MIGRATION, ENVIRONMENT, DISASTER AND CLIMATE CHANGE DATA IN THE EASTERN CARIBBEAN

Antigua and Barbuda Country Analysis

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Cover photo: The threat posed by rising sea levels is a key issue for small island developing States with coastal settlements such as Antigua and Barbuda. © IOM/Vynliz DAILEY

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ABBREVIATIONS AND ACRONYMS

BMS	Border Management System
CARICOM	Caribbean Community
CDEMA	Caribbean Disaster Emergency Management Agency
CDM	Comprehensive Disaster Management
DANA	Damage Assessment and Needs Analysis
DOE	Department of Environment
DRR	disaster risk reduction
IDHNA	Initial Damage and Human Needs Assessment
IDMC	Internal Displacement Monitoring Centre
IOM	International Organization for Migration
ISO	Initial Situation Overview
NEOC	National Emergency Operations Committee
NODS	National Office of Disaster Services
NODS-CU	National Office of Disaster Services – Coordinating Unit
OECS	Organisation of Eastern Caribbean States
REDATAM	Retrieval of Data for Small Areas by Microcomputer
TWG	technical working group

EXECUTIVE SUMMARY

Due to its exposure and vulnerability, Antigua and Barbuda has recently been ranked as the fourth most vulnerable country to the impacts of climate change worldwide. The twin-island State has recorded a host of disasters over the years, with adverse impacts on the population. With climate scenarios pointing to an increase in the frequency and intensity of extreme weather events, (forced) population movements are likely to become a frequent phenomenon in the country. Despite underscoring the need for an integrated approach in addressing vulnerability to the impacts of climate change, measures to address climate change and disaster-related movements do not feature prominently in existing legal and policy frameworks at the national level. Among the 14 policies and legislations related to migration, environment, climate change and disasters that were identified at the national level, only the Second National Communication on Climate Change acknowledges human mobility in the context of climate and other environmental impacts. In addition to emphasizing that the combination of poverty with the increasing frequency and intensity of extreme weather events would influence rural–urban and international migration patterns, the Second National Communication on Climate Change draws attention to the impacts of sea level rise and flooding events on potential mass human displacement. In turn, the Emergency Shelter Policy aims to provide temporary shelter to those who have lost their homes in the wake of a disaster. The limited attention to the topic suggests that there is a need for enhanced policy and planning to effectively address the adverse impacts of climate change and disasters, and the potential to accentuate human mobility patterns in the country. In this light, this study assesses the national data systems on migration, environment, disaster, and climate change in Antigua and Barbuda.

This study is part of the IOM project entitled "Regional Dialogue to Address Human Mobility and Climate Change Adaptation in the Eastern Caribbean". The project is implemented under the auspices of IOM's GMDAC (Berlin, Germany) and IOM Dominica, with funding from the German Federal Foreign Office. The objective of the project is to assess the national data systems of six Eastern Caribbean countries (Antigua and Barbuda, the Commonwealth of Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines) in relation to migration, environment, and climate change to identify strengths, weaknesses, and opportunities to enhance availability and evidence on environmental migration.

The study adopted a mixed methodological approach involving a triangulation of methods, including desk reviews and interviews with officials, national agencies, and departments, as well as international/regional organizations. In Antigua and Barbuda, questionnaires were shared with the Department of Immigration, the Statistics Division, and the National Office of Disaster Services (NODS). Alongside the questionnaires, several other national agencies and ministries that collect some level of data on the topic, but were not identified during the mapping process, were also engaged as part of the national validation

workshop. The analysis and findings of the study and consultation process served as the basis for the critical discussion on climate change, environment, disaster, and human mobility data in Antigua and Barbuda.

At the national level, consultations with the Department of Immigration, the Statistics Division and NODS enabled the identification of different constraints. The analysis reveals that data collected by the Department of Immigration is mainly associated with passengers and visitors arriving in or departing from Antigua and Barbuda. The Embarkation/Disembarkation Card (ED Card) that the Department deploys at the various ports of entry does not enable the compilation of information related to population movements that may result from climate and environmental change and disasters.

Furthermore, the Statistics Division does not present a specific cluster dealing with statistics on the environment. This has translated into not only a lack of indicators on climate change and disasters, but also a lack of data on climate- and disaster-related human mobility. When it comes to statistics and indicators related to human mobility, the Division generates statistics only on some general aspects of migration, mostly collated as part of the national census. With the 2011 round of Population and Housing Census, the census questionnaire included questions on (international) migration with a query on the main reason for moving. However, the questionnaire and embedded options do not take environmental indicators into account. Although questions related to international migration were also presented in the last two Labour Force Surveys of 2015 and 2018, the reasons for moving were not probed.

Despite having implemented the procedures of CDEMA at the national level, the template currently in use by NODS to gather data on disasters does not allow for the effective quantification of persons forced to move in the wake of disasters and related emergencies. Notwithstanding, the analysis points to the potential for the number of displaced persons to be implied from that of the level of housing damages often recorded as part of the CDEMA Damage Assessment and Needs Analysis (DANA) Continuum process.

This report highlights the main gaps and limitations that hamper the availability of timely and reliable data on environmental migration across the distinct national agencies. Within the context of the Department of Immigration, a major gap identified relates to the lack of provision or specific questions on climate and environmental factors as precursors for movement in the Customs Declaration Form, which it deploys at various ports of entry/departure to capture data. As such the form is not able to adequately capture population movements associated with environmental factors. Also, the Department does not have an established or comprehensive database. The information hosted in the Border Management System (BMS) is limited to just an inventory of the number of people entering or leaving the country. Another gap identified is that the Department does not have laid-out protocols or procedures in terms of management and sharing of the data often collected.

Despite being the main national agency in charge of developing statistics for national development planning and policy formulation, the Statistics Division does not develop statistics on environment nor present any indicators on climate change and disasters and related migration. The census questionnaire as the main instrument deployed to collect data presents questions related to migration and specifically probes the reasons for moving. Nevertheless, the census questionnaire does not make provision for the capture of environmental factors as reasons for migration. The National Labour Force Surveys, on the other hand, collect data related to migration as well. However, the questions often presented do not probe the underlying reasons informing the decision to move or migrate. The surveys also do not consider the role of environmental factors in the decision to stop and/or quit an employment.

As the main agency that deals with disaster management, impact assessment and response, NODS draws on the CDEMA DANA Continuum process and predetermined forms in the wake of a disaster to collect data. However, it does not use or have a set template for the development of the Initial Situation Overview (ISO) (Stage 2) of the DANA Continuum. As a result, the opportunity to capture or have a preliminary overview of disaster impact – and by extension, human mobility – is lost. Furthermore, the Damage Assessment Form for Housing Stock, which is also deployed to collect quantitative data as part of Stage 3 of the DANA Continuum, does not account for human casualties. Hence, the possibility of

directly capturing data or accounting for persons who may have been displaced, evacuated or forced to relocate is missing. Another major gap or constraint identified in the context of data is that NODS does not have an official database or repository for disaster data. Other than the information that it generates in the form of reports, there is no officially established system to host and manage data.

Based on the gaps and limitations identified, recommendations and proposed guidelines are outlined to enhance the collection, effective management, and accessibility of data on climate- and disaster-related human mobility in Antigua and Barbuda. Alongside the proposition for the Department of Immigration to consider revising the Customs Declaration Form to allow the capture of environmental factors as reasons or drivers for movement, the BMS could be upgraded or transformed into a comprehensive data system that also accounts for immigration and emigration, as well as climate- and disaster-related mobility that may be detected at the ports. Given that other national agencies also collect administrative data relating to migration and visitors (tourists), the recommendation is for the Department to support the development of methodologies and common protocols that clarify how data could be collected at the existing ports of entry, as well as how this information could be subsequently managed and disseminated.

The proposition is also for the integration of queries about climate and environmental risks and migration into the respective questionnaires for all upcoming national censuses. Census questionnaires could be designed to allow for the collection of data on the human mobility categories, such as internal and cross-border migration, displacement, relocation, as well as other forms of movement. In terms of disaster, there is the need for NODS to develop a common national database on disaster data from which the information compiled and kept in the format of reports could be managed and disseminated. To facilitate the collection of data, NODS could initiate the development of common methodologies and protocols on how to collect, manage and disseminate data on disaster at the national level. The endeavour could also entail the development of standardized/common categories and definitions. This would guide the activities of all the national actors often involved in the collection of disaster data, and offer opportunities for data cleaning and quality. It is envisaged that improved data collection and management would contribute to informed planning and policies for enhanced mobility governance, climate adaptation, as well as disaster management in Antigua and Barbuda.

The report is divided into to six sections. The first section gives an introduction and background to the study. Section 2 entails a discussion of the conceptual approach to understanding the human mobility outcomes in the context of climate and other environmental changes, including disasters. It further describes the methodological approach to the study. This is followed by Section 3, where the discussion focuses on the key issues of data on climate and environmental change, disasters, and human mobility in Antigua and Barbuda. Specifically, this section highlights the main sources of information and data on these key themes at the national level. It also showcases the main gaps and limitations to enhanced data collection, management and dissemination. Section 4 offers guidelines for enhanced data collection and management systems on the climate and environmental change, disaster, and human mobility nexus in Antigua and Barbuda. Lastly in Section 5, the discussion concludes by emphasizing the importance of and need for reliable data for informed decision-making and planning by outlining opportunities and recommendations for data collection and management systems across the national agencies.

1. INTRODUCTION

1.1. Migration, climate and environmental change, and issues of data in Antigua and Barbuda

Like many other island States across the Eastern Caribbean, Antigua and Barbuda is exposed and continues to be affected by extreme weather events, which are characteristic of the Caribbean (Taylor, 2017). With coastlines that stretch in length to 153 km and 107 km in Antigua and Barbuda respectively (Potter et al., 2017), both islands have experienced a host of hydrometeorological hazards between 1928 and 2020 (O'Marde, 2017). Whereas recurring episodes of extreme weather/climate are not uncommon, the twin-island State has witnessed an increase in frequency and intensity of droughts, hurricanes, flooding and other climate-related hazards (ibid.). During the 2017 hurricane season, Barbuda was the first territory to be hit by Hurricane Irma, which resulted in widespread destruction and losses of millions of United States dollars (Baptiste and Devonish, 2019).

As one of the States that took the brunt of Hurricanes Irma and Maria during the 2017 hurricane season, for example, Antigua and Barbuda reported a total of 1,400 people (constituting 1.5% of the population of 95,426) displaced (IDMC, 2018:43). Hurricane Irma (September 2017) accounted for the destruction of more than 81 per cent of buildings and other infrastructure in Barbuda (IFRC, 2020). This led to the mass displacement and subsequent evacuation of all inhabitants to the neighbouring island of Antigua (Sou, 2019). Despite the direct impacts and costs, climate-related risks interact with a multiplicity of complex socioeconomic factors and existing vulnerabilities in aggravating the displacement and forced migration of people across the twin islands (Audebert, 2017; O'Marde, 2017).

As outlined in the *Country Document for Disaster Risk Reduction: Antigua and Barbuda 2016* and the Immigration and Passport Act (No. 6 of 2014), the national Government recognizes that effective climate change and migration governance is key to facilitating sustainable development and climate change resilience in Antigua and Barbuda (Government of Antigua and Barbuda, 2014; O'Marde, 2017). Other existing policy and legal frameworks, such as the Emergency Powers Act (No. 5 of 1957), the Natural Hazard Mitigation Policy and Plan (2001), the National Comprehensive Disaster Management Policy and Strategy for Antigua and Barbuda (2013–2016) (Government of Antigua and Barbuda, 2015a; O'Marde, 2017), as well as the Emergency Shelter Policy (2001) all demonstrate the Government's commitment to addressing the critical issue of disaster risk reduction (DRR) in the country (see Table 3).

IOM's migration governance and needs assessments, conducted in the 10 island States of the Commonwealth Caribbean, showed that Antigua and Barbuda and all the other member States have national plans to guide the effective management of emergencies and disasters. Also, the national Government has designated agencies and institutions in charge of implementing the proposed

actions and interventions (Aragón and El-Assar, 2018). Despite the relative strides that have been made, there remains a lack of comprehensive approach or limited integration of human mobility issues into climate change and disaster plans and strategies. Even in instances where the Department of Immigration is drawn or deployed to handle issues of human mobility, as part of emergency committees, their involvement is often on an ad hoc basis. This is because there are no formally documented protocols for coordinating with immigration authorities (Aragón and El-Assar, 2018:51). This limitation is further compounded by the lack of data and evidence on climate- and environment-related mobility as critical elements for effective planning or deployment of interventions.

At the national level, available information on migration is mostly based on census data collected by the Statistics Division, as well as administrative data on entries and exits, visas, and residence permits generated by the Department of Immigration. Some other national agencies such as NODS, the Department of Labour, the Antigua and Barbuda Tourism Authority, the Antigua and Barbuda Red Cross Society, and the Family and Social Services Division of the Ministry of Social Transformation and Human Resources Development also present statistics that sometimes highlight the number of people affected or displaced by climate-related disasters.

Besides the national agencies, some international non-governmental organizations operating in the region also generate statistics, which sometimes highlight the number of people affected or displaced by climate-related disasters. Nevertheless, data and information on climate- and environment-related migration are mostly from global or international sources. For example, international institutions like the Centre for Research on the Epidemiology of Disasters – Emergency Events Database, the Internal Displacement Monitoring Centre (IDMC), IOM's Displacement Tracking Matrix, and the United Nations Office for the Coordination of Humanitarian Affairs – Humanitarian Data Exchange all capture and share data on disasters and displaced or affected persons for different countries and regions across the globe. At the regional level, the Caribbean Disaster Emergency Management Agency (CDEMA), in the framework of the Caribbean Risk Information System (CRIS), hosts risk management data and information on its virtual platform. It provides access to risk management data, including information on climate-induced hazards and how to reduce risk in fulfilling CDEMA's Clearing House function.

Although the data collected provide information on climate risks, disaster and impacts across the region, there is a need for country-specific, disaggregated, and comprehensive data on climate change and related human mobility. More importantly, there is a need to assess the reliability of data by probing the data collection, management and sharing mechanisms at the national level. The availability of adequate and reliable data is crucial in helping the Government of Antigua and Barbuda to plan and develop evidence-based policies that effectively address the adverse impacts of climate and environmental change and disasters on human mobility, for accelerated development in the country (Government of Antigua and Barbuda, 2015a).

1.2. Scope and objective of the study

This study is part of IOM's project entitled "Regional Dialogue to Address Human Mobility and Climate Change Adaptation in the Eastern Caribbean", under the auspices of IOM's GMDAC in Berlin, Germany, and IOM Dominica, and funded by the Government of the Federal Republic of Germany. The project seeks to build a regional dialogue series in Eastern Caribbean States that will enhance the capacities of governments to collect, analyse, and utilize data on human mobility and vulnerability derived from environmental change. It is being implemented by IOM in six independent member States of the OECS – namely, Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. Its objective is to assess the national data systems of the six countries in relation to migration, environment, and climate change to identify strengths, weaknesses, and opportunities to enhance availability and evidence on environmental migration. The ultimate goal is to enhance the availability of reliable data on environmental migration for informed planning and policy.

In the context of the Eastern Caribbean, the migration of people is an integral feature of the population dynamics of societies. As in other countries, Antigua and Barbuda experiences both internal and cross-border or international migration patterns (IOM, 2017; Kelman, 2018). Notwithstanding, inter-island mobility is facilitated through the two main free-movement arrangements established under the Caribbean Community (CARICOM) and the Organisation of Eastern Caribbean States (OECS). Alongside these regional mobility frameworks, there are other existing regional climate change and disaster governance frameworks and institutional structures, which seek to enhance climate change adaptation, as well as disaster response and management in the region. Given that this assessment focuses on human mobility in the context of climate and environmental change and disasters, CARICOM's Caribbean Disaster Emergency Management Agency (CDEMA) is also of importance in understanding climate- and disaster-related mobility management in the region. A detailed discussion of these aforementioned mobility, climate and disaster governance frameworks is outlined in Section 3 of the Regional Report. This report focuses exclusively on Antigua and Barbuda.

2. CONCEPTUAL AND METHODOLOGICAL FRAMEWORK

2.1. Conceptual framework: Understanding the climate and environmental change, disaster, and human mobility nexus and outcomes

The role of environmental factors in influencing patterns of human mobility has long been a focus of scientific research and policy (Piguet, 2011 and 2013; Ionesco et al., 2017; Flavell et al., 2020). However, recent attention to DRR and climate change adaptation policy has invigorated calls to mainstream the human mobility dimensions of climate and disaster impact in political, development and climate action (Mercer, 2010; Wilkinson et al., 2016). As elaborated in the Regional Report (see Section 2), the increasing policy attention and evolving perspectives on the climate and environmental change, disaster, and human mobility nexus indicate the extent to which climate change impact and DRR have gained traction.

The broad distinction between the different types of human mobility (i.e. migration, displacement, planned relocation) in the context of climate change also highlights the complexity of multiple factors that come into play in precipitating movements under circumstances of real or perceived climate and environmental risks (Renaud et al., 2011; Warner et al., 2013; IOM, 2018 and 2019; Bower and Weerasinghe, 2021). The conceptual framework developed as part of the Foresight project provides a good point of entry to understanding mobility outcomes or decision-making in the context of climate and environmental change and disasters (Government Office for Science, 2011; Black et al., 2013). The Foresight framework[1] explains that mobility outcomes (including displacement and the decision to stay or being unable to leave) are influenced by a multiplicity of complex interrelated forces operating at the macro (social, economic, environmental and political), meso (mostly intervening obstacles and facilitators), and micro (personal and household characteristics) levels.

The emphasis on the need for evidence in collecting, analysing and using reliable data on patterns of mobility, as well as understanding the links with environmental degradation, climate change, and crises to inform and foster policy coherence (IOM, 2014b), is of particular relevance for the purposes of this study. In this regard, IOM recognizes the need to link research and policy in support of efforts by national governments at promoting effective migration governance as one of its key commitments (Melde et al., 2017). It is thus within the remit of enhancing policy, based on the availability and importance of timely and reliable data, that this study assesses the national data systems on migration, environment, disaster, and climate change of Antigua and Barbuda.

2.2. Data collection in Antigua and Barbuda

The research approach for this study is based largely on a triangulation of methods, including desk research and interviews with officials, national agencies, and departments, as well as international/regional organizations. For the data collection, the study began with an extensive desk review, involving the identification and mapping of global, regional, and national sources of information and data-sharing systems, as well as governance frameworks on migration, environment and climate change across the OECS. A description of the whole research process is further detailed in the Regional Report (see Section 2).

[1] See Section 2 of the Regional Report for a detailed discussion of the Foresight Migration Decision Framework.

In Antigua and Barbuda, three main national agencies were identified as relevant sources of data and statistics on climate and environmental change, disasters, and human mobility. The agencies included the Department of Immigration, the Statistics Division and NODS. These three agencies received 3 out of the 18 questionnaires that were distributed to all the national agencies identified as relevant sources of data across the six OECS countries of focus. Ten other questionnaires were sent to regional stakeholders. Two different questionnaires were deployed to cater to the distinct stakeholders identified. Although the questionnaires were developed in this way to allow for distinction between the different stakeholders, the questions did not differ much. Agencies in Antigua and Barbuda received the questionnaire designed for the national level (see Annex III). The questions presented were mostly open-ended and allowed for the collection of qualitative data. Both questionnaires solicited information relating to climate change impacts at both regional and national levels; existing climate, disaster and migration governance frameworks; available official and secondary sources of data at the national and regional levels; as well as gaps and options to enhance data on migration, environment, disaster and climate change at all levels.

As a follow-up on the questionnaires distributed, complementary online interviews were conducted with the three national agencies that had received them. With the support of IOM Dominica, several other national agencies and ministries that collect some level of data on the topic, but were not identified during the mapping process, were also engaged. These included the following: Antigua and Barbuda Red Cross Society – International Federation of Red Cross and Red Crescent Societies; Ministry of Foreign Affairs, International Trade and Immigration; Ministry of Legal Affairs, Public Safety and Labour – Department of Labour; Ministry of Tourism and Investment – Antigua and Barbuda Tourism Authority; and Ministry of Social Transformation and Human Resource Development – Family and Social Services Division. Together with the three main national agencies, these other agencies and ministries were extensively consulted as part of the national validation workshop that was held in March 2021. The national workshop provided critical insights into the issues of climate and environmental change, disaster, and human mobility data in Antigua and Barbuda.

With the data analysis, the secondary quantitative data/statistics and information helped to ascertain the availability of data on the topic, and how far this data was being collected in Antigua and Barbuda. The quantitative data also served as reference in discussing the issues that came up in the qualitative interviews and data. Based on the findings of the study and consultation process, technical guidelines for enhanced data collection, management, and dissemination on migration, environment, disasters, and climate change in Antigua and Barbuda have been formulated to assist in building national capacities, and to facilitate a better understanding in effectively addressing climate change and disaster impacts on human mobility at the national level.

3. DATA ON CLIMATE AND ENVIRONMENTAL CHANGE, DISASTERS, AND HUMAN MOBILITY: A FOCUS ON ANTIGUA AND BARBUDA

3.1. Country profile

Antigua and Barbuda is a twin-island State in the Lesser Antilles, Eastern Caribbean (see Figure 1), with a combined total land area of 440 sq. km and a population of 97,000 people in mid-2019 (Potter et al., 2017; UN DESA, 2019). The main economic activities are agriculture, manufacturing and tourism (see Table 1). The tourism sector has grown as a major driver of the economy, contributing to almost 44.7 per cent of the GDP as of 2019 (Knoema, 2019). Following a remarkable economic growth with a GDP of 7.4 per cent in 2018, the country's GDP declined to 4.7 per cent in 2019 (World Bank, n.d.). According to the Caribbean Development Bank (CDB) (2019), the slide in GDP is a result of the decline in the visitor and cruise passenger arrivals in 2019. Since the rapid global spread of COVID-19 in 2020, Antigua and Barbuda's GDP growth rate has contracted to -13.8 per cent, marking a year of negative growth for the country (Alleyne et al., 2021:9).

Figure 1. Map of Antigua and Barbuda

Source: Infoplease, n.d.

Note: This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by IOM.

Table 1. Background of key socioeconomic information in Antigua and Barbuda

Capital	Saint John's
Form of government	Constitutional monarchy
Location	Lesser Antilles, Eastern Caribbean
Total land area	440 sq. km
Population	97 000 (mid-2019)
Main economic activities	Tourism, agriculture and manufacturing
GDP (annual growth)	4.7% (2019)
Hazards that may lead to displacement	Cyclonic wind, storm surge, earthquake and tsunami
Risk of future displacement	3 366 people per year

Sources: Potter et al., 2017; CDB, 2019; UN DESA, 2019; IDMC, n.d.; World Bank, n.d.

Antigua and Barbuda is exposed and vulnerable to climate and other environmental changes: sea level rise, high temperatures, as well as increased frequency and intensity of tropical storms and other disasters have afflicted the country over the years (O'Marde, 2017; Potter et al., 2017). Between 1950 and 2014, the twin-island nation recorded a total of 503 disasters (see Table 2), affecting more than 2 million people (UNDRR DesInventar Sendai, 2020). Aside from Antigua and Barbuda being ranked as the fourth most vulnerable country with regard to the impacts of climate change worldwide (Behlert et al., 2020), the Internal Displacement Monitoring Centre (IDMC) (n.d.) projects that approximately 3,366 people are at risk of being displaced in the context of sudden-onset hazards every year in its territory.

Table 2. Impact of disasters by event type: Antigua and Barbuda (1950–2014)

Event	Number of occurrences	Deaths	Injured	Missing	Houses destroyed	Houses damaged	Directly affected	Indirectly affected	Relocated	Evacuated
Accident	13	6	47				262	262		4
Biological	15		3 619				1 249	46 595		
Coastal erosion	51							34 044		
Drought	5							202 225		
Earthquake	1		4			1 000		60 000		
Fire	29	10	13		21	2	686	1 257	43	147
Flood	38	1			1		148	200 040		12
Hurricane	129	13	600	1	1 566	11 905	31 529	653 564	43	8 655
Rains	155							669 734		
Windstorm	67							317 004		
Total	503	30	4 283	1	1 588	12 907	33 874	2 184 725	86	8 818

Source: UNSDRR DesInventar Sendai, 2020.

With climate scenarios pointing to an increase in the frequency and intensity of extreme weather events, the Government of Antigua and Barbuda (2001a) has earlier on underscored the need to build capacity in identifying the potential impacts of climatic changes on the various sectors of the economy. The Government has also indicated the need for an integrated approach to effectively address vulnerability to climate change impacts across the different sectors of the economy (ibid.). In line with this, policy and legal frameworks have been developed to foster the climate and DRR agenda at the national level.

3.2. National governance of the climate and environmental change, disaster, and human mobility nexus

At the national level, a number of policy frameworks have been developed to enhance efforts to address climate change vulnerability and impact, as well as disaster risk reduction and management in Antigua and Barbuda. As shown in Table 3, the identified policy and legal frameworks straddle the thematic areas of migration, climate and environmental change, and DRR. The analysis thus examined how far these policies incorporate population movements in the context of climate and other environmental changes, and whether there are any corresponding provisions to establish data-sharing mechanisms on the topic.

Table 3. Policies related to migration, environment, climate change, and disaster risk reduction in Antigua and Barbuda

Governance sphere	Year	Policy	Acknowledgement of the climate and environmental change, disaster, and human mobility nexus	Provisions on data-sharing mechanisms
Migration	2014	The Immigration and Passport Act (No. 6 of 2014)[a]	No	No provisions
Environment	2002	The Environmental Protection Levy Act (No. 22 of 2002)[b]	No	No provisions
	2015	Antigua and Barbuda's 2015–2020 National Acton Plan: Combating Desertification, Land Degradation and Drought[c]	No	No provisions
	2017	Strategy for the Protection of the Environment and the Sustainable Development of Antigua and Barbuda[d]	No	No provisions
	2019	Environmental Protection and Management Act (No. 10 of 2019)[e]	No	No provisions
Climate change	2001	Initial National Communication on Climate Change[f]	No	No provisions
	2009	Second National Communication on Climate Change[g]	Yes	No provisions
	2015	Third National Communication on Climate Change[h]	No	No provisions
	2015	Intended Nationally Determined Contribution[i]	No	No provisions
Disaster risk reduction	1957	The Emergency Powers (Hurricane, Earthquake, Fire or Flood) Act (Chapter 148)[j]	No	No provisions
	2001	Natural Hazard Mitigation Policy and Plan[k]	No	No provisions
	2002	The Disaster Management Act (No. 13 of 2002)[l]	No	No provisions
	2014	National Comprehensive Disaster Management Policy and Strategy for Antigua and Barbuda (2013–2016)[m]	No	No provisions
	-	Emergency Shelter Policy[n]	No	No provisions

Sources: [a]Government of Antigua and Barbuda, 2014; [b]Government of Antigua and Barbuda, 2002a; [c]Government of Antigua and Barbuda, 2015b; [d]Government of Antigua and Barbuda, 2017; [e]Government of Antigua and Barbuda, 2019; [f]Government of Antigua and Barbuda, 2001a; [g]Government of Antigua and Barbuda, 2009; [h]Government of Antigua and Barbuda, 2015c; [i]Government of Antigua and Barbuda, 2015d; [j]Government of Antigua and Barbuda, 1957; [k]Government of Antigua and Barbuda, 2001b; [l]Government of Antigua and Barbuda, 2002b; [m]O'Marde, 2017; [n]Government of Antigua and Barbuda, 2001c.

3.2.1. (Im)migration policies and legislation

Immigration law in Antigua and Barbuda reflects British common law systems that are largely shared by most of the former British Caribbean colonies (Cantor, 2018). The identified legislation or legal framework on migration in Antigua and Barbuda relates to the Immigration and Passport Act (No. 6 of 2014) (see Table 3). In addition to stipulating the requirements guiding entry and departure from Antigua and Barbuda, the Act specifically establishes regular migration categories for purposes such as tourism, visits, studies, employment, and family members or reunification (Government of Antigua and Barbuda, 2014). The Act does not make any reference or specific provision relating to the regulation of those who move in the context of climate or other environmental changes.

Although there are provisions to deal with exceptional cases, these are rather limited to the discretionary powers of the Chief Immigration Officer in cases where a child arrives on a vessel and wishes to attend an educational institution or remain in Antigua and Barbuda. As such, the instances of considering exceptional cases are discretionary and applied upon individual circumstances (ibid.). Notwithstanding, the free-movement agreements developed under the OECS and CARICOM, which the Immigration and Passport Act acknowledges, facilitate entry or stay in Antigua and Barbuda in the case of nationals from other (Eastern) Caribbean island States affected by climate change and disasters.

3.2.2. Climate and environmental change policies and legislation

As highlighted earlier, the national Government of Antigua and Barbuda has developed climate and environmental policies, and legal frameworks to address the threats and impacts of climate and other environmental changes in the country. Despite the seemingly proactive response by way of policy development and implementation, not much attention has been given to the issues of climate and environmental change and human mobility. Indeed, out of the eight climate- and environment-related policy documents examined, only one addresses the topic (see Table 3).

The Antigua and Barbuda Second National Communication on Climate Change acknowledges that poverty, coupled with the increasing frequency and intensity of extreme weather events, will influence rural–urban and international migration patterns (Government of Antigua and Barbuda, 2009:217). It also draws attention to the fact that sea level rise and increased flooding could potentially lead to mass human displacement and adverse health effects. Although the nature of ongoing global climatic changes in the nearest future is uncertain, the expectation is that the impact on the twin-island State would be widespread, with devastating consequences. To thus inform appropriate action, the national Government recognizes the continuous collection of data and monitoring of weather and environmental parameters as indispensable to facilitating adaptation (ibid.).

While the Initial National Communication on Climate Change and the Intended Nationally Determined Contribution (INDC) have both reiterated the need for capacity-building and international support in enhancing data collection, management and dissemination (Government of Antigua and Barbuda, 2001a and 2015d), no information and specific provisions on data-sharing mechanisms were identified. In this context, the Second National Communication on Climate Change attributes the lack of specific data storage and sharing mechanisms in Antigua and Barbuda to the enormous institutional and operational challenges (relating to the lack of human, financial and technological capacities) faced by NODS (Government of Antigua and Barbuda, 2009).

In comparison to the aforementioned climate change policy frameworks, the Environmental Protection and Management Act (No. 10 of 2019) is concerned with ensuring sustainable environmental protection and management of natural resources (Government of Antigua and Barbuda, 2019). Basically, the Act allocates administrative responsibility for the management of environmental matters and adherence to Antigua and Barbuda's international treaty obligations with respect to the environment. Under Article 4/3(u), the Act outlines the task of the Department of Environment (DOE) to undertake, inter alia, the collection, analysis, publication, and dissemination of environmental data and information, including the preparation of reports on the environment.

In addition to advocating the maintenance of a register of sources of pollution in Antigua and Barbuda, the Act further clarifies that the Sector Minister may sanction the collection of data through research so as to create an inventory, formulate objectives, and report on the state of the environment, or serve as a basis in administering any provision of the Act (ibid.). Despite the explicit recognition of the importance of data for effective environmental management, the Act does not make reference to environmental change impact on human mobility, nor does it make any consideration to capture and share data on the subject.

3.2.3. Disaster management policies and legislation

At the national level, disaster preparedness and emergency response are implemented in the framework of the Emergency Powers (Hurricane, Earthquake, Fire or Flood) Act (Chapter 148) and the Disaster Management Act (No. 13 of 2002) (Government of Antigua and Barbuda, 1957 and 2002b). The Emergency Powers (Hurricane, Earthquake, Fire or Flood) Act allows the national Government to declare a state of emergency when extreme weather events occur, providing for a one-month duration and with possibility of extension. Section 3 of the Act gives wide-ranging powers to national authorities to "make orders securing the essentials of life to the community and for the preservation of the health, welfare and safety of the public", enabling the adoption of effective measures to address disasters (Government of Antigua and Barbuda, 1957). The Disaster Management Act sets the framework for regional cooperation in disaster preparedness, management and response in the country. Not only does it define national priorities in the wake of a disaster, but it also provides the framework for the establishment of a national relief organization that is capable of responding to disasters in an efficient and coordinated manner (Government of Antigua and Barbuda, 2002b).

In this regard, the disaster preparedness structure in Antigua and Barbuda mainly comprises of the National Office of Disaster Services – Coordinating Unit (NODS-CU) and the National Emergency Operations Centre (NEOC). NODS is the main national agency concerned with the management of disasters and emergencies at the national level. Besides working with other key agencies in effectively carrying out its mandate as outlined in the National Disaster Preparedness Response Plan, the agency's activities are coordinated by a Director and support administrative staff.[2] Based on the provisions of the Disaster Management Act (No. 13 of 2002), the Director (subject to the policy directives of the Prime Minister) is tasked with the responsibility of coordinating the general policy of the unit relating to mitigation, preparedness, response, and recovery from emergencies and disasters in Antigua and Barbuda. The NEOC (established within the framework of NODS), on the other hand, is the operational arm of the National Disaster Management Mechanism of Antigua and Barbuda (O'Marde, 2017).

Antigua and Barbuda had also developed a National Comprehensive Disaster Management (CDM) Policy and Strategy (2014–2016). The Policy was aimed at streamlining the governance of disaster management. As such, it was committed to providing adequate resources (human and financial) to NODS-CU in the bid to enable more efficient decision-making and guidance. The goal was to develop and maintain a framework which enables the capacities and capabilities of communities to support and elaborate its efforts on disaster prevention and mitigation, recovery, and rehabilitation (ibid.). As part of the Policy's commitments, it focused on designing public safety legislation while also enhancing early warning for DRR at the community levels. Despite these commitments, the CDM did not present or make any provision to effectively address displacement or respond to the specific needs of climate-related migrants. Moreover, it did not highlight or designate any dedicated fund, action plan or protocol for the management of population movements as a result of disasters.

The Emergency Shelter Policy provides the framework for the national Government to address disaster impact by way of the establishment, maintenance and provision of emergency shelter for members of the public. In collaborating with both private sector and non-governmental organizations to advance this agenda, the goal is to bring some relief through the provision of temporary shelter to persons who have lost their homes in the wake of a disaster event (O'Marde, 2017). The policy takes proactive

[2] NODS is located within the Ministry of Social Transformation and Human Resource Development, and it provides administrative and emergency support based on requests from the CDEMA to assist any of the CDEMA member States.

precautionary measures in strengthening physical infrastructure and adequate human resources and supplies in anticipation of the destruction that may come with a disaster event. Mostly, the provision of temporary shelter is prioritized by giving special attention to vulnerable groups like the elderly, physically and mentally challenged, as well as poor sections of the population (ibid.). The policy focus is thus to provide temporary shelter to persons rendered homeless by disaster rather than persons who have been forced or are on the move because of it.

From the analysis of the different governance frameworks identified, there is limited acknowledgement of the climate and environmental change, disaster, and human mobility nexus in national migration, climate and environmental change, and DRR policy frameworks in Antigua and Barbuda. Except for the Second National Communication on Climate Change (Government of Antigua and Barbuda, 2009), which only acknowledges the topic without presenting comprehensive measures to address it, none of the policy frameworks analysed give any attention to addressing displacement or the specific needs of climate-related migrants. Furthermore, there is no dedicated fund, action plan or protocol for the management of large-scale population movements outlined by any of the policies or strategies that have been analysed.

3.3. Sources of information and/or data on migration, climate and environmental change, and disaster risk reduction in Antigua and Barbuda

This section examines the availability of data, and how the distinct national agencies and departments collect, manage, and disseminate data on migration, climate and environmental change, and disasters. To this end, the activities of the Department of Immigration, the Statistics Division and NODS are critically examined.

3.3.1. The Department of Immigration

All persons entering the territory of Antigua and Barbuda, whether via air or sea, are required to fill the same Customs Declaration Form (Ministry of Finance, n.d.). As such, both residents and visitors are expected to complete the same document, which collects administrative data on date of birth, country of citizenship and residence, and residential address, among others (ibid.). Second, the form does not allow for determination of the sex/gender of the person arriving or departing from the territory. The form also asks about the purpose of the visit (question 10) but only provides limited options: "business" and "personal". There are no options relating to climate and environmental factors and disasters as potential drivers for movement. As such, the form does not capture population movements that result from climate and other environmental changes (e.g. disasters). As it is a generic entry form that applies to everyone, there is no specific attention for citizens coming from other (Eastern) Caribbean States. Considering that nationals from the OECS and CARICOM member States can easily circulate based on the provisions made by the existing free-movement agreements, it could be difficult to quantify the number of citizens who may be entering the country due to disasters or other forms of emergency.

The data collected by the Department will mostly translate as an inventory of passengers and visitors arriving or departing from the twin-island State. It is thus unclear as to how the data collection accounts for and manages information relating to persons or community citizens who are either immigrating or emigrating from the territory.[3] Hence, there is no comprehensive database with immigration/emigration-related information in Antigua and Barbuda. However, the information collected on the number of people arriving/leaving by air and sea, and whether they are residents or non-residents, is stored in the Border Management System (BMS). The information stored in the BMS is periodically shared with other national agencies, such as statistics and tourism departments, but not shared or made available to the public.

[3] That is, the data collected by the Department of Immigration does not clarify whether persons are arriving as immigrants (coming in to stay) or emigrating entirely from the island.

3.3.2. The Statistics Division

The Statistics Division is mainly responsible for collecting and presenting statistics on different socioeconomic parameters at the national level. The Division presents statistics on the consumer price index, economic accounts, training and learning, health, information and communication technologies, international trade, labour, population and demography, as well as travel and tourism. It also generates indicators on the following topics: population projections, annual inflation, imports, domestic exports, growth rate at marketplaces, and visitor arrivals (Statistics Division, n.d.). However, the Division does not develop specific statistics and indicators related to human mobility in the context of climate and other environmental changes. The lack of a distinct cluster dealing with the environment and related topics gives the indication that the Division does not collect primary data on this topic. The Division, however, collaborates with or draws on the DOE in terms of generating environmental statistics.[4] Similarly, neither the statistics on "population and demography" and "travel and tourism" nor the indicators on "population projections" and "visitor arrivals" give any indication or information that could be associated with the general aspects of migration.

The 2011 Population and Housing Census was analysed as a potential source of data on migration, environment and climate change. While the census report acknowledged the significant role of net migration in contributing to demographic changes in the last decade across the State (intercensal period), it also pointed to the lack of flow data on trends of in-migration and outmigration for Antigua and Barbuda, as well as on immigration and emigration (Statistics Division, 2017:24). In further examining the questionnaire (Census Person/Household Questionnaire) that was deployed for the 2011 Population and Housing Census, it was observed that there was a specific section on international migration (Statistics Division, 2011). Besides asking if anyone in the household moved abroad during the intercensal period (2001–2011), the questionnaire further probed the main reason for migration at the time of departure (with the available response options being "family reunification", "employment", "study", "crime rate", "medical" and "other reasons").[5] However, as has typically been the case with other national censuses, the questionnaire and embedded options did not take internal migration into account nor present any environmental indicators as part of the data collection.

Similarly, under the section that addresses birthplace and residence for non-nationals, the question on the main reason for current residency in Antigua and Barbuda offered the following answer options: "economic activity under the Free Movement Agreement (skilled CARICOM national, service provider, rights of establishment/commercial presence, employee of non–wage earner)", "other economic activity", and "dependents and other (to be specified)". Even for national returnees, the options that have been outlined as the main reason for returning to live in the territory were presented as follows: "regard it as home", "family is here", "involuntary return", "to start a business", "employment/work", "education", "retired", "homesick" and "other (specify)".[6] In both of the sections observed in the census questionnaire, it is noticed that the reasons are mostly based on economic factors. Although the 2011 Population and Housing Census compiled information on migration in Antigua and Barbuda, the questions that were applied as part of the census questionnaire did not allow for the capture of information on the climate and environmental change, disaster, and human mobility nexus.

Aside from the 2011 Population and Housing Census, the Statistics Division has also conducted two Labour Force Surveys (2015 and 2018) to evaluate the effectiveness of the Government's social policies and the state of its labour market. The data collection mainly focused on the adult population or labour force – employed and unemployed (or classified as economically not active). The 2015 Labour Force Survey Questionnaire, for example, presents questions related to migration in the section dealing with national demographic characteristics, education and training (Statistics Division, 2015). However, the questions do not probe the reasons for migration. Similarly, answers to questions about the reasons for stopping or quitting an employment (specifically question 66) included the following: "lost job",

[4] Despite not generating specific statistics and indicators on environment and related issues, the Statistics Division works along with the DOE, the national agency responsible for environmental management in Antigua and Barbuda. Presently, the DOE is managing or implementing 27 projects at the national level. Among them, 11 are linked to climate change and related topics, and 2 are related to monitoring, evaluation and data management. More information is available at www.environment.gov.ag/projects-reports#listing.

[5] See questions 30 to 39 of the Antigua and Barbuda 2011 Census Person/Household Questionnaire.

[6] See questions 57 to 68 of the Antigua and Barbuda 2011 Census Person/Household Questionnaire.

"job completed", "resigned to study", "resigned to take care of children", "retrenched", "business failed", "moved to other area", "retired" and "other (specify)". But from the available options offered, people who perhaps became unemployed because of environmental factors (e.g. weather conditions, disasters) were not taken into account.

Given the limited migration data collected as part of the censuses and Labour Force Surveys, the national department does not capture in detail or generate comprehensive data on human mobility in the context of climate and other environmental changes. Notwithstanding, the Statistics Division has indicated that the upcoming data-collection processes (population-based) will present questions on the main reasons for moving to include disasters (e.g. earthquake, flooding, hurricane) as a response option. Data on the topic would allow for the tracking of cross-border and internal migration patterns in the context of disasters, reporting as per international agreements and commitments (e.g. the 2030 Agenda for Sustainable Development and its indicators), informing national policy and legal frameworks, and the development of effective planning and disaster recovery strategies.

In terms of data sharing, the Statistics Division mostly generates and publishes statistics on the demographic and socioeconomic data that it collects on its servers via the website. Alongside the publication of reports, the Division has also made census data accessible to the public through the Retrieval of Data for Small Areas by Microcomputer (REDATAM) tool developed by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC). As a computer software tool, the REDATAM allows for the analysis and dissemination of data collected through censuses and surveys, along with other forms of data from different sources (Statistics Division, 2019). As a good interactive tool for data sharing, the REDATAM enables users to query the microdata that the Statistics Division hosts on its secure server. This data-sharing mechanism provides the opportunity for data that will be collected on climate-related migration to be readily accessible to interested end users.

3.3.3. The National Office of Disaster Services

After a disaster in Antigua and Barbuda, NODS develops its own damage assessments by drawing largely on the CDEMA Damage Assessment and Needs Analysis (DANA) Continuum's standardized procedures.[7] Based on these procedures, a situation report (Stage 2 – ISO) is accomplished to provide some general impressions on the extent of devastation within 24 hours of the disaster. This qualitative report is then followed by a quantitative assessment (Stage 3 – IDHNA) in the next seven days of the event. The Initial Damage and Human Needs Assessment (IDHNA) enables an analysis of the damage caused so as to inform the Government and relevant agencies on which areas to prioritize as part of the response measures.

Given that Antigua and Barbuda is a participating State of CDEMA, NODS basically carries out the aforementioned two stages of the DANA Continuum by using the predetermined forms provided by the regional body. Although officials of NODS clarified that Antigua and Barbuda has adapted the templates provided by CDEMA to fit with the country's needs, the only form that is currently being used by the Office is the Damage Assessment Form for Housing Stock (Annex I). This form does not reflect any similarities with the predetermined forms provided by CDEMA. This is in view of the fact that the template or thematic focus of the Damage Assessment Form for Housing Stock is mostly related to housing damages. Whereas the form enables the compilation of disaggregated data by age and sex, it does not give any indication in regard to human casualties. Hence, it does not allow for the collection and quantification of the number of deaths, injured and missing people. But from the field positing the "total percentage of damage to property", the number of displaced persons could be implied from the information on property "totally destroyed". Another possibility that the form presents is that the number of affected people could also be quantified from the field relating to "name of person's property assessed" in combination with the field on "number of persons in family".

An issue of particular relevance also has to do with the need for reliable data on protracted displacement after a disaster. As exemplified in the case of displaced Barbudans who were evacuated to Antigua in

[7] See the Regional Report for a detailed overview of the CDEMA DANA Continuum process.

the wake of Hurricane Irma, many of the 1,800 persons that were evacuated were trickling back, but confronted with massive destruction and lack of basic supplies to transition back to normalcy (Simmons, 2017). Many others were stranded and coping in emergency shelters as a result of destruction of infrastructure and property in Barbuda (ibid.). Making provision to adequately capture or account for long-term displacement such as this will greatly contribute to the necessary process of determining resource needs and effective strategies to accelerate post-disaster recovery in the country.

From the various sources of data identified, the analysis suggests that Antigua and Barbuda does not have any established official source of information and/or data-sharing systems on disasters. Despite the fact that NODS collects data, during and in the aftermath of a disaster, the country does not host any common or harmonized national databases/repositories from which the information initially compiled and kept in the format of reports could be managed and disseminated. With the information often directly shared with CDEMA, data management in Antigua and Barbuda ultimately falls under the responsibility of the regional agency.

3.3.4. Other national agencies

Aside from the Department of Immigration, the Statistics Division and NODS, several other national agencies were further examined to ascertain how far data on human mobility in the context of climate and other environmental changes is being collected, managed, and disseminated in Antigua and Barbuda. These other national agencies examined include the following: (a) Antigua and Barbuda Red Cross Society – International Federation of Red Cross and Red Crescent Societies; (b) Ministry of Foreign Affairs, International Trade and Immigration; (c) Ministry of Legal Affairs, Public Safety and Labour – Department of Labour; (d) Ministry of Tourism and Investment – Antigua and Barbuda Tourism Authority; and (e) Ministry of Social Transformation and Human Resource Development – Family and Social Services Division.

For all these national ministries and agencies that were engaged as part of the national workshop, it is apparent that they also undertake some form of data collection on different forms of population mobility in Antigua and Barbuda. Whereas some of the ministries collect information ranging from labour mobility to international migration, all these agencies do not specifically collect data on climate- and disaster-related mobility. The kinds of data and sharing mechanisms that these aforementioned ministries and national agencies present, and the corresponding gaps and opportunities to promote the effective collection of data on climate- and disaster-related mobility, are further elaborated in Annex II.

3.4. Gaps and limitations to enhanced data collection, analysis and dissemination on human mobility in the context of climate and environmental change and disasters

With global warming projected to continue into the future, the expectation is that climate change risks and impacts will become more frequent, widespread and with devastating outcomes in vulnerable regions of the globe. Because of their location and exposure as small island developing States, Eastern Caribbean countries like Antigua and Barbuda will bear the brunt of extreme events due to ongoing climate change. Addressing climate change and disaster impacts on human mobility across the twin-island State will require strategic planning and appropriate measures. In this regard, the need for effective data collection and management systems remains crucial to informed policies, climate adaptation, as well as disaster preparedness, response and recovery. To promote coherent and comprehensive data collection where it has not yet been streamlined, this section builds upon an overview of the major gaps and limitations in data availability that have been identified across the distinct national agencies and departments examined as part of this study. Based on the gaps identified, guidelines on enhanced data collection and management systems in Antigua and Barbuda are outlined.

3.4.1. Identified gaps in relation to the Department of Immigration

In general, the generation of data on human mobility in the context of climate and environmental change and disasters by the Department of Immigration could be facilitated by way of adjusting the established procedures at the various ports of entry. With all persons arriving or departing, either by air or sea, expected to fill out the generic entry/departure form, the established procedures at the various ports of entry/departure provide the opportunity to revise the data-collection processes to allow for the capture of information on the aforementioned themes. With regard to data collection on the topic by the Department of Immigration, the following gaps and limitations were identified:

i. A major gap identified has to do with the lack of provision or a specific question on climate and environmental factors as precursors for movement. The Customs Declaration Form, which is the main instrument that every person fills out at the port of entry (national ED Card), does not include climate and disaster as part of the options provided for the purpose of the visit. As a result, the form is not able to capture population movements associated with environmental factors.

ii. The Department of Immigration does not also have any established database or repository for immigration and emigration. The information hosted in the BMS is limited to just an inventory of the number of people entering or leaving the country.

iii. Lastly, the Department does not have laid-out protocols or procedures in terms of management and sharing of data that is collected. Although the data collected is periodically shared with the Statistics Division, it is not clear how far data is managed and shared with other relevant national agencies. There is also no indication on how the data collected could be accessed by the public and interested parties.

3.4.2. Identified gaps in relation to the Statistics Division

With the Statistics Division being one of the key national agencies that present data and statistics on population dynamics, as well as different socioeconomic parameters to inform national development planning and policy, there is also the need for comprehensive data on human mobility, climate change and disaster. To effectively generate statistics on the environment and related impacts, there is the need for the data-collection processes to include variables on migration, displacement, and planned relocation, as well as acknowledge other aspects of (im)mobility (e.g. evacuations). Despite the potential and existing opportunities for enhanced data-collection, there are still gaps and constraints in terms of how the Statistics Division collects, manages and disseminates data on the topic. These gaps include the following:

i. Despite being the main national agency in charge of developing statistics for national development planning and policy formulation, the Statistics Division does not develop statistics on the environment nor present any indicators on climate change and disasters and related migration.

ii. The 2011 Census Person/Household Questionnaire presents questions related to migration and specifically probes the reasons for moving. However, as the main instrument deployed to collect data, the census questionnaire does not make provision to allow for the capture of environmental factors as reasons for migration. As exemplified in the 2011 Population and Housing Census report, the collection of data on migration is often done in a generic way. The primary focus is often on the size of the foreign-born population (net migration) without recourse to the potential of environmental factors as precursors for movement.

iii. The National Labour Force Surveys collect data related to migration. However, the questions often presented do not probe the underlying reasons informing the decision to move or migrate. The surveys also do not consider the role of environmental factors in the decision to stop and/or quit an employment.

3.4.3. Identified gaps in relation to the National Office of Disaster Services

NODS being the main agency that deals with disaster management, impact assessment and response, the development of data on the human mobility dimensions of disaster is vital to planning, as well as ensuring a holistic approach to disaster response in Antigua and Barbuda. In view of this, there is the need to examine the state of disaster data collection and ways to promote the availability, quality and accessibility of information on disaster-induced displacement in the context of NODS. In terms of data collection, management, and dissemination on the topic of disaster and impact on human mobility, the host of gaps and constraints that have come to light include the following:

i. NODS draws mostly on the CDEMA DANA Continuum process and predetermined forms in the wake of a disaster to collect data.[8] Notwithstanding, it does not use or have a set template for the development of Stage 2 (ISO) of the DANA Continuum. As a result, the opportunity to capture or have a preliminary overview of disaster impact – and by extension, human mobility – is lost.

ii. The Damage Assessment Form for Housing Stock that is often deployed to collect quantitative data, as part of Stage 3 (IDHNA) of the DANA Continuum, does not account for human casualties. Similarly, the possibility to directly capture data on or account for persons who may have been displaced, evacuated, or forced to relocate is missing.

iii. NODS does not have an official database or repository for disaster data. Other than the information that it generates in the form of reports, there is not an officially established system to host and manage data. This tends to raise concerns in terms of data security and quality – and with no outlined protocols as to how the data compiled by the agency could be managed and disseminated.

[8] See Annexes III and IV in the Regional Report.

4. GUIDELINES FOR IMPROVED AND STANDARDIZED DATA ON THE CLIMATE AND ENVIRONMENTAL CHANGE, DISASTER, AND HUMAN MOBILITY NEXUS IN ANTIGUA AND BARBUDA

At the national level, the availability of reliable and timely data is critical to evidence-based and effective policies, development planning, climate adaptation, and effective disaster preparedness and response. Given the lack of clear definitions and parameters surrounding the climate and environmental change, disaster, and human mobility nexus, the generation of data and evidence on the topic calls for a proactive approach. In addition to the establishment of harmonized databases, the recommendation is also for the distinct national agencies to set up common methodologies and protocols to enable harmonized data collection, management and dissemination. Thereby, the following guidelines are proposed to enhance data collection and management on human mobility in the context of climate and other environmental changes in Antigua and Barbuda. They include the necessary first steps and effective ways to identify and develop the baseline for data availability, quality and accessibility at the national level. This will allow for collaboration and a system to support the generation of reliable, timely, and comparable data, analyses, and reports for informed policy. These guidelines and opportunities are further elaborated in the Regional Report.

Step 1: *Coordinate and exchange information for improved decision-making.*

Objective: *Contribute to an evidence-based decision-making process through the development of a technical working group (TWG) to promote regular information exchange and strengthened coordination of migration, environment, disaster and climate change data at the national level.*

Developing a common set of protocols and methodologies for data collection using similar indicators requires effective coordination and cooperation among national agencies. As a first step, therefore, the three main national agencies (Department of Immigration, Statistics Division and NODS) could consider establishing a TWG. The TWG could also be envisioned in the form of an inter-agency working group. This proposed working group could be tasked with coordinating or having oversight over data collection in relation to questions on human mobility in the context of climate and environmental change and disasters in Antigua and Barbuda. A national TWG of this kind would contribute to maintaining focus on addressing climate and disaster impact on human mobility. Second, its activities could allow for transparency across the participating agencies as basis for building and sharing reliable data for informed policy and decision-making. This could be done in collaboration or with the support of international and regional organizations (e.g. IOM and its GMDAC) to help establish the structures and build capacity.

To facilitate its work, the TWG could be a network of national migration, environment, disaster and climate change data focal points. This could include officers from the Department of Immigration, the Statistics Division and NODS, as well as representatives from all national agencies dealing with data collection, management and dissemination (e.g. DOE). The TWG could designate an official with expertise in data management as a liaison between national authorities and the TWG. Alternatively, a regular task force could foster cooperation and promote effective liaison between the TWG and other national agencies producing data.[9]

[9] See Chapter 6 of the Regional Report for an elaboration on this activity.

Step 2: *Adopt new practices and common protocols that harmonize with regional and international standards.*

Objective: *Assist in establishing new practices, and developing common methodologies and protocols that harmonize with regional and international standards on migration, environment, disaster and climate change data.*

Efforts could also be geared at ensuring the standardization of procedures that guide the collection, management, and dissemination of data on the topic of climate- and disaster-related mobility at the national level. As such, the focus could be on the development of protocols with harmonized methodologies to be employed by the national agencies. The drafting of the common protocols and methodologies could be guided or aligned with international standards; glossaries with standardized indicators, categories and concepts for data collection (see Section 6 of the Regional Report for further details as outlined by the United Nations Statistical Commission's Decisions on International Migration Statistics (UNSC, 2021:19)); as well as the International Labour Organization's guidelines concerning statistics on international labour migration (ILO, 2018). As an example, the data indicators highlighted in Text box 2 of the Regional Report could also serve as pointers or reference for the collection of data on climate and environmental change and disaster-related mobility at the national level.

Step 3: *Establish thematic data collection and management processes.*

Objective: *Foster the availability and quality of a migration, environment, disaster and climate change data management process.*

In regard to aspects of data collection and compilation at the national level, the Department of Immigration could take up responsibility as the lead agency for coordinating the collection of data on cross-border movements associated with climate and other environmental changes, including disaster at the regional scale. By revising its Customs Declaration Form as earlier recommended, the Department could ensure the incorporation of distinct environmental factors among the options for purpose of visit or stay – that is, state explicitly not only disaster-related impact, but also other environmental changes (e.g. weather conditions, food scarcity, soil erosion/fertility (degradation), deterioration of livelihoods) as reasons for seeking entry, along with a focus on post-disaster displacement and emigration.

On the part of NODS, the focus could be more on gathering data on (forced) internal population movements as a result of disasters and related emergencies. As previously mentioned, the predetermined form that CDEMA provides for the development of IDHNA (Stage 3 of the DANA Continuum) presents a veritable opportunity in terms of quantifying disaster impact. As such, revising or adapting the current forms that are being used would facilitate the collection of disaggregated data (e.g. by age, sex/gender), and information related to human casualties (e.g. deaths, injured and missing people) and houses damaged/destroyed. It would also facilitate the effective accounting of the human mobility dimension (number of displaced, evacuated and relocated persons) at the national level.

Additionally, the collection of data related to protracted displacement of people and human mobility in the context of slow-onset processes could be strengthened. These aspects have been proven to be more difficult to capture by national departments related to migration and disaster management. Available data is usually related to rapid-onset events and restricted to the emergency moment, mostly focused on evaluating, for instance, the number of evacuees and housing damages. Nevertheless, attention may be shifted to promoting data collection and analysis not only on people caught in long-term displacement (e.g. duration of people's displacement, their return home or relocation elsewhere), but also on population movements that are more likely instigated by slow-onset or gradual events – like a drought, as one of the most frequent hazards in Antigua and Barbuda. A drought often tends to affect more people on aggregate as compared to rapid-onset events. In view of the distinct nature of slow-onset events, information on these processes and related human mobility could be captured by the Statistics Division through regular household and other demographic (population-based) surveys or environmental statistics compendiums. This could be done in partnership with the

DOE and leveraging its data-capture capacities. For instance, the Division could consider (depending on availability of necessary resources) conducting regular surveys dedicated to only assessing human mobility patterns, where the associated slow-onset processes (e.g. sea level rise, coastal erosion/salinization, land degradation) and impact on mobility could be one critical thematic focus. As intimated by officials during the validation workshop, comprehensive data collection would not only generate reliable data on the different phenomena, but also effectively track migration from country to country and within the different parishes due to disasters. It is envisaged that this would greatly facilitate proper planning, as well as an effective recovery strategy.

Besides the census data that is often stored on the servers of the Statistics Division, none of the other aforementioned national agencies has a specific repository for data. But with financial constraints often advanced as a challenge to enhanced data collection, management and dissemination, the data initially compiled by the Department of Immigration and NODS could be integrated and synchronized in a common database under the responsibility of the Statistics Division. In this way, the Statistics Division could be responsible for processing all the information provided, in a systematic way. This could enable the production of statistics and indicators on all the dimensions of human mobility in the context of climate change and other environmental impacts. For this reason, data collected should be easily convertible to statistics, in line with the recommendations advanced by the Expert Group on Refugee and Internally Displaced Persons Statistics (European Union and the United Nations, 2018a), as well as the United Nations Statistical Commission's Decisions on International Migration Statistics (UNSC, 2021).

Step 4: *Arrange for the Department of Statistics to disseminate statistical outputs on human mobility in the context of climate change and other environmental impacts, and raise awareness.*

Objective: *To enhance knowledge on the linkages between migration, environment, disasters, and climate change and to make the statistics produced/generated by the Department of Statistics available and accessible for wider use.*

Once the data has been processed, the Statistics Division could in its periodic reports dedicate specific sections to the presentation and analysis of the situation regarding human mobility in the context of climate change and other environmental impacts in Antigua and Barbuda. The analysis and generation of the compendiums and reports could take place in close collaboration with other data providers like the DOE, the Department of Immigration and NODS. In line with this, the establishment of a timetable, as well as the formulation of a uniform format/structure for the reports, would be desirable. This could facilitate the production of a national profile when it comes to data on the topic. The reports could be designed in a way that enables their (electronic) availability to the general public and other relevant stakeholders. In this vein, the development of (extra) internal reports could guarantee the confidentiality of possible sensitive information.

As a start, the Statistics Division could already take advantage of existing data on the topic, mostly provided by international databases (see Annex I in the Regional Report), to create a national portal or platform. This could serve as a first step and basis to continuously refine and integrate critical aspects or themes of interest in building a robust and reliable thematic national database.

Step 5: *Develop comprehensive legal and policy frameworks at the national level for enhanced mobility governance.*

Objective: *To effectively manage human mobility in the context of climate change and other environmental impacts.*

Implementing the aforementioned steps would enable the development of a country-specific profile on human mobility in the context of climate change and other environmental impacts in Antigua and Barbuda. This could in turn foster evidence-based policy formulation that considers all relevant

aspects related to human mobility. Hence, in addition to acknowledging the topic in national policy and legal frameworks, the robust and reliable set of data generated in the country could facilitate the establishment of effective measures and strategies through informed planning and decision-making. It is known, for instance, that disaster preparedness measures, as part of broader DRR strategies, can significantly increase resilience and reduce the need to move.

In relation to the foregoing, measures or strategies could also be instituted to enhance knowledge and data production through capacity-building, extensive scientific research, and data collection on the impacts of climate and other environmental changes in Antigua and Barbuda. Besides establishing adequate funding mechanisms, the national Government could consider providing and applying state-of-the-art technology to support research, data collection, and hosting as crucial elements to data reliability and security. Regular, extensive research and use of different methodologies will facilitate better insights into the dynamics of human mobility in disaster or emergency situations, as well as a much more comprehensive capture of data on the topic. The use of improved technology to support data collection and management would be vital in ensuring data security and reliability. The availability of timely and reliable data would contribute to disaster response, and planning and development of adaptation strategies at the national level.

5. CONCLUSION AND RECOMMENDATIONS

The report assessed Antigua and Barbuda's national data systems in relation to migration, environment, climate change, and disasters to identify strengths, weaknesses, and opportunities to enhance the collection, management, and dissemination of data on human mobility in the context of climate and environmental change and disasters. While data on the topic is still scant at the national level, the development of country-specific, disaggregated, and comprehensive data on climate- and disaster-related human mobility in Antigua and Barbuda calls for coordination, collaboration, and proactive actions among national agencies and departments (especially the Department of Immigration, the Statistics Division and NODS). The generation of information on climate change and disasters as potential drivers for population movements could be enabled by adjusting established forms and procedures at the existing ports of entry and departure in Antigua and Barbuda. This could include developing specific statistics and indicators on environment and human mobility, as well as considering the status of human displacement and other forms of human mobility (i.e. evacuation, relocation) in the collection of disaster data. The availability, quality and accessibility of data on the topic are key to help the national Government plan and develop evidence-based and holistic policies and strategies to effectively address the negative impacts of climate and other environmental changes, as well as to promote adequate disaster management at the national level. To promote the collection and availability of data on the climate and environmental change, disaster, and human mobility nexus, the following strategies and recommendations are further outlined for the three main sources (national agencies) in Antigua and Barbuda.

Strategies and recommendations for enhanced data collection, management and dissemination within the Department of Immigration

The following actions are recommended for improved and standardized data-collection processes and sharing systems on human mobility in the context of climate and environmental change and disasters within the frame of the Department of Immigration:

i. First, the Department could consider revising the Customs Declaration Form (national ED Card). The revision could focus on modifying the specific field on "purpose of the visit" (question 10) to include environmental factors (e.g. weather conditions, disasters) among the options. Alternatively, a specific question explicitly stating climate and environmental change or disaster-related impacts as reasons for seeking entry could be added.

ii. Already, the Customs Declaration Form collects administrative data on date of birth, country of citizenship and address of residence. This enables the identification of CARICOM and OECS citizens. While this helps identify community citizens, the Department could further integrate a field to allow for the capture of information on the sex (gender) of persons arriving or departing from the territory. This could enable the collection of disaggregated data on the topic at the various ports. It would help to plan, mobilize resources and initiate targeted response in the wake of a disaster. For example, it could help in ascertaining housing needs and in the spatial planning of settlements and shelters, as well as inform planning in terms of health-care delivery. The proposal is also for the Department of Immigration (depending on the availability of resources or funding) to partner with the Statistics Division to develop a comprehensive database of all residents. This database would serve as an important reference to effectively track movements between countries.

iii. With the BMS already hosting information on passenger arrivals and departures, the system could be upgraded or transformed as a comprehensive data system that also accounts for immigration and emigration, as well as climate- and disaster-related mobility that may be detected at the ports. This could serve to be a one-stop national repository with data on mobility. In this case, other

national agencies and the Statistics Division could draw on this proposed repository to inform national development planning and policy processes.

iv. In support of developing an official database to host data being collected, the Department of Immigration could also consider prioritizing or enhancing the collection, analysis, reporting and sharing of environment-related migration data within the Department by designating an officer with responsibilities to monitor the process, as well as facilitating capacity-building. Complementary capacity-building for officials through training and acquisition of software tools and technology would contribute to improving the data collection and management system of the Department. This arrangement could contribute to improved data quality and management.

v. Another recommendation is for the Department to support the development of methodologies and common protocols that clarify how data could be collected at the existing ports of entry, as well as how this information could be subsequently managed and disseminated.

Aside from the Statistics Division, which collects information on migration, for instance, the Antigua and Barbuda Tourism Authority captures data ranging from accommodation to country of residence, length of stay, places of interest, trip planning, visitor expenditure and experience. The Tourism Authority also collects information relating to purpose of visit (i.e. "main reason for selecting Antigua and Barbuda", "main purpose of the visit", "main influence for the trip"). These agencies use different approaches and methods to collect data. The processes for information dissemination or data sharing tend to vary. Developing common methodological and shared protocols for data collection and management would allow for quality and reliable data.

Strategies and recommendations for enhanced data collection, management and dissemination within the Statistics Division

In view of the gaps and constraints in terms of data collection and availability, the following recommendations are proposed to strengthen statistical information on migration, environment, climate change, and disasters in Antigua and Barbuda:

i. The next national census could endeavour to incorporate queries about climate and environmental risks and migration into the respective questionnaires. In other words, census questionnaires could be designed to allow for the visibility of the human mobility categories, such as internal and cross-border migration, displacement, relocation, as well as other forms of movement. Specific queries related to the motivation that led to the movement could include environmental factors (e.g. weather conditions, disasters) in the response. Examples could be drawn from the successful integration of these themes into the population censuses of Colombia and Ethiopia (2018), Djibouti (2005), as well as that of Somalia (2013/2014) (UNSC, 2020:51–54).

With the questionnaire that was prepared for the Ethiopia population census, for example, there was a specific question on "reasons for migration". The options or responses presented included: "search for job", "join family", "education", "marriage/divorce", "drought/environmental degradation", "dispute/conflict", "health" and "other". Similarly, the 2005 Djibouti population census also asked about "years at place of residence", "last place of residence" and "reason for move". The options provided as responses included: "professional reasons (hiring, transfer, establishment of business)", "urgent reasons (drought, flooding, food shortages, war)", "personal reasons (family reunification, health reasons)", "school reasons" and "seeking amenities". These are national censuses that could provide good and practical references in formulating questionnaires of upcoming population censuses in Antigua and Barbuda. This would help capture data that also accounts for environmental factors as drivers for movement.

ii. In addition to the statistics regularly generated on socioeconomic indicators at the national level, the Division could develop specific statistics on environment, and related indicators on climate change and disasters. The statistics could also focus on the human mobility dimension. With the

Division already planning to integrate disaster impacts as one of the reasons for migration, into all upcoming data-collection processes, considerations could be made for detailed disaggregation (e.g. by age, sex/gender) and defined categories (e.g. displaced, evacuated and relocated people). Similarly, indicators relating to climate change could include different aspects such as drivers, impacts and adaptation, with specific focus on vulnerable communities (UNSC, 2018a).

iii. For upcoming and subsequent household surveys and other demographic (population-based) surveys, the emphasis could be on the collection of disaggregated data on human mobility (UNHCR, 2019; UNSC, 2018b). As already successfully piloted in Péten (Guatemala) (Grandia et al., 2001; Laczko and Aghazarm, 2009), household demographic and welfare surveys could endeavour to incorporate queries about climate and environmental risks and migration into the respective questionnaires (UNSC, 2018b). In particular, the next Labour Force Surveys could, for instance, consider integrating queries on the role of environmental factors in the decision to migrate, or possible reasons for quitting/changing jobs. This could enable the collection of data on people who became unemployed because of climate and other environmental changes.

iv. Given the limited focus and data on migration, the Population and Demography subject or cluster of the Statistics Division could be modified to include a section for migration data. The analysis and migration statistics under this section could include indicators on the distinct dimensions of human mobility (e.g. migration, displacement, evacuation, planned relocation). A section dedicated to migration statistics could facilitate the extensive collection of data and detailed analysis on the climate and environmental change, disaster, and human mobility nexus.

v. The collection and generation of statistics and indicators on climate change could be harmonized with that of other agencies also producing data and statistics on the topic. By this, the Division could work in collaboration with the DOE, which is already managing and implementing projects related to climate change and data management. Given that the Statistics Division allows access to the public through the REDATAM tool on its website, the recommendation is to consider creating a link that would connect directly to the website of the DOE. This will help grant access directly to the indicators, and information on climate change and related issues such as disasters.

vi. Additional partnerships with NODS would also enable the production of statistics and indicators on disasters, while creating opportunities for robust data.

vii. Besides the raw data that is often collected through the censuses and other surveys, the Division could also consider overlapping existing environmental data layers (e.g. incidence of climate-related risks and vulnerabilities, socioeconomic data such as the ones related to food insecurity and poverty) with existing migration and mobility data layers. The opportunity to pool and overlay these existing different data layers could contribute to the development of comprehensive data on the topic.

Strategies and recommendations for enhanced data collection, management and dissemination within NODS

The following actions are recommended for collecting improved and standardized data on disaster displacement in the context of NODS:

i. First, NODS could consider taking advantage of the opportunity that the predetermined form from CDEMA presents for the development of the Initial Situation Overview (situation report) at the national level. The predetermined form has a specific field on "no. of people in shelters", "displaced populations" and "others".[10] Adapting this field and deploying the form in the wake of a disaster (Stage 2 of the DANA Continuum) could help to collect information on displacement, evacuation, and persons who may have relocated or been forced to move in this context.

[10] See Annex III in the Regional Report.

ii. Other than the information on houses damaged/destroyed that the Damage Assessment Form for Housing Stock collects as part of the IDHNA (Stage 3 of the DANA Continuum), the form could be adjusted to enable the collection of information related to human casualties (e.g. deaths, injured and missing people). The proposed adjustment should allow for disaggregation (e.g. by age and sex), as well as the collection of detailed information on the human mobility dimension (i.e. number of displaced, evacuated and relocated people). This could also be complemented by developing proxies to determine displacement that may be instigated by disasters, particularly when it is not possible to directly capture data on persons who may have fled or been forced to move as a result of an emergency.

iii. There is the need for NODS to develop a common national database for disaster data from which the information compiled and kept in the format of reports could be managed and disseminated. The proposed common repository could make provision to allow for the validation of data collected and also present data on the human mobility dimensions of disaster in Antigua and Barbuda.

iv. Another recommendation or proposition is for NODS to support the development of common methodologies and protocols on how to collect, manage and disseminate data on disaster at the national level. This would allow for synergy in disaster data collection and the generation of robust data. The endeavour could entail the development of standardized/common categories and definitions – that is, clearly highlight the criteria for categorizing human damage (ensuring, among others, the incorporation of a specific category on displacement) (European Union and the United Nations, 2018b). This could guide the activities of all the national actors often involved in the collection of disaster data, and also offer opportunities for data cleaning and quality.

GLOSSARY

Arrival/departure card: "A card filled out for customs, and immigration and emigration procedures by an individual prior to or upon arrival in or departure from the country of destination and presented (along with identity documents and, if requested, a visa) to officials at the border crossing point." (IOM, 2019:11)

Climate migration: "The movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are forced to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border." (IOM, 2019:31; see also IOM, 2016:5)

Country of usual residence: "The country in which a person has his or her usual or habitual residence." (IOM, 2019:40)

Disaster: "A serious disruption of the functioning of a community or a 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." (IOM, 2019:50)

Disaster displacement: "The movement of persons who have been forced or obliged to leave their homes or places of habitual residence as a result of a disaster or in order to avoid the impact of an immediate and foreseeable natural hazard." (IOM, 2019:51)

Displacement: "The movement of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters." (IOM, 2019:55)

Emigration: "From the perspective of the country of departure, the act of moving from one's country of nationality or usual residence to another country, so that the country of destination effectively becomes his or her new country of usual residence." (IOM, 2019:64)

Entry: "In the migration context, any crossing of an international border by a non-national to enter into a country, whether such a crossing is voluntary or involuntary, authorized or unauthorized." (IOM, 2019:64)

Environmental migration: "The movement of persons or groups of persons who, predominantly for reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are forced to leave their places of habitual residence, or choose to do so, either temporarily

or permanently, and who move within or outside their country of origin or habitual residence." (IOM, 2019:65; see also IOM, 2011:33)

Evacuation: "Facilitation or organization of transfer of individuals or groups from one area/locality to another in order to ensure their security, safety and well-being." (IOM, 2019:65)

Family reunification: "The right of non-nationals to enter into and reside in a country where their family members reside lawfully or of which they have the nationality in order to preserve the family unit." (IOM, 2019:72)

Forced displacement: "In a more general sense, forced displacement – or displacement – is the involuntary movement, individually or collectively, of persons from their country or community, notably for reasons of armed conflict, civil unrest, or natural or man-made catastrophes." (IOM, 2011:39; IOM, 2014a:12)

Forced migration: "A migratory movement which, although the drivers can be diverse, involves force, compulsion, or coercion." (IOM, 2019:77)

Freedom of movement: "In human rights law, a human right comprising three basic elements: freedom of movement within the territory of a country and to choose one's residence, the right to leave any country and the right to return to one's own country." (IOM, 2019:79)

Habitual residence: "The place where a person resides on an ongoing and stable basis. Habitual residence is to be understood as stable, factual residence." (IOM, 2019:89; see also UNHCR, 2014:49)

Hazard: "A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation." (UNGA, 2016:18; see also IOM, 2019:89)

Health: "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (WHO, 1946:1; see also IOM, 2019:90)

Human mobility: "A generic term covering all the different forms of movements of persons." (IOM, 2019:93)

Identity document: "An official piece of documentation issued by the competent authority of a State designed to prove the identity of the person carrying it." (IOM, 2019:101)

Immigration: "From the perspective of the country of arrival, the act of moving into a country other than one's country of nationality or usual residence, so that the country of destination effectively becomes his or her new country of usual residence." (IOM, 2019:103)

Members of the family: "Persons married to a migrant or a national, or having with them a relationship that, according to applicable law, produces effects equivalent to marriage, as well as their dependent children or other dependent persons who are recognized as members of the family by applicable legislation or applicable bilateral or multilateral agreements between the States concerned, including when they are not nationals of the State." (IOM, 2019:131)

Migration: "The movement of persons away from their place of usual residence, either across an international border or within a State." (IOM, 2019:137)

Migration management: "The management and implementation of the whole set of activities primarily by States within national systems or through bilateral and multilateral cooperation, concerning all aspects of migration and the mainstreaming of migration considerations into public policies. The term refers to planned approaches to the implementation and operationalization of policy, legislative and administrative frameworks, developed by the institutions in charge of migration." (IOM, 2019:139)

National: "A person having a legal bond with a State." (IOM, 2019:143)

Net migration: "Net number of migrants in a given period, that is, the number of immigrants minus the number of emigrants." (IOM, 2019:146)

Planned relocation: "In the context of disasters or environmental degradation, including when due to the effects of climate change, a planned process in which persons or groups of persons move or are assisted to move away from their homes or place of temporary residence, are settled in a new location, and provided with the conditions for rebuilding their lives." (IOM, 2019:157)

Tourist: "A person who does not reside in the country of arrival and is admitted to that country temporarily (under tourist visas if required) for purposes of leisure, recreation, holiday, visits to friends or relatives, health or medical treatment, or religious pilgrimage. A tourist must spend at least a night in a collective or private accommodation in the receiving country and the duration of his or her stay must not surpass 12 months." (IOM, 2019:216)

Trapped populations: "Populations who do not migrate, yet are situated in areas under threat, [...] at risk of becoming 'trapped' or having to stay behind, where they will be more vulnerable to environmental shocks and impoverishment." (IOM, 2019:220)

Visitor: "In the migration context, the term is used in some national legislation to designate a non-national authorized to stay temporarily on the territory of a State without participating in a professional activity." (IOM, 2019:228)

ANNEXES

ANNEX I. DAMAGE ASSESSMENT FORM FOR HOUSING STOCK

(2) DAMAGE ASSESSMENT FORM FOR HOUSING STOCK

Day…… Date…….. Month…….. Year……

Name of Owner……
Type of Property/Concrete……

Name of Occupant……
Wooden……

Location……
Concrete/Wooden……

House Number…….. Size of House…….. Age of Building……..

Number of Bedrooms……..…… Number of Bathrooms……
Number of Kitchen……..…… Number of Living Rooms……..
Number of Dining Rooms…… Other……

Insured Yes ( ) No ( )
With……

Roofing Materials Shingles…….. Galvanized…….. Other……..…..
Percentage of Roof Damage……..… Cost……..……

Foundation: Pillars……..…… Rest on Stone/Blocks……..……..…..
Percentage of Foundation Damage……..……..…..…. Cost……..……

Body…… Windows……..……..… Doors……..……..
Percentage of Body Damage……..… Cost……..……

Type of Windows……
Size of Windows…….. Cost……..……..

Type of Doors……...……..……
Size of Doors……..…. Cost……..……

Fencing Yes ( ) No ( ) Type of Fencing……
Percentage of Fencing Damage……..……. Cost……..……..

Garage Yes ( ) No ( ) Type of Garage……
Percentage of Garage Damage……..……. Cost……..……..

Utility Room Yes ( ) No ( ) Wooden………..……………..….. Concrete………..…..……….
Percentage of Utility Room Damage…..……..……..……..……..……..… Cost………..………..….…....

Vehicle Yes ( ) No ( )
Estimated Value of Damage to Vehicle…………………………..…..……. Cost………..………..….…....

Total Percentage of Damage to Property……………………………. Cost………..………..….…....

Number of Persons in Family………..…..….…..….
ADULT: Male………..…... Female………..
CHILDREN: Age Male……… Age Female…….

DAMAGE TO FURNISHINGS

NO.	ITEMS (NAME)	COST
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

BUILDING SUMMARY

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Assessor's Name……………………………………………………………………………………....

Signature…………………………………………………………… Date……………………………

ANNEX II. COLLECTION OF DATA BY OTHER NATIONAL AGENCIES IN ANTIGUA AND BARBUDA

Department	Data on the climate and environmental change, disaster, and human mobility nexus	Data collected associated with the human mobility dimension	Data storage (database)	Limitations to enhanced data collection, management and dissemination	Recommendations for enhanced data collection, management and dissemination
Antigua and Barbuda Red Cross Society – International Federation of Red Cross and Red Crescent Societies	No	Data on disasters is often captured in partnership with NODS and other national departments, not only to map vulnerable communities for planning and readiness, but also to enable the elaboration of risk and needs assessments both pre- and post-disaster.	No	Lack of human, financial and technological capacities.	The mandate of the national Red Cross Society could be extended by the national Government to include systematic collection of raw data. It could develop methodologies and protocols on how to work with NODS and other national agencies when it comes to the collection, management and dissemination of data on disaster.
Ministry of Foreign Affairs, International Trade and Immigration	No	Besides capturing the number of nationals living abroad, the Ministry gathers information on the number of forced national returnees and on the number of foreigners currently in detention in the national territory.	No	Lack of human, financial and technological capacities.	Data on climate- or disaster-induced mobility could be captured by probing questions on the reasons/purposes for living abroad or returning to Antigua and Barbuda. These questions could include environmental factors, such as weather conditions and disasters, as possible response options.
Ministry of Legal Affairs, Public Safety and Labour – Department of Labour	No	Data associated with the human mobility dimension relates mainly to the number of work permits granted to foreigners and the number of national and non-national job placements.	No	Lack of human, financial and technological capacities.	The Ministry could focus on gathering information on the number of foreign workers coming to the country to assist in response and recovery during or in the aftermath of a disaster, as well as the number of nationals leaving Antigua and Barbuda in direction to other Eastern Caribbean States for the same purpose or relocating abroad entirely. Still, the Ministry could also strive to include indicators/variables in the data-collection processes on the movement of workers into and out of the country. This will enable the identification and effective accounting of environmental factors as triggers to the movement of workers within the CARICOM and OECS member States.

Department	Data on the climate and environmental change, disaster, and human mobility nexus	Data collected associated with the human mobility dimension	Data storage (database)	Limitations to enhanced data collection, management and dissemination	Recommendations for enhanced data collection, management and dissemination
Ministry of Tourism and Investment – Antigua and Barbuda Tourism Authority	No	Data captured by the national department includes accommodation, country of residence, length of stay, places of interest, trip planning, visitor expenditure and experience, as well as purpose of the visit. The latter does not take environmental factors into consideration.	No	Lack of human, financial and technological capacities.	In collaboration with the Department of Immigration, the national Tourism Authority could consider revising the Customs Declaration Form. The revision could incorporate environmental factors (e.g. weather conditions, disasters) among the purposes of the visit. Furthermore, the mandate of the national Tourism Authority in primarily focusing on tourism development could be revised or extended to include the collection of data on migration, mobility and disaster.
Ministry of Social Transformation and Human Resource Development – Family and Social Services Division	No	Considering that the Division aims to provide/ensure assistance and protection of children regardless of their place of residence, data collection relates mainly to the personal information of children, parents and guardians. Personal information includes nationality, place of birth and home address, among others.	No	Lack of human, financial and technological capacities.	By extending its mandate, the Division could also commit to analysing and reporting on the implications of the climate and environmental change, disaster, and human mobility nexus on children's well-being and rights. Moreover, collaboration with established agencies like the Department of Immigration and NODS would enable the collection of data on climate- and disaster-related mobility with special attention to children and other vulnerable groups.

ANNEX III. STUDY QUESTIONNAIRE (REGIONAL)

INTERNATIONAL ORGANIZATION FOR MIGRATION (IOM)

Regional Dialogue to Address Human Mobility and Climate Change Adaptation in the Eastern Caribbean

Migration, Environment and Climate Change Data

Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines

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Stephen Adaawen

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September 2020

Project
Regional Dialogue to Address Human Mobility and Climate Change Adaptation in the Eastern Caribbean – Migration, environment and climate change data.

Duration
From September 2020 to April 2021.

Organizational context and scope
Established in 1951, IOM is the leading United Nations agency in the field of migration and works closely with governmental, intergovernmental and non-governmental partners. IOM is dedicated to promoting humane and orderly migration for the benefit of all. It does so by providing services and advice to governments and migrants.

The "Regional Dialogue to Address Human Mobility and Climate Change Adaptation in the Eastern Caribbean" project aims to build a regional dialogue series in Eastern Caribbean States that will enhance governments' capacities to collect, analyse, and utilize data on human mobility and vulnerability derived from environmental change. The project is implemented by IOM in six independent member States of the Organisation of Eastern Caribbean States (OECS) – namely, Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines.

Objective
Assessment of national and regional data systems of the six countries in relation to migration, environment, and climate change to identify strengths, weaknesses, and opportunities to enhance availability and evidence on environmental migration.

Methodology
Conduct six migration, environment, and climate change data assessments through a questionnaire for expert interviews and desk review of existing sources of information and data-sharing mechanisms on environmental migration for the six countries: Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines.

Expected results
Development of technical guidelines on migration, environment and climate change data, as well as a data workshop for each of the six countries.

QUESTIONNAIRE

National level

This questionnaire aims to investigate existing sources of information and data-sharing mechanisms on migration, environment and climate change in the Eastern Caribbean States, with special attention to six selected countries – Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines – providing an overview of how data related to human mobility in the context of climate and other environmental changes has been collected, managed and disseminated.

IOM Glossary

Key definitions on migration, environment and climate change[1]

Climate migration: "The movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are forced to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border. *Note:* This is a working definition of the International Organization for Migration with an analytic and advocacy purpose which does not have any specific legal value. Climate migration is a subcategory of environmental migration; it defines a singular type of environmental migration, where the change in the environment is due to climate change. Migration in this context can be associated with greater vulnerability of affected people, particularly if it is forced. Yet, migration can also be a form of adaptation to environmental stressors, helping to build resilience of affected individuals and communities."

Disaster Displacement: "The movement of persons who have been forced or obliged to leave their homes or places of habitual residence as a result of a disaster or in order to avoid the impact of an immediate and foreseeable natural hazard. *Note:* Such displacement results from the fact that affected persons are (i) exposed to (ii) a natural hazard in a situation where (iii) they are too vulnerable and lack the resilience to withstand the impacts of that hazard. It is the effects of natural hazards, including the adverse impacts of climate change, that may overwhelm the resilience or adaptive capacity of an affected community or society, thus leading to a disaster that potentially results in displacement. Disaster displacement may take the form of spontaneous fight, an evacuation ordered or enforced by authorities or an involuntary planned relocation process. Such displacement can occur within a country (internal displacement), or across international borders (cross-border disaster displacement)."

Disaster: "A serious disruption of the functioning of a community or a 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. *Note:* The International Law Commission adopted the following alternative definition of disaster, which includes an express reference to mass displacement: 'disaster' means a calamitous event or series of events resulting in widespread loss of life, great human suffering and distress, mass displacement, or large-scale material or environmental damage, thereby seriously disrupting the functioning of society."

Environmental migration: "The movement of persons or groups of persons who, predominantly for reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are forced to leave their places of habitual residence, or choose to do so, either temporarily or permanently, and who move within or outside their country of origin or habitual residence. *Note:* There is no international agreement on a term to be used to describe persons or groups of persons that move for environment related reasons. This definition of environmental migrant is not meant to create any new legal categories. It is a working definition aimed at describing all the various situations in which people move in the context of environmental factors."

[1] See 'International Organization for Migration (2019), Glossary on Migration, IML Series No. 34.'

Hazard: "A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. *Note:* Each year millions of people are displaced by the adverse effects of natural hazards, such as floods, tropical storms, earthquakes, landslides, droughts, saltwater intrusion, glacial melting, glacial lake outburst floods, and melting permafrost. Of these, the great majority is displaced by weather- and climate-related hazards. The largest increases in displacement resulting from the effects of natural hazards are related to sudden-onset weather and climate-related hazards, and floods in particular. In addition, people are increasingly forced to move because of the slow-onset effects of sea level rise, desertification or environmental degradation. Climate change, combined with people's increasing exposure and vulnerability, is expected to magnify these trends, as extreme weather events become more frequent and intense in the coming decades."

Human mobility: "A generic term covering all the different forms of movements of persons. *Note:* The term human mobility reflects a wider range of movements of persons than the term 'migration'. The term is usually understood as encompassing also tourists that are generally considered as not engaging in migration. As an example of the emergence of this term, the international organization members of the Advisory Group on Climate Change and Human Mobility created in the context of the Conferences of the Parties of the UN Framework Convention on Climate Change have started to use the term human mobility to cover all the broad range of types of movements that can take place in the context of climate change."

Planned relocation: "In the context of disasters or environmental degradation, including when due to the effects of climate change, a planned process in which persons or groups of persons move or are assisted to move away from their homes or place of temporary residence, are settled in a new location, and provided with the conditions for rebuilding their lives. *Note:* The term is generally used to identify relocations that are carried out within national borders under the authority of the State and denotes a long process that lasts until 'relocated persons are incorporated into all aspects of life in the new setting and no longer have needs or vulnerabilities stemming from the Planned Relocation'."

Vulnerable group: "Depending on the context, any group or sector of society (such as children, the elderly, persons with disabilities, ethnic or religious minorities, migrants, particularly those who are in an irregular situation, or persons of diverse sex, sexual orientation and gender identity (SSOGI)) that is at higher risk of being subjected to discriminatory practices, violence, social disadvantage, or economic hardship than other groups within the State. These groups are also at higher risk in periods of conflict, crisis or disasters."

Trapped populations: "Populations who do not migrate, yet are situated in areas under threat, [...] at risk of becoming 'trapped' or having to stay behind, where they will be more vulnerable to environmental shocks and impoverishment. *Note:* The notion of trapped populations applies in particular to poorer households who may not have the resources to move and whose livelihoods are affected."

Personal and contact information

1. Respondent information

   1.1. Name of respondent: _____

   1.2. Gender of respondent: _____

   1.3. Job title of respondent: _____

   1.4. National department/agency of respondent: _____

   1.5. Country: _____

General overview on the impacts of climate change at the national level

2. How would you assess the severity of the impact of climate change in the country?

No/hardly any impact	Little impact	Medium impact	Severe/significant impact	Very severe/devastating impact
1	2	3	4	5

Comments:

_____

_____

3. What are the current/recurring impacts of climate change – disasters – in the country? Please tick as appropriate.

Climate-related "disaster"/"hazard" in the region	Frequency in the past two decades (2000–2020)		
	Does not/hardly occurs[2]	Occurs occasionally[3]	Occurs frequently[4]
Hurricane			
Drought			
Heat wave			
Coastal inundation (sea level rise)			
Flash flood			
Landslide			
Fires			
Others:[5] _____			

4. Are you aware of any scientific projections on the nature and impacts of climate change in the country? (a) Yes _____ (b) No _____

   4.1. If yes, please describe, and please share relevant documents.

   _____

   _____

[2] "Does not/hardly occurs" – not occurring at a regular interval, not often, seldom, rarely.

[3] "Occasionally" – occurring from time to time, now and then, once in a while, irregularly at infrequent intervals.

[4] "Occurs frequently" – frequent intervals.

[5] Others may include geophysical activities (earthquakes, volcanic activity), disease or civil strife.

5. What are the main sources of information about the impacts of climate change and other climate-related risks in the country? (If possible, please list some of the relevant documents.)

_____

_____

5.1. Do you know if these sources capture or account for human mobility in the context of climate and other environmental changes? If yes, how?

_____

_____

6. Do these sources account and/or capture "human mobility" related to climate and other environmental changes? (a) Yes _____ (b) No _____

6.1. If yes, how is the impact of climate and other environmental changes on mobility captured (e.g. by event, type or nature of mobility)? Please explain.

_____

_____

6.2. If no, why not? Please explain.

_____

_____

7. At the national level, are there certain groups of people/communities that are most vulnerable to climate and other environmental changes? If yes, which groups of people/communities, and why?

_____

_____

National disaster risk reduction (DRR) policy framework

8. Does the country have specific policy and legal frameworks dealing with DRR?

(a) Yes _____ (b) No _____

8.1. If yes, please name and list them.

_____

_____

9. Do these national legal frameworks recognize and address "human mobility" in the context of climate and other environmental changes (rapid- and/or slow-onset events/processes)?

(a) Yes _____ (b) No _____

9.1. If yes, in what context and how?

_____

_____

10. Which State actor is responsible for reporting the implementation of the United Nations Office for Disaster Risk Reduction (UNDRR) at the national level?

_____

_____

National migration policy framework

11. Does the country have specific policy and legal frameworks dealing with migration and related issues? (a) Yes _____ (b) No _____

    11.1. If yes, please name and list them.

    _____

    _____

12. Do these national legal frameworks recognize and address "human mobility" in the context of climate and other environmental changes (rapid- and/or slow-onset events/processes)?

    (a) Yes _____ (b) No _____

    12.1. If yes, in what context and how?

    _____

    _____

13. Which State actor is responsible for reporting the implementation of the Global Compact for Safe, Orderly and Regular Migration at the national level?

_____

_____

14. In the case of cross-border movements, who is responsible for data collection?

_____

_____

Official sources of information and data-sharing mechanisms at the national level

15. Do national legal frameworks on DRR and migration – listed above – establish or make provisions for **data-sharing mechanisms** on migration, environment and climate change?

    (a) Yes _____ (b) No _____

    15.1. If yes, please indicate.

    _____

    _____

16. Which are the main agencies or actors on DRR and migration responsible for collecting, managing and disseminating data on migration, environment and climate change at the national level?

_____

_____

16.1. Which are – please name – the main actors in the field of:

(a) Migration, population statistics and related issues: Do they collect data related to "human mobility" in the context of climate and other environmental changes?

_____

_____

(b) Climate and other environmental changes (e.g. climate/environment agencies/departments): Do they collect data related to "human mobility" in the context of climate and other environmental changes?

_____

_____

(c) How do the existing actors at the national level cooperate and/or exchange information about data and data collection?

_____

_____

17. To the best of your knowledge, what are the methodologies and means by which data and information on environment- and climate-related migration are collected, analysed, shared and disseminated? (e.g. Format: anonymized, report, raw data; collection: paper and/or electronic record.)

_____

_____

18. Are there any specific forms or templates to collect the data? (a) Yes _____ (b) No _____

* If yes, please attach a sample to the (submitted) questionnaire.

19. How do the national legal frameworks on DRR and migration (if at all) define or conceptualize "human mobility" related to climate and other environmental changes?

19.1. Migration:

_____

_____

19.2. Displacement:

_____

_____

19.3. Planned Relocation:

_____

_____

20. In what way or to what extent do the legal framework on DRR and migration integrate data on climate- and environment-related "human mobility" (migration, displacement and planned relocation) into the existing data-sharing mechanism or related source of information?

_____

_____

21. Is the data on "human mobility" – if existing – disaggregated? (e.g. age, duration, location, nationality, sex.) (a) Yes _____ (b) No _____

    21.1. Please outline disaggregation categories.

    _____

    _____

22. Is human mobility data monitored and updated, or is it limited to the emergency moment – post-disaster? If yes, how frequently is data revised and updated?

_____

_____

23. What are the main constraints or challenges to effective data collection, analysis and sharing on climate-related migration?

_____

_____

Secondary sources of information and data-sharing mechanism at the national level

24. Are you aware of any secondary – or unofficial – sources of information and data-sharing mechanisms for "human mobility" (migration, displacement and planned relocation) in the context of climate and other environmental changes at the national level? (a) Yes _____ (b) No _____

    24.1. If yes, please list them:

Source	Responsible agency/actor for collecting data	Type/kind of data collected	Frequency of data collection	Disaggregated? (Yes/no)	Climate/environment-related data? (Yes/no)

25. Do you or your agency make use of these data sources? (a) Yes _____ (b) No _____

    25.1. If yes, how or for what purposes?

    _____

    _____

Overview of information and data-sharing mechanisms at the national level

26. Looking at the available sources of information and data-sharing mechanisms on "human mobility" (migration, displacement and planned relocation) in the context of climate and other environmental changes at the national level:

    26.1. What synergies do you see?

    _____

    _____

    26.2. What are the gaps and inconsistencies?

    _____

    _____

27. How do you see or rate the status of data on "human mobility" in the context of climate and other environmental changes at the national level? Please insert a check mark in the appropriate box:

1. Insufficient	2. Bit better	3. Adequate	4. Sufficient	5. Very sufficient

Comments:

_____

_____

Options at enhancing effective data collection and sharing

28. What options, strategies or measures could be considered in improving data collection and sharing on "human mobility" in the context of climate and other environmental changes at the regional level and regionally?

_____

_____

29. In what way could the strategies listed be deployed to adequately capture climate- and environment-related migration for informed decision-making or policymaking?

_____

_____

30. Do you have any other suggestions, comments or opinions to add?

_____

_____

Case studies of human mobility in the context of climate and environmental changes involving sources of information and/or data-sharing mechanisms

31. List examples of cases of "human mobility" associated with climate and other environmental changes at the national level, with the following information:

    31.1. Location of the event: _____

    31.2. Type of event (rapid- or slow-onset process): _____

    31.3. Duration of the event: _____

    31.4. Source of information and/or data-sharing mechanism used to collect data on "human mobility" (migration, displacement and planned relocation) in the context of climate and other environmental changes at the national level?

    _____

    _____

    31.5. Number of displaced people: _____

    31.6. Measures taken by national authorities (if any):

    _____

    _____

    31.7. Current displacement situation (return, relocation, shelters, other):

    _____

    _____

* Add other relevant references and sources related to the case study.

Thank you!

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