 34].

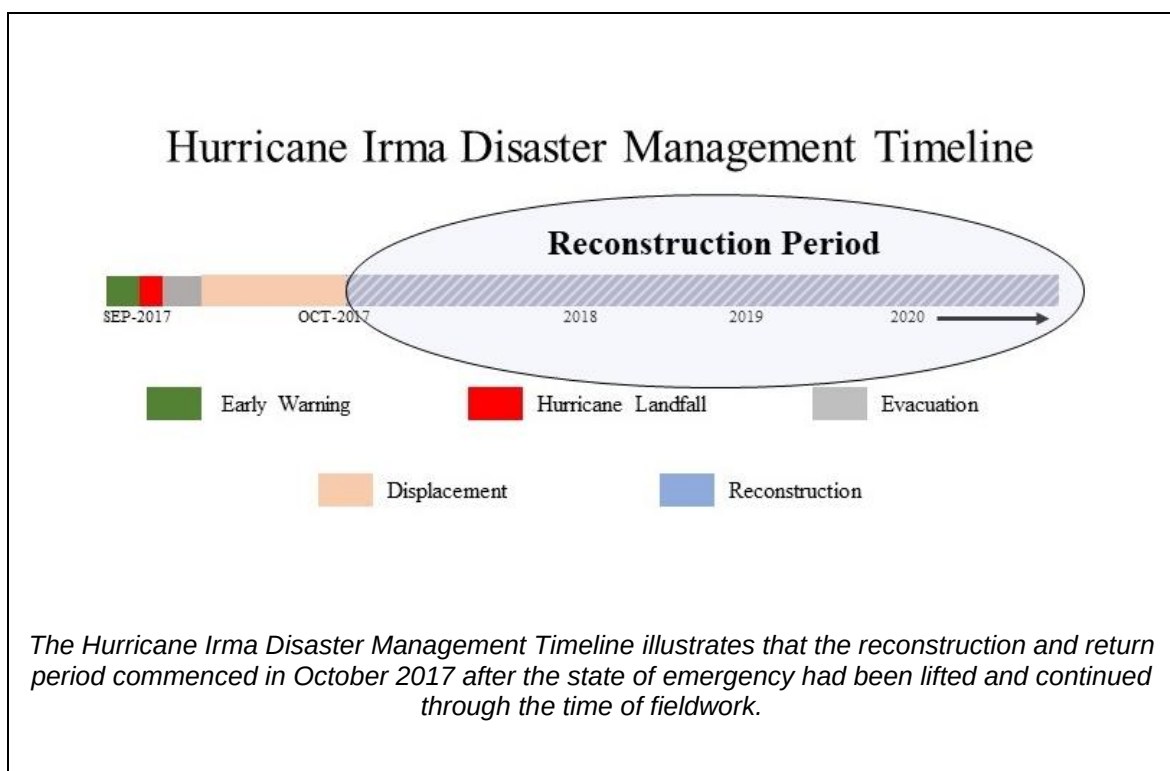


Figure 34: Reconstruction Period

Returning to Barbuda, households were confronted with material and labour shortages. Without local manufacturing capabilities in Barbuda, the import of household materials was limited by the infrequent barges plying the Caribbean Sea from Angtigua and competition for space with both materials for public works and infrastructure reconstruction projects and everyday household goods.

"Barbuda's a very unique place. You have to be strong to survive here because there are certain things you cant get here. You have to wait for the boat. It's not like in Antigua, where you can just shop. You go to the shop here and if they don't have it, you have to wait." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

Logistical barriers coupled with rough sea conditions led to frequent barge cancellations and prolonged reconstruction, leading to higher-than-expected costs. Thus, household reconstruction became dictated by access to scarce construction materials and skilled labour in this context. Reconstruction continued, therefore, beyond Hurricane Irma's fourth anniversary.

*Public Assistance*²⁶

The unique context of Barbuda juxtaposed with neighbouring islands as framed through legal autonomy and an unwillingness to develop led to a situation where household financial capacity was often too minimal to contribute to reconstruction. Both pre and post-Irma paid employment was dominated by low-paying work for the Barbuda Council. Whether due to trust or limited income, households forewent homeowners insurance. Additionally, with landholdings being costless for Barbudans, although significant investment would have been made in constructing homes, landholdings held no value and were not tradable, thus barring access to home mortgages [to be discussed further below]. Without the financial capacity to rebuild homes and livelihoods, Barbudans either repurposed damaged material or sought procurement through public assistance, mainly NGOs (early reconstruction), NODS, and donor partners.

"I had to start from scratch. Everything got destroyed, but I saved a lot of materials. There was this group after Irma, an Antiguan-based [person] that did search and rescue. They was trying to help set up a big tent for a clinic, but then the people here after Irma linked with NODS and the military didn't want them to put it up. The Antiguan government just wanted to level the whole village and do something else. They got deterred from that, so they decided to try to help small business orders. They helped a supermarket. My now son in law was working with them and introduced us. From there, they helped me to build this. [The NGO] donated all this from scratch, including some freezers. I had [*points to one freezer*] this freezer and I started selling from a truck that I had." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

However, there was not only organized assistance, but as reconstruction labour contracted from Antigua and further afield needed housing, Barbudan households negotiated.

"When we came back, we had already rented our home out for a while, so there was some help to put it together for us and then they rented it. It was some Jamaican workmen. So they helped put the place back together and the workmen stayed there until we came back and then they moved." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

Among the NGOs, the familiar site of the US-based Samaritan's Purse was an early player in reconstruction. As the government-led disaster management task force was slow to procure household assistance due to protocol, it filled a crucial gap in providing basic construction materials to the first returning

²⁶ An abstract for a portion of this section has been accepted and has been submitted to the *Geographisches Rundschau* to be published under the title: Aufbau im Abwind: EU-finanzierter Wiederaufbau in Barbuda nach Hurricane Irma.

Barbudans. For survivors not eligible for or not wanting to wait on external assistance, assistance from NGOs such as Samaritan's Purse would have been their only option.

"We got assistance. We got galvanised from Samaritan's Purse. The rest we had to fund ourselves." (personal interview with survivor 5; Codrington, Barbuda; 9-Jun-2021)

and

"I don't meet the qualifications, so I'm not going to try for the EU. The Samaritan's Purse and Red Cross, we owe everything. The S-P was exposing the government that wasn't doing shit. All these houses and materials for houses here were from S-P. The generators came from them. Irma is a blessing in disguise, a wake up for Barbudans to see what's happening." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

However, the assistance of NGOs could not have met the demand following abnormally high losses and damages.

"I tried to get some materials from Samaritan's Purse, I tried, but I never got through, so I'm still here struggling." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

As the government took greater strides to restrict the segmented work of NGOs and streamline reconstruction according to government standards, organizations such as Samaritan's Purse would not be able to complete mandates and soon left for Dominica and other, less restricted disaster zones, leaving NODS and the government-led task force control of reconstruction and the primary procurer for assistance. However, survivors were quick to criticize the shift to government-led assistance.

"I got materials then from NODS. People had donated materials to reconstruct their homes. We got some materials and we had a local person; I'm not sure if it's true; he said he hasn't been paid up until now. I had to pay him something because he said he has his workers to pay, so I did pay and got my home fixed." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

and

"It's very upsetting. People are upset. [The government-supported contractors] hurry and leave it there. If another hurricane comes, my roof will go because I don't have a brace inside. They don't put any carillon. They just put the structure there and they didn't do the carillon. When I confronted them, they just said everything was already finished." (personal interview with survivor 2; Codrington, Barbuda; 8-Jun-2021)

As reconstruction assistance became delayed due to logistics, labour scarcity and pandemic-era restrictions, survivors awaiting assistance began to slowly reconstruct their own homes in anticipation of reducing dependence on donors and accelerating reconstruction. Offset by income or access to materials from extended kin networks, survivors slowly began building back, careful not to overstep EU restrictions that would put them in jeopardy of not receiving larger assistance packages. However, the move from fully-funded and planned homes to partial assistance led to miscommunications as survivors received homes lacking expected completion.

"This structure is my own structure. They just give me the roof, the window and door. Nothing else. They said I can't add nothing to my structure. I told them this is my structure, but they don't want me to add anything. They don't want me to add my bath. They sent me

a paper that had a bathroom, but I did my part and they don't want to do their part. There's no electricity. No one has electricity. It's not connected. I have to do the wiring." (personal interview with survivor 2; Codrington, Barbuda; 8-Jun-2021)

With access to assistance constrained by budget limits, the government-led disaster management task force was left prioritizing assistance based on damage, much in line with donor-aid programs. The aim was to make as many structures as liveable as possible on a short-term basis. Thus, assistance was first offered to least impacted households requiring, for instance, galvanized roofing material. However, there was a perception among survivors that the task force did not adhere strictly to regulations and priority was sometimes given based on network, sometimes perpetuating favouritism.

"It was least damaged first, but then you have some favouritism because they would befriend people from NODS and the military; they had his favourites. They tried to keep it, but every once in a while, something happened that shouldn't." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

Furthermore, national government employees were given broader assistance both during displacement and reconstruction.

"I came back in 2019. I was working for Barbuda Council and was paid until 2019. My mom came back because the post office was in Antigua, so she came back early last year when the office moved back to Barbuda. They wanted to make sure their staff had their homes back." (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

However, survivors employed specifically in disaster management were prioritized above all other Barbudans.

"As I work with disaster relief, I was picked to have my house fixed first. Just a couple of galvanised and rafters, so it wasn't very difficult." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

To assist the most affected Barbudan households, the European Union (EU) pledged up to €5 million in assistance to rebuild homes destroyed by Hurricane Irma. However, due to logistical challenges and Covid restrictions, the UNDP-managed project lags on, and construction continues. Nevertheless, as the island's largest reconstruction project, the scheme continues to draw interest with desperate Barbudan survivors left behind as the community rebuilds.

In July 2018, ten months after Hurricane Irma struck Barbuda, the EU pledge was confirmed as the government of Antigua & Barbuda signed an agreement with the EU outlining the terms of Barbudan reconstruction assistance. Following the well-publicized agreement, a Beneficiary Selection Committee (BSC) convened relevant national stakeholders in disaster management along with local representation from the Barbuda Council to identify proposed recipients of the estimated 150 homes to be built under the scheme; criteria for participation limited the pool of recipients to pre-Irma homeowners having experienced major or complete damage to structure (UNDP, 2018).

After the initial selection of the pool of recipients, the United Nations Development Programme (UNDP) took over as implementing partner, with construction set to begin in early 2019. Chosen recipients were informed of selection with a stipulation that procurement would require their commitment to

forgo receipt of assistance from any other donor scheme. Most recipients readily accepted the terms, and project implementation began. However, early in the process, UNDP faced significant logistical barriers, and it became clear that the intention of building 150 homes for € 5 million was not feasible, and ambitions would need to be reduced. As a stakeholder in the scheme explained:

“Initially [the aim] was to rebuilt 150 homes. After the first twenty, it was reassessed based on the cost and based on the need to import all material, workers, and tools. Currently, there's 115 construction workers, with only 44 from Barbuda. Most of the workers in Barbuda are labourers and not trained in construction. The trained construction workers are in Antigua and the contractor had to come from Antigua. Due to the unexpected costs, [UNDP] reduced the project to 104 homes.” (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

By mid-2019, the logistical delays were further compounded by the threat of a pandemic, and as the world's borders shuttered, the Barbuda Council took measures to protect an already vulnerable population trying to rebuild by closing domestic links to the sister island, Antigua. The unequivocal blockade froze the UNDP effort to construct houses as supply chains stopped, and the program was left without much-needed workers from Antigua and abroad. Moreover, at this critical stage in reconstruction, chosen households were left to wait with uncertain displacement and unable to seek secondary assistance as rising construction costs left the Beneficiary Selection Committee quietly seeking to reduce the pool of recipients.

As annual local elections came and went and the UNDP-led project aiming to assist the most disadvantaged survivors dragged on, the broader Barbudan community demanded action, and local political rhetoric ensued. Within the tiny community, starkly smaller than before Irma, where there is the direct interaction between upset constituents and policymakers hoping to remain employed, a local breakdown in communicating project intent and funder mandates began to lead to misunderstandings amongst survivors that led to a perception of flexibility in the housing allotment selection process.

With Barbudan demand for houses constant and pandemic restrictions persisting, much to stakeholder dismay, it wasn't until the end of 2020 that the first twenty chosen participants would move into their EU-funded homes (UNDP, 2021). However, as the third Barbudan chair took reigns of the Barbuda Council, local perceptions around the selection process had led to widespread acceptance among survivors that participation in the scheme could still be granted through appeals to local and national stakeholders. Thus, when Prime Minister Browne visited Barbuda in mid-2021 as part of a UNDP handing-over ceremony, he was berated by Barbudan supporters looking for assistance. However, as most of the island's population supports the opposing Barbuda People's Movement (BPM) party, demands mostly fall to local council members.

Local council members fielded constant new requests for participation in the EU-housing scheme from survivors remaining displaced and quickly felt trapped between political processes and project mandates. Since the Barbuda Council is a member of the Beneficiary Select Committee, the dual positionality increasingly led to a breakdown in allotment where local policymakers were stuck between confirming allotment to previously chosen participants while weighing the

demands from voters fighting for homes. With the constant stress of endless bi-annual elections, the council was left unable to take sides, and by mid-2021, allotment slowed as efforts by the UNDP and national stakeholders to hand over houses became thwarted by local inaction to be seen confirming proposed recipients.

While internally displaced survivors held on to the hope of home allocation, there was also discontent among some EU-funded home recipients demanding more. As one recipient lamented:

“They just give me the roof, the window and door, nothing else. They said I can't add nothing to my structure. I told them this is my structure, but they don't want me to add anything. They don't want me to add my bath. They sent me a paper that had a bathroom, but I do my part and they don't want to do their part. There's no electricity; it's not connected. I have to do the wiring.” (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

Whether in protest or owing to the home lacking completion, the survivor continues to sleep in a tent supplied by the local Red Cross, just as they have for the past four years, adding to the angst of local policymakers facing mounting scrutiny and the national government and donor partners hoping for an end to internal displacement

In summary, as reconstruction continues into the fifth year, survivors unable to cope with damage are left indignant at perceived favouritism, and several members of the Barbuda Council, whether due to political favouritism, continue living with extended family with no clear path toward durable solutions. While data collected during fieldwork could not confirm whether these outcomes came as a direct result of political strife and favouritism, the perception among survivors still displaced portrayed a systemic issue that transcended Barbuda and even the state level.

“There's politics. If you don't support certain sides, they put you on the back burner. They try to ignore you. Down in the West Indies, it's always like this. The government in power they try to give back to their supporters first.” (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

In place of financial capacity, most households depended on public assistance while facing the monumental task of rebuilding homes. For the least damaged homes requiring primarily aesthetic assistance, construction materials during the early phases of reconstruction could be procured from various NGOs. As NGOs left within the first few months, NODS, along with the government-led task force, assumed control of reconstruction and served as gatekeepers to construction material. Under the state-led process, preference was given to the least damaged structures as a means to make Barbuda liveable quickly. However, with logistical and pandemic delays, reconstruction continues, and survivors left displaced for four years on, critique a breakdown in access perceived as systemic favouritism at the hands of gatekeepers to public assistance.

Following Irma, a perception continues that the EU-funded housing scheme may be survivors' last hope. With the prolonged reconstruction period stretching across multiple local election cycles, access to the scheme's home procurement has become an obvious target for candidates hoping to swing votes. However,

political rhetoric and false promises lend to confusion among survivors, some of whom still live in relief tents, seeking durable solutions to overcome displacement and forgo more viable assistance safeguards for the promise of EU-funded homes. Chosen recipients continue to await their homes. With an understanding that accessing further assistance would result in ineligibility, they are unwilling to risk finding other durable solutions and remain displaced even if it means further months and years living in relief tents. However, many do not meet requirements and face uncertain futures. As reconstruction and allotment continue into the fifth year, internally displaced survivors, whether confirmed or hoping for housing allotments, lack the normality of a durable solution akin to pre-disaster norms. With each passing hurricane season, internally displaced Barbudans fear the impacts of a potential hurricane, with a general perception among survivors and local stakeholders that Barbuda just isn't ready for a second Irma.

Household agency and capacity

Witnessing the extent of damage and knowing that the temporality of displacement was incalculable, the few households looking to ease the burden of reconstruction took time in the days before evacuation to secure property and prevent further degradation.

"We were told there was another hurricane coming, so we got caught off guard, but in the process, 90% of things got thrown out, some things that could have been saved, like my washing machine and my stove. I was looking at things I can't easily replace. Everything was saturated, but I got the fridge, kitchen appliances, and whatever I could take in plastic to my sister's. There was no doors on the house so people could take it, so we took those things to my sister and it wasn't too hard to rebuild." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

As households realized losses and damages, donor partners began designing reconstruction projects to assist Barbudans. However, as the assistance details became public, some households decided to forgo what was perceived to be small and basic homes with strict eligibility requirements and unknown timelines in favour of self-reconstruction. Although these more self-sufficient survivors had divergent drivers behind their decision, the common shortage of available construction material led to general resourcefulness. A common lesson learned from resourcefulness emerged that long-term displacement and abandonment of homes for more than a month exasperated damage. As the storm surge resulting from Hurricane Irma caused inland flooding, abandoned homes not properly ventilated prior to evacuation became consumed by moisture-induced damage and mould.

"As soon as they allowed us to clean up, I was one of the first. I didn't wait because we didn't have a lot to clean. We cleaned the fridge and leaves and water. I remember before I left, I tarped the roof and someone nailed it down. There wasn't a lot of water coming in after that. What I had to do was clean the yard; there was debris all over. So I did that from the beginning. The first time we came, we were allowed two hours. It was like that for a month or two; then we could start spending the night." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

Early returnees quickly moved to dry out homes and secure vital infrastructures, such as roofs and windows, to mitigate water damage. For survivors returning early, there was little competition for basic materials and generators to aid in self-reconstruction. In the process of rebuilding and with construction materials available, they were able to combine both reconstruction and adaptation of homes to be more resilient to future hurricanes.

"When we came back to clean up, there was so much material. I think if we did stay, we would be further on than today. There were so many things that came and left because nobody was here. We live and learn. So the next storm, we know not to leave. The UN did the rafters and Samaritan's Purse put on the galvanised. Red Cross gave us three thousand E-C-E to go and buy windows and doors. The Wade Foundation was offering temporary electricity. So we had that and we went home. The water was on, the electricity was on, my shower was working and all I had to do was finish up the inside work. Redo my kitchen and bathroom, but I decided while I was in there, I could do a little at a time. Week by week, because we're small, people come in and chip in and fix the fencing and parts in the kitchen. We didn't have to put out much because people chipped in and helped. Because how Irma caught us off guard, it made me make one room out of concrete so if it happens; we don't have to move away; we can stay." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

and

"I own my own home. This is my second home. First, I built a house when my daughter was younger, a two-bed wooden house. My new house is concrete." (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

The early phases of household-led reconstruction were greatly improved by the technical capacity of survivors with carpentry experience, many of whom returned to minimal damage due to pre-Irma hurricane-resistant construction practices.

"My mom, dad, brothers and sisters were all [in Barbuda] during Irma. My mom's house didn't really get damaged and just needed galvanising. My father is a contractor, so he did a pretty good job." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Another survivor continued:

"I didn't lose anything off the roof, but I lost three windows. We had to get some galvanised because of a tree that fell on the roof." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

and

"Here wasn't much damage, and my dad's a carpenter; he fixed most of it. The days after the hurricane, my dad was already putting it together. When he came back, he'd help other people." (personal interview with survivor 4; Codrington, Barbuda; 9-Jun-2021)

Beyond knowledge of carpentry, a small minority of households left with structures undamaged shared perceptions from local knowledge sets that proved to mitigate the catastrophic damage caused by Irma, mainly that at least a portion of the home be encapsulated in concrete.

"Now, either they add a concrete room or build it new. Before Irma, it was one and one. My sister had it and had less damage. We stayed with my sister for eight months. All in all, everyone should have had someone they could stay with for a time." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

In place of concrete reinforcement, homes built on higher ground experienced little damage.

“Where I’m staying, I didn’t get any damage. I was up on the hill; they call it Louis hill. The houses in that area weren’t damaged.” (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

However, despite clear signs of households adapting and reducing the risk of future damage, public infrastructure has not been restored. Thus, general vulnerabilities remain as although households take steps to implement disaster risk reduction against future storms, Barbuda remains left without coordinated public facilities to absorb and support future displacement-inducing events.

“I’m of the view that post-Irma that at least fixing what you have or getting a proper shelter should be a priority, but that hasn’t materialised. I know logically, maybe persons are still in the back of the mind, knowing the risk and what transpired before and knowing the tents can’t withstand a hurricane. We should have begun construction ourselves. We’re not how we wanted to be, but at least we can store things secure. We are going to start a Red Cross headquarters, and one thing is that the conference room should be built in such a way that it could be turned into a shelter. We were hoping people would be ready by this hurricane season, but we’re still waiting. We’re still waiting on a plan from the architect; he did one already, but it wasn’t to our specification. Now we’re talking with the DCA to see if the roof can be turned into a helipad in case we have serious flooding. I’m not sure if it will materialize.” (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

Even the pre-Irma-built community shelter has not been restored. In addition, the general lack of hurricane-resilient public infrastructure threatens the safety of households and worries Barbudans, who see segments of their community still living in tents.

“I think we’ll be worse off if another one comes. We’re trying to stock up; hopefully, we can get dry foods and some water. We’ve asked for a working plan to identify risk and vulnerabilities and local ways to implement them. The fishermen yesterday until tomorrow have training, but disaster risk reduction is needed. There’s a lot of vulnerabilities. Some of those people are in tents and homes, and if we have a serious storm, I know last year there was a scare and a lot of people left to Antigua. There needs to be a proper place; I would have thought the community centre would be a priority. I’ve heard that there should be that the council didn’t get authority to touch the Chinese-built community centre, that they are getting some money from the Caribbean Development Bank but that should have been a top priority.

“At least one major facility can make a big difference. You have a command centre, a shelter in case people need a place to go. The school here was built for a category 5, and it withstood Irma; mostly, there was just a bunch of water. There was minor damage, but you need somewhere proper. In the Caribbean, we use a lot of schools as shelter, but it is not ideal. We need a proper shelter. The places we have could not sustain people for 2-3 months. A family needs to live comfortably, with a stove and kitchen and food for themselves. I think when we were in Antigua, we had issues with people not living in main shelters weren’t taken care of. A lot of people struggled.

“The number of people living in tents is tricky. It should be between 5-10 tents occupied. There is a blind guy and a few others slowly building their homes. I know another guy not too well outside the village. Originally, priority should have been given to (disabled) and essential workers, but it didn’t go that way. I don’t think the criteria there was followed. People feel that you are just doing a favour.” (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

As reconstruction continues, survivors further criticized a lack of local knowledge that although being implemented at the household level when capacity permits, is not being assessed by the Antigua-based government-led disaster management task force when carrying out reconstruction projects, further complicated by political rhetoric and a breakdown in multilevel cooperation.

I think what wasn't factored in was the local knowledge. It wasn't really taken into account and the context of Barbuda. It's different in many ways; the mindset, cultural aspects are different from many of the small islands. I think a lot of that wasn't taken into play. One of the big challenges was logistics because I think most persons from outside, when thinking of Antigua and Barbuda, they don't think of how far we are, the mass of water between. A lot of people think we're on the other side but there's a lot more challenges. One its very expensive; a lot of donors and agencies don't take that into consideration. Maybe We have the goods, but moving them is costly, and a lot of agencies don't factor those extra costs. The local demographic was taken into consideration as much as should have been. And a lot of political tension. When we look at the whole operation, the system of operation is totally different from other small islands. The fact that we have a council and the landowner issue, this constant battle between government and council. It makes it difficult to operate. I think it frustrated some of the agencies. Some would get approved by the Barbuda Council but then denied by the government. In some agencies, we're caught between a rock and a hard place. Some agencies were given the green light to work by the government but nothing was done with the local council, and people were suffering. Many houses still aren't where they should have been. It's still a slow grind as to who gets them and who doesn't." (personal interview with survivor 7; Codrington, Barbuda; 9-Jun-2021)

In summary, in the aftermath of Hurricane Irma, evacuation became imminent. With only a few days to prepare, forward-thinking households moved quickly to secure homes and appliances that would be costly to replace. Following the evacuation, Barbuda was left to decay while survivors were displaced to Antigua. Unable to further secure and ventilate their homes and businesses, mould and moisture-related damage quickly consumed even the least damaged homes. As Barbudans slowly returned and faced the monumental task of rebuilding damages, households either chose to wait for eventual assistance or begin self-construction, which, although costly, would give autonomy to rebuild homes to desired specifications. For the minority of survivors with the capacity to self-reconstruct, carpenters and prior participants in construction labour migration schemes further reduced the burden of waiting for public support.

However, as self-reliant households reconstructed under their own terms and began adapting to their experience from Irma to reduce the risk posed by future hurricanes, a general vulnerability remained as public disaster management facilities only remained in planning and no shelter with the capacity to serve as protection from a hurricane or to absorb and support displacement exists. Moreover, with no shelter and a breakdown in cooperation between local and national stakeholders preventing the inclusion of local knowledge in reconstruction planning, there is a general perception of fear that, at a public level, Barbuda as a whole remains worse off and less capable of mitigating the impacts of a future Irma-strength hurricane. As a result, inequalities continue to grow between household-managed reconstruction that adapts homes to reduce risk and households relying on government-led assistance and public services that are either non-existent or ignore local knowledge sets.

Financial capacity

Insurance has greatly reduced the burden on both households and the public sector to finance post-hurricane reconstruction in the Caribbean region. For example, in Antigua, homeowners insurance is highly saturated. However, in Barbuda, it is limited to only a few households, and there has been a perception that the social bonds of the Barbudan community served as *ad hoc* insurance to secure rebuilding after hurricanes.

“Before the storm, we didn’t want insurance. There was a perception that everyone helped each other be comfortable, but now it’s different and we don’t look out for each other anymore. It’s made rebuilding slow. I think if we would have stayed, we would be much further along, but we were separated, and our mindsets have changed. It’s hard now coming back with the different mindset toward the country. The rebuilding process is horribly slow.” (personal interview with survivor 6; Codrington, Barbuda; 9-Jun-2021)

The impact of lacking homeowners insurance was quickly determined as survivors began to rebuild their homes.

“Here in Barbuda, we don’t really do insurance on properties. I had to start from scratch.” (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

However, even as Barbudans experience significant barriers in reconstruction that are often not felt in neighbouring islands, there is a reluctance among survivors to enrol in home insurance schemes due to both negative perceptions of insurers and as salary payments from the Barbudan Council are often not reliable. In addition, the added financial burden for many households is too much pressure on limited household finances. When asked about the post-Irma situation of home insurance, one interviewee responded:

“Some do now; a couple of people did before Irma. The vehicles are insured, but some have home [insurance] but not a lot. I think it’s about the trust. Even though something happens...you have to pay every month. You’d have to pay for 4, 5 or 10 years and then they question u when something happens. I think it’s about so many questions asked and when they take ur money, they don’t ask. I plan on doing it, but the way the council pays, it’s hard to do it. You have to have the money ready when the insurance is due, and I have to keep my vehicle up and running. Two insurances, I don’t know if I could do that.” (personal interview with survivor 3; Codrington, Barbuda; 8-Jun-2021)

As there was a near-complete reliance to some extent on public assistance, the financial capacity of households was rarely discussed by interviewees, with only 8% of responses relating to reconstruction discussing the role of personal finances in home and livelihood reconstruction. Even in instances where financing may be available, the sheer perception of personal cost versus availability of assistance led households to maintain prolonged displacement. As an interviewee aptly pointed out:

“If you have 20 thousand dollars for materials for a roof and you have the option to get it free, what would you do?” (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Given Barbuda’s limited economy and lack, at least pre-Irma, of well-paid employment opportunities, there are barriers to saving money. Thus, there is a tendency to supplement income through informal labour and gig employment,

such as food stalls and the older generations described savings strategies to offset frequent pay gaps experienced by employment in the Barbudan Council. With savings, it is not uncommon for households to need to support even external kin while negotiating the trauma caused by displacement.

“Going forward, you have to know; you have to shift your focus. I think that’s one of the things that kept me motivated. When I look back, my husband used to tell me and my friends; you don’t have to spend. You have to know how to save. I have a way of saving a little. If I have 5 E-C-C going to school, I spend half and put the rest in a piggy bank. From early on, I like to have a little something just in case. When the hurricane came, [my husband] thought we didn’t have any money. What I do is if I have 10,000 E-C-E in the savings and there’s 11,000 in the bank, if I spend that 1,000, then I’m broke. If my husband would ask if there was any, then I would say no. 10,000 was in the emergency fund in case something happened to my daughter and we needed to travel. So when Irma came and everyone was unsure what to do, I said well, I have something in the bank. And he was surprised. I said I think we need to go to New York for two weeks, and he asked me how we would go to New York; we don’t have cash, and I said we do. After that, he said he would never question how I save again. I tell this to my co-workers too. You have to have a plan going forward; you can’t just spend spend spend. That’s the lesson I learned going forward, and I think it’s a lesson he learned.” (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

However, households lacking savings and relying on income from employment in the Barbuda Council often remained unable to complete home projects for which only limited assistance had been offered by NGOs and the government-led disaster management task force, including windows, doors and internal home furnishings.

“It’s still not up to our standards. It’s still liveable, but we need windows and the interior work. It’s because of money, materials are not cheap and you have to deal with buying in Antigua and bringing them here. Cargo is a lot of money. We’re getting there. We’re using our own family money with no assistance.” (personal interview with survivor 1; Codrington, Barbuda; 27-May-2021)

The lack of employment opportunities and meagre wages of the Barbuda Council contributed to the choice of Barbudans deciding to remain and integrate into Antigua instead of returning and rebuilding Barbuda following Hurricane Irma.

“I stayed there to finish school until 2020. I wasn’t planning to go to school there; I just took advantage of the opportunity. It was secondary school. Then, I didn’t want to come back. I wanted to become a nurse. I’ll go to school in Antigua one day.” (personal interview with survivor 10; Codrington, Barbuda; 11-Jun-2021)

However, household demand dictated displacement outcomes regardless of livelihood opportunities and the attraction of financial dependence. The interviewee continued:

“I came back to take care of my dad. He was here with my aunty and them, but the aunties have died since then. He’s blind and was blind before the storm. He stayed in the house during the storm. Only the kitchen roof came off, and little flooding. He went to Antigua and he was in the shelter. My aunt helped him. He came back in 2018. He received assistance to put the roof on the kitchen. He had to pay for it.” (personal interview with survivor 10; Codrington, Barbuda; 11-Jun-2021)

In summary, had the financial capacity of Barbudan households been supplemented by either home insurance or greater income potential either pre or post-Irma, reconstruction outcomes may have been different, and households

would have been less reliant on the limitations of donor-funded reconstruction projects. Although older Barbudan households have safety nets in place to increase savings, even in conservative terms, savings would not have been at a level of supplanting reliance on public assistance. Thus, few survivors perceived their financial capacity to rebuild as a contributing factor to increasing resilience. Although there is awareness of the advantages of home insurance, few households trust or have the capacity to commit to what would be an added monthly expenditure. Should income opportunities on Barbuda remain the same and household trust in insurers continue to limit the homeowner insurance landscape, disaster risk reduction and the ability of Barbudans to cope with the impacts of future hurricanes will revolve around the government's success in implementing hurricane-resilient building standards and the capacity and will of donor partners to aid future displacement-causing events.

7.2.4 Discussion

This section presented Barbudan resilience based on two research sub-questions, mainly what opposing factors increased the quality of life during displacement and which opposing factors aided Barbudan household capacity to reconstruct following return to Barbuda. The results cumulatively frame Barbudan resilience, revealing a strong reliance on public support and household capacity manifested mainly through extended kin networks. Due to a local context removed from the larger tourist economies of neighbouring islands and lacking extensive employment opportunities, Barbudan households lacked the financial capacity to rebuild. The financial capacity was further compromised by local land laws rendering property valueless, thus negating access to mortgages and a lack of homeowner's insurance to cover losses and damages. Additionally, financial capacity impacted households during displacement, that if not wanting to remain in collective shelters, relied heavily on extended kin networks with assets in Antigua.

The financial limitations that led Barbudans to seek assistance from extended-kin in Antigua were manifested through dependence on public services as an intermediary in accessing both reconstruction material and basic shelter and infrastructure during secondary displacement in Barbuda. With logistic barriers limiting access to materials, NGOs supplied basic materials such as galvanized roofing and generators to the early returnees. As the NGOs moved on to Dominica and other disaster zones, NODS and the government-led disaster management task force worked with donor partners to manage incoming supplies and services.

It is estimated that Barbuda suffered 220 million USD in total losses and damages due to Hurricane Irma, of which donor partners contributed ten per cent toward reconstruction efforts (World Bank *et al.*, 2018). Thus, not only did households face barriers due to financial capacity, but so too did the Antigua & Barbuda government. Reconstruction was prioritized with an early focus on less damaged structures in an attempt to maximise the number of Barbudans returning

as expediently as possible. Although most households received at least some assistance through donor-funded projects, knowing that awaiting government assistance for more damaged homes would lead to extended delay, some households with construction knowledge and access to basic materials eschewed larger assistance packages in favour of self-reliance and autonomy. Resilience following Hurricane Irma was mainly manifested in this broad social setting between public services and household capacity embedded in external networks. Survivors negotiated between these two support networks as needed. The resulting interaction provoked perceptions of favouritism as uneven access persists even up to the time of fieldwork.

Barbudan resilience was the culmination of factors opposing the stresses of both displacement and reconstruction. In this context, a theme emerged where resilience was not merely calculable by the speed of return to Barbuda. Instead, the less obvious factors of choice and well-being prejudiced resilience. Unfortunately, not all Barbudans returning post-Irma have found their resilience, and as Barbuda moves into the fifth year of reconstruction, displacement, tent living and the lack of access to basic services and WASH facilities persist. The next chapter will look at the inequalities in negotiating resilience and achieving durable solutions that, for some, remain elusive.

7.3 Situating Barbudan resilience in theory

Case studies on community resilience in the context of natural hazards from the last five years have striking similarities in that resilience is nearly always relational directly to the impact of the natural hazard, following closely with Adger's definition (2000) of social resilience related to external stresses. Additionally, the studies often reiterate the strong correlation between social cohesion and community resilience (Chacowry, McEwen and Lynch, 2018; Patel and Gleason, 2018; Pacoma and Delda, 2019; Guo, Sim and Ho, 2020; Jia *et al.*, 2020; Joseph *et al.*, 2020; Li, Ma and Cao, 2020; Lwin *et al.*, 2020). To a lesser extent, the role of local, traditional and indigenous knowledge sets was shown to increase resilience (Chowdhoree, 2019; Ching, Morrison and Kelley, 2020; Lin, Chao and Lin, 2022). Additionally, the role of specific preparation knowledge, a subset of disaster risk reduction, was mentioned (Drzewiecki *et al.*, 2020; Lin, Chao and Lin, 2022). However, as Copeland *et al.* (2020) explain, "how we identify a community and frame its resilience conveys particular conceptualisations of resilience", and thus it is vital to explicitly define the community represented in this study as being Barbudans, as previously defined, living in Barbuda when Hurricane Irma made landfall.

Furthermore, taking into account the variations in defining resilience as either an antonym to risk or vulnerability or as a component of adaptive capacity, I set out with the broadest definition of resilience in order to capitalise on the holistic, ethnographic approach and thus operationalised resilience to be, as Martin-Breen and Anderies (2011) coined "the capacity of a system to continue to function given external shocks" with a rational that shocks, unlike the heavily

charged terms of risk, vulnerability and stresses, would give more room to auto-define the manifesting driver of resilience. The longitudinal point of view also permitted a broader temporal bound both before landfall and after recovery in the hope of either confirming or challenging previously assumed links.

Within the comfort of the longitudinal perspective, a surprising finding from Barbuda was that community resilience was not directly manifested in confrontation with Hurricane Irma, nor to vulnerabilities or risks, but directly to loss and damage to, in this case, 'continuous function.' Thus, resilience, though manifested to the extent homes were compromised during the eye of the storm, was most influential during the period of displacement to Antigua and reconstruction/recovery, and since displacement removed Barbudans from their local setting, the role of local and traditional knowledge used to cope to losses and damages was limited. Had Barbudans remained in Barbuda, there may have been a different outcome, but Antigua and Barbuda are distinct geographically, topographically, and culturally. However, even during reconstruction, local and traditional knowledge played little role in recovery, evidenced by the near complete dependence on Antiguan supply chains that halted reconstruction during pandemic-era closures.

In line with most previous case studies, empirical evidence showed a strong link between social cohesion and resilience, although there were differing gendered and gendered generational experiences when relying on extended useable networks. For example, displaced young adolescent male Barbudans often found themselves transient during displacement; as strict household rules clashed with lived realities, the young adolescent men were often ejected from caregiver households. On the other hand, older displaced Barbudan men would sometimes voluntarily seek more autonomous living conditions. Resilience through social cohesion was additionally manifested through integration in public and civil society assistance regimes, a key household strategy both during displacement and reconstruction.

Additionally, preparedness knowledge, although not in the same context as previous case studies, influenced community resilience. Although the displacement of an entire island was new to Antigua & Barbuda, local displacement had precedence and was accounted for in disaster risk reduction mechanisms; thus, survivors with preparedness knowledge were equipped to navigate public assistance channels, quickly and methodically access food, shelter assistance, and other needs. However, from a theoretical standpoint, it is important to note that the shift in focus of resilience from the temporality of the hurricane to displacement and recovery firmly places Hurricane Irma as a risk and not an external shock to community function as eluded in case studies on disaster preparedness (cf Drzewiecki *et al.*, 2020; Lin, Chao and Lin, 2022); thus disaster risk reduction measures directly related to the risk of hurricanes would fall under mitigation instead of community resilience.

This study's final component of resilience points to the importance of household financial capital, mostly during recovery. Although Barbudans had broad access to assistance from civil society, the state, and international organisations, the strict prerequisites for accepting reconstruction assistance

were incompatible with local housing norms. For example, according to the Antigua & Barbuda census (2011), before Irma, the average Barbudan home had 4-5 rooms, whereas homes constructed through assistance may be limited to 1-2 rooms with strict limitations on expansion. Thus, household financial capacity was a determining factor in overcoming loss and damage to homes during reconstruction.

Thus, to summarise, Hurricane Irma made landfall on Barbuda, causing loss and damage to household assets. The initial reaction of the state government was to evacuate Barbudans, for an extended period, to Antigua, disrupting the community's continuous function. During displacement, Barbudans negotiated useable external networks and social assistance, benefiting from preparedness knowledge of where to seek assistance to cope with the loss of place. As the state of emergency was lifted and survivors slowly returned over the next two years, Barbudans used household financial means and, again, useable social networks and social assistance to rebuild lost and damaged homes and businesses. Thus, in the context of Barbuda, social resilience was manifested both during displacement and recovery to cope with losses and damages. Thus, situating the Barbuda Resilience Framework in broader community resilience theory, community resilience moves away from relationality with vulnerability and risk, both mitigating factors, and moves toward the community's process of coping with loss and damage to continuous functionality, in the case of Barbuda being through social cohesion (useable external networks and access to public assistance), household financial capacity, and, to a lesser extent, preparedness knowledge on accessing public assistance in the context of displacement.

Chapter 8. Negotiating Resilience: lessons from the field

The previous chapter presented the framework for Barbudan resilience based on the case study post-Irma. The framework revealed that resilience was manifested mostly through public support (donor partners, the government led-disaster management task force and NGOs) and household capacity (both close and extended kin, personal networks and local knowledge). However, due to an uneven social landscape, key findings also revealed discrepancies in access to post-hurricane assistance that hindered not only vulnerable Barbudans, including older persons, persons with disabilities, and households without useable kin-networks, but also youth at transitory life stages where livelihoods and independence were interrupted, many of whom fell outside of established assistance and will continue to face uncertain durable solutions. Thus, access to resilience was not homogeneous and was instead negotiated [see Figure 37]. As new hurricane seasons pass, households unable to negotiate resilience to enter durable solutions face the risk of further interruption and compounded displacement. This final chapter builds on the Barbuda resilience framework to answer the last two sub-research questions, how was community resilience negotiated and who was excluded from community resilience?

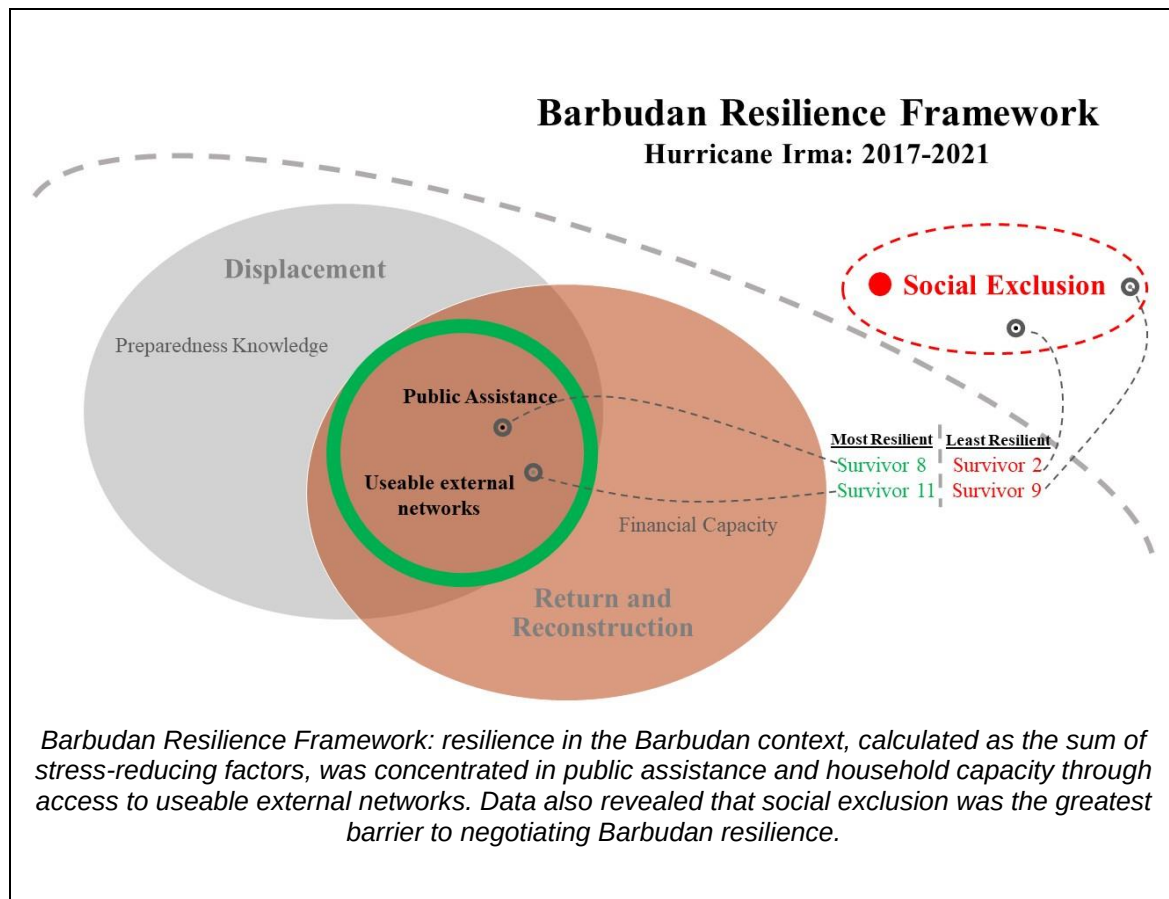


Figure 35: Barbudan Resilience Framework: Social Exclusion

This chapter continues by engaging the previously presented resilience framework with the post-disaster social landscape that manifested through uneven access to reconstruction and integration as survivors negotiated pathways to durable solutions. To achieve this aim, this chapter will compare two general sets of survivors. First, the narratives of survivors relying minimally on government assistance during displacement and quickly rebuilding using household capacity will be explored; they were the most resilient. These resilient narratives will be compared to the eight per cent of interviewees that revealed social exclusion throughout the displacement and reconstruction phases and continue to wait on their durable solutions. The chapter will lay the foundation for answering the updated research question later in the conclusion that ponders to what extent social barriers prevent survivors from accessing durable solutions.

Harris et al. admit that resilience “is not something that ‘exists’ and that we can uniformly define; rather, it is a process that requires engagement with diverse actors and interests, both in specific places and across scales” (Harris, Chu and Ziervogel, 2017). Although resilience theory has long moved toward a search for answering resilience to what, the resilience for whom question persists (Cutter, 2016). As a dynamic process, power hierarchies are embedded in community resilience, but thematic case studies so far often lack the breadth of data to accurately observe what may be fleeting subtleties in the power landscape.

Without empirical evidence of power hierarchies replicated in resilience, it goes without saying that scholarship on negotiated resilience remains in its infancy. As Meerow and Newell (2016) maintain, resilience theory is not only for the who and what, but the where, when and why.

Looking back at Barbuda following Hurricane Irma, great levels of resilience were demonstrated in that even with the scale of hazards; there was only a single fatality out of 1800 and when threatened by a second hurricane, the Barbudans were within 48 hours able to negotiate their complete evacuation to safety. This extreme example of resilience compares to, for instance, the Bahamas, where there were more than sixty fatalities following Hurricane Dorian. Thus it is imperative to contextualise that the least resilient Barbudan households, based on the quality of life during displacement and access to durable solutions during the return and reconstruction phase showed comparatively high agency and resilience when compared even to most other Caribbean communities displaced during the onslaught of the 2017 Atlantic Hurricane Season.

Additionally, as previously noted, resilience was not necessarily evident by how quickly a household returned to Barbuda and rebuilt; rather, it is embedded in the more nuanced capacity of agency, where even if a household or portion of a household remained in Antigua for two years or more, quality of life may have superseded that of returnees to Barbuda having to spend a period of time living out of a tent with limited access to basic services and WASH facilities. To explore the process of negotiating resilience in the context of Barbuda, a confirming/disconfirming case sampling strategy was applied to survivor interviews. As Patton explains, the sampling strategy is useful in identifying cases that don't fit within general findings (Patton, 2014). This chapter presents the complete narratives of four interviewees who, according to confirming/disconfirming case sampling strategy, demonstrate the strongest (survivors eight and eleven) and weakest (survivors two and nine) instances of resilience according to the previously presented Barbuda resilience framework.

8.1 Survivor eight

“We still had the central part of the roof, so I told him to stay. at the time the eye, the stillness and I heard voices then I knew it was the the time, so we went next door.” (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

According to the narratives of survivors interviewed for this dissertation, there was agreement that the first phase of Hurricane Irma caused the most catastrophic damage to structures. Survivors were faced with a conundrum as their homes, the main shelter from the first phase became increasingly compromised and, although no longer suitable as protection from the winds and flying debris, the ferocity of Irma's first phase prevented survivors from leaving their homes and

seeking secondary shelter. As the roof, windows and door became compromised in the home of survivor eight, they sought to calm fears within the household and prevent irrational abandonment of the limited protection offered by the diminutive remains of what had been their home.

Like most survivors with severely damaged homes incapable of withstanding the onslaught of the second phase, survivor eight and their household profited from the calmness of Irma's eye to seek secondary shelter, in their case, within a neighbouring household. Emerging in the early hours of daylight, they were confronted with a new Barbudan reality.

"I could not imagine in my mind that everyone got the same or worse damage than mine. One came from one direction and said we couldn't cross that way, and another from another direction. I asked someone; he said he thought the whole island was destroyed." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

However, that morning, while the community congregated in the Codrington village centre awaiting the arrival of officials from Antigua and an eventual evacuation, survivor eight, enlisting the assistance of extended kin, sought to quickly secure what was remaining of their home and reduce the risk of further decay and theft of costly appliances and salvageable material that could be repurposed during the eventual reconstruction.

Leaving Barbuda behind with the peace of mind that their valuables were secure and the home, although severely damaged, well preserved against further degradation, the survivor's household boarded a vessel for Antigua, uncertain of their return and, upon arrival, followed other survivors to the collective shelters. Pondering the next move, the survivor quickly enacted a broad network in Antigua procured over years of working in various positions within the government sector. Although they were not kin, the Antiguan contacts used both personal assets and connections to disaster management services to secure housing and assistance for the survivor and their spouse.

"The Antiguan opened up their arms. When I went to pay my bills, they had already been paid and my friend at the bank would always have things. I had so many stuff; I had to give it away from friends. Many people complained, but I didn't know...why because they were helping me and I had money in my pocket. I could give 100 here, 100 there. I would not say I had a bad experience in Antigua. My friends brought sheets and towels and I had to tell them not to bring them because the hotel makes the beds. I had a box, with lotion and roll-on, just about anything in that box and it was from my people in Antigua who bring. We would share them. I had a pharmacy in my room. I don't have small children, but I had things given to me for children. My experience in Antigua was a good one; I felt the love of the Antiguan around me when I was there." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

By the end of October, a small contingent of Barbudans returned home to begin reconstruction. However, knowing that their home was secure and wanting respite from the trauma experienced during the landfall event, the survivor and their spouse, with sufficient savings, left Antigua & Barbuda to stay with close family until after the Christmas and New Year holidays. The financial capacity to choose outcomes mitigated stress and long-term trauma suffered by less capable households under the care of government-managed assistance and allowed the survivors more time to plan reconstruction.

Returning to Barbuda after three months of displacement, the survivor and their household were confronted with a severely damaged but well-preserved structure. Again, looking to their extended network, the survivor and their spouse were accommodated in a sister's home that had not been damaged by Irma, staying for the duration of the eight-month home renovation project. Although not in the first wave of returnees, the return was still nascent in the context of Barbudans remaining in Antigua for work and education purposes; the survivor had broad access to assistance that surpassed the demands of the few returning households.

"When we came back to clean up, there was so much material. I think if we did stay, we would be further on than today. There were so many things that came and left because nobody was here. We live and learn. So the next storm, we know not to leave. The UN, I think, did the rafters and Samaritan's Purse put on the galvanized. Red cross gave us 3000 dollars to go and buy windows and doors." (personal interview with survivor 8; Codrington, Barbuda; 9-Jun-2021)

The resilience of survivor eight's household was supported through four interplaying main stress-opposing factors: securing home and property prior to evacuation, a broad and useable network, savings, and an early return to Barbuda. Securing the household served as an investment in the reconstruction process in which, had further degradation caused the loss of appliances and scarce material, the survivor may have waited months or years for supplies to arrive in the bottleneck of cargo destined for Barbuda. With home secured through household capacity, the survivor successfully negotiated extended networks to ensure sustained quality of life during both displacement and reconstruction to the extent that the survivor acquired excess and, even while displaced, transitioned into a role of caregiver for other displaced Barbudans. Finally, returning early to Barbuda ahead of most other displaced persons allowed broad access to sufficient construction materials. Thus, within eight months, survivor eight and their spouse negotiated displacement on their terms with private lodging, overseas travel, and a capacity of choice in assistance and, by August 2018, returned to Barbudan normalcy, a successful, durable solution.

8.2 Survivor eleven

"After the storm, we went to Antigua. There was another storm coming, so the Prime Minister, in his wisdom, said it's the best thing to go to Antigua; 95% of the houses were damaged. You could count the houses that didn't lose their top. So it didn't make a lot of sense with another storm coming. So he evacuated us by the weekend. The storm was on Tuesday, and by Friday or Saturday, everyone was in Antigua."
(personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

While most of Barbuda sought out temporary shelter in the few-day span between Hurricane Irma's landfall and eventual evacuation to Antigua, survivor eleven remained in their home. Growing up in 1950s Barbuda, they were part of a generation in which circular labour mobility and diaspora expansion became strategic livelihoods. The survivors themselves split their time between gig

employment in the US construction industry and participating in traditional livelihoods on their home island, Barbuda. Ultimately, it was a combination of this skilled and traditional knowledge through which survivor eleven manifested resilience, a rare Barbudan example of pre-Irma hurricane-resilient construction and disaster preparedness.

Utilising knowledge of building standards acquired during labour mobility, the survivor replicated the structures they had built over three decades of working in the United States. As homes and businesses around the survivor's Codrington-village home became flooded and roofs were compromised, the structural integrity of survivor eleven's self-built home stood in stark contrast, receiving minimal damage.

"I was right here. I didn't lose anything off the roof, but I lost three windows. We had to get some galvanized because of a tree that fell on the roof." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

Four years after Hurricane Irma, the survivor's home shows no evidence of Hurricane Irma's ferocity. However, from a vantage point of the home's porch looking out on Codrington village, the scene is dotted by the remnants of abandoned homes left destroyed beyond repair.

Not wanting to risk a second hurricane, although their home was largely preserved, the survivor and their extended family, who had sheltered with them up to evacuation, readily joined the evacuations to Antigua. Much like survivor eight, eleven quickly evaluated their extended network in Antigua and were hosted comfortably by a nephew before ultimately returning in December.

"My wife has family in Antigua and we stayed by her nephew. I stayed there from September and came back in December. I came to fix up the fence and then the whole family came over. We spent Christmas 2017 here. The windows weren't yet in but we put a board there. In 2018, we fixed the window." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

As clean-up and reconstruction commenced, survivor eleven worked within their household capacity and extended networks to repair damages.

"We got a lot of support for food and water from the neighbouring islands. The family helped, my son came down and came over to clean up. My daughter came down as well to see how it looked." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

However, a significant barrier, even post-reconstruction, remained in that Barbuda lacked access to public utilities. Although generators were distributed through NGOs, the high cost of imported fuel to power generators stressed household financial capacity in a context where few Barbudans had returned and livelihoods, even with the Barbuda Council, were nonexistent.

"The light, it took a long time to get back the light. Every day we had to spend 50-60 dollars for fuel. Samaritan's Purse gave us all generators and we had to supply that with gas until we got our light. That was one of our challenges." (personal interview with survivor 11; Codrington, Barbuda; 11-Jun-2021)

Survivor eleven was the first of the pool of interviewees to return and enter a durable solution following Hurricane Irma. Through savings and knowledge of hurricane-resilient building practices gained from participating in US labour

mobility, they built a home which, even in one of the worst-hit neighbourhoods of Barbuda, withstood the impacts of Hurricane Irma's abnormally fierce trail of damage. Utilising external networks, the survivor's household experienced a rare instance of stability throughout displacement. Returning to Barbuda after only a few months, while further utilizing extended networks from the Barbudan diaspora in a context where construction materials were still plentiful, allowed survivor eleven to rebuild ahead of their household's eventual return to Barbuda in December and be one of the only households to spend Christmas night in the comfort of their own home.

8.3 Survivor two

Up to return to Barbuda, survivor two's narrative mirrored previous experiences in line with the most resilient Barbudan survivors interviewed for this dissertation. They found shelter during the calm of Irma's eye with neighbours and evacuated to Antigua. With a daughter working in Antigua, there was no need for the household to enter the collective shelters, and displacement was relatively uneventful. However, growing anxious to assess conditions and return to Barbuda, survivor two returned in 2018.

Returning to Barbuda and leaving the safety net of Antigua, survivor two's narrative morphed to acute vulnerability with hopes of a durable solution increasingly unlikely. Unlike survivors eight and eleven, two experienced structural damage to the extent that a complete reconstruction of their home was warranted. Also, unlike the previous survivors, there was a refusal by survivor two to engage with extended family, stating, "I don't like to be around my siblings in the shelters. I prefer by myself." Due to the extensive damage caused to their home, survivor two was chosen as a recipient of EU-funded housing with strict stipulations not to accept other donor-funded assistance.

As the EU-funded scheme managed by UNDP became delayed and it was evident that construction would not follow the planned completion dates set in 2019, some recipients, including survivor two, began to rebuild small portions of their homes, maximising household capacity. Agreements were then reached with UNDP in which households beginning reconstruction would continue to receive some assistance.

"The funder said if someone has already started doing some work and they're on the list, [UNDP] can reinforce and finish it." (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

However, the extent to which the EU-funding mechanism would assist recipients already having begun reconstruction, at least in the case of survivor two, seems to have been misconstrued. The original offer consisted of a basic house.

"They get a kitchen sink, a toilet, a shower. [UNDP] gives them a roof, four walls, doors, windows, and plumbing up to the outside. The homeowners have to continue to the septic. [UNDP] gives them only the basic necessities. Painting and tiling is their responsibility." (personal interview with expert; Saint John's, Antigua; 29-Jun-2021)

Expecting that UNDP would eventually complete the home up to the standard as set out in the original proposal, survivor two began work on building concrete walls, and as their turn in the EU-funded scheme came, work was handed over to the UNDP-managed contractors.

Following the home handing-over ceremony in 2021, survivor two was left frustrated to find their home lacking expected finishings. Additionally, further stipulations under the EU-funded housing scheme limit the capacity of receiving homeowners to modify homes in order to mitigate the risk of structural deficiencies that may render the funded homes unable to cope with the impacts of future hurricanes. Thus, survivor two was left in a grey area with a perception that eventual additions to finish the property may put them in violation of the terms of participation.

“This structure is my own structure. They just give me the roof, the window and door. Nothing else. They said I can't add nothing to my structure. I told them this is my structure! But they don't want me to add anything. they don't want me to add my bath. They sent me a paper that had a bathroom, but I do my part and they don't want to do their part. There's no electricity. No one has electricity. It's not connected. I have to do the wiring.” (personal interview with survivor 2; Codrington, Barbuda; 8-Jun-2021)

adding in regards to the quality of construction:

“If another hurricane come my roof will go because I don't have a brace inside. They don't put any carillon. They just put the structure there and they didn't do the carillon. When I confronted them, they just said everything was already finished.” (personal interview with survivor 2; Codrington, Barbuda; 8-Jun-2021)

Survivor two faces uncertainty as to how or if they may proceed in finishing the house. Even if permission is granted to continue construction, without an extended network, they will have to rely on the household's financial capacity to fund reconstruction, and even with the survivor having reliable employment at the Nobu restaurant chain, the seasonality of work leaves survivor two without income for much of the year, leaving a financial focus more on survival than on any reconstruction projects.

Four years after Irma, survivor two remains without reliable access to WASH facilities. As the EU-funded completion of their home lacks a kitchen and bathroom, and survivor two perceives roof work to be unsafe, displacement continues in a tent for the survivor and their household. With UNDP focused on constructing new homes already years behind, there are narrowing chances that survivor two's grievances will be considered. Without the income from long-term, stable employment to fund either the completion of the house or construction of a new structure, durable solutions will be unlikely, and survivor two will remain vulnerable to secondary displacement should another hurricane impact Barbuda.

8.4 Survivor nine

“[Hurricane Irma] was devastating, something I would never want to go out again, but there are lessons I learned. You can have everything you want today and lose it in a night. It prepares me for my future. It teaches me that if I lose my phone, it's not the end of the world. That's one of the most valuable lessons. It gave me the

chance to live in Antigua and learn Barbuda is my home and there's no place like home." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Before Hurricane Irma made landfall on Barbuda, survivor nine, like other young men his age, was at a transitional point in life, at a point where local expectations dictated he would need to become independent and begin to support a family. With a young son and partner, his life followed a common trajectory, in which the household lived in a rental unit while navigating employment and saving toward the eventual construction of a permanent house. In the meantime, the household began procuring the startings of permanency, buying furniture and appliances.

"I had just bought a bunch of stuff for my room and the day before Irma. I just set up everything and I watched it get destroyed. Four thousand dollars just on that room because I wanted it to be perfect for my son." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

As Irma made landfall and the hurricane-force winds began to devastate Barbuda, the rental complex where survivor nine had begun building his life was adversely impacted, leaving seven out of eight units completely destroyed.

"During that night, I watched my roof [go] up and down and saw the sky. I had the nine-month old baby in the house. At one time, there was only part of the roof left. We wanted to run but couldn't. It was too crazy outside. I literally took my son from the mother; I gave up my life because I never thought I'd survive. There was no windows, no roof; we were just in the closet. The closet is the only thing that remained. The little piece of roof got blown off, and the closet was built to a concrete wall. I told myself, father it's your will and soon as it calmed down, I took the opportunity to run to the house; the neighbourhood was destroyed, but we couldn't see that from the inside because it was all white. So, I ran with my neighbours to the next house through galvanized and nails and with my baby." (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

While survivor nine would eventually find shelter in the home of a stranger further down the street, he awoke to a reality the next morning that the space his household had carefully cultivated had been completely compromised, and the only hope for security would be through evacuation to Antigua. Initially, the household found support within extended-kin networks in Antigua. Although survivor nine's child and partner would subsequently remain with the extended family throughout displacement in Antigua, internal conflict with the hosts forced his early departure. Negotiating further afield within non-kin external networks, survivor nine found individual but temporary assistance to remain in a hotel repurposed for displaced Barbudans.

Knowing that assistance would be temporary, survivor eight requested a work assignment in Antigua through his previous employer. Although the request was granted, salary remained at Barbudan levels, far below Antiguan norms. Unable to live on a Barbudan salary in Antigua, even with three roommates, survivor eight returned to Barbuda.

"I had to start paying at Jolly Harbour. I was the only one working, out of the four in the house and the others weren't working and the council wasn't paying. It was expensive. The water bill was 800 and something, the second was 900, so I took a vacation in Antigua and just came back here. I told the employer in Antigua that if they wanted me to come back there and work, they had to find me someplace to stay because they were taking me out of

my country, and if you take them out of their country, you have to provide some kind of stipend” (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Being that survivor nine was socially expected to be independent, he returned to Barbuda and opted to forgo kin assistance and live in a tent, supplementing the lack of food through traditional livelihoods of hunting deer and land turtles.

“After Irma, Barbuda was the sweetest ever, no lights, no nothing. Life in the tent was good. I didn't have any worries, no bills other than the gas bill, but I had to pay 800 in gas for the generator.” (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Knowing that his partner and son would eventually return to Barbuda, survivor eight explored assistance, but as he was not a homeowner before Hurricane Irma, no assistance could be provided. Schemes, such as the EU-funded home construction program, were unavailable to the household, and it quickly became apparent that with a lack of rental properties being rebuilt, the household would only find shelter in tents until paid employment could be procured, and they started over. By 2018, survivor nine returned to his previous employment in Barbuda, and his partner and child returned to Barbuda to join him.

“After a few months, I rented a house for 800 dollars. The rental property is small, so I continued living in the tent while they lived in the house. After I got the temporary electric at the rental property, I didn't want to return to the tent and once the hurricane season was coming, I went to the rental property with gas generator to keep my family safe. So, now I'm in the rental property now. I've been renting since 2018 and I don't have access to running water so I'm trying to build my own house as we speak.” (personal interview with survivor 9; Codrington, Barbuda; 10-Jun-2021)

Although survivor nine no longer lives in the temporality associated with tent living, living conditions are nowhere near pre-Irma qualities, and access to basic services remains minimal. Prolonged reconstruction continues to focus on owner-occupied homes, and rental properties, although increasingly available, are makeshift and lack WASH facilities. Additionally, being that survivor nine was at a transitional period in life, to maintain socially-expected independence, he had to forgo any semblance of relying on external-kin networks leading to internal household conflict during displacement in Antigua and guiding choices when returning to Barbuda. Thus, survivor nine continues to face a future of uncertain durable solutions.

8.5 Further observations and discussion

No resident Barbudan was spared interruption to normalcy when Hurricane Irma made landfall, damaging ninety-five per cent of structures. In the aftermath, the entire island was evacuated, but as survivors came ashore in Antigua, narratives dispersed, and survivors had to negotiate perceived paths of most resilience. Initial assumptions would have focused on survivors relying on collective shelters. However, data from interviews revealed that the experience of survivors in

shelters was positive, with improved access to services. Alternatively, survivors forgoing shelters for personal solutions with the assistance of external networks faced uncertainty during displacement where, on one side, external, especially kin networks, offered long-term and personalized solutions to improve quality of life during displacement, but on the other hand, due to internal conflict or the needs of the household, could lead to transiency and uncertainty, adding pressure for survivors to return to precarious displacement in Barbuda.

Therefore, the most resilient households shared common characteristics of stability, power in household decision-making processes, and returning to sufficiently secured home structures in Barbuda that, even when severely damaged, were not compromised by moisture and mould damage and in which reconstruction could commence with assistance on offer by NGOs and NODS. Due to limited household financial capacity and the extensive supplies on offer immediately following Hurricane Irma, displaced families returning in the first few months had a comparative advantage. However, with services such as education and employment still limited to Antigua, most households were unable to return until the end of 2018, at a time when competition for materials was intense and with only a few months before pandemic-era inter-island domestic cargo and transport links would be closed, drastically impacting Barbuda's supply chain and prolonging reconstruction.

Although prolonged reconstruction may have delayed durable solutions, outcomes largely remained the same. However, from an ethnographic viewpoint, the delays allowed for clear observance of outliers removed from Barbudan resilience that would otherwise facilitate durable solutions. Broadly, the outliers could be classified as, whether by choice or due to social stigma, being removed from useable external networks either in Antigua, during displacement, or in Barbuda, during reconstruction. Within the context of individual independence, even public support could not necessarily overcome barriers to accessing durable solutions. In this chapter, two narratives were presented to elicit independence. While survivor two experienced more localized independence from useable external networks in Barbuda, the narrative of survivor nine followed a more generalized trend among young male survivors.

When reconstruction efforts began through regulations administered by the government-led disaster management task force, the aims were to return Barbuda to pre-Irma normality. Thus, survivors were classified by pre-Irma conditions, focusing on assessing Barbuda through a lens of loss and damages and structural damage. As, given Barbuda's local land regimes, most Barbudans own and occupy their homes, donor partners systematically focused on reconstructing pre-Irma houses and, thus, a snapshot was made of a pre-Irma, 2017 Barbuda. It is likely that disaster management, having never experienced such magnitudes of damage, was unaware that reconstruction, even under donor-funded schemes, would be ongoing past the fourth anniversary of Hurricane Irma.

With the 2017 snapshot of Barbuda in hand, disaster management, along with donor partners, quickly implemented a reconstruction plan that continues to be in place even though the community is four years removed from the snapshot. From the perspective of most Barbudans, the snapshot approach is sufficient,

and although reconstruction may be delayed, there is the certainty that homes will eventually be restored. However, for Barbudans who would otherwise, due to local and household pressure, be at a point of life transition toward independence and child-rearing, the snapshot approach focusing on rebuilding pre-2017 homes has left many young males without suitable employment as businesses only slowly rebuild, without adequate access to rental properties where they would otherwise live with young families while saving money, and in many cases experience signs of trauma and substance abuse as they see no hope for their future.

While visiting the homes of survivors during fieldwork, I could not help but notice the blue relief tents dotting the landscape, and while the occupants were reserved and did not always want to talk, notes taken of observations revealed that many were young men. Interviews with their relatives, although not primary data, would reveal that most were unemployed, suffered from post-Irma substance abuse, and had few prospects as education attainment tended to be lower for males. Although external networks may be viable, it was explained that the young men did not want to be a burden on the support systems of their parents. However, external networks were not always viable and may have contributed to a perception among young males that it was better to suffer independently than be a burden, with interviewees openly discussing internal household tensions between young males expected to be independent and older males having been independent at young ages.

While the exclusion of isolated and young male survivors from accessing Barbudan resilience was directly observed through interviews, a third category removed from durable solutions, older survivors lacking the personal capacity to rebuild, was constantly discussed both by survivors and experts. Although attempts were made to secure interviews with this vulnerable community, none were successful, but one, a 99-year-old survivor, was present during an interview with her son.

From data collected during interviews, two trends emerged. First, there was a perception that older survivors living alone and lacking mobility or experiencing other health issues were overlooked by the disaster-management task force when assistance was offered. The underlying expectation seemed to be that external-kin networks should absorb older survivors without the household capacity to rebuild. Second, the narrative of male independence from external assistance seemed to permeate older populations. In the case of older men with sufficient financial capacity for which they were still seen as the head of households, younger generations, especially daughters, assisted throughout both displacement and reconstruction. However, older men without the financial capacity to be the head of household tended to live alone pre-Irma and, regardless of their personal or household situation, returned as quickly as possible to Barbuda. At the nexus of age, sex, disability, and financial solvency, older male survivors lacking assets and with physical disabilities were excluded from the resilience of both external kin and non-kin networks and public assistance. At the time of fieldwork, at least one blind and older male survivor continued to be living in a tent while waiting for assistance in the EU-funded housing scheme.

Barbudans, in this case study, showed remarkable resilience, with most households returning and integrating into durable solutions. These durable solutions benefited from access to public services and assistance from within extended household networks. However, as Barbuda moves into the fifth year post-Irma, some Barbudans continue to be displaced, and although donor-funded schemes are working to improve access to durable solutions, isolation and socially-induced independence have left some survivors behind. This chapter has outlined how survivors with adequate networks, access to public service, and in some cases, technical and local knowledge increasing pre-Irma preparedness manifested resilient ideals to comfortably enter durable solutions. However, on the opposing end of the resilience scale, this chapter has also demonstrated the limits to negotiating resilience suffered by households, young transitional males, and isolated older persons that continue to ponder whether durable solutions will be a reality before the next hurricane hits.

8.6 Situating Barbudan negotiated resilience in theory

In resilience literature, the state is a well-found mediator of social resilience as communities rebound from disasters (Innes and Booher, 2010; Harris, Chu and Ziervogel, 2017). However, this chapter aimed to go beyond obvious power hierarchies and challenge the politically driven narrative forming between the Barbudan Council and the national government; the significant contribution to knowledge brought forward by the case study is a fresh perspective on social exclusion in the context of disaster displacement from a novel longitudinal perspective. That being said, social exclusion in itself is not new to disaster studies; additionally, discrimination and protecting vulnerable people is an ethos of normative frameworks, including the Nansen Initiative and Inter-Agency Standing Committee (PDD, no date; IASC, 2010).

In literature, social exclusion has focused on particular subgroups contextualised by disaster and geographic area. Following Hurricane Katrina, one of the most studied events, the role of race in and reproduced segregation regimes was elucidated; however, the role of race in social exclusion is well supported across geographic boundaries (Elliott and Pais, 2006; Cabezas, 2008; Pais and Elliott, 2008; Thomas, 2014; Marazita, 2020). Additionally, the tendency to exclude women and, in particular, single mothers has been noted (Enarson, 2004; Bradshaw, 2012; Bradshaw and Fordham, 2015; Hamilton and Jenkins, 2016; Kadetz and Mock, 2018; Nasar *et al.*, 2022). Furthermore, sexuality has been found to be a determining factor in social exclusion, with members of the LGBTQI+ community sometimes scapegoated following disasters (Alburo-Cañete, 2014; Yamashita, Gomez and Dombroski, 2017; Marazita, 2020). Scholarship has also examined the added barriers faced by people with disabilities (Priestley and Hemingway, 2007; Wisner, Gaillard and Kelman, 2012; Cook and Butz, 2016). To less of an extent, scholarship has been produced citing

the social exclusion of children and older persons, and examined the intersectionality of multiple social vulnerabilities (Bradshaw, 2012; Benach *et al.*, 2019; Clinton, 2020).

Within the context of negotiating resilience, empirical evidence from Barbuda supports the social exclusion of older persons and survivors with disabilities. However, the analyses also eluded to two understudied subgroups of socially excluded survivors. First, in relation to kinship dynamics, was the group of survivors who, for personal reasons, either chose not to or could not seek assistance from extended useable networks. Second, adolescent males who, during the recovery period, would have otherwise been expected to become independent and leave home were purposefully excluded from household support networks, leading to homelessness and, in some cases, substance dependency. For both segments, survivors remained in displacement with no clear durable solution.

Although the national government had been blamed for much of Barbuda's (lack of) recovery, no empirical evidence supported the widely held belief. Gender also didn't seem to be an impacting factor in negotiating resilience in the Barbudan context. The early findings on social exclusion would benefit from further attention to better understand the nuanced drivers of exclusion from household and external kin and to begin forming normative recommendations for inclusion within community resilience frameworks. As Barbuda has a relatively small population, comparative case studies in larger communities could elucidate more understanding of the findings on social exclusion from this study.

III. Conclusion

Research Question: To what extent social barriers prevent survivors from accessing durable solutions?

The case study of Barbudan displacement following Hurricane Irma offers rare insight into the increasingly common occurrence of disaster displacement. The significance of Hurricane Irma in Barbuda, in contrast to the many other disaster-inducing events around the Caribbean during that abnormally active 2017 Atlantic Hurricane Season, came down to the threat of a second hurricane and the decision of the national government to evacuate the entire island within the span of a few days. Not only is the complete evacuation of an entire island a seldom occurrence, but from the point of ethnographic fieldwork, it reduces social variables that would otherwise cloud data in a continental case, where the limits between displaced and not-displaced within a community are blurred, and return is subject to the will of households. Being that Barbuda was an island removed from Antigua by sixty kilometres of rough Caribbean Sea, authorities had unprecedented control over entry.

Landing in Barbuda nearly four years after initial evacuation, there was an assumption that the island, with a pre-Irma population estimated at 1800, would have recovered in the absence of secondary displacement-inducing events, and data would be centred around lessons learned in a clearly defined space of hurricane evacuation → displacement → reconstruction/durable solution. However, this was not the case and it soon became apparent by all the construction projects going on and blue relief tents dotting the landscape that Barbuda was still experiencing post-Irma displacement.

In this context, a few surprising findings were revealed. First, it was quickly apparent that there was constant political infighting between the national government, controlled by ABLP and the opposing Barbuda Council, controlled by BMP. Early interviews led to a preliminary observation that political rift may be the main contributing factor to the prolonged displacement of Barbudans with

local factions illustrating the national government's intent to purposefully displace Barbudans as a means to forgo their right to oppose major development projects that had presumably begun while Barbudans remained displaced in Antigua.

However, further interviews, both in Barbuda and later in Antigua, revealed that development projects had been approved by prior local councils before Hurricane Irma. Additionally, as most Barbudans hadn't returned full-time until the end of 2018, it was unverifiable as to when construction on development projects had actually begun and if they had actually begun during the state of emergency when Barbudans were barred from returning. While the dual narratives of the national government and opposing local government showed early promise toward the importance of multilevel governance, further interviews also revealed that Barbudan Council, firmly in the opposition, would have been powerless in decision-making processes under the sovereignty of the national government, including disaster management.

Although significant pressure would be put on the Barbuda Council and on local Barbuda candidates during frequent election cycles, the local council remained powerless to interject in assistance allotments decided in 2017 and 2018. Instead, the Barbuda Council's main role was more as a rubber stamp to reconfirm recipients that Beneficiary Select Committee (BSC), including representatives from prior Barbuda Councils, had previously approved. The heavy criticism and demands from Barbudans put, at the time of fieldwork, the Barbuda Council chair in a difficult position in which re-approving recipients could lead to political repercussions. To avert further criticism, final recipient approval was often delayed in hopes of fresh negotiations.

As Barbuda slowly rebuilt, so too did developers, and by 2021, multi-million dollar homes in the gated community along Coco Point were close to completion; Nobu restaurant chain had begun serving its first customers, mainly day trip visitors arriving on helicopters from Antigua, and construction at Palmetto Point had commenced. A duality of the two worlds was extreme; where on the one hand, there were Afro-descendent Barbudans supplementing meagre earnings from the island's main employer, the Barbuda Council, through traditional livelihoods. On the other hand, Hollywood A-list elite and the heads of some of the world's largest companies would frequently visit the island, investing in second-homes to enjoy the pristine white and pink sand beaches and unobstructed privacy.

Although interview requests with the gated development firms were left unanswered and visiting the developments was limited to walks along the waterline of the beaches encompassing the gated communities, data from expert interviews and survivors working in the resorts demonstrated that the development projects didn't impact Barbuda's post-Irma reconstruction negatively and if anything, offered support to households through reliable income that was used, at least in part, to rebuild homes for which other assistance may be either unavailable or continually delayed.

Still, there was an unsettling narrative playing out in which the Barbuda Council seemed more activist than imbued with policymaking capacity. Through extended conversations, it was revealed that saving for a short period in the

2000s when the Barbudan Council was, for a short time, a part of the governing majority and the Barbudan member of parliament, Trevor Walker, served as Barbuda's only ever cabinet-level official; the Barbudan Council remained mainly in opposition to the national government. Beyond this short exception, the limits between local and national governance were long disputed, particularly around issues related to Barbuda's *ad hoc* land system, locally called communal land, and conflicts over the approval of development projects for which Barbudans seemed to be overwhelmingly against.

This conflict between the local and national governments manifested in opposition to current development projects probably has roots dating back to nation-building in a British Commonwealth process that sought explicit constitutions as a means to guarantee good governance and stability. However, for Barbudans, it is unknown if such a strict governance regime would have been the practice in the pre-statehood Afro-descent community or whether a more likely, flexible system adaptable to community needs and without strong leadership would have been to more readily respond to the vulnerabilities of Barbuda's harsh and isolated geography. Whatever the history may be and the shortcomings in state-building may have been, the battle over jurisdiction between the Barbuda Council and the Antigua & Barbuda national government rages. However, as the national government increasingly withholds financial support that the Barbuda Council uses to pay their more than two hundred employees, Barbudans are increasingly supporting the gated community development projects that offer, although low-skilled with little room for upward mobility, higher paid and reliable employment opportunities. Thus, the future viability of the Barbuda Council and its power to represent a community increasingly removed from the Barbuda Council's political rhetoric remains uncertain.

With the Barbudan Council focused on island relations exceeding post-Irma reconstruction, responsibility for negotiating resilience was concentrated between the household level, aiming to move toward durable solutions and the government-led disaster management task force that served as a gatekeeper to assistance through liaisons with donor-partners. Thus, data collected during fieldwork in Barbuda did not support initial propositions that resilience was embedded in multilevel governance, and with only five per cent of homes left undamaged, nor was resilience manifested in local knowledge. Instead, resilience was negotiated within two spaces: household capacity (manifested mostly through external kin and non-kin networks) and through household access to public assistance.

Funding Partner²⁷	Est. houses to be assisted in reconstruction	Total houses completed	Remain to be constructed
China Aid	250	302	-
EU	250	104	61
Prince's Foundation and Calvin Ayre Foundation	22	-	22
Total Assisted	522	406	83
Pre-Irma Housing Stock²⁸		537	
Houses Receiving No Assistance		15	

Figure 36: Overview of donor-funded reconstruction

Overview of donor-funded reconstruction of Barbudan homes as of July 2021, compiled from expert interviews. Of the 537 pre-Irma housing stock, it is expected that 522 will receive some type of assistance from foreign-aid projects. Thus, only 15 pre-Irma houses are not expected to receive assistance from donor-funded assistance.

The most compelling finding of this case study was not revealed in the survivor narratives demonstrating agency to rebuild following one of the most destructive hurricanes in Caribbean history. Rather, this dissertation's contribution to scholarship, and also relevant to policymaking, came through the findings that revealed exclusion from Barbudan resilience. Thus, the data collected allowed for the research question to be refined. Before arriving in Barbuda, I would never have guessed that ten households would still be living in tents, that survivors unable to access public assistance would have no access to WASH facilities, and that home construction projects funded by the EU would be ongoing four years after initial displacement.

Although the process of elucidating a compelling research question would be slow as I negotiated the ethnographic process to observe the social processes behind displacement, reconstruction, and durable solutions, the answer was rather straightforward. Lacking hurricane-resilient construction practices and homeowners insurance to cover damages that, even in the most prepared cases, may occur, Barbudan resilience to improve quality of life during displacement and to return to Barbuda and into durable solutions, as previously repeated, depended on social cohesion through the combination of accessing public services and having useable external networks, and within aid partner assistance programs alone, only 15 Barbudan homes aren't projected to receive assistance [see Figure 36]

The most resilient Barbudan households negotiated resilience by successfully navigating between both safety nets toward a more beneficial

²⁷ Limited to funders for which projects were approved by the government-led disaster management coalition and does not include other NGOs or faith-based organizations that actively assisted reconstruction.

²⁸ Pre-Irma housing stock is based on houses eligible for donor-funded assistance, thus the total represents owner-occupied residences as estimated in the 2011 Antigua and Barbuda national census (Statistics Division, 2014).

outcome. During displacement in Antigua, although survivors were mostly satisfied with collective shelters, the most resilient Barbudans quickly enacted local networks to find personalized and, most importantly, long-term accommodation solutions that offered greater autonomy than would have been offered under stringent government protocol that prioritized the safety of group cohabitation. Quality of life during displacement was further improved through access to basic necessities, in which interviewee eight, through multiple useable extended networks, for instance, was not only able to satisfy personal and household demand, but conversely, use excess to supplement the needs of other displaced Barbudans.

While contemplating reconstruction, the most resilient survivors during displacement had agency in choosing when to return and under what household terms. However, even if a household may have enjoyed stability and increased quality of life during displacement, they didn't necessarily lead to preferential outcomes once returning to Barbuda nor guarantee access to durable solutions. Resilience embedded in the reconstruction process was primarily driven by access to suitable building materials, access to technical knowledge needed to reconstruct homes, and stable shelter while homes were being reconstructed. Thus, households having built hurricane-resilient homes pre-Irma and households having secured property and assets prior to evacuation were in a better position to rebuild.

Timing of return also played a factor in guaranteeing access to construction material on offer from various NGOs and NODS. With most survivors not returning until the end of 2018, survivors returning from Barbuda in the months following the lifting of the state of emergency benefited from the supply of materials outweighing the demand shared by the few returning Barbudan survivors. Having access to material coupled with broad experience in the construction industry shared by early returnees, the first returning Barbudans began entering durable solutions by December 2017, following which they formed a support network for the survivors trickling in throughout early 2018. Although an early return to Barbuda offered advantages to accessing construction material, assistance was mostly reserved for pre-Irma homeowners.

If an imagined ideally resilient household, in the context of Barbuda, were to be elucidated through data, a process would be revealed beginning long before Tropical Storm Irma began churning counter-clockwise, west of the Cape Verde Islands. The ideally resilient household would be built on a base of both technical and local knowledge. The technical knowledge would have prepared the household by informing of hurricane-resilient building practices, and local knowledge would sustain the household through traditional livelihood strategies offsetting dependence on food imports disrupted during reconstruction. Following landfall, the household would have moved quickly to secure the structure and household assets from further degradation and possible theft while beginning remedial reconstruction and ventilating the home to prevent moisture damage. Upon arrival in Antigua, the household would seamlessly join extended kin networks or use networks to secure private solutions supplemented by any public assistance on offer. Returning to Barbuda at will, the household would assess the damage and procure any necessary materials through assistance from NGOs and

NODS and, using technical knowledge, quickly rebuild and enter a durable solution.

To most Barbudan households, this ideal would have been a fantasy as a lack of access and extended networks prolonged displacement already elongated by the slow recovery of Barbuda's schools and local employment. Most would eventually return to some normalcy in Barbuda, but returning to the research question eluding to accessing resilience being denied, some survivors face uncertain futures as illusions of durable solutions appear further removed from reality. In the previous chapter, the narratives of survivors two and nine were presented along with general observations and secondary data that revealed inequalities accessing Barbudan resilience, including more generally among young males at the point of transitioning to their own households and older survivors lacking the personal capacity to rebuild. However, more generally, to answer the research question, the case of Barbuda revealed that an inability to access resilience, thus guaranteeing durable solutions, came down to self or socially-induced exclusion from useable networks and isolation from the general Barbudan community.

Although the process of exclusion may be linked to deeper cultural norms out of the scope of such a case study aiming for a broader longitudinal perspective on disaster displacement, data supported deep, socially-engrained expectations of Barbudan males through a patriarchal lens of head of household. Even though it was evident that many households were female-driven in Barbuda, there seemed to be a tendency among intergenerational men within a household to reinforce gendered roles. For young males who may have, in pre-Irma normalcy, sought employment and rented homes, the slow reconstruction and constant lack of employment during displacement created a contradiction in which young male Barbudans expected to be independent couldn't find work, and needing assistance from kin networks, felt compelled whether by internal household dynamics or social pressure to heed assistance even when the alternative led to homelessness and continued tent living.

Unable to return home to face older male household members, young males were left to negotiate an already stressful transition period muddled by the trauma of Hurricane Irma and in a context of diminutive opportunities. However, the socially-induced independence did not only impact young males but also older males no longer with the financial capacity to serve as head of a household. In the drive for independence, return to Barbuda was often premature and without wanting to enact the assistance of external use and incapable of personal solutions, often due to medical issues, were removed from accessing resilience. More hidden from the general post-disaster Barbudan social landscape but no less vulnerable were the nodes of individuals that, for personal reasons, became isolated through estrangement from external kin networks and were left to rely on any public assistance available.

It remains unclear as to how durable solutions for Barbuda's excluded and isolated survivors will be negotiated, but as new Atlantic Hurricane Seasons pass and new pockets of displacement occur, there is less appetite among donor

partners to continue solving Barbuda's prolonged displacement. Through the process of displacement and reconstruction, a local ABLP official reflected:

"I wouldn't say that there were shortcomings because none of us was hungry or anything like that, but there was some delays. To me, when I look at the situation, it was the best we could have done. We got assistance from overseas and generators. Not everyone got a generator, but everyone who wanted. We never had a guide to guide us. We had a NODS office here where people could go and register and say the state of their home. Some persons were saying they didn't like the process because it was long. It's a working process." (personal interview with local ABLP; Codrington, Barbuda 3-Jun-2021)

The relevance of the Barbudan case study to a broader regional resilience framework is that Barbuda, through complete evacuation, a lack of household financial capacity and lack of widespread hurricane-resilient construction practices, reduced financial and technical variables embedded in resilience, allowing for a more clear observation of social practices with Barbudan resilience depending more on social processes on accessing assistance and negotiating external networks. While the case study focused on negotiating resilience through a cultural geography lens, interviews with NODS experts, not only responsible for domestic disaster management but also for regional response through their chairing of the CDEMA sub-regional office, elucidated meta-level, regional aspects of best practices to reduce risk and offset reconstruction.

The analysis of data from fieldwork thus elevated data on negotiating resilience as contextualised socially in Barbuda through best practices for households at the regional level resulting in a spectrum of resilience. Within the spectrum, various nodes of resilience are arranged in a hierarchy based on the sub-research questions [see Figure 37].

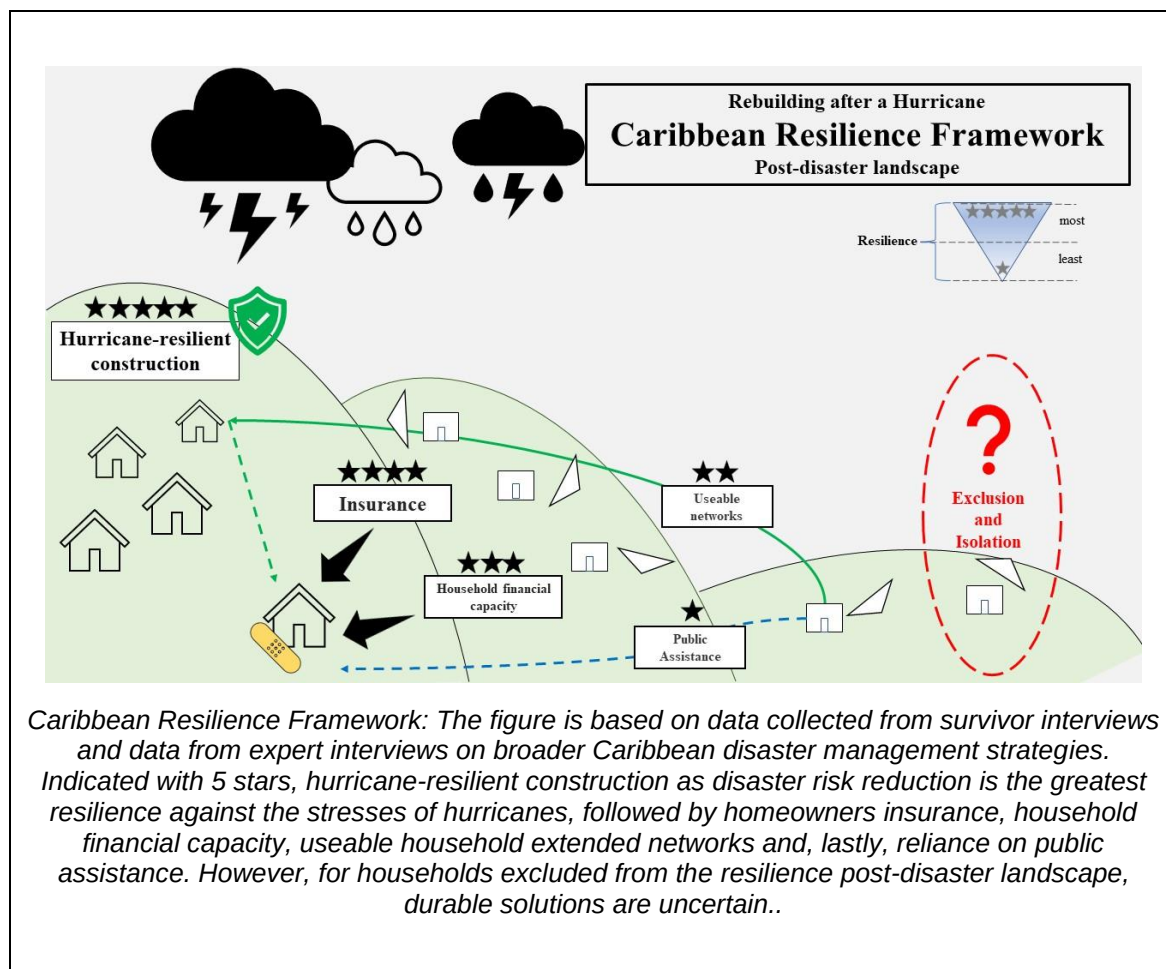


Figure 37: Caribbean Resilience Framework

At the pillar of Caribbean resilience is general disaster risk reduction that enacts and enforces hurricane-resilient building codes in at-risk communities. However, in the scenario that structural damage occurs, sufficient homeowners insurance should be used to cover unexpected damage. In islands such as Barbuda, where homeowners insurance is rare, or for more disadvantaged Caribbean households without the means to cover the added burden of insurance premiums, the responsibility of reconstruction falls to household capacity. Household capacity may be either in the form of financial solvency or in the social capital of extended networks. Moreover, as the case study of Barbuda revealed, when damaged houses are not covered by homeowners insurance and households and useable extended networks lack the financial capacity to rebuild following a hurricane, the government is forced to intervene in conjunction with civil society and donor partners to secure and rebuild communities. In line with findings in Barbuda, exclusion from extended network assistance and isolation comprises the least resilient end of the spectrum, often resulting in prolonged displacement and inability to access durable solutions.

The longitudinal case study of Barbuda offers insight into a rarely observed process of disaster displacement, often too individualised to make a feasible

ethnographic case study. The insight offers a promising foundation for further data collection and knowledge production through comparative case studies while also benefiting policymaking processes wishing to better understand household resilience in the context of increased instances of displacement in line with climate change predictions. Although this study offers an inevitable point of reference through a novel cultural approach to hurricane studies, it is important to add that significant barrier for qualitative researchers wishing to observe disaster displacement remain. Thematic researchers face limits in the field in which processes are often politicised, and there is a lack of accommodations and access to basic services mostly controlled by donor partners and international organisations. Moreover, there is a need to be flexible as hurricanes are unpredictable and may, for several years, not produce a notable displacement event, or on the contrary, may happen so frequently that secondary displacement may occur. It is only with the flexibility and (extreme) patience of my supervisors that this project came to academic fruition.

In the years since Hurricane Irma made landfall over Barbuda, with a population of 1800, tropical cyclones and hurricanes have gone on to cause mass displacement and widespread damage in island states and, most recently within the Atlantic context, in the Bahamian islands of Grand Bahama and Abaco leaving more than sixty fatalities. Yet, the Barbudan and Caribbean resilience frameworks presented here are only a small node in scholarship. As hurricanes morph with the impacts of climate change, threatening broader trajectories and combining with abnormally high tides linked to sea-level rise that are sending storm surges to never before experience heights, further data collection is necessary; both to construct knowledge in scholarship and to inform policymakers as they mitigate risk to their communities.

The main critique of community resilience theory offered by this study is that resilience in the case of Barbuda was a reactive process to loss and damage. Thus, this *vista* pivot raises some further questions for future exploration. For example, how can survivors unable to negotiate with community resilience power hierarchies be empowered to gain durable solutions? If certain parts of the community can be deprived of resilience, then is vulnerability instead the product of this deprivation of resilience? If the lens is turned from vulnerability to either adaptive resilience or capacity, survivors left behind may be perceived as intended victims of a resilient system, discarded for the common good, an argument in itself troubling and challenging the all-to-assumed view that resilience is always positive. Further studies should be undertaken from the loss and damages perspective to map long-term resilience following subsequent displacement to validate the role of vulnerability and adaptive resilience and capacity.

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V. Annexes

- I. Letter of inquiry from Special Rapporteurs to the government of Antigua & Barbuda regarding Barbuda.
- II. Privy Council Case Summary: McKenzie Frank and another v Attorney General of Antigua & Barbuda.
- III. Interview guide
- IV. Transcript of interview with the Prime Minister
- V. Transcript of interview with BPM Councilor
- VI. Map VII: Pre/Post-Irma Structure Comparison

Annexe I

Title: Letter of inquiry from Special Rapporteurs to the government of Antigua & Barbuda regarding Barbuda.

Date Received: 8-Jul-2021

Source: Barbuda Council

Description:

Mandates of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment; the Working Group on the issue of human rights and transnational corporations and other business enterprises; the

Special

Rapporteur in the field of cultural rights; the Special Rapporteur on the right to development; the Special Rapporteur on the right to food; and the Special Rapporteur on the human rights to safe drinking water and sanitation

REFERENCE: AL ATCJ 1/2021 22 June 2021

Excellency,

We have the honour to address you in our capacities as Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment; Working Group on the issue of human rights and transnational corporations and other business enterprises; Special Rapporteur in the field of cultural rights; Special Rapporteur on the right to development; Special Rapporteur on the right to food; and Special Rapporteur on the human rights to safe drinking water and sanitation, pursuant to Human Rights Council resolutions 46/7, 44/15, 46/9, 42/23, 32/8 and 42/5.

In this connection, we would like to bring to the attention of your Excellency's Government information we have received concerning the impacts of the development of an airport and the Barbuda Ocean Beach Club, a luxury tourist structure, on the human rights of the population of Barbuda, including to food, housing, water and sanitation and to a healthy environment and cultural rights.

According to the information received:

In fall 2017, the State of Antigua and Barbuda was hit by two successive category 5 hurricanes: Irma and Maria, which led to the evacuation of the entire population of Barbuda, of around 1,600 people, damaging key infrastructures including roads and energy distribution networks in addition to a great number of houses.¹ More specifically, it was estimated that as a result of the disaster, 95% of Barbuda's structures was damaged or destroyed.² The

storms left the island of 23 kilometres by 12 kilometres, which hosts a rich biodiversity, and forests without one single leaf on any tree as witnessed by the United Nations Secretary General on the occasion of a visit in the region.³ In the aftermath of the hurricanes, the livelihoods of many individuals were also affected, which, at the time, further put at risks the full realisation of human rights, including to food, health, housing, education, water and sanitation, and a healthy environment and cultural rights.

It was estimated that the overall value of damages and disruption caused by both disasters was equal to 9 percent of the country's gross domestic product (GDP, current terms) in 2016, with 44 percent of the total damage costs affecting the tourism sector and 37 percent attributed to the housing sector.⁴ In

<https://news.un.org/en/st0ry/2018/09/ 1018372> See for instance:

<https://www.unicef.org/easterncaribbean/stories/%arbuda-fighting-its-way-back-after-hurricanes>

<https://news.un.org/en/st0ry/2018/09/ 1018372>

World Bank, GFDRR, UN, and EI-I, "Hurricane Irma Recovery Needs Assessment: A Report by the Government Of Antigua and Barbuda",

<https://www.gfdr.org/sites/default/files/publication/Antigua%20and%20Barbuda .pdf>

fact it was established that, after Irma, 642 of the 670 houses on Barbuda's territory were either destroyed or damaged. In addition, the totality of the island's water sources were affected, with the contamination of ground waters and serious damages to rainwater collection and overall water distribution infrastructures? Both the agriculture and fishing sectors were also severely touched with the loss and damage of numerous vessels, small scale farmers' crops and livestock.

After the disasters, the Government of Antigua and Barbuda estimated that the amount needed for Barbuda's recovery, including for housing replacement and reparation and the water and sanitation sector, was US\$222.2 million.⁶

In the recovery phase, proposals for large-scale projects began to flourish, including the development of an airport and of luxury real estate and tourist structures such as the Barbuda Ocean Beach Club

In parallel, an amendment to the 2007 Barbuda Land Act was introduced with important changes proposed, including a change to one of the core elements of Barbuda's culture and traditions: the collective owning of the Island by all

the residents since 1834. Allowing for private ownership, the amendment introduced in 2017 repealed part II of the Barbuda Land Act of 2007⁷ which provided, as per its article 3 that:

"Barbuda land is owned in common by Barbudans

(1) All land in Barbuda shall be owned in common by the people of Barbuda.

(2) Subject to sections 4 and 20, the title to all land in Barbuda shall vest in the Crown on behalf of the people of Barbuda".⁸

The new 2017 Barbuda Land (Amendment) Act, which entered into force in 2018, provides as per its article 3 paragraph 2 that:

' All persons residing on the Island of Barbuda shall be and are hereby declared to be tenants of the Crown; and such persons shall neither hold nor deal with any land situated within the said island save and except as hereinafter appears by the provisions of this Act and subject to any by-law made by the Council in that behalf' .⁹

The new article 17 also put forward, as a condition for the approval of major development in Barbuda, the submission of an environmental impact assessment (EIA) to the responsible minister, repealing the former provision which also provided for the obligatory consent of the people of Barbuda for the same purpose.

⁵ Ibid.
Ibid.

⁶ <https://www.gfdrr.org/en/publication/hurricane-irma-and-maria-recovery-needs-assessment-antigua-and-barbuda>

⁷ BARBUDA LAND ACT No. 23 of 2007 [Published in the Official Gazette vol. xxviii No. 5 dated 17th January. 2008. available at <http://www.fao.org/docs/ant78070>.
Ibid.

BARBUDA LAND (AMENDMENT) ACT 2017 No. 41 of 2017, [Published in the Official Gazette vol. XXXV111No. 8 dated 22nd January, 2018] available at <http://www.fao.org/docs/ant188658.pdf>

The airport project

It is alleged that in 2017, while Barbuda's population had been evacuated to Antigua in the fear of hurricane Irma, large strips of the island's forest were

cut for the purpose of the construction of an international airport and that this project was entrusted to Bahamas Hot Mix, a company based in the Bahamas. An important habitat of the red-footed tortoise and Barbuda Fallow deer, the forest was used for farming, grazing and hunting for generations. While two EIAs have been conducted for the airport, one in 2017 and one in 2018, there was no prior consultation with the population and, until today, the environment impact assessments are not publicly available.

On 2 August 2018, in the context of a judicial review challenging the legality of the decision of the Government to construct an airport for non-compliance with the 2003 Physical Planning Act and the National Sustainable Island Resources Plan of 2012, an interim injunction was granted against the airport construction. The judicial review also focussed on claims of various irregularities concerning the environmental impact assessment, including proper assessment of the project in the fields of geology, archaeology and biodiversity.

On 11 September 2018, the Court of Appeal unanimously dismissed the previous decision, setting aside the interim injunction. After the court dismissed the injunction, the airport construction resumed, but was further halted due to the discovery of (airy) cavernous grounds under the initial site, and to financial issues related to the completion of the project on a second site.

It was then announced by the Prime Minister in January 2020 that the airport would be completed by June 2020

On 7 February 2020, another application for an interim injunction against the construction of the airport was dismissed. An appeal was then lodged against this decision in front of the Court of Appeal and the ruling was scheduled for February 2021.

The Barbuda Ocean Club project

Launched in 2016, the Barbuda Ocean Club is a multi-million dollar luxury resort project developed by the Peace Love and Happiness Partnership (PLH), a US-based investors' company registered in Antigua and Barbuda and built by, Discovery Land Company, a US-based developer. The project envisions the development of a low-density resort, composed of around 400

luxury residences, a golf course and a yacht marina, located on the unique, fragile and diverse natural site of Palmetto Point.

Partially affected by sand mining, it was already reported in 2008 that all the terrestrial plants of the site were identified as "special conservation concern" in a report presented to the Government. The Palmetto Point was also

10 Kevel Lindsay, John Mussington, and Jean-Pierre Baclet for OECS AND THE GOVERNMENT OF ANTIGUA AND BARBUDA "Biodiversity Inventory and Status Assessment Report for the Proposed Wallings Forest Protected Area (Antigua) and the Codrington Lagoon National Park (Barbuda) " (2008), p. 4 available at: http://www.irf.org/wp-content/uploads/2015/10/Wallings-CodringtonBiodiversitySurvey_Antigua_2008.pdf

identified as being subject to high hazard risks in terms of coastal erosion.

The area is located in Codrington Lagoon National Park, surrounded by wetlands as well as a range of terrestrial plants, birds and reptile species and is a famous nesting site for turtles. In addition, the 2012 Sustainable Island Resource Management Zoning Plan established that Palmetto Point is a protected area.

Palmetto Point, once the highest point of the area, is of particular importance for fresh water feeding of the Codrington lagoon, an area protected by the Ramsar Convention. The island being mostly flat, Palmetto Point plays a key role in channelling the water from the groundwater aquifer, located under the sand, to the lagoon and in ensuring the health of its rich ecosystem. Hosting a variety of young fish, lobsters and conch populations, the lagoon greatly contributes to the reproduction of marine species, an essential element for the fishing activities of the population. This lagoon is also a vital environment for migratory birds, including endangered species such as the West Indian whistling duck, and the frigate, for which the area constitutes the species' largest nesting site in the Americas.

Groundwater is essential on Barbuda given the absence of lasting streams or other bodies of water on the island. In fact, the island's groundwater is its only source of drinkable water. In this context, the population has historically relied on wells for drinking water and it has been established that "the primary source of freshwater in Barbuda has been the shallow aquifers underlying 650 ha of sand in the Palmetto Point Area." ¹¹ In 2005, the water from wells

around Palmetto Point was considered potable.¹² Some wells are still being used today around the island for a variety of purposes, including for livestock. It has been reported that "In recent years, most residents started spending a large percentage of their monthly income on bottled water due to waning confidence in the ground water quality."¹³ Given their slow recharge, further pressure on groundwater sources, including due to the development of large scale tourist infrastructure, is a risk. In addition, it is alleged that wells were dug by the resort developers in 2020 on Palmetto Point site.

Furthermore, over recent years, concerns have been expressed about Barbuda's groundwater quality which, allegedly, could be further affected by tourism and its affiliated construction, sand mining, and waste pollution, as well as by climate change. Due to salt intrusion and the other impacts of climate change on groundwater sources, desalination is now key for accessing water on the Island and "with desalinated water prioritised for domestic and tourism sectors, there is continual stress on freshwater supply particularly in the agricultural sector".¹⁴ While PLH plans to develop its own desalination plant, the high water demand could put at risks the full realisation of the right to safe drinking water of the population, increasing the pressure on the system in place and resulting potentially in access challenges such as higher costs.

¹² Government Of Antigua and Barbuda , "Antigua and Barbuda's First Biennial Update Report", 2020, p. 26 available at:

<https://unfccc.int/sites/default/files/resource/Antigua%20and%20Barbuda%20te%20>

¹³ FAO, Country profile — Antigua and Barbuda, Aqua Stat Repot, 2015, available at : <http://www.v.fao.org/3/ca0429en/CA0429EN.pdf>

¹⁴ Jason A. Hubbart, Kirsten Stephan, Fritz Petersen, Zachary Heck, Jason Horne and B. Jean Meade, 'Challenges for the Island of Barbuda: A Distinct Cultural and Ecological Island Ecosystem at the Precipice Of Change', MDPI Journal, 23 June 2020, p. 7.
Government Of Antigua and Barbuda, p. 147.

The removal of the dunes has already greatly impacted Palmetto Point. The land that will be occupied by the luxury properties and golf course will also affect small-scale farming and animal grazing. It will also potentially affect the traditional harvesting of sea plums and grapes by the community. In addition, the large-scale water desalinization process proposed to respond to the project's fresh water needs is likely to affect the surrounding coral reefs with

toxic spurge being discharged. Further development would also threaten the already scarce fresh water source flowing into the lagoon, thus impacting water turbidity and oxygen level, and threatening its rich biodiversity. As a result, this would also impair fishing activities, affecting both the availability of and access to food for communities, in addition to seriously threatening their livelihood. In addition, the location of the planned centralized wastewater treatment plant along with the repair and fuel facility of the marina has not been established yet, raising further concerns in terms of the prevention of potential leakage and contamination risks.

The project timeline and development

In December 2016, the conclusion of a memorandum of agreement between PLH and the Government took place, following a public vote organised in Barbuda. The residents voted in favour of the project, while there are concerns over the voters' full access to information relating to the development plan. Furthermore, some elements of the project were not mentioned on this occasion, such as the projected development of a yacht marina. These elements were not included in the memorandum of agreement either.

In 2017, after the conclusion of the agreement and its related lease, an environmental impact assessment was conducted by an independent firm for the developers of the project. As highlighted by them "(t)he work was required to be completed in a timely, sequenced manner under challenging circumstances, as the island's resources, community services, and infrastructure were devastated in the wake of Hurricane Irma".¹⁵ The initial impact assessment was conducted over the course of three weeks.¹⁶ It did not refer to the latest data available for the analysis, was not supported by sufficient scientific studies, and raised specific concerns about impacts on the ecosystems. In addition, it did not include a social nor human rights impact assessment of the project.

On 18 February 2018, based on the environmental impact assessment and a first version of the master plan, the project was conditionally approved, the Government recommending the conduct of further hydrological, hydrogeological, bathymetry and topological studies to inform dunes restoration, prevent storm surge, ensure the establishment of effective

setbacks and water management systems as well as the development of mitigation measures to ensure the integrity and functionality of the ecosystems. An amended version of the master development plan was prepared for this purpose.

Over the following months, operations started, with alterations to the natural surroundings including the removal of mangroves by the contractors in certain

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http://www.deborahbroshnan.com/uploads/4/8/6/7/4867822/plh_barbuda_project_overview.pdf
http://www.deborahbroshnan.com/uploads/4/8/6/7/4867822/plh_barbuda_project_overview.pdf

areas. In addition, some of the already installed setbacks did not respect the government's recommendations, further exposing the area to increased disaster vulnerability and risks of further saline intrusion due to floods.

On 17 February 2020, the Barbuda Council lodged a request to stop the work taking place at Palmetto and Coco points until further review, as per alleged breaches of the Physical Planning Act 2003 and the Environmental Management and Protection Act (2019) (EMPA). The latter Act provides that an EIA must be conducted for the development of "a yacht marina; a wastewater treatment, desalination or water purification plant; an installation for the manufacture, storage or industrial use of chemical products or hazardous materials; sand mining and other mining operation; an operation involving land reclamation, dredging and filling of ponds; and a hotel or resort complex 17

The letter raised concerns about a number of environment and human rights related issues including: the need to preserve the integrity of the ecosystems, the lack of setbacks around the lagoon, the proximity of some of the setbacks from the sea and the potential impacts of further development on a number of species including turtles, mangroves and seagrass. The essential role of the soil and vegetation in mitigating the impacts of natural disasters was also highlighted.

In this connection, the Barbuda Council filed an injunction application to the Eastern Caribbean Supreme Court to halt the ongoing construction work. The Council alleged that the project's latest developments were not compliant with

the initial plan as detailed in the EIA and master, analysis and management plans and reports related to the project's approval. While the EIA provided for the establishment of wildlife corridors, large setbacks and open spaces, they were not established nor are they part of the latest version of the master plan. On 30 July 2020, the Council's claim was dismissed and the injunction rejected.

On 26 August 2020, the Government informed the developers of ongoing violations in the project's implementation phase including the reversal of wetland mitigation measures, impact on historic dunes and vegetation and work not being conducted in line with previous environmental review, guidance, monitoring and recommendation. It was thus requested to take immediate action and submit a remediation plan (within 5 days).

On 19 September 2020, two members of the Barbuda Council were arrested for trespassing on the occasion of a visit to the site to inspect the concession, forming part of a case in court summoning 21 people facing similar charges.

On 1 October 2020, the Eastern Caribbean court ordered an interim injunction. Some operations and construction activities are however still ongoing despite the injunction.

On 20 January 2021, the interim injunction against the construction was lifted by the High Court of Antigua. Furthermore, the Court issued an injunction against the Council to forbid any sand mining.

<https://antiguaobserver.com/barbuda-council-asks-dca-to-issue-stop-order-on-plh-project/>

As of now, things are moving fast on the island, with the company fencing the area and beginning the construction of the regasification station, an energy option that was first put aside due to potential negative impacts on the environment. Construction of the marina is scheduled to begin soon. In addition, promoters of the resort are currently widely advertising its 18 hole golf course.

While we do not wish to prejudge the accuracy of these allegations, we would like to express our deep concerns regarding the potential impacts of the Barbuda Ocean Club Project on human rights, including the rights to food, water and sanitation, housing, and a healthy environment, as well as cultural rights. Furthermore we are

deeply concerned about the potential consequences of the developments on Codrington Lagoon and Palmetto Point's fragile ecosystems, parts of which are supposed to be protected by designation as a national park and pursuant to the Ramsar Convention on internationally important wetlands. These developments are impacting the population's livelihoods and further exacerbating the vulnerability of the island to storms and disasters, as nature and mangroves in particular provide for natural protection from such events. Furthermore, it is unclear whether a proper environmental impact assessment was conducted for all aspects of the project including for the potential Marina, as prescribed by Physical Planning Act 2003 and the Environmental Management and Protection Act (2019) and whether informed participation of all Barbuda's residents was ensured.

In connection with the above alleged facts and concerns, please refer to the Annex on Reference to international human rights law attached to this letter which cites international human rights instruments and standards relevant to these allegations.

As it is our responsibility, under the mandates provided to us by the Human Rights Council, to seek to clarify all cases brought to our attention, we would be grateful for your observations on the following matters:

1. Please provide any additional information and/or comment(s) you may have on the above-mentioned allegations.
2. Please provide an update on the status of the communal land ownership of Barbudans as set forth in the 2007 Barbuda Land Act.
3. Please provide information on any steps that your Excellency's Government has undertaken, or is considering to take, including policies, legislation and regulations, to fulfill its obligation to protect against human rights abuses by business enterprises within its territories and/or jurisdiction, and to ensure that business enterprises conduct effective human rights due diligence to identify, prevent, mitigate and account for how they address their impacts on human rights throughout their operation, as set forth by the UN Guiding Principles on Business and Human Rights

4. Please indicate if any human-rights impact assessments and social impact assessments, with adequate consultation with affected individuals and communities, were undertaken prior to the approval and implementation of the project. More specifically, please provide information on how your Excellency's Government has ensured that the mentioned development projects would not negatively impact the availability of sufficient and safe water on the island of Barbuda.
5. Please also indicate what measures, have been adopted to consult Barbuda's residents on additional elements to the projects, including the airport, the construction of any further development to the PLH project, including houses, the extension of the golf courses and the construction of a marina and to ensure informed participation.
6. Please explain the rationale for permitting such large and intrusive developments within a national park and internationally designated RAMSAR area, both of which are intended to protect and conserve biological diversity.
7. Please indicate whether wildlife corridors, large setbacks and open spaces were established by the developers of the PLH project and whether the recommendations formulated as a condition of the approval of the project were implemented.
8. Please indicate what measures have been taken to ensure that human rights and environmental defenders in Antigua and Barbuda are able to carry out their legitimate work, and exercise their rights to freedom of expression and freedom of association, in a safe and enabling environment without fear of threats or acts of intimidation and harassment of any sort.
9. Please provide information on any steps taken by your Excellency's Government to ensure that the affected peoples and communities in your territory and/or jurisdiction who have suffered economic or cultural

impacts as a result of the project have access to effective remedies for business related human rights abuses.

This communication and any response received from your Excellency's Government will be made public via the communications reporting website within 60 days. They will also subsequently be made available in the usual report to be presented to the Human Rights Council.

While awaiting a reply, we urge that all necessary interim measures be taken to halt the alleged violations and prevent their re-occurrence and in the event that the investigations support or suggest the allegations to be correct, to ensure the accountability of any person(s) responsible for the alleged violations.

We may publicly express our concerns in the near future as, in our view, the information upon which the press release will be based is sufficiently reliable to indicate a matter warranting immediate attention. We also believe that the wider public should be alerted to the potential implications of the above-mentioned allegations. The press release will indicate that we have been in contact with your Excellency's Government's to clarify the issue/s in question.

Please be informed that a letter on this subject matter has been sent to the Government of the United States of America and Bahamas, as well as to the companies involved in the abovementioned allegations.

Please accept, Excellency, the assurances of our highest consideration.

David R. Boyd

Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment

Dante Pesce

Chair-Rapporteur of the Working Group on the issue of human rights and transnational corporations and other business enterprises

Karima Bennoune

Special Rapporteur in the field of cultural rights

Saad Alfarargi

Special Rapporteur on the right to development

Michael Fakhri

Special Rapporteur on the right to food

Pedro Arrojo-Agudo

Special Rapporteur on the human rights to safe drinking water and sanitation

Annex

Reference to international human rights law

In connection with above alleged facts and concerns, we would like to draw your Excellency's Government's attention to the applicable international human rights norms and standards, as well as authoritative guidance on their interpretation.

We would like to draw the attention of your Excellency's Government to its obligations under article 11.1 of the International Covenant on Economic, Social and Cultural Rights (ICESCR), ratified by Antigua and Barbuda in 2019, which recognizes the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions, and stipulates that States shall take appropriate steps to ensure the realization of this right. This article must be read in conjunction with article 2.2 of the Covenant, which provides for the exercise of any right under the Covenant without discrimination of any kind. We also would like to draw the attention of your Excellency's Government's to its obligations under articles 6 and 17 of the International Covenant on Civil and Political Rights (ICCPR), ratified in 1992, on the rights to life and to non-interference with privacy, family, home or correspondence.

In its General Comment No. 4 on the right to adequate housing, the Committee on Economic, Social and Cultural Rights has clarified that the right to housing should not be interpreted in a narrow or restrictive sense, such as merely having a roof over one's head; rather, it should be seen as the right to live somewhere in security, peace and dignity. It includes, among others, the availability of services, materials, facilities and infrastructure essential for health, security, comfort and nutrition, including sustainable access to natural and common resources, safe drinking water, energy for cooking, heating and lighting, sanitation and washing facilities, means of food storage, refuse disposal, site drainage and emergency services. The Committee has indicated that States must allocate sufficient resources to the realization of the right to adequate housing and prioritize the needs of disadvantaged and marginalized individuals or groups. The Committee has further clarified that the obligation to progressively realize the right to housing will almost invariably require the adoption of a national housing strategy which should be developed in consultation with affected groups, include clearly defined goals, identify the resources to be allocated and clarify responsibilities and a time frame for implementation. Moreover, steps should be taken to ensure coordination

between ministries and regional and local authorities in order to reconcile related policies with the obligations under article 11 of the Covenant. The Committee has also indicated that monitoring of the situation with respect to housing is an obligation of immediate effect.

In addition, in its General Comment No. 15 on the right to water, the Committee has affirmed that the human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. The Committee further prescribed that States parties should adopt comprehensive and integrated strategies and programmes to ensure that there is sufficient and safe water for present and future generations, which among others may include ensuring that proposed developments do not interfere with access to adequate water and assessing the impacts of actions that may impinge upon water availability and natural-ecosystems watersheds.

We also wish to draw the attention of your Excellency's Government to its obligations under article 19 of the International Covenant on Civil and Political Rights which recognizes the right to freedom of expression and lays down that this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice. As clarified by the Human Right Committee, freedom of expression is a necessary condition for the realization of the principles of transparency and accountability that are, in turn, essential for the promotion and protection of human rights.

Furthermore, we would like to highlight the United Nations Guiding Principles on Business and Human Rights (A/HRC/17/31), which were unanimously endorsed by the Human Rights Council in June 2011, and which are relevant to the impact of business activities on human rights. These Guiding Principles are grounded in recognition of:

- a. "States' existing obligations to respect, protect and fulfil human rights and fundamental freedoms;
- b. The role of business enterprises as specialized organs of society performing specialized functions, required to comply with all applicable laws and to respect human rights;

- c. The need for rights and obligations to be matched to appropriate and effective remedies when breached. "

According to the Guiding Principles, States have a duty to protect against human rights abuses within their territory and/or jurisdiction by third parties, including business enterprises. In addition, businesses have an independent responsibility to respect all internationally recognised human rights, including by conducting human rights due diligence.

It is a recognized principle that States must protect against human rights abuse by business enterprises within their territory. As part of their duty to protect against business-related human rights abuse, States are required to take appropriate steps to "prevent, investigate, punish and redress such abuse through effective policies, legislation, regulations and adjudication" (Guiding Principle 1). This requires States to "state clearly that all companies domiciled within their territory and/or jurisdiction are expected to respect human rights in all their activities" (Guiding Principle 2). In addition, States should "enforce laws that are aimed at, or have the effect of, requiring business enterprises to respect human rights..." (Guiding Principle 3). The Guiding Principles also require States to ensure that victims have access to effective remedy in instances where adverse human rights impacts linked to business activities occur.

Moreover, Principle 26 stipulates that "States should take appropriate steps to ensure the effectiveness of domestic judicial mechanisms when addressing businessrelated human rights abuses, including considering ways to reduce legal, practical and other relevant barriers that could lead to a denial of access to remedy."

States may be considered to have breached their international human law obligations where they fail to take appropriate steps to prevent, investigate and redress human rights violations committed by private actors. While States generally have discretion in deciding upon these steps, they should consider the full range of permissible preventative and remedial measures.

The Framework Principles on Human Rights and the Environment, presented to the Human Rights Council in March 2018 (A/HRC/37/59) set out basic obligations of States under human rights law as they relate to the enjoyment of a safe, clean, healthy and sustainable environment. Principle 4 provides, specifically, that "States should provide a safe and enabling environment in which individuals, groups and organs of society that work on human rights or environmental issues can operate free from threats, harassment, intimidation and violence." Principle 12, provides that States

should ensure the effective enforcement of their environmental standards against public and private actors. As per principle 14, States should take additional measures to protect the rights of those who are most vulnerable to, or at particular risk from, environmental harm, taking into account their needs, risks and capacities.

We also wish to highlight that the Escazu agreement, as ratified by Antigua and Barbuda on 4 March 2020, guarantees "the full and effective implementation in Latin America and the Caribbean of the rights of access to environmental information, public participation in the environmental decision-making process and access to justice in environmental matters, and the creation and strengthening of capacities and cooperation, contributing to the protection of the right of every person of present and future generations to live in a healthy environment and to sustainable development".¹⁸

In addition we would like to recall that the UN Declaration on the right to development (A/RES/41/128) defines the right to development as an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development (article 1.1). The Declaration further states that the human person is the central subject of development and should be the active participant and beneficiary of the right to development (article 2.1) and requires that States should encourage popular participation in all spheres as an important factor in development and in the full realization of all human rights (article 8.2). We are concerned at the information that, contrary to these commitments, no prior consultation with the population took place with regard to the construction of the airport and that the affected communities were not informed or consulted in a meaningful manner regarding the further development to the PLH project, including building of houses, the extension of the golf courses and the construction of a marina. We refer to the Guidelines and recommendations on the practical implementation of the right to development, which urge states to design and implement development projects after holding meaningful consultations to identify the development priorities of the communities in a project area and benefits-sharing arrangements that would be suitable for those affected (A/HRC/42/38, para 18).

Article 1, Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean.

Annexe II

Title: Privy Council Case Summary: McKenzie Frank and another v Attorney General of Antigua & Barbuda.

Date Accessed: 10-May-2022

Source: <https://www.jcpc.uk/cases/jcpc-2021-0070.html>

McKenzie Frank and another (Appellants) v Attorney General of Antigua and Barbuda (Respondent) (Antigua and Barbuda)

Case ID: JCPC 2021/0070

Jurisdiction: Court of Appeal of the Eastern Caribbean Supreme Court (Antigua & Barbuda)

Case summary

Issue

The issues on appeal are broadly concerned with whether the Appellants were, by virtue of the Paradise Found (Project) Act 2015, deprived of any right or interest in land which they enjoyed pursuant to the Barbuda Land Act 2007.

Facts

By section 3 of the Barbuda Land Act 2007 (the “Land Act”), all land in Barbuda is owned in common by the people of Barbuda, and title to that land vests in the Crown on their behalf. By section 7, the consent of Barbudans must be obtained for any major development.

The Government of Antigua and Barbuda entered into a lease agreement with Paradise Found LLC to lease land in Barbuda for the purpose of a tourism development project. The Paradise Found (Project) Act 2015 (the “2015 Act”) was passed to give effect to the lease agreement, and it provides that the Land Act does not apply to the leased land.

The Appellants are Barbudans. They filed a claim on 6 June 2016 in the High Court claiming constitutional relief and challenging the validity of the 2015 Act. They maintained, *inter alia*, that: (i) the 2015 Act constituted a compulsory acquisition of their interest in the land without compensation;

(ii) the land was not acquired for public use; and (iii) the 2015 Act violated section 9 of the Constitution of Antigua and Barbuda, which protects against the deprivation of property.

On 13 September 2016, the Respondent filed an application to strike out the claim on the basis that it disclosed no cause of action against the Government under the Constitution and that it was an abuse of process.

The High Court dismissed the Respondent's strike out application. Wilkinson J found that the claim raised issues that ought to be tried. She noted that the several sections of the 2015 Act "appear to 'side-step' or circumvent the requirement for the consent of the people of Barbuda for major development pursuant to the [Land Act]". Wilkinson J also found that the Appellants had the necessary locus standi to pursue the claim on the basis that, as Barbudans, they held an interest in Barbudan land.

The Respondent's appeal to the Court of Appeal was allowed. The Court found that the Appellants did not have a personal right of property in the leased land. Rather, the Land Act provided a scheme for the collective rights of Barbudan people as a class. Further, the Appellants lacked the necessary standing to pursue a claim for relief under section 9 of the Constitution: the rights accorded to Barbudans did not constitute interests in or rights over property for that purpose because they had no immediate entitlement to use their interest in such property without permission.

Parties

Appellant(s)

(1) McKenzie Frank, (2) Trevor Walker

Respondent(s)

Attorney General of Antigua and Barbuda

Appeal

Justices

Lord Reed, Lord Sales, Lord Hamblen, Lord Burrows, Lady Rose

Hearing start date

3 May 2022

Hearing finish date

3 May 2022

Annexe III

Title: Interview Guide

Interview Guide

Semi-structured interviews with survivors and experts

Hurricane Irma – Barbuda

Strategy: elicit organic responses from interviewees with as little input from the interviewer as possible to build a subjective understanding of resilience through the Barbudan experience.

Interviewer prompt: Barbuda was the first example of an entire island being displaced. As climate change worsens, it is expected that more islands will follow Barbuda's example. I feel it is important that we learn from your unique experience so that when another Irma comes, not only Barbuda but other islands will be able to learn from your lessons. Could you please tell me about your experience?

(if needed, ask for clarification or attempt to triangulate data-relevant experiences)

Depending on the narrative presented, ask prompts for the various periods between 2017-2021:

- Could you tell me how you prepared for Irma once you heard it was coming?
- During and immediately after landfall (as to not push the interviewee to discuss the traumatic event, never ask directly, but try to elicit organically).
- Could you please tell me about your experience after arriving in Antigua?
- When did you return to Barbuda? What was it like?

- Do you think Barbuda is ready for another Irma?

Based on responses, judge which topic, if any, the interviewee felt most compelled to discuss and ask follow-up questions to elaborate, even if the topic did not seem immediately relevant to Hurricane Irma.

Special note for expert or expert/survivor interviews: To elicit expert knowledge, direct follow-up questions were asked based on the expert's response. Attempts were then made to use different parts of the expert interview to triangulate responses. As the events were to some extent traumatic to all experts, and the topic was politically polar, care was taken when asking follow-up questions, not to provoke expert interviewees but to continue the dialogue in hopes of eliciting more data.

Annexe IV

Title: Transcript of interview with the Prime Minister

Interviewer: John Marazita III

Date: 21-Jun-2021

Location: St. John's, Antigua. Held via Zoom due to Covid-19 restrictions.

Duration: 00:49:26

me: (introduction) What were your initial reactions when you heard about Hurricane Irma?

PM: It was easily one of the most ferocious storms we would have experienced in the region. When we recognized it was heading for either Antigua or Barbuda, we became very concerned. One of the things my government did at the time was that myself and several ministers travelled to Barbuda and encouraged a greater level of preparedness. I think it was the first time in our history that cabinet would have had several of its members going over and warning of the impending storm and warning them to secure homes. I believe it wasn't for that level of preparedness, the outcome would have been far more serious even though it was very serious in that 90% of the homes would have been decimated. The island would have lost roofs or been part destroyed. I have to admit when we did the inspection 48 hrs before the storm hit Barbuda, we were of the view that Barbuda was reasonably well prepared. The properties there were resilient because they were primarily concrete structures. We didn't anticipate in the event that a direct hit, the carnage would be as bad as eventually materialized. So after the storm struck Barbuda, several hours passed and we couldn't get ahold of them which was of particular concern to me as the head of the country. At the time, a few hours after the passing of the storm, law enforcement and even Antigua & Barbuda defence force took the position it was unsafe to travel to Barbuda. However I decided to risk it and I took a police officer and a cameraman from ABS and we flew over to Barbuda thinking though that perhaps it would have just been some temporary telecommunication interruption, not realizing until we got there that the entire island was decimated.

So I was along with three others who would have witnessed the first-hand devastation in Barbuda. I have to tell you, not even those on the ground would have experienced the extent of damage because they would have been limited to the area they were living. I actually did a circumnavigation of the island before we landed. I have to tell you it was heart-wrenching to me because, at the same time, I didn't expect that level of carnage. So when we eventually landed on Barbuda, we addressed the people and reassured them we would provide them with the relief that is necessary. We made arrangements to start to fly over or send by boat supplies to the Barbudan people. I took over a satellite phone. At the time, they were happy to see me at the time, but there was another storm on the horizon that was projected to travel along the same trajectory as Hurricane Irma. So the Barbudan citizens and residents expressed concerns and told me they felt unsafe being on the island. Recognizing there was an impending storm within a 24 hr period that could actually hit Barbuda and could find them in an extremely vulnerable position where their homes were already destroyed. So there and then that decision had to be made to evacuate them to Antigua.

And I have to tell you that prior to that we had no contemplation of any evacuation. In fact, our own hurricane recovery plan did not involve any template for evacuations because we have never experienced any mass evacuations here. So we were unprepared. We didn't have the

assets. We had to get creative and improvise a number of small vessels. We even utilized a barge that ordinarily would have been used to transport aggregates because we had to remove the people within a 24 hr period. We also asked the Venezuelan government for assistance and they made available a military aircraft which was able to land in Barbuda and do a few roundtrips. I have to tell you, the aircraft actually got stuck in a sand strip because, at the time, the airport got damaged and was too small to accommodate a military aircraft. Again that image of Barbudans struggling on this aggregate barge was just something else to see. That too is an image that was etched in my mind and forever will be. You could see very vulnerable people literally accessing any form of transport available in order to avoid being trapped in Barbuda with all the decimation of Hurricane Irma, with all the debris and rubble and again have to deal with another hurricane in less than 24 hrs.

In any case, the evacuation was successful. It wasn't easy because there were individuals who insisted they wanted to stay. At the time, Barbuda had about 6" of water on the ground. So we were also very concerned about waterborne diseases such as Cholera and the conditions were such that we had to evacuate them to safety and bring them to Antigua. We were successful in evacuating about 1800 people in a 24hr period. Literally utilizing any assets we could have put our hands on, including small boats, the barge, and military aircrafts made available by the Government of Venezuela. Getting accommodations was also a challenge. A number of Antiguanans opened their homes to them. And we had to utilize a school, a stadium. We even had to rent hotel properties. We got them settled and subsequently had to provide three meals a day for them. Those who were working, about 800 workers, we still had to pay on a monthly basis. But we found though, that cleanup of Barbuda was a challenge because Barbudans were here and there was no one on the island to assist. We had to employ private contractors from Barbuda to go over and do the cleanup. One of the problems we had was that Barbuda didn't have the type of equipment to do the cleanup so we had to rent it here. That lasted a number of weeks, creating some frustration for the Barbudans who wanted to return home. Some used it to create political strife to say we were keeping them here against their will. That wasn't our intention. We just wanted to create a safe environment.

For them to return. At the time, there was no electricity and water because Barbuda was literally a mangled wreck. So we had to literally spend some time to make the place liveable. I mean, it was, prior to the improvements we made, uninhabitable. We also had to contend with the politics with having the Barbudans here as internally displaced persons. That in itself was one of our biggest challenges, the politics. We had a situation where we had to accommodate 3000 Dominicans too because it was decimated by hurricane Maria. So overnight we had to accommodate about 5000 more people our social services were straining, especially schools. We had about 300 additional Dominican students, a couple hundred Barbudans. So these are things that happened almost overnight, creating a strain for us, but we saw it through. And I'd say the part of the program went exceptionally well. We provided all the necessary social and

educational services. Where we found a challenge, though, was in the actual rebuilding. The total building cost was estimated at 220 million USD and as much as Antigua & Barbuda would have made a call for pledges at the UN, because of the small population of Barbuda of the millions that were pledged, we only got 22 million for Barbuda. That rep 10% of the total recovery cost.

Now, the 220 million represented 100% of our tax base. It met, therefore, that with such a small commitment from the international community that, the recovery would have been protracted because we didn't have the resources to face the additional 200 million needed for a recovery in a short period of time. So we did say to them the recovery would be protracted due to the damages, and we said too that one area where they had damage was housing and housing is unfortunately not insured. Ordinarily, what should have been a personal liability became liability for the government because these were indeed not insured and the government had to take up the cost the rebuild those homes which was in the region of 100mil USD. We said to them at the time, too that we would have provided them with ownership of the land in barbuda for one dollar as part of the recovery so they could go to the bank and borrow money to rebuild homes. We recognized that the proceeds of 22million as well as the government itself, which was struggling financially, would have been unable to build those properties in a short period of time.

That in itself created a political firestorm because they have always operated on this myth that the land in Barbuda is owned in common, where there's no such thing. Neither legally or a grant of land given centuries ago. That was a myth established many years ago. But when you look at the fact that Antigua & Barbuda is a unitary state, we have a common constitution. The constitution states clearly that we are a unitary democratic state and all the land that is not private is vested in the crown. So prior to independence, in a sense, the land was owned by the British crown. When Antigua & Barbuda became independent in 1981, the British crown would have transferred the ownership to the state of Antigua & Barbuda, but we do recognize they have equity in the land where they live and the whole idea to show this was to facilitate ownership for \$1. they were literally getting their land for free, recognizing they had been there the whole time. The law itself does not allow for ownership in common. So it's a myth, really. This has been litigated and the council has lost; for us it's a settled issue. We saw the situation of the hurricane giving us the chance to empower the Barbudan people with land ownership. That remains a contentious issue.

In any case, we thought that we had to accelerate the development of Barbuda. Because Barbuda has remained undeveloped compared to Antigua, previous administrations would have left Barbudan people on its own without showing interest to develop a vibrant private sector, develop good public infrastructure. We felt that wasn't sustainable. The example that Barbuda would literally rely on a grant from Antigua; there is no way you can sustain an island state in that way. We wanted Barbuda to have a vibrant private sector to generate its own taxes and

provide sustainable economic opportunities. That's where we've attracted very interesting developments, PLH, the discovery land brand. This project is 3 billion, and as homeowners they have some of the wealthiest people on the planet. They are 10 - 20 million dollar homes. You'll see when this project is fully realized, it will generate ABST tax to ensure the sustainability and obligations of the Barbudan Council. In the past, it was basically providing work for all the Barbudan people through the council and the council would struggle to pay its people. It would be 20 weeks in a rear and this is a situation that persists up to now. The only way is to have a vibrant private sector to generate money to pay obligations. That too came with a lot of push back, but we persisted and today the PLH project has over 200 million invested, providing work for 450 people half of whom are Barbudans. So I think the sentiments are changing to some extent. We have been able to recover the island to an extent where most of the properties are rebuilt.

Just after the hurricane, we saw all these decimated properties and now we're seeing them rebuilt. And we also have the De Niro project. Even though it hasn't fully realized its potential. It's an international brand, and Barbuda is the only place in the Caribbean that has a Nobu restaurant. Mr De Niro has reassured me that commencing later this year, he will build villas in order to commence reconstruction of what will be a resort. Again the ABST revenue will help to fund the development in the future. There are several other projects, including an international airport that will accommodate jet traffic. It's 6100 linear feet. It should be completed by the end of this year, no later than first quarter next year. So, Barbuda will be able to accommodate jet traffic and that will make Barbuda able to accommodate more tourists. Even those wealthy people with homes there, they'll be able to fly directly to Barbuda. By august of this year, we'll be commissioning one of the most exciting solar plants. It will make Barbuda run on 100% solar energy during daytime hours and it even has battery storage for a few hours. We intend to scale up the battery storage so that by sometime next year, Barbuda will be fully operated on solar energy, making it the first country in the entire Caribbean, and one of only in the world for that matter. Not small resorts like Nectar island, I'm talking a community of people that will enjoy 100% solar power. That will take another 10 million in investment. We are spending about 13 million ECD to ensure a hybrid project between the battery storage and a standby generator. That too is extremely exciting because ultimately, we want to make Barbuda green and organic.

We will soon start to plant more coconut trees on Barbuda because Barbuda had a coconut plantation prior to the hurricane, but they were destroyed. In fact, we have about 50 thousand palms that will be imported in a few months, 10-20% will be brought to Barbuda and at least 100 thousand by the end of the year. Plus we'll be planting fruit trees and the whole idea is to green both islands because these will help to reduce the carbon footprint. We're also building back better. So you'll see homes in Barbuda are being built with more steel and reinforced concrete. Even though they had concrete properties in the past, they weren't properly constructed. Because they didn't have titled land and couldn't get mortgages; we found they were cutting

corners and using inferior material and didn't put in steel. When we did inspection prior to the hurricane, we didn't realize that properties weren't built structurally sound and that's one of the reasons the extent was so bad. So, we're building back better, more climate-resilient infrastructure in Barbuda. We also would have expanded water storage facilities there. There was significant coral reef destruction. So we're now working with one of the ambassadors, who is one of the main investors in PLH as well, to restore the coral reefs. That was recently launched a week ago. He pledged 1 million in the project to develop artificial reefs and help to restore the marine ecosystem. So we do all we can to make sure by 2040, Antigua & Barbuda will be a green country. By solar energy and wind energy, we hope to be carbon neutral by 2040. We are starting now and accelerating our transition using our limited resources to fill our obligations under the Paris Accord. At the same time adapting and mitigating against the effects of climate change.

Me: lessons learned?

PM: We never contemplated evacuation. We had no history of mass evacuation. That is one area we lacked preparedness. It was a lesson for us, even in the Caricom community. That was a significant lesson. I think too, that perhaps before we had completed the clean-up and gotten Barbuda ready, we should have allowed people to go back earlier. It wouldn't have been the most ideal circumstances but at least get the trucks there to pump the water off the ground and the mosquitos. Because the political message that was created was one in which that we didn't get the cooperation of Barbudans. We had to rely entirely on private contractors. Another problem in terms of a lesson was how long it took us to receive the proceeds of the 22million USD. It was extremely long. I don't know that we made any mistakes to avail ourselves of these funds but what we are doing now is to speak with the international community to be a little more responsive. So in the future, these funds could become more readily available. I believe it to be 4 years later and we're still rebuilding homes. Those funds only became available a year ago. So 3 years would have already elapsed. What is happened is the government has taken a significant amount of criticism even though we've tried our best to get the program moving. We've been drafted within the Caribbean region to ask these agencies to be far more proactive in reducing bureaucratic structures that would have delayed accessibility to these pledged funds.

And it's not only down to Barbuda. It's something that has been a problem that these institutions and countries pledge these funds. Those are some of the lessons we had learned. Hopefully, next time we'll be in a better position in terms of preparedness. I think too, in the future, I believe individuals will be more responsive to warnings, to leaders at that time. Even though we went over before the storm, they took the request for greater vigilance for granted. There's one particular family who didn't heed our call and we had 1 death. At least that single death could have been avoided if that family would have listened to the calls we made to evacuate on time.

We now have concrete structures with reinforced concrete steel. The engineers have assured us they can stand category 4 and 5 storms. Category 5 plus. So again an experience for us to be far more resilient for the future.

me: local council, what do you think the end solution is with the battle?

PM: We've paid the political consequence prior to June of 2014 when we won the elections. The Barbuda Council has always won the seat in Barbuda. In fact, other parties didn't bother to contest the seat because BPM had a monopoly. After the labour party won for the first time in 2014, and then we had this disaster, they were able to use the land issue and spin it to say we were stealing the land from the Barbudan people. That resonated well with the Barbudan population to help to re-energize the base so that they now control all of the council seats. They also have the electoral seat for Barbuda. So they enjoy a monopoly in their political landscape. But for us, it was a necessary sacrifice for moving the island forward. So what is happening now is as the investments mature, people are having a second thought. Because they were able to demonize me as a leader to say I don't care about the people of Barbuda. I risked my life in a helicopter going over there in treacherous winds after the hurricane passed. Even law enforcement and defense force didn't want to risk, but I did that for the people. In order to make an omelette, you need to break an egg. So I decided to break eggs in support of the Barbudan people. So to find out that the rhetoric seems to be dissipating. I was in Barbuda 2 weeks ago and one member of the council, she said to me Barbuda is the in thing. As these investments mature and the infrastructure provides increased services to the Barbudan people, they will recognise that my decision was right not to pander to the Barbudans, but literally take the same decision to rebuild the island through private sector and place Barbuda on the path of economic and climate resilience. Let me make the point, that there can't be any climate resilience without economic resilience because they go hand in hand. They need money to sustain themselves and build properly and this dependency where you depend on a grant from Antigua is just not sustainable and they're prideful people. There's so much potential in Barbuda.

Barbuda right now, is set to displace St. Barts as the country with the highest wealthy persons per capita in the world. Infrastructure has been built out. PLH is now building one of the finest golf courses in the entire Caribbean. They built sand dunes that are 14ft high to mitigate against storm surges. It has been environmentally friendly, but even that too the council has made controversy to the extent I said to them they could control the politics but stand out of our way to develop the island. The idea that a small island with a small population has been victimised by its sister. So when they sell these stories to the international community, people buy into them. Trying to get behind the truth without getting the facts are the intent of the administration. I'll tell you, our intentions are pure and we have sacrificed in the short run to develop the island knowing that in the long run, when the Barbudans will experience the fruits of our labour, sentiments will change. Already the sentiments are changing for the better.

me: Any more insight?

PM: The whole concept of internally displaced persons is something we never contemplated either. Even though we are one nation, it was interesting the Barbudans were not fully integrated into the society. They tried to separate themselves as different from Antiguan. And we constantly say we are Antiguan and Barbudans, one nation, one destiny, but the majority of themselves see them as different and they behave as if they're from a different country. That too, presented a challenge because a lot of relations became strained among the Antiguan who accommodated them in their homes. after a few weeks, non of the Antiguan felt they were appreciated. They felt they were abusing their hospitality and that's because the Barbudans don't truly embrace the Antiguan as their brothers and sisters. I think part of that is because they had been ignored for decades. The previous administrations did not look at the potential of Barbuda. They didn't see it as a diamond in the rough and that's how I describe it. Prior to me becoming PM, I promised we would prioritise their development. So for me, delivering that process was very important even at the cost of losing the seat on the council which we held. As I said, we're the only administration that has held the majority seat on the council and Barbuda parliamentary seat. (PM, Pos. 1-19)

Annexe V

Title: Excerpt from transcript of interview with BPM Councilor

Interviewee: John Marazita III

Date: 31-May-2021

Location: Barbuda Council building, Codrington (Barbuda), Antigua & Barbuda

Duration: 1:21:21

me: (introducing work)

C: I don't think they expected us to come back. There's been a financial deal made with a mainland developer, PLH. They made it because when the hurricane happened, we were sent to Antigua. As scared as I was, I wish I would have stayed. When they said that the second hurricane wasn't coming, I wish we would have come back and done something with their houses so we wouldn't have lost so much furniture to black mould. One of the things that I'll never forget at the meetings, let's say there were 40 different organizations and within 4 to 6 weeks it came down to about 15 because the central government made it increasingly difficult for donor organizations to do their work and it all came down to money. When we were over there, we had a town hall meeting because Barbuda is a very democratic society. So every big change should go to the town hall meeting, that then goes to council and on to cabinet and then there's another village meeting, especially around land. But with regards to the island, people wanted to come off. They were really scared and people wanted to come home but they weren't allowed even after Jose passed. We were constantly being challenged and jumped through hoops. So when Dominica needed aid, the organisations left and went to help Dominica where they were welcomed. One organization, SP, they worked for a long time here and they changed, I saw 3 different leaders for the organisation and one of them started circumventing the government.

After 30 days, they said people could go back and clean house because SP said in a meeting if people are not allowed to go back and clean then black mould would take over and they'd never be able to return. In the beginning, it worked very well and then suddenly it just stopped and I think it was because it was working really well and also people wanted to stay here. There was no power. So SP would loan generators but not ask for it back. Gradually, people would stay longer. I know when I came back, we were told to go to one church and we'd get a generator. So it made it more liveable.

Prior to coming back, my dad was 83 or 84 and my father was starting to show mental signs associated with conflict zones, such as getting angry and anxious. It took me a long time to go back in my house. My brothers were helping. So I came back with dad to see how bad it was and he didn't want to go back to Antigua even though there was black mould on the walls. There was one room that worked. The kitchen and living room didn't have a roof. So I bargained with him that we'd go back and get our belongings and then come back the next week. Two of my brothers helped me to get the place liveable. We were staying in our friends house in Antigua but it wasn't home. Someone told me about a lady who was Barbudan and everyday, she'd go to the dock in Antigua and all she wanted to do was go back. People came back for Christmas. Some had generators. Someone came to me and asked me to teach their children because they didn't want to go back to Antigua but needed to continue schooling. So we organized school in a church and people started coming back because we had school, homes, some water, and some

electricity from the generator. It was hard, but I think people would have come back sooner if they could have. We just did what we were told until we were able to come back and see that it wasn't so bad.

me: Did you visit any shelters in Antigua?

C: Yes, I went to the one near the sports track and the stadium a couple of times. I would see Asha everyday. I joined an organization, something Sean Penn was involved in and there were 4 of us and we'd be collecting data on peoples' perception of how they're coping. I said to a friend because there was complaints on the radio that all we do is drink and sit around, but there was nothing to do because no work and spirits were down. I went to ask a friend how he was doing, and he replied he's ok. He just had his first drink. He didn't realize he wasn't doing ok.

me: Are there local NGOs in Barbuda?

C: There's the Fisher Folk, and they have the president and trustees, that's the old one. The new ones are Barbuda Go, with Asha and 2 of her friends, and the B foundation, which came out of 2018 a reunion of people of Barbudan descent to come back in mass and plan what to do. And there was an English woman living in London with the help of some Barbudans to set up the B foundation. They've done some projects here. The Fisher Folk were able to organize through Devon Warner's help through Salvation army to replace nets, GPS, things like that. Barbudan go has done things with water. The big black tanks, they try to get to people and the B foundation did some agricultural projects. They're ongoing gender awareness project linked to domestic violence. Domestic violence, I'm not saying it doesn't happen, but there are bigger issues. They've helped with the restoration of some buildings.

me: How is a person legally a Barbudan?

C: There's a book, a series of books, the laws of Antigua and Barbuda. There is legislation called the Barbuda Land Act 2007, that was Barbudan.

C: The men who i met who've been away tend to go to America and if they come back it's because they did something wrong. the older men have more sentiment.

me: Barbuda council is the largest employer?

C: Yes, it's not healthy. It's 400 plus, it was 600 before the storm.

me: Council revenue?

C: When independence was first discussed, the British wanted to look after Barbuda. So they had an economist work on it and a formula was produced of how much Antigua had to transfer back. It's called the transfer grant and it's based on a few things. When you shop in Antigua, you pay tax. When you come here, you pay again. So that double taxing is taken to the treasury. So therefore you have money in the treasury and that comes back to Barbuda. There's also the

transfer grant for education levy. Out of your salary, a percentage goes through the treasury. There's also 2 deductions, one for social security where you get pension and medical benefits. There was also, in the past, the post office so that raised money for tax back in the day. So any money council owed government, it could come out of that, but over time stamp revenue is not enough. Prior to Irma the mega-developer brought a plan to council saying they wanted to lease this much of land. Somebody here signed off on it, so they have a lot of land, but they have to pay leasing payments that they haven't since 2017. They say they have paid to the government because it's the government on the lease, but the government can't be on the lease. So there's a dual thing going on. We can also charge duty on cement, but they've been paying to Antigua. Everything has a tax and it should be paid, but it's being paid to Antigua. And there's the formula of how much we're supposed to get, say we're supposed to get 10 mi ECE, but after the storm, he's not giving the full amount because he said not everyone came back to Barbuda. So he reduced to say 6 million. One of way we're making money is selling sand, but the quality is not go. Just recently, the developer has been asking us to sell them maul, a limestone, but there's a big debate because there are court cases because they destroyed land. So we're challenging that, but the issue is we don't have money to pay the workers. If we sell the maul, we'll have some money to pay the workers, but will that impact the court case.

The people wanted to be paid but there not sure if they should give up the land. There is some disagreement in the community on selling the maul because of the court cases. A little money comes from selling lobster and also tourism trips around the island and people make money for themselves.

me: Secession?

C: Some of the younger generation say it's time. We've been independent from '81 and even before then, they asked my father to come back because people were trying to take land. The PM at the time, Bird was married to a Barbudan. He and a couple of ministers started an aggregates company and started to sell the sand and paying the council 1 dollar per ton. Since then, there's always been someone to try and change our land system because they see the money. But there's different meaning to people here because they'll use the land for crops and to rent their homes and make some money from fishing. They might have campsites all over the island. Camping is also very important. It's a small community and there are only a few names that mostly came from the overseers, and that's important during election time, Beazers, Nedd, and Punter for instance. Family is important to who a people is for.

me: How far has Secession gone?

C: It's still talking. At one point, MP walker sent a letter to the PM. Then there was talk that it would be treason. So there was discussion of federation, so any money coming to us, we would get. It wasn't full secession, but parliament rejected it. Things are changing and it's making people forget that they know how to work, how to fish...etc. When I first came down I didn't talk a

lot to the elder folk. They used to say that they would build the house in parts depending on hurricane seasons. What has changed is people no longer have to work as hard and get more money than they would from crops. So things are changing.

me: (tents)

C: The guy who takes us for a walk still lives in tents. When we first came back, a lot lived in tents. There might be around 10 now and they are doing that because they're waiting for either their homes to be fixed or rebuilt. Depending on their situation for their houses, the roof and structural things done, but other peoples' houses who have had their house knocked down get a new house. It depends on the circumstance. Those who helped themselves and put up the walls, for instance, they'll help you up to a certain size. But if you're a tent person, they'll only build you a house if you have a letter from lands that you have land. People are falling through the cracks, but it shouldn't be so. When I looked at the paperwork with the project, the EU said they would give 5 million Euro and when I came to the meeting, the first representative told us they'd build back 170, the second 150 and now the most recent is 104. So there's questions about what happened to the funding. I asked why, but there is uncertainty in the the answer. SP had a team that was really good at building roofs. Where I lived you'd see where they would do mason work, but they couldn't get the permit. So they had the capacity but couldn't do that.

Me: (government entry into gated communities)

C: No. You won't find many people who support the government. In the last election, we won all the seats. They're dissatisfied with us too, but more with the government. This is a tribal place, either you have family or political power and it's at the forefront not hidden. Here, if you vote for me, I need to favour you over someone who didn't. That's because of the deal that was made with the developer, but I asked a surveyor to analyze who signed it. The person who owned the land, they should have given it to council, but they didn't do that.

Me: so people can sell their land?

C: No, people aren't supposed. We are actually seeing people selling property. We don't normally see that. We see inheritance, but not selling. You're not supposed to do that. Since there's no transfer grant to pay people, some people have turned to selling their properties.

Me: (new airport?)

C: I was one of the people to challenge it because it started when we weren't here. They were telling us Barbuda is dangerous because of dogs, disease and that wasn't true. It was to keep us off the land. There were people here who knew what was going on and didn't say anything. They were Barbudans. When we came back, at night, there was a light in the distance and eventually we found them and the airport. The length of the runway was longer than that in Antigua. Along the runway, however, there were caves underneath it. They'd fill them with

cement and the next day, they'd be empty again. They brought in experts to try to make it safe, but the locals warn that they can't build a runway on the caves and there's talk of a transit point for drugs, which is usually a boat issue. The stories are that one in 2 would do it. One month, a big bail would wash up, and there's discussion the drugs just pass through because there's no patrol and especially at night, no fisherman. The airport is part of the lease that is 99 years, yet when they took out the lease, 99 years wasn't an option, only 50 years.

Me: (cargo)

C: They bring in their own port, but they also brought in our ports. They also have a seaplane and another dock that fishers and campers can see.

Me: Anything else you think I should know?

C: Just be aware there are other impacts in our life. Not just the storm but what people did to us in the name of reconstruction and in the name of Covid. Although the Barbudans are normally law-abiding, if they're pushed to far, they will do what they need to do, because we're not supposed to have meetings, but Barbudans meet anyways. They are reasonable, but sometimes they want what they want and they want it for free.

C: PLH wants Barbuda to be like Jumby Bay in Jamaica.

ME: (loans and insurance)

C: People don't use insurance because they paid in, but when it came to pay out, they didn't. Even medical insurance people don't trust it. People use loans to get cars, but not loans for homes. They generally save up until they have enough. They will say that they make a certain amount this week, and they'll buy a certain amount of blocks next week and so on. (Bcounsel, Pos. 2-39)

Annexe VI

Title: Map VII: Comparison of pre/post-Irma structures

Map VII



VII(a): Pre-Irma structures: Codrington, Apr-2014 and Jun-2016

Barbudan structures are often built with pitched roofs and a tin covering, making them clearly visible in satellite imagery.

Publicly available satellite imagery offers a promising avenue to compare pre- and post-Irma structures revealing progress of reconstruction.

However, as the images are normally annual and cloud cover can lower visibility, a combination of 2014 and 2016 data was compared to assess pre-Irma structures showing, either obvious roof pitch or a large enough size that the structure was verifiable.

Pre-Irma indications revealed a total of **537 structures**.

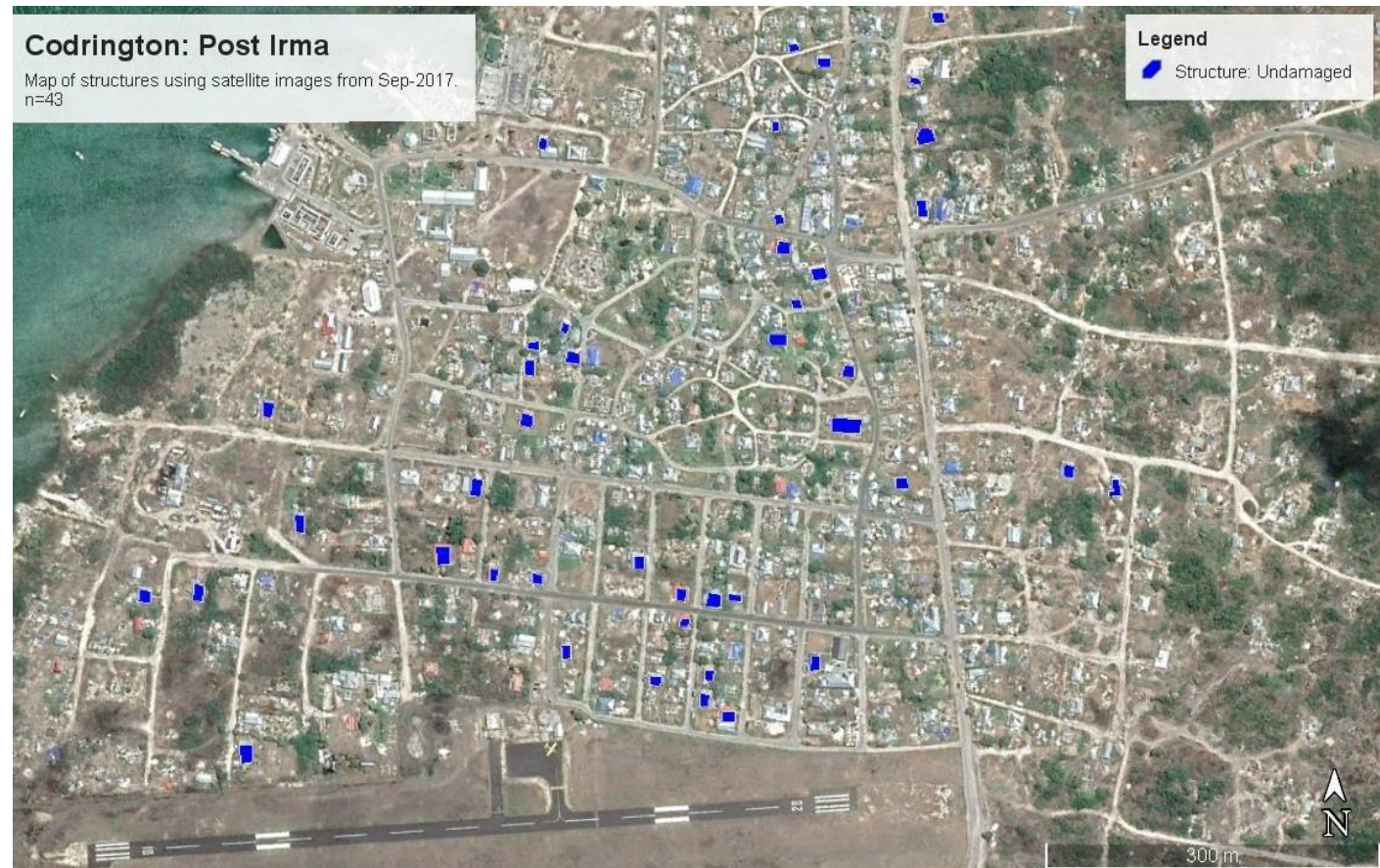
Map data: Google, ©2022 Maxar Technologies and CNES/Airbus

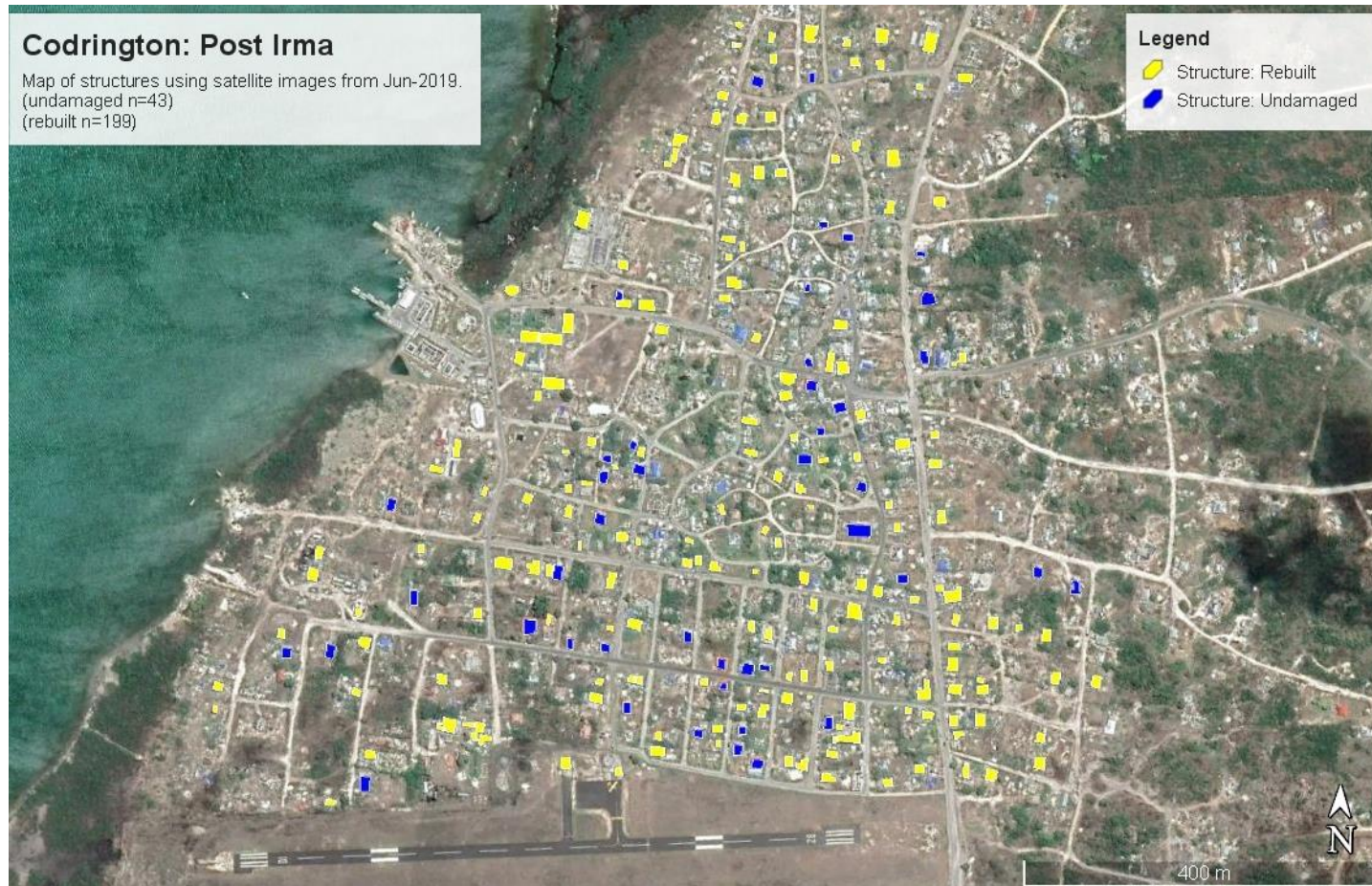
**VII(b): post-Irma structures:
Codrington, Sep-2017**

An estimated 95% of structures in Barbuda were damaged by Hurricane Irma. Satellite imagery allows for a comparison of pre- and post-Irma structures with images available from 2016 and Sep-2017, immediately after landfall.

While not necessarily indicative of total damage, satellite imagery showed that, in comparison to pre-Irma Codrington, only **43 structures** were left with roofs intact.

Compared to the pre-Irma estimate of 537 structures, roughly **80% of structures received damage to roofs.**





**VII(c): post-Irma
structures:
Codrington, Jun-
2019**

21-months after Hurricane Irma made landfall, schools had re-opened and most Barbudans had returned and began reconstruction.

However, reconstruction was nowhere near complete as logistical

barriers and pandemic-era internal travel restrictions led to material shortage.

Apparent from satellite imagery, as of Jun-2019, 199 roofs had been restored (indicated in yellow).

In addition to the 43 roofs having survived Irma, **242/537 roofs were intact** as of Jun-2019.

Map data: Google, ©2022 CNES/Airbus

