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

Regional Overview

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UN MIGRATION

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Publisher: International Organization for Migration
Global Migration Data Analysis Centre
Taubenstr. 20-22
D-10117 Berlin
Germany
Tel.: +49 30 278 778 21
Fax: +49 30 278 778 98
Email: gmdac@iom.int
Internet: https://gmdac.iom.int/

Authors: Diogo Andreola Serraglio, Stephen Adaawen and Benjamin Schraven
Research coordination: IOM GMDAC
Project coordination: IOM Dominica
Language editing: Laarni Alfaro
Art direction and data visualization: Roberta Aita
Layout: Mae Angeline Delgado

Cover photo: This study assesses the national and regional data systems on migration, environment, disasters and climate change across the Eastern Caribbean to support effective climate change and mobility governance. © IOM 2019/Muse MOHAMMED

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german cooperation
DEUTSCHE ZUSAMMENARBEIT

ECS
Organisation of Eastern Caribbean States

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Ministry of Social Transformation and Human Resource Development – Family and Social Services Division; and Statistics Division.

Dominica: Central Statistics Office – Immigration Division; Local Government Division; Ministry of Education, Human Resource Planning, Vocational Training and National Excellence; Ministry of Foreign Affairs, International Business and Diaspora Relations; Ministry of National Security and Home Affairs – Division of Labour; Ministry of Tourism, International Transport and Maritime Initiatives – Discover Dominica Authority; Office of Disaster Management (ODM); and Ministry of Economic Affairs, Planning, Resilience and Sustainable Development, Telecommunications and Broadcasting – Social Planning Unit.

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ABBREVIATIONS AND ACRONYMS

BMS	Border Management System
CARICOM	Caribbean Community
CDAC	CARICOM Disaster Assessment and Coordination
CDEMA	Caribbean Disaster Emergency Management Agency
CDERA	Caribbean Disaster Emergency Response Agency
CDM	Comprehensive Disaster Management
COP	Conference of the Parties
CRED	Centre for Research on the Epidemiology of Disasters
CRIS	Caribbean Risk Information System
CSME	CARICOM Single Market and Economy
DANA	Damage Assessment and Needs Analysis
DDSA	Detailed Damage Sector Assessment
DRR	disaster risk reduction
DTM	Displacement Tracking Matrix
ED Card	Embarkation/Disembarkation Card
EM-DAT	Emergency Events Database
GHG	greenhouse gas
GMDAC	Global Migration Data Analysis Centre
IDHNA	Initial Damage and Human Needs Assessment
IDMC	Internal Displacement Monitoring Centre
IOM	International Organization for Migration
ISO	Initial Situation Overview
ITWG	intergovernmental technical working group
MiGOF	Migration Governance Framework
NEMO	National Emergency Management Organisation
NFP	national focal points
OECS	Organisation of Eastern Caribbean States
PDNA	Post-Disaster Needs Assessment
PIDA	Pre-Impact Data Analysis
RCC	regional coordination centre
RCP	Regional Coordination Plan
RNAT	Rapid Needs Assessment Team

RRM	Regional Response Mechanism
SDG	Sustainable Development Goals
SIDS	small island developing State
SRCC	subregional coordination centre
SRFP	subregional focal points
UNFCCC	United Nations Framework Convention on Climate Change
UN OCHA	United Nations Office for the Coordination of Humanitarian Affairs

EXECUTIVE SUMMARY

The Eastern Caribbean region has witnessed a changing climatic regime in the last two to three decades, with an increased frequency and intensity of extreme climate events and related disasters. As a result, many people have been affected, and often they are forced to move either internally or to other States and territories within the region. For example, during the hurricane season of 2017 alone, Hurricanes Irma, Harvey and Maria displaced approximately 3 million people across 16 countries in the Caribbean and the United States of America. Considering global warming projections, it is expected that the impacts of climate change will increasingly influence human mobility patterns in the region.

In view of the adverse implications of climate change for resilience and adaptation, national governments recognize the importance of effective climate change and mobility governance. 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 and regional data systems on migration, environment, disasters and climate change across the Eastern Caribbean. This study is part of the IOM project entitled "Regional Dialogue to Address Human Mobility and Climate Change Adaptation in the Eastern Caribbean", under the auspices of IOM's GMDAC (Berlin, Germany) and IOM Dominica, and funded by the German Federal Foreign Office. The objective of the project is to assess the national data systems of the six Eastern Caribbean countries (Antigua and Barbuda, the Commonwealth of Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines), as well as existing regional frameworks in relation to migration, environment and climate change. The aim is to identify strengths, weaknesses and opportunities to enhance availability and evidence on environmental migration.

The study methodology is largely based on a triangulation of methods, including desk reviews and interviews with officials, national agencies, and departments, as well as international/regional organizations. Two distinct sets of questionnaires were distributed to 28 national and regional agencies identified as relevant sources of data within the initial mapping exercise that was carried out during the desk review. The 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 opportunities to enhance data on migration, environment, climate change and related disasters. Alongside the questionnaires, complementary interviews and validation workshops were conducted with national agencies across the six countries. The secondary quantitative data/statistics and information helped to ascertain the availability of data on the topic, and how far these data were being collected across the different countries. The quantitative data also served as reference in discussing the issues that came up in the qualitative interviews and data collection. The findings of the study and the consultation process served as the basis for critical discussion with regard to issues of climate change, environment, disaster, and human mobility data in the six Eastern Caribbean countries.

Existing free-movement arrangements within the framework of the Organisation of Eastern Caribbean States (OECS) and provisions under the Caribbean Community's (CARICOM) Single Market and Economy (CSME) have facilitated climate- and disaster-related mobility in the region. Although these free-movement arrangements have not established specific provisions to manage human mobility in the context of disasters, climate and other environmental changes, they have been pivotal in providing the legal basis to right of entry for OECS citizens affected by disasters and related emergencies. Alongside these regional mobility frameworks, CARICOM's Caribbean Disaster Emergency Management Agency (CDEMA) coordinates and promotes the integration of disaster management at the regional level. Despite supporting emergency response and relief efforts of member States through the Damage Assessment and Needs Analysis (DANA) Continuum, CDEMA's baseline data on disasters are aimed at facilitating Comprehensive Disaster Management (CDM) within the region. Notwithstanding, the issue of the climate and environmental change, disaster, and human mobility nexus is given little attention in climate adaptation and disaster risk reduction (DRR) policies and strategies.

In view of this, the six Eastern Caribbean States (Antigua and Barbuda, the Commonwealth of Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines), which have been considered as part of this study, have relied mostly on national data collection systems for decision-making and planning. In consultation with national immigration, statistics, and disaster agencies and departments of the six countries, a host of gaps and limitations were observed in regard to the sources of information on migration, climate and environmental change, and disaster data collection and management systems that were identified. Data captured by national immigration departments are mostly related to passengers and visitors arriving or departing from their territories, as well as information on visa issuance and renewals. But as for the main instrument used to collect information at the various ports of entry and departure, there is no common or single Embarkation/Disembarkation and Customs Card (ED Card) being used in the region to date. The existing ED and Customs Declaration Cards do not allow for the collection of information related to population movements that may result from environmental stressors and disasters.

With regard to the six national statistics departments, the generation of statistics on the environment, along with the development of specific indicators on climate change and disasters, is so far not a common practice. Data on such topics are usually provided by other national agencies and often available to the public in the format of compendiums/reports. In addition, the six countries develop statistics on demographic dynamics and population distribution, usually presenting some general aspects of migration that are gathered as part of the various rounds of national censuses. However, the collected data do not include information that may be linked to climate- or disaster-related mobility. Except for Saint Kitts and Nevis, the questionnaires deployed for the last round of national censuses included specific questions on (international) migration. However, the questions did not go further to probe the motivations and timing for such movements.

Nonetheless, the analysis of distinct household and other demographic (population-based) surveys across the six Eastern Caribbean countries reveals that there are already data that could be translated into statistics on human mobility in the context of climate and other environmental changes in the region. Environmental variables were associated with human mobility in the following national surveys: (a) Grenada's 2005 Core Welfare Indicator Questionnaire Survey, (b) Saint Kitts and Nevis' 2006/2007 Survey of Living Conditions and Household Budgets, (c) Dominica's 2008 Survey of Living Conditions, and (d) Saint Lucia's 2016 Survey of Living Conditions and Household Budgets. By introducing a whole section on the impacts of climate change and disasters on households, Saint Lucia's Survey represents an important step towards the recognition of climate- and disaster-related mobility.

Despite having implemented the procedures of the CDEMA DANA Continuum at the national level, except for Grenada's National Disaster Management Agency (NaDMA), the templates currently in use by the other five national disaster departments to collect data do not enable the effective quantification of persons moving in the wake of disasters and related emergencies. With the forms often deployed during a disaster (e.g. Initial Situation Overview (ISO) Form), there is no clarity on the various categories often listed. There is also no identifiable definition or explanation when a person is

considered displaced, or what considerations could be made in the determination of persons "missing". For those who have probably been moved to temporary shelters, it is unclear whether they will still be considered as displaced persons. Even with these numbers generated, it is also unclear as to how these data or information is integrated in the processing of the qualitative situation report or the Initial Damage and Human Needs Assessment (IDHNA) report.

Nevertheless, the analysis points to the potential for the number of displaced persons to be implied from that of the number of required houses and level of housing damages often recorded, as part of qualitative and quantitative assessments in the immediate aftermath of a disaster. Similarly, houses with major damages and houses destroyed, where occupants have had to be moved or relocated, could also be used as proxies for evacuation and displacement in instances where the number of affected persons has not been adequately captured or is generally unaccounted for.

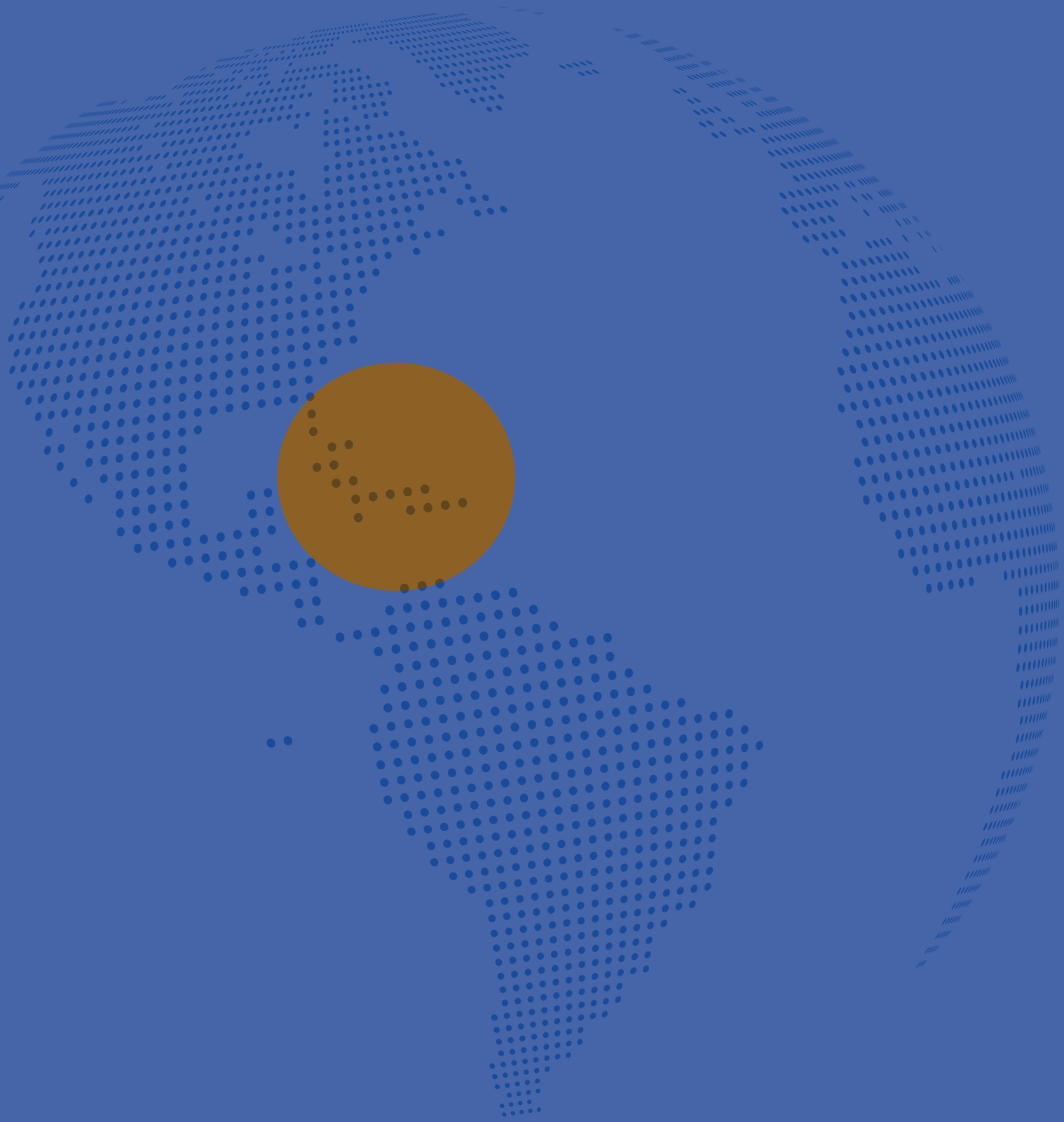
In summary, the report highlights the main gaps and limitations that hamper the availability of timely and reliable data on environment, climate change, disasters and human mobility across the distinct national agencies in the six target Eastern Caribbean States. Opportunities have also been identified as potential areas that could be built on to enhance the collection and harmonization of data across the region. Considering that effective data collection, management and dissemination is key to evidence-based policies related to migration, climate adaptation, as well as disaster management at both the national and regional levels, recommendations and proposed guidelines to enhance the collection, quality, and accessibility of data on climate- and disaster-related human mobility in the region are outlined. In the context of the OECS, the recommendation is for the Commission to consider or facilitate the design of a common ED/Customs Declaration Card (form) to be used by participating countries. With regard to the main instrument used to capture information at the various ports of entry and departure, the design of the proposed common ED/Customs Declaration Card should enable the collection of disaggregated data and have fields to adequately capture information relating to environmental factors as drivers of movement.

Alongside the proposition to also develop common methodologies and protocols on how data on human mobility in the context of climate and environmental change and related disasters could be collected and analysed, the OECS Commission could take the initiative to promote the development of common and synchronized household and other demographic (population-based) surveys to be simultaneously conducted in the six Eastern Caribbean States. With these surveys, the efforts could focus on integrating queries about climate and environmental risks and migration into the respective questionnaires. In terms of data storage and management, the proposition is for the OECS Commission to consider the establishment of a regional repository that hosts mobility data that are collected by the countries. In view of issues relating to data privacy and control across countries, the information or data to be shared and hosted in the common repository could be periodic summaries. It is envisaged that the summaries would ensure some guarantees in sharing less sensitive information by member States. Given that the Border Management System (BMS) already hosts information on passenger arrivals and departures across the six countries, the national systems could be upgraded or transformed as comprehensive data systems with the support and guidance of the OECS. These upgraded systems could be designed to account for immigration and emigration, as well as climate- and disaster-related mobility that may be detected at the ports of each State.

On the part of CARICOM, some recommendations have also been advanced. First, the proposition is for CDEMA to consider making some adjustments in its existing protocols to promote migration-inclusive disaster data collection, management and dissemination in the region. The adjustments could be made to clearly highlight the criteria for categorizing human damage (ensuring, for instance, the incorporation of specific categories related to the human mobility dimension – i.e. displacement, evacuation, relocation). In the context of the CDEMA DANA Continuum procedures, the recommendation is to ensure the adequate integration of specific categories comprising the human mobility dimension such as displacement, evacuation and relocation into the CDEMA DANA Continuum Forms. Whereas the Situation Report Form encompasses such aspects in a limited way, the IDHNA Form leaves such information out.

The possibility is that participating States could collaborate and build a consensus on key or standardized elements (migration-inclusive) to be integrated into each of the forms. This could allow for comparison across States. The harmonization could particularly focus on the disaster data collection forms (the CDEMA DANA Forms), especially in terms of migration/mobility-inclusive categories, concepts, and criteria defining specific damages and impacts, albeit with consideration to country-specific needs. Based on the development of single/common protocols detailing methodological aspects of data collection and compilation, the data collected could be integrated or synchronized in a common/single database under the responsibility of CDEMA (e.g. the inclusion of new layers of statistics on the climate and environmental change, disaster, and human mobility nexus in the Caribbean Risk Information System (CRIS)). Given that humanitarian agencies also operate in the region during disasters and related emergencies, CDEMA could consider taking up the responsibility to lead or promote better coordination among these humanitarian agencies when it comes to the collection of disaster data. This would enable synergies in data collection on climate- and disaster-related mobility.

The report is organized into seven sections. Section 1 provides an introduction and background to the study. In Section 2, the report discusses the conceptual approach to understanding human mobility outcomes in the context of climate and other environmental changes, including disasters. It further describes the methodological approach of the study. This is followed by Section 3, which gives a detailed overview of climate and environmental change, disaster, and human mobility governance at the regional level of the (Eastern) Caribbean region. In Section 4, the discussion delves into the question of data on climate and environmental change, disasters, and human mobility in the six Eastern Caribbean States. This section also provides a comparative analysis of the main sources of information and data on these themes across the six countries. In addition to highlighting the main gaps and constraints observed across the six countries, Section 5 identifies opportunities and strategies for improved data collection, management and dissemination in the region. Section 6 offers guidelines for enhanced data collection and management systems on climate change, environment, disasters, and related human mobility at the regional and national levels. Lastly, the discussion concludes in Section 7 by emphasizing the importance and need for timely and reliable data for informed decision-making and planning towards sustainable development and climate resilience across the region.



1. INTRODUCTION

In the face of ongoing global climate change, the scale and impact of climate-related disasters in the Caribbean and other small island developing States (SIDS)[1] have garnered considerable international attention (UNFCCC, 2005; Collymore, 2007; Thomas and Benjamin, 2020; Vinke et al., 2020). The growing concern is perhaps informed by the fact that not only have climate change–related risks and hurricanes increased in frequency and severity, but also a significant majority of the population, as well as livelihoods, cities and critical infrastructure in most SIDS, are situated within 1.5 km off the coasts (Lewsey et al., 2004; Gallina, 2010). Hence, they remain exposed and vulnerable to these extreme climate change events (ACP Observatory on Migration, 2011). As a consequence, vulnerable populations in SIDS, such as in the Eastern Caribbean, have continued to suffer from the impact of climate-related risks and disasters (Hamza et al., 2017; Thomas et al., 2020).

During the hurricane season of 2017, for example, about 3 million people across 16 countries in the Caribbean and the United States of America were reportedly displaced by Hurricanes Irma, Harvey and Maria (IDMC, 2018). Similar effects by Hurricane Dorian (August to September 2019) resulted in the displacement of 464,000 people across the Lesser Antilles,[2] as well as in Canada and the United States of America. The Bahamas also recorded widespread destruction, with more than 9,800 people being displaced by Hurricane Dorian (IDMC, 2020). More recently, Hurricane Laura (August 2020) reportedly resulted in damages to thousands of homes, with 24 deaths, in most part of the Caribbean (Paultre and Marsh, 2020; IDMC, 2021). While the nature of the relationship between climate and environmental change, disasters, and human mobility remains a highly debated topic among academics and policy circles (Black et al., 2011; Piguet, 2013), it is undeniable that climate change impacts on SIDS across the Caribbean could potentially accentuate the displacement and forced movement of people in the region (IPCC, 2014; Vinke et al., 2020; IDMC, 2021).

Within the context of mobility patterns in the Eastern Caribbean, the region has historically been characterized by the sustained migration of people, dating back to the colonial period (1492–1870). Following an initial period of forced movement of people across the region during the colonial era, inter-island mobility gained some impetus with the abolition of slavery in the 1830s across the English-speaking Caribbean (Ferguson, 2003). At the turn of the last century, however, much of the movement in the region had been characterized by the voluntary labour migration of people within and across the islands (ACP Observatory on Migration, 2013, 2014). Many others tend to move abroad, partly in response to the insatiable labour requirements of the

[1] These are small island developing countries that share similar development challenges and remain highly vulnerable to climate change risks and impacts.

[2] This is a group of islands in the Caribbean Sea, most of which constitute a long arc of islands stretching between the Greater Antilles to the north-west and the South American continent.

global economic order (Chamberlain, 2002). As such, migration in countries of the OECS is a normal phenomenon that has become ingrained in the psyche of people, and as well evolved as part of the social organization of societies (Thomas-Hope, 2002).

The observed patterns and direction of movements somehow reflect colonial–political linkages and are driven mainly by economic and educational reasons (Grosfoguel, 2002). Whereas this seems to be the case for most States in the region, contemporary migration patterns have also been marked by sustained mixed intraregional mobility (Gallina, 2010; ACP Observatory on Migration, 2014). The United Nations Department of Economic and Social Affairs (UN DESA) (2019) has, for example, estimated that more than 1,397,777 people have migrated out of the Eastern Caribbean States within the period of 1990–2019. The 2013 Global Migration Matrix posits that at least 7.01 million have emigrated from the wider Caribbean region, with the estimated 2007 emigration rate[3] in the whole of the region pegged at 15.5 per cent (UN ECLAC, 2006; World Bank, 2014, cited in IOM, 2017).

With specific reference to the Eastern Caribbean, many people have been affected and displaced by disasters and hence forced to move internally or to other States and territories within the region (IOM, 2017; Aragón and El-Assar, 2018). Others have migrated to North America, the United Kingdom and the European Union. Existing free-movement arrangements within the framework of the Organisation of Eastern Caribbean States (OECS), along with the provisions under the Caribbean Community's (CARICOM) Single Market and Economy (CSME) initiative, have facilitated international mixed migration of people in the region (Thomas-Hope, 2002; ACP Observatory on Migration, 2013, 2014; Aragón and Mawby, 2019). As such, migration and displacement in the Eastern Caribbean are complex phenomena driven by a multiplicity of interrelated factors (Kelman, 2018; Francis, 2019). Given that global warming is projected to continue into the future, it is expected that extreme climatic events and the associated impacts will accentuate existing human mobility patterns in the region (IDMC, 2020, 2021). As exemplified in the aftermath of Hurricane Maria in 2017, where persons were unable to pay for transport and hence trapped, many may also be unable to move and thereby remain trapped in conditions of vulnerability (Vinke et al., 2020). This invariably also means that people would respond differently to climate risk, depending on one's vulnerability or whether the risk is intensive (rapid-onset severe events) or extensive (slow-onset events) (Renaud et al., 2011; IOM, 2014b).

1.1. Migration, climate and environmental change, and issues of data in the Eastern Caribbean

Across the Eastern Caribbean, occasions of extreme weather and hurricanes events are not uncommon or unfamiliar (Taylor et al., 2012). However, the region has witnessed changes in its climatic regime in the last two to three decades (Peterson, et al., 2002; Herron et al., 2016; Taylor, 2017; Taylor et al., 2018), with a sustained increase in mean air temperature, as well as in the frequency and intensity of extreme events (Bueno et al., 2008; Jury and Gouirand, 2011; Taylor et al., 2012). Analyses of regional climate models and projections suggest that ongoing global climatic changes have largely contributed to an average of nearly 5 to 20 per cent decline in seasonal rainfall in the Caribbean (UNFCCC, 2005; Simpson et al., 2011; Karmalkar et al., 2013). Alongside the devastation that disasters continue to inflict on people in the region, countries are also grappling with coastal inundation and saltwater intrusion due to sea level rise estimated at 1.4 to 3.4 mm per annum (Bindoff et al., 2007; McGranahan et al., 2007; Rahmstorf, 2010; Government of the Commonwealth of Dominica, 2020).

Under current climate scenarios, it is expected that climate change in combination with human activities will threaten livelihoods, accelerate environmental and ecosystem degradation, as well as affect human health, agriculture and tourism (Chen et al., 2008; Simpson et al., 2011; Taylor et al., 2018). This will have adverse implications for the national economies and development in Caribbean States (Benson and Clay, 2004; Bishop and Payne, 2012; Lovelock et al., 2015; IPCC, 2019). For example, as

[3] This is the share of the population of a country or region living abroad at a particular point in time relative to the non-migrants (native population) living in that country or region (emigration rate = total number of emigrants/(total number of emigrants + total non-migrant population in the country/region)).

Dominica was one of the States that took the brunt of Hurricane Maria (September 2017), its economy, which depends on agriculture and tourism, was badly affected, while about 80 per cent of the population was reportedly displaced (IDMC, 2018). In addition to the 30 lives that were lost, the cost of damage caused was pegged at USD 931 million, constituting 176 per cent of Dominica's GDP for 2016 alone (Government of the Commonwealth of Dominica, 2017; Aragón and El-Assar, 2018). It is acknowledged that climate-related risks mostly interact with a multiplicity of complex socioeconomic factors and existing vulnerabilities in aggravating the displacement and forced or voluntary migration of people as a medium to a longer-term coping strategy (Audebert, 2017; Kelman, 2018; Vinke et al., 2020).

Essentially, national governments of OECS member States recognize that effective migration governance can contribute to sustainable socioeconomic development and climate change adaptation. Existing global, regional, and national mobility, legal, and disaster-risk policy frameworks and plans have sought to address issues of DRR, climate change adaptation and human mobility (Nansen Initiative, 2015; IOM, 2018; Puşcaş, 2018). With the adoption of the United Nations Global Compact for Safe, Orderly and Regular Migration, for example, five (i.e. Dominica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Grenada) out of the six Eastern Caribbean countries of focus voted in favour of the resolution at the United Nations General Assembly (UNGA) (2018:14–15). Besides the endorsement of the Global Compact for Migration, the approval of the 2014 Brazil Declaration and Plan of Action by Antigua and Barbuda and Saint Lucia signifies the commitment of countries to enhancing mobility governance in the region (Regional Refugee Instrument and Related, 2014; Cantor, 2018).

IOM's recent migration governance and needs assessments conducted in the 10 island States of the Commonwealth Caribbean showed that all the member States have national plans to guide the effective management of emergencies and disasters. They also have 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 by States, there still remains a lack of comprehensive approach and limited integration of human mobility issues into climate change and disaster plans and strategies. Even in instances where national immigration departments are 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 often no formally documented protocols for coordinating with immigration authorities in disaster scenarios (ibid., 51). This limitation is further compounded by the lack of data and evidence on climate- and environment-related mobility as critical elements that could be accessed in a timely manner for effective planning or deployment of interventions.

At both the national and regional levels, the available information on migration is mostly based on census data collected by the different statistical departments, as well as administrative data on entries and exits, visas, and residence permits generated by immigration authorities. 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. Alongside some statistics from a couple of international non-governmental organizations (INGOs) operating in the region, which sometimes highlight the number of people affected or displaced by climate-related disasters, data and information on climate- and environment-related migration are mostly sourced from or collated by global sources. These global sources include international institutions like the Centre for Research on the Epidemiology of Disasters – Emergency Events Database (CRED EM-DAT), Internal Displacement Monitoring Centre (IDMC), IOM's Displacement Tracking Matrix (DTM), and the United Nations Office for the Coordination of Humanitarian Affairs – Humanitarian Data Exchange (OCHA-HDX). They all capture and share data on disasters and displaced/affected persons based on different sources and for different countries and regions across the globe. Although the available data provide information on climate risks, disasters and impacts across the region, there is a need for country-specific, disaggregated, and comprehensive data on climate change and related human mobility.

The need for enhanced data collection and the establishment of reliable databases has widely been acknowledged as crucial to evidence-based 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 (Vinke and Hoffman, 2020), the generation of data and evidence on the topic calls for proactive actions. So far, three approaches to enable or foster the production of data on human mobility in the context of climate and other environmental changes have featured prominently in both scientific and policy discussions on the topic (Bilsborrow and Henry, 2012). These approaches have mainly bordered on: (a) correlating existing secondary data on environment and migration, (b) integrating specific questions on climate- and environment-related human mobility into questionnaires developed for other purposes such as censuses and household surveys, and (c) promoting the development of empirical research through specific data collection methodologies (Grandia et al., 2001; Laczko and Aghazarm, 2009; Lu et al., 2016; Berlemann and Steinhardt, 2017). On correlating existing secondary data on environment and migration, for example, some studies have already been innovative in combining existing data on the environment (e.g. satellite data, cellular phones, and maps of climatic risks and vulnerabilities) with existing data on migration (e.g. information provided by censuses and household surveys, as well as human mobility databases) (Fussell et al., 2014; Chen et al., 2017; GMG, 2017).

An assessment of the reliability of data by probing the data collection, analysis, management and dissemination mechanisms across States would be vital in helping national governments of OECS member States to plan and develop evidence-based policies to effectively address the adverse impacts of climate and environmental change and disasters on human mobility in the region.

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. The 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.

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, 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 into political, development and climate action (Mercer, 2010; Wilkinson et al., 2016). The increasing focus on instituting measures to address climate change impacts on human mobility has been formally registered in paragraph 14(f) of the 2010 Cancun Adaptation Framework (UNFCCC, 2011), and the corresponding evolution of the National Adaptation Plan (NAP) processes. While this recognition has undoubtedly contributed to underscoring the need for effective climate-related migration governance, it has also given impetus to conceptualizing or framing climate-related human mobility much more broadly and in national development planning (IOM, 2018).

Following the discussion from the Sixteenth Session of the Conference of the Parties to the UNFCCC (COP 16) in Cancun in 2010, the United Nations Advisory Group on Climate Change and Human Mobility (2014), as part of its recommendations for COP 20, distinguishes between three types of human mobility in the context of climate change – namely, migration, displacement and planned relocation (Warner et al., 2013). According to the United Nations Advisory Group on Climate Change and Human Mobility (2014:3), displacement relates to "situations where people are forced to leave their homes or places of habitual residence". Migration is described as "movements that are predominantly voluntary". Hence, both displacement and migration can take place within a country or across borders. Planned relocation, on the other hand, is defined as "an organized relocation, ordinarily instigated, supervised and carried out by the State with the consent or upon the request of the community" (ibid.).[4] Relocation can be voluntary or forced and is most often initiated, planned and supervised mainly by the State or authorities, although the processes may be initiated by the communities under threat (McAdam and Ferris, 2015; Melde et al., 2017; Bower and Weerasinghe, 2021).

Despite the considerable progress that has been made in bringing the issue of human mobility to the limelight, the commitment to address displacement and climate-related migration is still lagging (IOM, 2018). The re-emergence of the subject during COP 21 in Paris led to proposals for the creation of the Climate Change Displacement Coordination Facility (Wentz and Burger, 2015). A Task Force on Displacement was subsequently formed under the Warsaw International Mechanism for Loss and Damage, and it was assigned the responsibility to make recommendations in addressing displacement due to the negative impacts of climate change. Following the work of the Task Force on Displacement, the set of recommendations presented were subsequently adopted at COP 24 in Katowice (UNFCCC, 2021). Under Decision 10/CP.24, the recommendations as presented in the report by the Executive Committee of the Warsaw International Mechanism for Loss and Damage (WIM ExCom) specifically spell out (in paragraph 2(g/ii)) the need to "enhance research, data collection, risk analysis and sharing of information to better map, understand and manage human mobility related to the adverse impacts of climate change in a manner that includes the participation of communities affected and at risk of displacement related to the adverse impacts of climate change" (UNFCCC, 2019:43).

[4] See the glossary at the beginning of the report for IOM definitions.

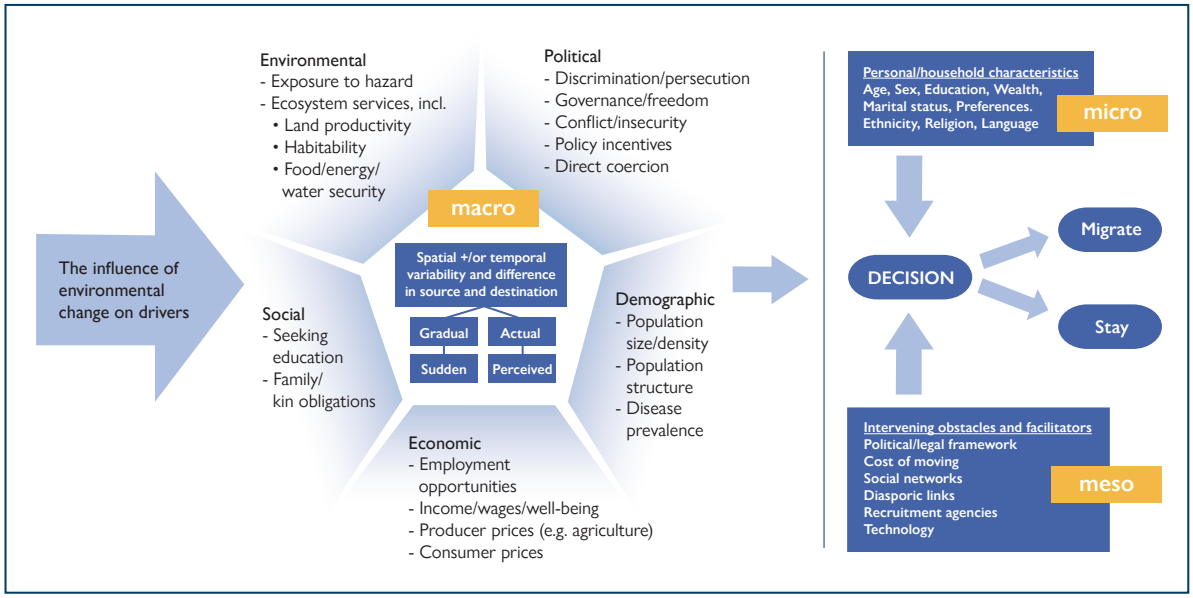
Other notable frameworks like the Sendai Framework for Disaster Risk Reduction (2015–2030), the Nansen Initiative Protection Agenda, and the Global Platform for Disaster Risk Reduction (2015–2030) also address climate-related disasters, displacement and migration (Nansen Initiative, 2015). Although these frameworks are non-binding agreements, they allude to the importance of including displaced persons and migrants in DRR planning. In particular, the Global Platform for Disaster Risk Reduction (2015–2030) is focused more on the monitoring and implementation of the Sendai and Nansen disaster risk agenda (UNDRR, 2020). It does so by helping States to identify knowledge gaps, while facilitating policy coherence and mainstreaming of human mobility into policy formulation.

Similarly, the United Nations Sustainable Development Goals (SDGs) have recognized the impact of migration and forced displacement on advancing its 2030 Agenda for Sustainable Development. While SDG 10.7.2 aims to track the number of countries that have implemented well-managed migration policies, SDG 13.1 outlines the urgent need to strengthen the resilience and adaptive capacities of countries to climate-related hazards and disasters. More specifically, SDG 13.2 advocates the integration or mainstreaming of climate measures into national policies, strategies and planning, while SDG 13.3 emphasizes issues of awareness (UN DESA, n.d.).

The Global Compact for Migration has been more holistic in acknowledging all the dimensions of international migration. In outlining its 23 objectives, the Global Compact for Migration recognizes the impact of changing environmental and socioeconomic conditions and the effect these may have on migration (UNGA, 2019). Objectives 2 and 5 respectively emphasize the need to minimize adverse drivers and structural factors that force people to move, as well as enhance and promote available and flexible pathways for regular migration. The shifting policy focus and evolving perspectives indicate the extent to which DRR and effective migration governance have gained traction in global debates. Even so, the broad distinction between the different types of human mobility also highlights the complexity of factors that come into play in precipitating movements under circumstances of real or perceived climate and environmental risks (Boano et al., 2008; Renaud et al., 2011). This suggests that there is the need for a comprehensive conceptual framework in adequately dealing with the complexity of migration processes in the context of climatic and environmental changes. The conceptual framework developed as part of the Foresight project provides a good point of entry in understanding mobility outcomes or decision-making in the context of climate and environmental change (Government Office for Science, 2011; Black et al., 2013).

As illustrated in Figure 1, the Foresight framework 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.

Figure 1. Foresight Migration Decision Framework



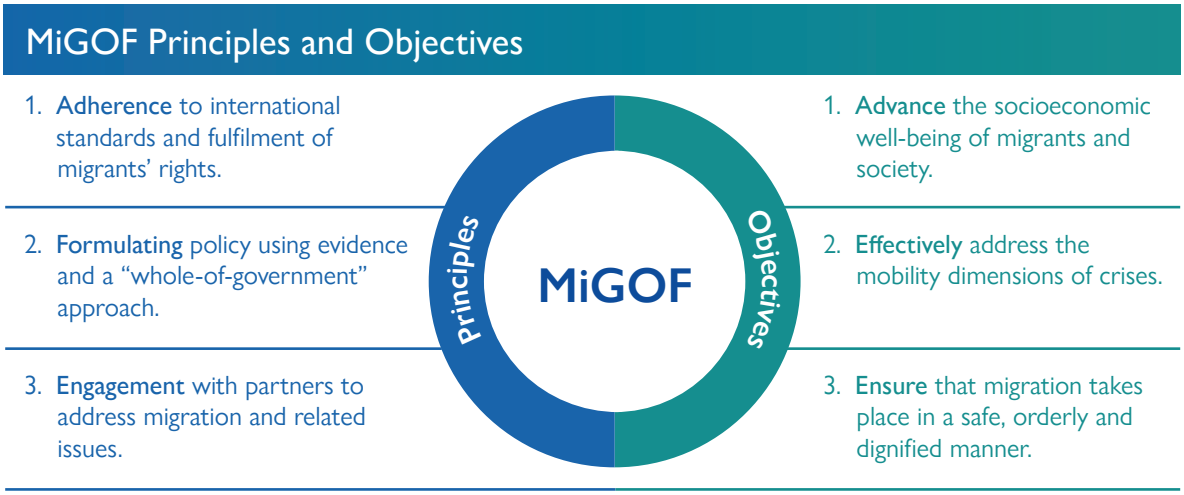
Source: Government Office for Science (2011:12).

The Foresight framework brings into perspective the fact that the decision to stay or move is inherently contextual. In broader terms, the conceptual framework in a way also directs policy focus to tackling the host of different outcomes and impacts versus a focus on seeking to restrict, manage, or facilitate the number of people who move or remain at a given place.

While attention to planned relocation in policy discussions may have emerged later than migration and displacement, it features prominently in both scientific and policy discussions and processes as an important dimension of human mobility in the context of climate and environmental change and disasters (Bower and Weerasinghe, 2021). The Foresight Migration Decision Framework's broader outlook in terms of policy direction is consistent with IOM's Migration Governance Framework (MiGOF). The MiGOF is a governance structure that provides a framework through which national governments and stakeholders could cooperate to address issues of migration. It highlights the ideal approach to fostering effective migration governance across States and between States and other stakeholders (IOM, 2016a).

Specifically, IOM's strategic objectives on environmental migration focus on three dimensions: (a) empowering governments and authorities, as well as enhancing the capacities of policymakers and practitioners to be able to effectively address the complex issues of migration, environment and climate change; (b) enabling and improving the response and support to migrants; and (c) mainstreaming or integrating the topic into key policy areas dealing with climate, environment and land (IOM, 2014b). In line with these strategic aims, the MiGOF outlines three principles and three objectives as being essential elements of effective migration governance (IOM, 2016a). These principles include: (a) adherence to international standards and fulfilment of migrants' rights, (b) formulating policy using evidence and whole-of-government approach, and (c) building partnership to address migration and related issues (see Figure 2).

Figure 2. Migration Governance Framework (MiGOF)



Source: IOM, 2016a:3.

The emphasis on the need for evidence in collecting, analysing and using credible data on patterns of mobility – as well as understanding the links with environmental degradation, climate change, and crises to inform and foster policy coherence – has been 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 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 credible data, that this study assesses national and regional data systems on migration, environment, disasters and climate change.

2.2. Methodological approach and data

2.2.1. Research approach and data collection

The research approach for this study is based largely on a triangulation of methods, including desk reviews, 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 (October to November 2020), 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. Alongside this, international databases related to disasters and related statistics on displacement and migration were also consulted.

The main objective for the initial mapping exercise was to ascertain: (a) the kind of data hosted by these sources and to what extent they relate to the climate and environmental change, disaster, and human mobility nexus, (b) the existence and availability of specific data on climate-, environment- and disaster-related population movements, and (c) the gaps and limitations of data collection and sharing systems in relation to climate- and environment-related mobility. In all, 28 different organizations or agencies across the different scales were identified as relevant sources of data (see Annex I). Among them, 11 presented databases that were focused at the global level, 13 focused on the regional level, and 3 at the national level. A total of 12 (out of 28) sources had information related to climate- and disaster-related human mobility (mostly, displacement associated with disasters). However, none of these 12 databases presented any data at the national level across the OECS. In addition, some key regional and national stakeholders were also identified and contacted for interviews through questionnaires with the support of IOM Dominica (see Annex II).

Eighteen questionnaires were distributed to all the national agencies identified as relevant sources of data across the six OECS countries of focus (three in each country). Ten questionnaires were shared with regional stakeholders. Two different types of questionnaires were deployed to cater to the distinct stakeholders identified. Nevertheless, the questions did not differ much. Questions were mostly open-ended and hence allowed for the collection of qualitative data. In general, the 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 information at the national and regional levels; as well as gaps and options to enhance data on migration, environment, disasters and climate change at all levels.

The response rate for the questionnaires that were distributed was rather low. In view of the limited timeline for the study, however, a proactive approach was taken to collect the required information. As a follow-up, therefore, online interviews were conducted with the 28 regional and national agencies (18 national agencies and 10 regional stakeholders).[5] With the support of IOM Dominica, several other national agencies and ministries (across the six Eastern Caribbean countries) that collect some level of data on the topic, but were not identified during the initial mapping process, were also engaged as part of national validation workshops that took place between January and March 2021. The validation workshops provided the opportunity for the national stakeholders to: (a) review their unique context and draft reports regarding data on the topic; (b) raise their awareness of reasons to prioritize data collection on the topic; (c) increase their knowledge regarding the climate and environmental change, disaster, and human mobility nexus; (d) contribute to the development of national guidelines on data governance and management; as well as (e) estimate the resources and capacities needed for effective data collection, management and dissemination.

The interviews and validation workshops provided critical qualitative insights into the issues of climate and environmental change, disasters, and human mobility data across the region. With the data analysis, the secondary quantitative data/statistics and information helped to ascertain the availability of data on the topic, and the extent to which these data were being collected across the region. The qualitative data and information from both the questionnaires and interview transcripts were manually sorted in a matrix. Codes were identified and categorized under relevant themes including, inter alia: "source of information", "type of governance framework", "type of data", "constraints to data collection" as well as "options at enhancing effective data collection and sharing" for analysis (see Annex V). 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 at the regional level have also been formulated. Additionally, a checklist has been prepared, outlining proposals or recommendations to build capacities, as well as facilitating a better understanding to effectively address climate change and disaster impacts on human mobility at the regional level.

[5] Due to the global health pandemic in 2020/2021, no in-person interviews could be conducted.

3. REGIONAL GOVERNANCE FRAMEWORKS RELATED TO ENVIRONMENT, CLIMATE CHANGE, DISASTERS AND HUMAN MOBILITY

Generally, intraregional mobility across the Eastern Caribbean is facilitated through the two main free-movement frameworks established under CARICOM and the OECS. Alongside these regional mobility frameworks, other existing regional climate change and disaster governance frameworks and institutional structures seek to enhance climate 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, CDEMA, as a regional intergovernmental agency for DRR, is also of importance in understanding disaster and related mobility management across the region. The distinct governance frameworks identified at the regional level are further elaborated in the following sections.

3.1. The Caribbean Community

The CARICOM CSME is a regional governance framework aimed at enhancing intraregional trade through the removal of tariffs and other barriers to trade. Following the Caribbean Free Trade Association (CARIFTA) agreement, a provision for the creation of a common market in the region was outlined as part of the signing of the 1973 Treaty of Chaguaramas. The practical intent in committing to the resolve for intraregional trade was registered with the transformation of the common market to a single market and economy by the heads of government of CARICOM member States as part of the Grand Anse Declaration in 1989 (CARICOM, 2020).

The main goal of the CSME is to remove barriers to free trade and services through policy harmonization as a way to enhance and strengthen regional integration. As such, the 2001 Revised Treaty of Chaguaramas saw the extension of the single market space to include: services; the right to establishment; free movement of capital, technology and skilled professionals; and coordination of economic policies (CARICOM, 2001). After becoming operational with the declaration of the heads of government on 3 July 2006 (CARICOM, 2010), the CSME focused mainly on issues relating to consumer affairs, regulating competition, social security, contingent rights, immigration arrangements for free movement of persons, administrative arrangements for commercial establishment, government procurement, trade and competitiveness in CARICOM.

Within the framework of the CSME, free-movement rights can be exercised under three provisions: (a) the movement of skilled persons, (b) services and (c) the right of establishment (Francis, 2019). These provisions facilitate the movement of CARICOM citizens through the right to establishment in any of the member States (CARICOM, 2001:19–22). Article 46 of the 2001 Revised Treaty of Chaguaramas outlines the provisions to allow for the free movement of skilled and professional personnel – including university graduates, nurses, teachers, media personnel, sports personnel, artists and musicians – who require an approval by way of a Certificate of Recognition of Skills Qualification, to work in other member States. Similarly, any community citizen of CARICOM who is self-employed or engaged in non-wage-earning activities that are commercial, industrial, agricultural, professional or artisanal could enjoy an indefinite stay in another member State by exercising their right to establish a business or right of establishment. The right of establishment may also be applied in moving technical, supervisory or managerial staff and families of entities established by the community citizen or proprietor moving (ibid.).

As part of the aforementioned provisions and under the related conditions, all citizens of CARICOM member States are theoretically entitled to a six-month visa-free stay in any member State – unless they are deemed a threat to national security, public safety, order, morals or any other basis set out by the Caribbean Court of Justice. Another caveat to the CSME protocol is that nationals who wish to move or are moving to another member State must present valid passports, return tickets and proofs of financial resources for personal maintenance (ibid.). An additional condition for the movement of skilled persons under the CSME is the requirement relating to skills certificates. The CSME does not include specific provisions dedicated to environmental migration or disaster displacement. In the wake of a disaster, therefore, it may be difficult for persons moving to be able to meet the requirements of the free-mobility arrangement. Notwithstanding, the skills certificate has been key in helping some displaced persons to gain employment quickly in receiving member States in the aftermath of a disaster (Francis, 2019). This was particularly evident in the immediate aftermath of Hurricane Maria, when certain requirements were waived for affected Dominicans by receiving countries in the region (ibid.). In effect, the free-movement regime developed under the CSME is focused on addressing skilled labour migration and economic integration, with limited consideration or reference to environmental migration or disaster displacement.

3.2. The Organisation of Eastern Caribbean States

The OECS is another regional intergovernmental organization, established with the aim to promote the integration of Eastern Caribbean island States in facilitating the development of a common financial and economic space, characterized by the free movement of capital, goods and people.[6] The original 1981 Treaty of Basseterre, replaced in 2010 by a revised one, not only targets the harmonization of monetary and governmental policies but also allows for the adoption of common approaches to topics such as the environment and migration (OECS, 2010).

In advancing this agenda, citizens of member States are entitled to freedom of movement across the OECS region. Specifically, Article 12 of the Revised Treaty of Basseterre stipulates that freedom of movement is to be underpinned by a policy of non-discrimination – meaning that citizens of member States have a right to equal treatment in all member States. In this light, Article 3.C emphasizes the "abolition, as between Protocol Member States, of the obstacles to free movement of persons, services and capital" (OECS, 2010:29). Unlike CARICOM, which grants free mobility to some specified categories or skilled persons, the provisions under that of the OECS grant all nationals the right to move, find employment, and access services, such as education and health care, in the same manner as the nationals of the other member States they are moving to (Aragón and Mawby, 2019).[7] These provisions further apply even in circumstances of a disaster, where affected OECS nationals are still entitled to enter any member State without any constraints (Francis, 2019).

The free movement of people in the OECS is thus primarily associated with economic reasons, for which the community citizens could move freely to exploit economic opportunities in other member States. Nevertheless, the mechanism could also be applied to addressing instances of (forced) population movements related to disasters and other climate change impacts. While the increasing impact of climate change and related disasters may see affected OECS citizens exploiting provisions made under the free-movement protocol to migrate or relocate to other member States, a waiver or legally binding recognition in these instances will still require some amendments or introduction of some additional instruments (Aragón and El-Assar, 2018). Vinke et al. (2020), in echoing this perspective, draw attention to the fact that the OECS is already considering the dimension of disaster- and climate-related (forced) movements as part of its policy processes.

[6] Importantly, the member States of the OECS are either full associate members of the CARICOM or were among the second group of countries that joined the CARICOM Single Market and Economy (CSME).

[7] In this regard, despite the OECS being composed of 11 member States, the provision applies only to the 7 protocol members – namely, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. The provision does not extend to the OECS associate members. These are Anguilla, the British Virgin Islands, Guadeloupe and Martinique.

In principle, people can move freely within the context of the OECS regional mobility framework. However, the potential occurrences or prospects of having to contend with the influx of people without any form of identification in the case of disaster can be challenging. Most especially, it may be difficult to adequately capture data or information on people affected or on the move because of disasters, which could hamper the development of evidence-based policies and strategies. The right to move freely could potentially mean that in the spur of the disaster circumstances, people can enter any member State without a record. More importantly, there would be the need to ensure policy coherence and also define operational protocols that may be deployed under these circumstances (ibid.). Some OECS members (like Antigua and Barbuda, and Saint Lucia) that are parties to the 2014 Brazil Declaration and Plan of Action are also considering the development of humanitarian visa programmes, as well as incorporating risk management as an integral aspect or component of immigration law (Cantor, 2018). Despite the challenges, countries in the region still tend to make compromises and extend humanitarian assistance to persons affected in the wake of disasters without recourse to migration status (Aragón and El-Assar, 2018).

3.3. Free-movement arrangements under the Organisation of Eastern Caribbean States and the Caribbean Community: Comparative insights

Although the OECS and CARICOM free-movement arrangements allow for the movement of persons across the region, they do not provide specific legal provisions to deal with population movements related to climate and environmental change and disasters. Considering that the free-movement regime under CARICOM is subject to several conditions that often tend to restrict movement between its member States, it may be deduced that the climate and environmental change, disaster, and human mobility nexus in the Eastern Caribbean could be better addressed through the provisions established by the OECS. Despite the seeming limitations, the regional free-movement arrangements as envisioned under CARICOM and OECS have been instrumental in facilitating mobility across member States.

As may be exemplified in the case of the 2017 Atlantic hurricane season, the free-movement arrangements in the region were instrumental in providing the legal basis to right of entry for affected OECS citizens. Countries like Trinidad and Tobago, Saint Vincent and the Grenadines, Saint Lucia, and Grenada waived requirements and welcomed Dominicans who were displaced. Indeed, other forms of identification like appearance, family and accent were used, while priority was given to speeding up the registration of Dominicans who were seeking entry (Francis, 2019). The mutual cooperation enshrined in these arrangements not only allowed for the recognition of skills, but also provided a basis for member States to waive work permit requirements or travel documentation in specific cases where documents were lost or damaged during disaster (ibid.). Table 1 gives comparative insights into the provisions of the free-movement agreements established by the two frameworks.

Although several national agencies or designated authorities tend to capture migration data, the information is often limited to the registration of persons' arrivals into and departures from the territory, visa renewals, and other relevant administrative information. In this light, important details such as reasons for moving are often not captured. As such, the issue of data capture or availability with specific reference to the mobility dimensions of climate change and disasters would continue to be a challenge in informed decision-making and planning for effective and timely disaster response and management. There is also no perceptible data indicating the number of persons moving in the context of free-movement arrangements. It may thus be difficult to adequately determine the scale or magnitude of intraregional mobility for informed planning and policy formulation.

Table 1. Free movement within Eastern Caribbean States

Provisions	OECS	CARICOM
Category of persons allowed free movement within framework	All OECS nationals holding a valid photo ID, spouses and dependents.	Limited to a list of categories of people; all CARICOM nationals are able to access or move through an automatic six-month stay.
ID cards valid to travel within framework and/or free-movement mechanisms	Driver's license, national identification card, voter registration card, social security card and passport.	Requires valid passport, letter of employment contract, birth certificates of dependents, marriage certificate, police record; definite entry for all CARICOM nationals; indefinite stay for skilled nationals; movement of service providers; indefinite entry under the right of establishment.
Length of stay allowed	Indefinite for all OECS nationals.	Six months for all CARICOM nationals; indefinite for skilled nationals of member States, after approval of the verification process, and persons moving under the right of establishment.
Persons allowed to work within framework	All OECS nationals who are holders of a valid photo ID, spouses and dependents.	Holders of a skills certificate, after the approval of the verification process; verified service providers; right of establishment.
Process required to access employment	No work permit or special processes required.	Application for a skills certificate; application for the Caribbean Vocational Qualification; national verification process; services certificate.
Elements of the right to employment	Granted indefinitely; the OECS ensures the portability of social security benefits.	Granted indefinitely for holders of a skills certificate; granted for definite periods of time for service providers; right of establishment.

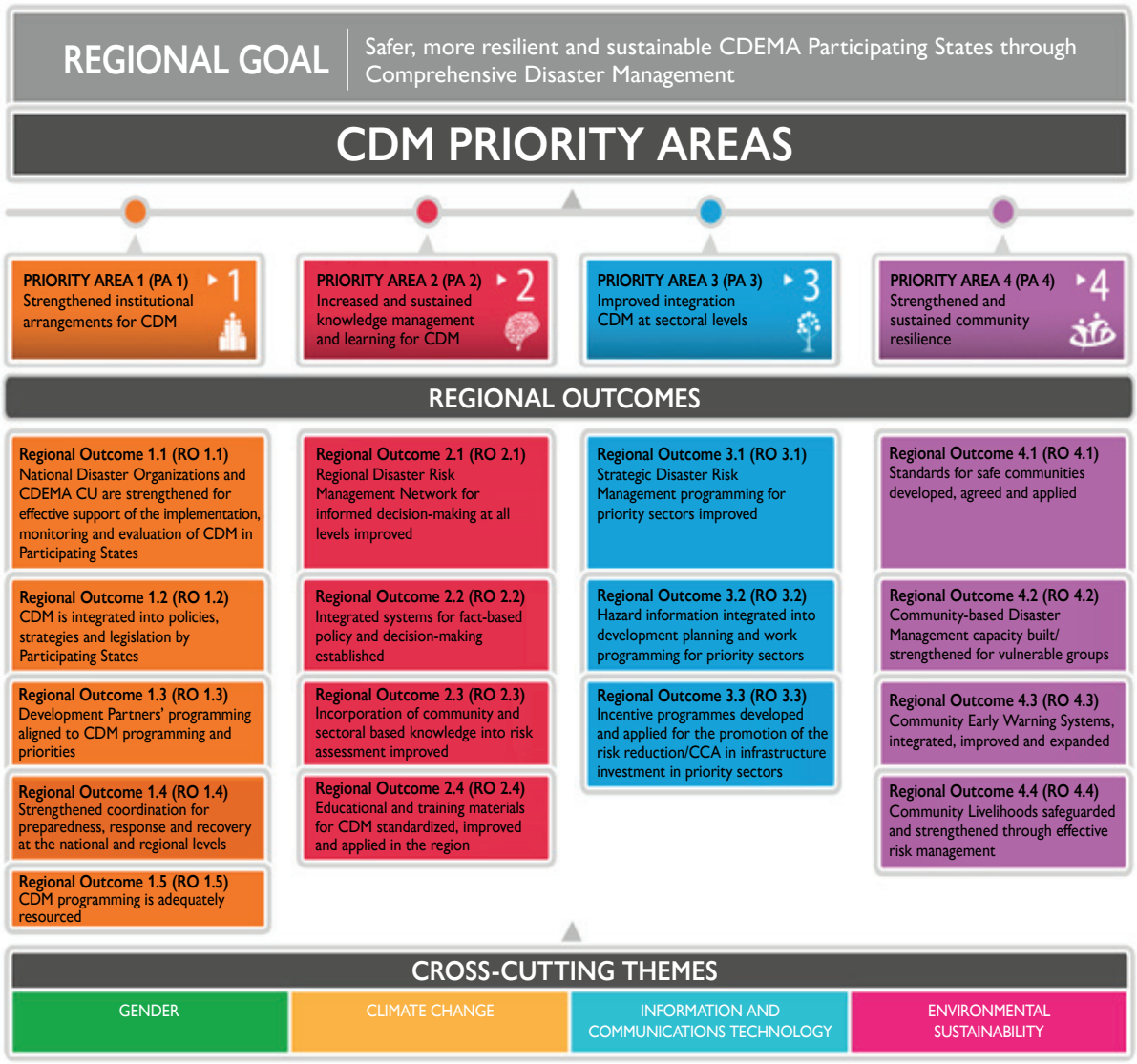
Source: Compiled by authors (2021, based on: Aragón and Mawby, 2019).

3.4. The Caribbean Disaster Emergency Management Agency

CDEMA is a regional intergovernmental agency for disaster management. It is active across the CARICOM region, functioning under the CARICOM structure. Established in 1991 as Caribbean Disaster Emergency Response Agency (CDERA), it transitioned to CDEMA in 2009. CDEMA is mandated to facilitate, coordinate and promote the integration of disaster management at the regional level (CDEMA, n.d.). Alongside its role of advocating the adoption of policies and practices on disaster risk reduction and mitigation at both the regional and national levels, CDEMA is also concerned with providing reliable and comprehensive information on disasters to participating States (UN OCHA et al., 2020). Within its mandate as an intergovernmental agency, it focuses on coordinating emergency response and relief efforts to member States based on the principles and practice of Comprehensive Disaster Management (CDM) (ibid.).

The aim of CDEMA is to contribute to reducing risk and loss associated with natural and technology-related hazards, and the effects of climate change, with a view to enhancing regional sustainable development. To advance the agenda of building community resilience and mainstreaming CDM into domestic and sectoral planning, CDEMA has developed the Comprehensive Disaster Management Strategy and Framework (2014–2024), which aims to promote "[s]afer, more resilient and sustainable CDEMA Participating States through Comprehensive Disaster Management" (CDEMA, 2014a:13). As illustrated in Figure 3, the goal of the CDM is outlined along 4 priority areas and 16 regional outcomes to be delivered over a 10-year period. The CDM Strategy looks to, inter alia, enhance disaster risk reduction and management by supporting decision-making and action based on evidence through knowledge management, mainstreaming CDM into key sectors and development planning, as well as strengthening institutional capacity.

Figure 3. Framework for the Comprehensive Disaster Management Strategy 2014–2024



Source: CDEMA, 2014a:15.

The CDM Strategy focuses on climate change as a cross-cutting theme. Hence, it acknowledges the linkage between DRR and climate adaptation. With this focus, the CDM Strategy advocates measures that address both themes to focus on reducing vulnerability, as well as enhancing preparedness and response to climate-related hazards. Furthermore, it calls for effective and sustainable actions on climate change adaptation and hazard mitigation (CDEMA, 2014a).

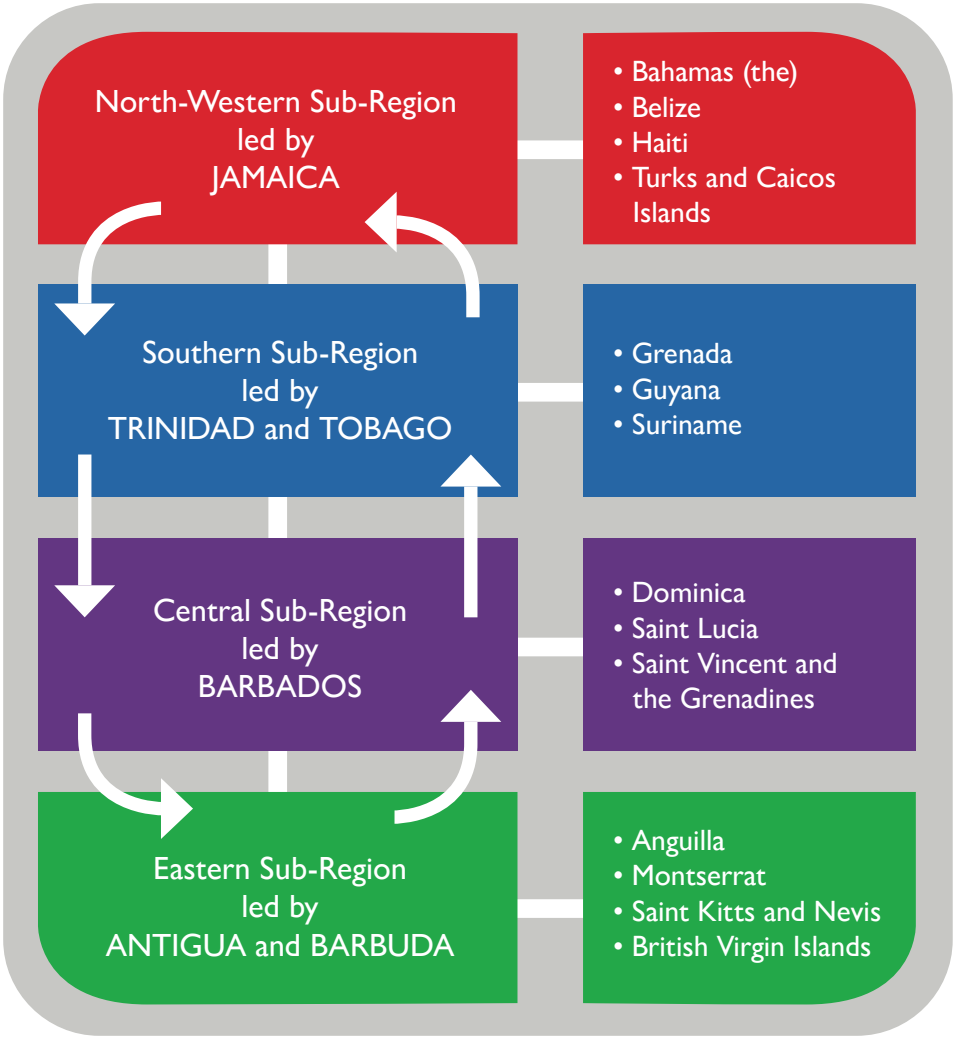
In the quest to effectively implement the CDM Strategy goals at the national level, an Implementation Plan has been developed by CDEMA. The Plan generally outlines the priorities that should be undertaken by countries and the resources required to fulfil the desired results. In this context, the CDM Governance Mechanism provides support for the implementation of the Strategy over those 10 years (ibid.). These efforts are further complemented by the use of the Performance Measurement Framework (2015), which has also been adopted by participating States (CDEMA, 2014b). This Framework and its related set of measurable and verifiable targets and indicators are used to track the progress of national efforts towards achieving the goals of the CDM Strategy.

Irrespective of the strategies outlined in addressing climate change impacts and disaster risk response and management across the participating countries, however, the CDM Strategy does not present or make any specific provisions and/or references to human mobility in the context of climate and other environmental changes. The baseline data on disasters that CDEMA collects are mainly to support and enhance CDM within the Caribbean. However, the data do not account for or refer to the mobility dimensions of disasters (CDEMA, 2007). This further leaves a gap or draws attention to the limited consideration for the mobility dimensions in climate adaptation and DRR policy processes.

3.4.1. Caribbean Disaster Emergency Management Agency: Regional disaster coordination architecture and mechanisms

To understand data collection in the context of CDEMA as a regional body, it is important to give an overview of the disaster response and coordination mechanisms at the regional level. Besides the Coordinating Unit (CU) as the Agency's main focal point for disaster management, CDEMA's operations are also supported by four subregional focal points (SRFP). Each of these SRFPs covers a distinct geographical area within the Caribbean and is responsible for supporting the Coordinating Unit in disaster response initiatives (see Figure 4) (UN OCHA et al., 2020).

Figure 4. CDEMA subregional focal points



Source: UN OCHA et al., 2020.

The SRFPs are embedded within the various national disaster offices of the countries in which they are located. They support CDEMA's disaster response and relief operations in collaboration with partners at the national, regional and international levels. This is done through an operational tool known as the Regional Response Mechanism (RRM) (CDEMA, 2016). It is through the RRM that CDEMA delivers coordinated, effective and timely response to countries affected by disasters in the Caribbean (ibid.) The RRM encompasses five response teams which play specific roles in supporting impacted participating States during humanitarian response to an emergency. These five response teams are the following: (a) CARICOM Disaster Relief Unit (CDRU), (b) CARICOM Operational Support Team (COST), (c) CARICOM Disaster Assessment and Coordination (CDAC) Team, (d) Rapid Needs Assessment Team (RNAT), and (e) the Regional Search and Rescue Team (RSART) (CDEMA, 2016; UN OCHA et al., 2020).

Regardless of the five response teams that make up the RRM, the coordination and management of the response and relief operations during a declared emergency or disaster in any participating State is done by the regional coordination centre (RCC) in collaboration with other subregional coordination centres (SRCC) which are based within the different CDEMA SRFPs. Whereas the RCC is the central focal point for the coordination and management of any declared emergency or disaster event across the Caribbean, the SRCCs are responsible for the early warning, response and relief activities in the

event of an emergency that has impacted one of the four subregions. The operationalization and coordination of the RRM is further facilitated by a Regional Coordination Plan (RCP). It does so by providing the framework that guides the support to participating States during periods of disaster and emergencies. The CDEMA Coordinating Unit, as the focal point overseeing the operationalization of the RCP, emphasizes the need for national plans of participating countries to then clearly outline the necessary procedures for triggering the RRM.

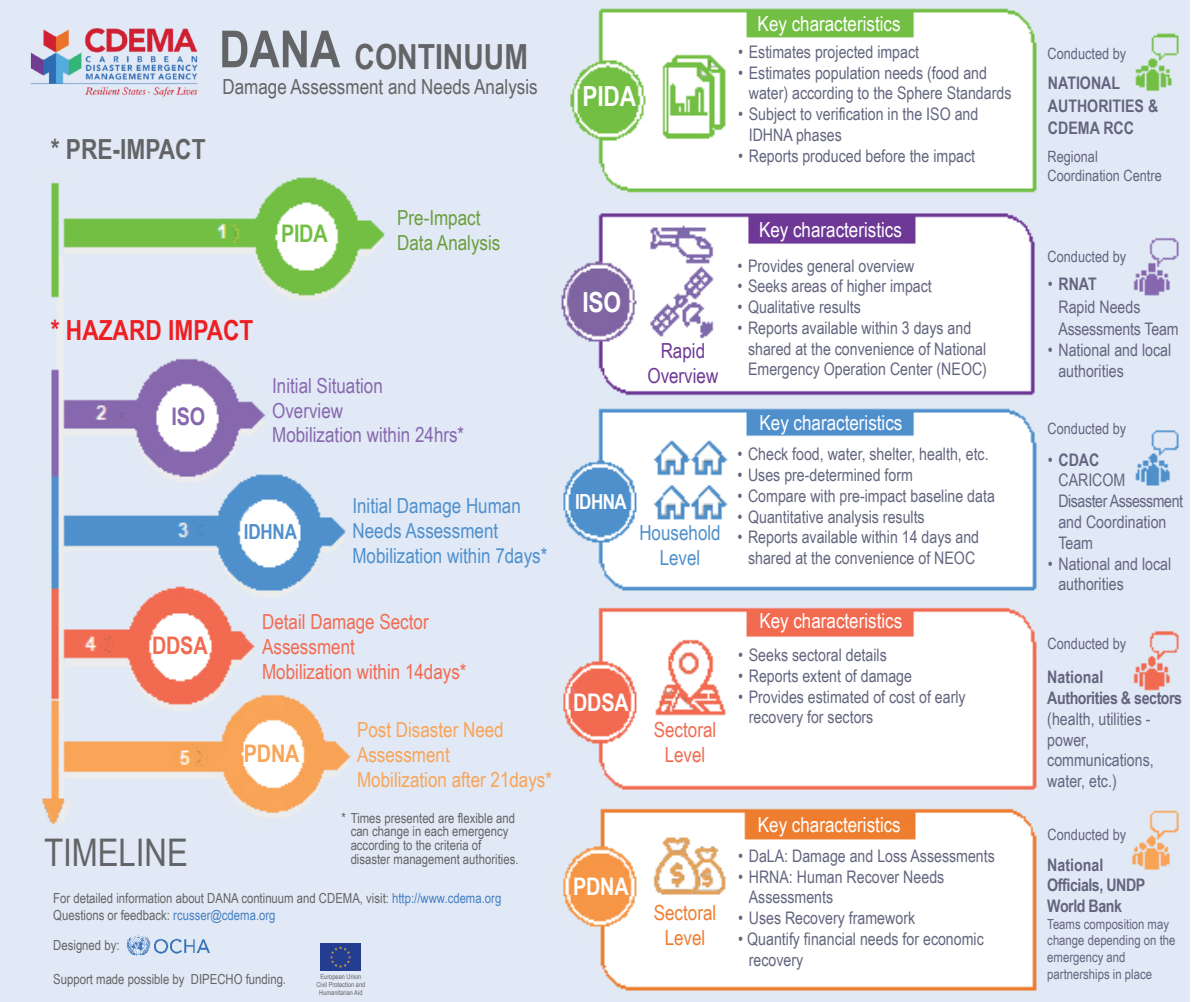
In regard to activating the RRM, the process entails sending a notification to CDEMA about the emergency. The affected participating State, through this notification, then makes a formal request for regional assistance. Alternatively, the RMM may be triggered by the CDEMA Coordinating Unit when reports of the emergency are verified and from credible sources. But in instances where the aforementioned mechanisms cannot be used, the CDEMA Coordinating Unit may then deploy a team to assess and verify the extent of the impact on the participating State so as to determine whether or not to trigger the RRM (UN OCHA et al., 2020). In terms of data collection and assessment on damage at the regional level, CDEMA also has a system in place that focuses on supporting disaster response and recovery. The disaster data collection and assessment process at the level of CDEMA is further elaborated in the Damage Assessment and Needs Analysis (DANA) Continuum process.

The established process of the DANA Continuum confirms that there is data collection (both qualitative and quantitative), information dissemination, collaboration, established protocols, and coordination in terms of disaster risk and impact management at the regional and national levels. However, there are no disaggregated data that specifically detail information relating to the human mobility dimensions of climate and environmental change, disasters, or emergencies. Whereas this seems to be the case at both the regional and national levels, the DANA Continuum process nevertheless presents possibilities to revise data collection mechanisms to include the systematic capture of information or data on human mobility in the context of climate and other environmental changes, including the related disasters. This potential is particularly exemplified in the context of the Initial Situation Overview (ISO) and the Initial Damage and Human Needs Assessment (IDHNA) predetermined forms, which are deployed for collecting the different information, as elaborated in the subsections below.

3.4.2. The Damage Assessment and Needs Analysis Continuum

The DANA Continuum represents the main mechanism by which the Agency undertakes damage assessment and data collection and processing. The data collected through the DANA Continuum help ascertain needs in the aftermath of a disaster or emergency in a participating State. A consolidated approach to data collection and damage assessment has become necessary in order to help relieve the burden of such a responsibility on affected populations or States. As such, the DANA Continuum basically supports response and recovery actions in any participating State that has been affected by a disaster or in case of an emergency (Figure 5). In doing so, CDEMA not only ensures the collection of data on damage after a hazard impact to inform immediate needs, but also standardizes the procedures used for damage assessment and needs analysis. These processes help to facilitate the identification of facilities in need of rehabilitation and/or reconstruction and recovery (UN OCHA et al., 2020). To gain insights into the operationalization of the DANA Continuum, the process as may be visualized in Figure 5 is composed of five critical stages, involving different stakeholders.

Figure 5. CDEMA DANA Continuum process



Source: OCHA et al., 2020:25.

3.4.2.1. Pre-Impact Data Analysis

With the first stage representing the Pre-Impact Data Analysis (PIDA), the assessment is often undertaken by national authorities and the CDEMA regional coordination centre. The PIDA provides estimates on projected impacts and the potential food and water needs of the people according to the Sphere standards[8] for quality of humanitarian assistance (Sphere, 2018). Normally, the CDEMA, in collaboration with national authorities, produces the report before the impact. As such, the exercise is primarily anticipatory and mostly subject to verification as part of the ISO and IDHNA phases.

3.4.2.2. The Initial Situation Overview and Form

In the second stage of the DANA Continuum, the ISO is conducted by the CDEMA RNAT, in collaboration with both national and local authorities. The process assesses the initial damage as basis for mobilization within 24 hours of the disaster event or emergency. Principally, the ISO serves to provide a quick and general overview of the emergency situation by drawing on information

[8] Set of humanitarian standards identified by humanitarian professionals to be applied in humanitarian response (Sphere, 2018).

mostly via drone footage, satellite imagery and aerial photos. The information gathered helps to identify areas of highest impact by assessing the extent and magnitude of the damage. Furthermore, the assessment allows CDEMA to concentrate initially on the most impacted areas. This helps not only to determine the level of impact and whether there is the need for a disaster declaration, but also in assisting with the initial response to the event (i.e. decide where initial response efforts should be targeted). The report, which is often generated by the National Emergency Operations Centre of the impacted State, is primarily qualitative and available online.

During this phase, the RNAT and national/local authorities collect data through the predetermined ISO Form. The form allows for the collection of information by date and event such as the name of a hurricane or identification of a flood (see Annex III). Considering that the ISO stage aims to provide a qualitative analysis of the emergency situation, the form often requests broader/generic information. This encompasses documenting information such as giving a brief description of the event, summary of the damage, and actions initially taken. It also identifies situations needing immediate response and the resources required to adequately respond, as well as future operations and timing. In this regard, the form does not offer space for the collection of disaggregated data on affected populations, such as sex and age.

With regard to human casualties, on the other hand, the predetermined form presents fields for information on the initial number of deaths, injured and missing people. In particular, the field relating to "Welfare/relief assessment" is of relevance to this study. This is in view of the fact that it enables the collection of information on the number of people displaced and evacuated (see numbers in shelters) due to the disaster or emergency. There are no specific guidelines in terms of how to fill out the form or any guiding definitions. In this way, the different fields allow for the space to include related information. Effectively, CDEMA shares this form with participating States. The States have the opportunity to use the form and adjust the fields that apply at the national level in capturing and quantifying the number of individuals displaced in the context of disasters.

However, the analysis of the forms across the six Eastern Caribbean States under consideration shows that these fields are not used or are generally omitted. This may in part explain the lack of comprehensive and disaggregated data relating to disaster displacement at both the regional and national levels. The lack of specific guidelines or definitions presents a viable opportunity for participating States to exploit the fields within the ISO Form to adequately capture the needed information and data on the mobility dimensions of disaster for effective planning and action.

3.4.2.3. The Initial Damage and Human Needs Assessment and Form

The third stage describes the IDHNA, which is conducted after the completion of the ISO. With this assessment normally done within seven days of the event, the motive is to allow for the identification of the needs and priority actions in the affected participating State. The assessment is done by way of a predetermined form, usually conducted by a team of trained public officials and community-based personnel, along with the CDAC Team. The quantitative information generated provides details on damages and needs by using a number count of housing and populations impacted, critical facilities (e.g. health, utilities), and sectors (e.g. agriculture, tourism). This information is then compared with pre-impact baseline data/information on, inter alia, demographics, population size and economic data. Ultimately, the information based on the IDHNA serves to inform the responses of the RRM and donor partners. The data provide the needed information that would be used to assist in the quantification of indirect costs, and are normally also included in a macroeconomic assessment report.

Unlike the ISO, the IDHNA Form allows for the collection of quantitative data (see Annex IV). The form facilitates the collection of information on the number of people that are affected directly or indirectly. As such, it allows for the presentation of disaggregated data relating to the name of the affected person or occupant, age of adults, children (under 18 years old) and infants, number of persons per household and the number of disabled members of the household. With regard to human casualties, the template also presents fields for information on the number

of deaths, injured and missing people during the event. In contrast to the ISO Form, however, the IDHNA Form does not account for the number of evacuated (see numbers in shelters) and displaced people. Regardless of this shortcoming, the number of displaced persons could be implied or possibly deduced from the number of required houses (see code 24 in Form) and the level of housing damages (see code 27 in Form). In line with this observed possibility, houses with major damages that make them uninhabitable or houses that are completely destroyed could indirectly also be associated with displacement.

Despite the possibility of making reliable and valid inferences on the number of displacements, the study finds that the information on the number of displaced people is inherently diluted within the broader context of the numbers on (in)directly affected persons. The CDEMA participating States that use the IDHNA Form for assessment and reporting have the possibility to adjust the various fields to enable the collection of information relating to the mobility dimensions of disaster or emergency at the national level. But in considering the flexibility and potential that both the ISO and IDHNA present as part of the DANA Continuum process, the national disaster management agencies could exploit the opportunity to facilitate a proactive approach to collecting comprehensive and reliable data on all aspects relating to disasters and emergencies. A consolidated and reliable database that also projects fine details would help inform a holistic approach to addressing climate and disaster risks and impacts in participating States across the OECS.

3.4.2.4. The Detailed Damage Sector Assessment

The Detailed Damage Sector Assessment (DDSA) represents the fourth phase of the DANA Continuum. It facilitates the identification of direct and indirect costs of sector impacts. The detailed assessment of this phase helps to provide impressions as to the extent of damage or impact by sector, and estimates of the recovery costs (rehabilitation and reconstruction). This information then informs the Post-Disaster Needs Assessment (PDNA) and recovery efforts. In this regard, the DDSA does not capture human losses but focuses mainly on the impact on infrastructure, as well as the broader losses and damages. The assessment in this phase thus draws heavily from pre-impact baseline data, predetermined forms, as well as detailed technical assessments and surveys of each sector.

3.4.2.5. Post-Disaster Needs Assessment

The PDNA represents the final stage of the DANA Continuum. It consists of a Damage and Loss Assessment (DaLA), Human Recovery Needs Assessment (HRNA) and a Recovery Framework component. The first two, which are socioeconomic assessments, are to be developed within 21 days, following the disaster emergency. These are usually conducted by the World Bank and the United Nations Development Programme (UNDP). Mostly, these assessments focus on the social impacts of the disaster. They assess not only the level and nature of local patterns of life, social structures and institutions, but also primary data on households or other units of analysis. What these processes essentially do is to provide insights into the processes of recovery and reconstruction from the viewpoint of the affected community.

Against this background, the Recovery Framework component of the PDNA summarizes the recovery recommendations from the sectoral assessments. It outlines the short-, medium- and long-term priorities for the country's recovery. The PDNA thus helps to quantify the financial needs for accelerated economic recovery and reconstruction. It helps to prioritize interventions, while providing the basis to adequately monitor progress and execution of post-disaster programmes.

Within the context of the DANA Continuum, therefore, the predetermined forms used to gather information during the second and third stages (ISO and IDHNA) of the process are of particular interest for the purposes of this study. Taking into consideration that this study aims to better understand how data on migration, climate and environmental change, and disasters are being collected, managed and disseminated in the six Eastern Caribbean States, the templates offered by CDEMA through the DANA Continuum do not explicitly make provision to capture relevant information about the human mobility dimension of disasters or emergencies. While the PDNA stage

assesses and captures primary data on loss and damage, and the social impacts of disaster (especially at the household level), the focus seems to be more on identifying pressing needs to enhance post-disaster recovery and reconstruction.

Besides the foregoing, the insights drawn from the interview with CDEMA suggest that the organization is designed mainly to serve the participating States. In other words, the regional body is designed for the functional operations which are funded by the participating States. What this suggests is that CDEMA as an intergovernmental body does not have the authority to share the data collected with anyone until the country or the national authorities give the clearance to do so. In this sense, data sharing within the context of CDEMA is thus limited, if not procedural. This can also have adverse implications as to how far the six Eastern Caribbean States can draw on data/information or latch on to lessons learned at the regional level to enhance time-sensitive disaster risk management and preparedness.

4. COMPARATIVE ANALYSIS OF THE COLLECTION OF DATA ON HUMAN MOBILITY, ENVIRONMENT, DISASTER AND CLIMATE CHANGE IN THE SIX EASTERN CARIBBEAN STATES

This section builds upon the analysis on how key national agencies in the six Eastern Caribbean countries covered by the study collect, manage, and disseminate data on climate- and disaster-related mobility. Comparing the procedures established under existing national (im)migration, statistics and disaster departments also allows for an overview of data availability, quality and accessibility at the regional level. A better understanding of such procedures will facilitate the formulation of enhanced methodologies and protocols for credible and comparable data across Eastern Caribbean States. The insights derived from the analysis are discussed below.

4.1. Collection of data on human mobility, environment, disaster and climate change within national immigration departments

As part of the established procedures at the various ports of entry, all passengers (residents and visitors) arriving in or departing from any of the six Eastern Caribbean States, whether by air or sea, are required to fill Embarkation/Disembarkation and Custom Declaration Cards (ED Cards). Each country has its own ED Card. This indicates that there is no common or single form which is currently being used in the region. Considering that the ED Cards provided by the States are distinct in terms of contents, data currently collected by the national immigration departments are not thoroughly harmonized.

All the six national immigration departments also gather demographic and personal information, among other administrative information like visa issuance and renewals. While the collection of demographic and personal information on, for example, Grenada's ED Card is limited to name and date of birth, the forms of the other five Eastern Caribbean States of focus usually request information relating to age, sex, marital status, date and country of birth, nationality, country of residence and home address, as well as intended address in the respective State. Only four ED Cards (Dominica, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines) ask about information related to the length of stay. This gives the impression that it may not be possible to adequately determine for how long passengers and visitors intend to stay in the respective national territories.

In Antigua and Barbuda, Dominica, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines, the ED Cards include questions on the purpose of the visit. With the exception of Antigua and Barbuda, whose ED Card options are restricted to "business" and "personal", the options listed by the other countries include: "vacation", "study", "convention", "business", "visiting friends/relatives", "honeymoon/wedding", "meeting", "sports event" and "other". As such, options given as possible reasons for visit omit environmental factors (i.e. weather conditions and disasters) as potential drivers of movement. In other words, these ED Cards do not make provision for the collection of data on human mobility in the context of climate and environmental change and disasters. With some countries in the region (e.g. Saint Lucia) having transitioned to the use of online ED Cards due to the current COVID-19 pandemic, there is an opportunity for the development of data on the topic. Some of the fields could easily be modified to allow for the integration of parameters to gather comprehensive and disaggregated data on environmental factors as drivers for movement (entry or departure).

Despite being the case with the forms from these countries, the possibility of collecting data on the subject lies in the last option of "other" – often listed as part of the choices or reasons for visiting. However, that would depend on the passengers' perception of environmental stressors and their role in the decision to move. What could be done to exploit this field is to consider integrating a new answer category for the persons to state whether they are seeking entry because of disaster or any kind of climate- and environment-related impact. This could help determine what exactly may be the reason for movement, so as to allow for categorization and disaggregation right at the point of the data collection.

Considering that nationals coming from CARICOM and OECS member States complete the same generic ED Cards designed for all persons, the current layout of the existing ED Cards hampers the identification and quantification of Eastern Caribbean nationals who may be seeking entry due to climate and environmental change or disasters. Indeed, they may simply be exercising their rights under the existing free-movement agreements in the region for reasons other than environment-related ones. The analysis of the available ED Cards suggests that the data collected by the national immigration departments are mostly related to passengers and visitors arriving in or departing from one of the six countries. In this light, there is no clear indication as to how these agencies collect, manage and disseminate information associated with immigration and emigration. Yet while the information is gathered, analysed and reported by different offices, there seems to be a lack of coordination and established procedures within the countries that guarantee reliability and quality of data.

Alongside these shortcomings, the study also finds that none of the six countries present official databases or repositories that host comprehensive information related to immigration and emigration. Nevertheless, all of the six countries have established the Border Management System (BMS) to manage information collected on the number of people entering or leaving by air and sea, and whether they are residents or non-residents. Mostly, the BMS is not harmonized across the Eastern Caribbean States. This suggests that the data are currently not pooled in a single regional system, thus the possibility for overlaps, inconsistent numbers, and difficulties in tracking mobility patterns for planning and decision-making in the Eastern Caribbean region. With the possibility of generating reports from the information compiled in the BMS, the inclusion of new variables in the systems of the six countries could allow for the storage of data on climate- and disaster-related human mobility. This opportunity will be further elaborated in the following sections. Nonetheless, presently the processes that characterize data collection at the various ports of entry or departure do not enable the capture of data on climate- and disaster-related mobility. Table 2 gives further insights into how the national immigration departments across the six Eastern Caribbean States deal with issues of data collection, management and dissemination.

Table 2. Current status of data collection on passenger arrivals/departures within national immigration departments

Country	Responsible entity	Data collection form (ED Card)	Demographic and personal information collected	Planned length of stay	Purpose of the visit (options)
Antigua and Barbuda	Department of Immigration	Customs Declaration Form	Age, sex, marital status, country of citizenship, country of residence, address in Antigua and Barbuda, among others	Not captured	Business and personal
Dominica	Immigration Division	Immigration/ Customs Form	Age, sex, marital status, date and country of birth, nationality, home address, intended address in Dominica, among others	Captured	Vacation, study, convention, business, visiting friends/relatives, honeymoon/wedding, meeting, sports event and other (respondent should specify)
Grenada	Immigration and Passport Department	Notice to Passenger Customs Declaration (C)	Name and date of birth	Not captured	Not captured
Saint Kitts and Nevis	Immigration Department	Immigration/ Customs Form	Age, sex, marital status, date and country of birth, nationality, home address, intended address in Saint Kitts and Nevis, among others	Captured	Vacation, study, convention, business, visiting friends/relatives, honeymoon/wedding, meeting, sports event and other (respondent should specify)
Saint Lucia	Immigration Department	Travel Registration Form	Age, sex, marital status, date of birth, nationality, home address and country of residence, intended address in Saint Lucia, among others	Captured	Visiting friends/relatives, vacation, business/ meeting, in transit, sport, study, convention and other (respondent should specify)
Saint Vincent and the Grenadines	Passport and Immigration Department	Pre-Arrival Form	Age, sex, marital status, date and country of birth, nationality, home address and country of residence, intended address in Saint Vincent and the Grenadines, among others	Captured	Vacation, study, convention, business, visiting friends/relatives, honeymoon/wedding, meeting, sports event and other (respondent should specify)

Source: Compiled by authors (2021).

4.2. Collection of data on human mobility, environment, disaster and climate change within national statistics departments

Having discussed data collection in the context of national immigration departments, this section further delves into the data processes embedded within the national statistics departments. This is in view of the fact that national statistics departments generally tend to capture and serve as main sources of socioeconomic, demographic, and environmental statistics and indicators at the national level.

Among the statistics departments examined in the six countries, only two generate statistics and indicators on environmental issues on a regular basis: Saint Lucia and Saint Vincent and the Grenadines (Table 3). While not generating specific statistics on environment, Dominica, Saint Lucia, and Saint Vincent and the Grenadines have published compendiums on environmental statistics. These compendiums mostly draw on information produced by secondary sources of information, such as national departments dealing with the environment, the energy sector and others. Similarly, the Saint Kitts and Nevis Statistics Department has a cluster on "environmental statistics". However, the cluster presents only statistics and indicators ranging from electricity to temperature, humidity, production, rainfall, waste, water, wind direction and speed. Notably, Antigua and Barbuda and Grenada do not present a specific cluster related to the environment within the scope of their statistical work so far. This indicates that there is the opportunity to use data on the topic that are produced by other agencies at the national level.

Although the development of specific statistics and indicators on climate change and disasters is not common among national statistics departments, Saint Lucia produced some data on greenhouse gas (GHG) emission and information on protected areas and land use changes. In this context, Dominica and Saint Vincent and the Grenadines presented some information on nationwide GHG emissions as part of their Compendiums of Environment Statistics. The data were provided respectively by the Environmental Coordinating Unit and the National GHG Inventory. With regard to statistics and indicators on disasters, by managing the information offered by the Office of Disaster Management (ODM), Dominica presented data on "Natural disasters, number of fatalities and estimated damage" for 1979 to 2017. Such information was also available in the Compendiums of Environment Statistics released by the country.

Similarly, the statistics offices of Saint Lucia and Saint Vincent and the Grenadines also present some information on natural hazards and disasters in their Environmental Compendiums with the data prepared by their respective national disaster departments (named in both countries as National Emergency Management Organisation (NEMO)). Specifically, the information on natural hazards and disasters consists mainly of a listing of the major disasters that took place in the country, often with the number of affected people and estimated losses and damages. There is a major insufficiency of comprehensive data that are directly linked to human mobility in the context of climate and environmental change and disasters in the national statistics departments of the six countries. This indicates that data on the topic that are often released by international and/or regional databases (e.g. IDMC and UNDRR-DesInventar) are mainly provided by other national departments, especially those responsible for disaster management.

In addition, all six countries capture and present statistics on demographic dynamics and population distribution, estimates, and projections (see Table 3). Countries like Dominica and Saint Vincent and the Grenadines, for example, generate indicators on housing and human settlements. However, the collected data do not encompass information that may be linked to climate- or disaster-related mobility. With regard to statistics and indicators related to the human mobility dimension, some general aspects of migration are gathered as part of the various rounds of national censuses. The statistics tend to mostly highlight information relating to persons that moved abroad during the intercensal period or, at best, the size of the foreign-born population disaggregated by sex, age and place of residence. On the other hand, all the six countries emphasize data linked to travel and tourism, such as passenger and visitor arrivals. Given that the debates surrounding the climate and environmental change, disaster, and human mobility nexus are relatively recent, there seems to be limited or a lack of comprehensive data on persons who have been displaced, evacuated, or moved because of climate and disaster impacts. The same applies to more voluntary forms of movement undertaken as a result of slow-onset processes of climate change and environmental degradation. This is even more so because the effects of slow-onset events and related movements are most often difficult to detect or adequately tease out as compared to rapid-onset events, which tend to wreak havoc and widespread displacement (Staupe-Delgado, 2019).

Table 3. Data on human mobility, environment, disaster and climate change within national statistics departments: Development of statistics on environment and human mobility

Country	Responsible	Statistics on environment	Indicators on climate change and disasters	Socioeconomic statistics (housing and human settlements)	Demographic statistics (indicators on the human mobility dimension)
Antigua and Barbuda	Statistics Division	No	No	No	Statistics on population and demography include data on: (a) population estimates and projections, and (b) births and deaths. Data on general aspects of migration was part of the last census. The Division also presents statistics on travel and tourism: visitor arrivals and expenditure estimates.
Dominica	Central Statistics Office	The Office does not develop statistics on environment. However, it presents Compendiums of Environment Statistics (2002, 2005, 2008, 2011 and 2014) with data generated by secondary sources of information.	The Office does not develop statistics related to the subjects but presents some data on GHG emissions from the Environmental Control Unit, as well as data on disaster from the ODM.	Data on housing includes households by type of cooking and water facility, lighting, selected appliances and equipment, Internet access, as well as households with vehicles.	Statistics on population include ethnic groups by sex; population by religion, sex and parish; as well as total number of births. Data on migration was gathered during the last national census. The Office also presents statistics on travel and tourism: intended length of stay; number of cruise passengers and ship calls; number of hotels, guesthouses and apartments; place of stay; and purpose of the visit.
Grenada	Central Statistics Office	No	No	No	Data on migration was gathered in the last national census. The Office also presents statistics on travel and tourism: number of passenger/visitor arrivals/departures and number of cruise ship arrivals.

Country	Responsible	Statistics on environment	Indicators on climate change and disasters	Socioeconomic statistics (housing and human settlements)	Demographic statistics (indicators on the human mobility dimension)
Saint Kitts and Nevis	Statistics Department	No	No	Despite not presenting a specific cluster on housing and/or human settlements, social statistics generated include the number of households and population size by parish and island; as well as the number of households by light source and parish, type of dwelling, type of water supply and type of toilet facility.	Population and social statistics include: (a) births and crude rate; (b) mean and median age of population by sex and parish; (c) population growth and rates; and (d) population by age group and sex, sex and parish, parish and age group, ethnic racial or national group, as well as religious belief. Data on migration was part of the last census activity. Besides this, data on travel and tourism was also presented: (a) monthly arrivals by category, (b) passenger arrivals and departures, (c) seaport cargo throughout (tons), (d) visitors by country of residence, and (e) cruise passenger arrivals and calls.
Saint Lucia	Central Statistical Office	The Office generates the following environment statistics: (a) water output and consumption (2012 to 2019); (b) electricity output and consumption (2010 to 2019); (c) distribution of households by type of lighting and district (1991, 2001 and 2010); (d) protected areas (1989, 1990, 2000, 2005, 2010 and 2015); (e) land cover and land use (1977, 1989, 2000 and 2009); (f) greenhouse gas emissions (2000, 2005 and 2010); and (g) forest reserves (1989).	While the Office develops statistics on GHG emissions, it presents some data on natural hazards (provided by NEMO) as part of its Compendium of Environment Statistics (2001).	It presents some data on human settlements within the cluster dealing with environment and related issues.	The Office produces data on population estimates and projections: (a) population growth rates; (b) estimated midyear population by sex and five-year age groups, and by district; (c) vital statistics (births, deaths, marriages and divorces); and (d) poverty rates, among others. Apart from data on the general aspects of migration collected as part of the last census, the Office presents data on key variables in the tourism industry, including arrivals, spending and cruise ship calls, among others.

Country	Responsible	Statistics on environment	Indicators on climate change and disasters	Socioeconomic statistics (housing and human settlements)	Demographic statistics (indicators on the human mobility dimension)
Saint Vincent and the Grenadines	Statistical Office	Statistics on environment include: (a) electricity generation and distribution (2012 to 2016); (b) quarterly rainfall at selected agricultural stations (2012 to 2019); (c) quarterly recorded temperature and humidity (2012 to 2019); and (d) annual waste disposed by type (2012 to 2019). The Office also presents Compendiums of Environment Statistics (2012, 2014, 2016 and 2018) with data generated by secondary sources of information.	The Office does not develop statistics on the subjects but presents some data on GHG emissions from the National GHG Inventory, as well as some data on hazards and disasters from NEMO.	Data on housing and human settlements include: (a) estimated number of households by Census Division; (b) households by type of tenure; and (c) total number of households by Census Division.	It generates statistics on population and demography: (a) comparison population pyramids, (b) household population by age group and sex, (c) household population by island, (d) midyear household/total population estimates by age and sex, (e) midyear household population by census division, (f) midyear population estimates by constituency, (g) population by religious denomination and sex, and (h) total household population by ethnic group and sex. The Office also produces statistics on human settlements and housing, as well as on families and households.

Source: Compiled by authors (2021).

Regarding the last census activities in the six Eastern Caribbean States – conducted between 2010 and 2012 – and their respective questionnaires, all of them present sections related to international and/or internal migration, often including questions on the reasons for moving or returning to the country (see Table 3). Specifically, Saint Kitts and Nevis' 2011 Population and Housing Census: Individual Questionnaire is the only census questionnaire that included environmental factors in the options presented as reasons for returning. By including "the weather" as reason why the respondent returned or moved to Saint Kitts and Nevis, the national statistics office in a way acknowledges the role of environmental factors in the decision to migrate. While it is unclear whether the option refers to individuals moving due to the usual favourable weather conditions in the country (e.g. persons relocating or moving from North America to the Caribbean), a possibility in this light is to broaden the designation of "weather" to "environmental stressors", specifying whether these relate to extreme weather events, disasters or food insecurity, among others. This could allow for the capture of other aspects of environmental change or risks that may be acting to precipitate movement and hence the potential for comprehensive data collection.

Nonetheless, the climate and environmental change, disaster, and human mobility nexus has been increasingly prominent in household and other demographic (population-based) surveys developed across the six Eastern Caribbean countries (see Table 4). The following surveys are to be highlighted:

(a) Grenada's 2005 Core Welfare Indicator Questionnaire (CWIQ) Survey – The questionnaire dedicated a module to assess the impacts of Hurricane Ivan (2004) on households, enabling the quantification of people who were displaced by the event.

(b) Saint Kitts and Nevis' 2006/2007 Survey of Living Conditions and Household Budgets (SLC-HBS) – The individual questionnaire queried the reason for returning to the country, which took environmental factors ("the weather") into account.

(c) Dominica's 2008 Survey of Living Conditions – The questionnaire included environmental factors ("the weather") in the options presented as reasons for returning to the island nation.

(d) Saint Lucia's 2016 Survey of Living Conditions and Household Budgets (SLC-HBS) – The questionnaire presented a whole section on "shocks and coping strategies" that not only asks whether the household experienced any significant shock due to climatic events in the previous five years, but also requests the ranking of the three most significant shocks encountered during the period. Also, by probing how the household coped with such events, the questionnaire listed migration as a possible option. By introducing a whole section on the impacts of climate change and disasters on households, this survey represents an important step towards the recognition of climate- and disaster-related mobility at the regional level.

Text box 1. Saint Lucia's Survey of Living Conditions and Household Budgets 2016

Section 9: Shocks and coping strategies

9.1. Did your household experience any significant [SHOCK] due to climatic events during the past five years?
Single-select: Yes/no.

9.2. Rank the three most significant shocks you experienced in the past five years:
Multi-select: Christmas Eve Through (December 2013), Hurricane Tomas (October/November 2010), Drought of 2009–2010, landslides/erosion, drought, flood, other.

9.3. When did the shock first occur (month)?
Single-select: January, February, March, April, May, June, July, August, September, October, November, December.

9.4. When did the shock first occur (year)?
Single-select: 2015, 2014, 2013, 2012, 2011, 2009–2010.

9.4.1. As a result of the [SHOCK], was there a decline in the household income?
Single-select: Yes/no.

9.4.2. Size of decline in household income?
Single-select: Significant (10% or more), moderate (5%–10%)/temporary, minor (1%–5%), no impact (0%).

9.5. As a result of the [SHOCK], did you lose your job?
Single-select: Yes – permanently, yes – temporarily, no.

9.6. Did you experience loss in your household assets?
Multi-select: Income-generating assets, damage to dwelling unit – roof, damage to dwelling unit – walls, damage to dwelling unit – other, damage/loss of vehicle, loss of furniture, loss of electronic equipment (television, stereo, etc.), none of the above.

9.7. Select the area(s) where your household experienced a decline:
Multi-select: Livestock, food production, food purchases, food stocks, none of the above.

9.8. Was the health of anyone in the household affected?
Single-select: Yes/no.

9.8.1. Select the area(s) in which household health was affected:
Multi-select: Digestive, respiratory, emotional, other.

9.9. How did your household cope with this/the [SHOCK]?
Multi-select: Remittances provided by relatives/friends, help provided by government or NGOs, relied on less preferred food options, reduced the proportion or number of meals per day, skipped days without eating, household member(s) took on another job, household member(s) migrated, relied on savings, obtained credit, sold durable household assets, sold livestock, sold land/building, rented out land/building, sent children to live elsewhere, reduced expenditures on health, reduced expenditures on education.

Source: Central Statistical Office of Saint Lucia, 2017.

Antigua and Barbuda, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines have conducted Labour Force Surveys. Despite posing questions related to migration in the sections dealing with national demographic characteristics, education and training, they do not probe the reasons for migration. Nevertheless, the development of household and other demographic surveys that present questions related to the topic is critical for the generation of statistics and indicators on climate- and disaster-related mobility. Mostly, data collection or national censuses do not capture specific statistics and indicators on climate change and disasters. They also do not generate comprehensive indicators and statistics on sufficient dimensions of human mobility. Also, existing data on migration, climate and environmental change, and disasters do not seem to be on similar time and spatial scales. As such, it is a bit challenging to combine information and generate comparable data on human mobility in the context of climate and disaster impact across the six Eastern Caribbean countries.

Table 4. Data on human mobility, environment, disasters and climate change within national statistics departments: Census, household and other demographic (population-based) surveys

Country	Censuses			Household and other demographic (population-based) surveys		
	Last census activity	Questionnaires applied	Questions on the climate and environmental change, disaster, and human mobility nexus	Name and year of household and/or other demographic survey	Questionnaires applied	Questions on the climate and environmental change, disaster, and human mobility nexus
Antigua and Barbuda	2011 Population and Housing Census	2011 Census Person/ Household Questionnaire[a]	(i) Section on international migration with question on reason for moving that does not include environmental factors. (ii) Section on birthplace and residence with question on reason for returning to island nation, which does not include environmental factors.	2015 Labour Force Survey	2015 Labour Force Survey Questionnaire[b]	Questions related to migration in the section dealing with national demographic characteristics, education and training. However, the reasons for migration are not probed.
				2018 Labour Force Survey	N/A	N/A
Dominica	2011 Population and Housing Census	2011 Population and Housing Census Questionnaire[c]	The questionnaire solicited information about any household member who had migrated or was living abroad within the intercensal period (2001–2011). However, the query did not go further to probe the reasons or time of migration.	2008 Survey of Living Conditions	2008 Survey of Living Conditions Household/Persons Questionnaire[d]	Question about the main reason for the return to Dominica. The options available included environmental factors (the weather).
Grenada	2011 Round of Population and Housing Census	N/A	The data covers statistics on demographic characteristics by parish, ethnicity, religion, employment and other social indicators. No indication of data on the climate and environmental change, disaster, and human mobility nexus.	2005 Core Welfare Indicator Questionnaire (CWIQ) Survey	Grenada Core Welfare Indicator Questionnaire 2005[e]	The questionnaire dedicated a module to assess the impacts of Hurricane Ivan (2004) on households, enabling the quantification of people who were displaced by the event.

Country	Censuses			Household and other demographic (population-based) surveys		
	Last census activity	Questionnaires applied	Questions on the climate and environmental change, disaster, and human mobility nexus	Name and year of household and/or other demographic survey	Questionnaires applied	Questions on the climate and environmental change, disaster, and human mobility nexus
Saint Kitts and Nevis	2011 Population and Housing Census	2011 Population and Housing Census: Person[f]/ Household[g] Questionnaire 2011 Population and Housing Census: Individual Questionnaire[h]	(i) Section on international migration presented question on reason for moving. It does not include environmental factors. (ii) Section on birthplace and residence presented question on reason for returning to island nation, which does not include environmental factors. (iii) The Individual questionnaire included query on reason for returning to island nation, which took environmental factors into account (the weather).	2015 Labour Force Survey	2015 Labour Force Survey Questionnaire[i]	Questions related to migration in the section dealing with national demographic characteristics, education and training. However, the questions do not probe the reasons for migration.
				Survey of Living Conditions and Household Budgets (SLC-HBS) 2006/2007	Survey on Living Conditions – Household Schedule[j]/Individual Questionnaire[k]	The individual questionnaire included query on reason for returning to island nation, which took environmental factors into account (the weather).
Saint Lucia	2010 Population and Housing Census	2010 Population and Housing Census: Household[l]/ Person[m] Questionnaire	(i) Section on international migration presented question on reason for moving that does not include environmental factors. (ii) Section on birthplace and residence presented question on reason for returning to island nation that does not include environmental factors.	2014 Saint Lucia Labour Force Survey	Labour Force Survey Questionnaire[n]	Question related to migration in the section dealing with national demographic characteristics, education and training. However, the questions do not probe the reasons for migration.
				Saint Lucia Survey of Living Conditions and Household Budgets 2016	Saint Lucia Survey of Living Conditions and Household Budgets 2016[o]	The questionnaire presents a section on shocks and coping strategies related to climatic events and disasters. Question that listed migration as option to cope with climatic events and disasters.

Country	Censuses			Household and other demographic (population-based) surveys		
	Last census activity	Questionnaires applied	Questions on the climate and environmental change, disaster, and human mobility nexus	Name and year of household and/or other demographic survey	Questionnaires applied	Questions on the climate and environmental change, disaster, and human mobility nexus
Saint Vincent and the Grenadines	2012 Population and Housing Census	2012 Population and Housing Census: Household[p]/ Person[q] Questionnaire	(i) Section on international migration presented question on reason for moving that does not include environmental factors. (ii) Section on birthplace and residence presented question on reason for returning to island nation, which does not include environmental factors.	Saint Vincent and the Grenadines Country Poverty Assessment (CPA) 2007/2008	N/A	Final report with specific section on "migration and population growth" focused on net migration and the role of remittances to the national economy. It does not refer to climate- and disaster-related mobility.
				2018 Labour Force Survey	N/A	Data generated by the survey includes: (i) employed population by industrial group and sex, (ii) employed population by occupational group and sex, (iii) employed population by status in employment and sex, (iv) labour force participation rate by age and sex, and (v) labour market indicators.
				2018 Survey of Living Conditions and Household Budgets (SLC-HBS)	N/A	Final report has not yet been published. According to the Office, the survey captured some information associated with vulnerability to climatic risks, but not on climate- and disaster-related mobility.

Source: Compiled by authors (2021), based on: [a]Statistics Division of Antigua and Barbuda, 2017; [b]Statistics Division of Antigua and Barbuda, 2018; [c]Central Statistics Office of Dominica, 2011; [d]Central Statistics Office of Dominica, 2008; [e]Central Statistics Office of Grenada, 2019; [f]Statistics Department of Saint Kitts and Nevis, 2011a; [g]Statistics Department of Saint Kitts and Nevis, 2011b; [h]Statistics Department of Saint Kitts and Nevis, 2011c; [i]Statistics Department of Saint Kitts and Nevis, 2015; [j]Statistics Department of Saint Kitts and Nevis, 2006a; [k]Statistics Department of Saint Kitts and Nevis, 2006b; [l]Central Statistical Office of Saint Lucia, 2010a; [m]Central Statistical Office of Saint Lucia, 2010b; [n]Central Statistical Office of Saint Lucia, 2010c; [o]Central Statistical Office of Saint Lucia, 2017; [p]Statistical Office of Saint Vincent and the Grenadines, 2012a; and [q]Statistical Office of Saint Vincent and the Grenadines, 2012b.

4.3. Collection of data on human mobility, environment, disaster and climate change within national disaster departments

In regard to disaster management, all the six Eastern Caribbean States have specific governance frameworks and related designated agencies and departments that govern and manage disaster response at the national level. Despite the fact that most of these agencies conduct assessments or collect information on disaster impact, the focus on data related to the human mobility dimensions of climate change and disasters is limited. Even with the limited information or data collected, these departments do not have a standardized data hosting system or sharing mechanism except for their websites where statistics or reports are often posted or submitted to CDEMA as the main regional body.

As further elaborated in Table 5, the disaster data that national disaster agencies have are mostly collected through the procedures established under the CDEMA DANA Continuum. Aside from integrating protocols for disaster response that have been established as part of the DANA Continuum, the data often generated are somewhat restricted to the information that is presented in the situation reports (ISOs) that are published. Even for the information presented to CDEMA, it is shared only with relevant national agencies and departments. The public or any interested parties do not have access to this information.

Table 5. Data on human mobility, environment, disaster and climate change within national disaster departments

Country	Responsible	CDEMA DANA Continuum	Data collection form	Disaggregated data	Human mobility dimension
Antigua and Barbuda	National Office of Disaster Services (NODS)	Integrated	Damage Assessment Form for Housing Stock (No indication whether the Form is used for Stage 02 or 03 – DANA Continuum)	No disaggregation	No indication of fields directly related to the human mobility dimension
Dominica	Office of Disaster Management (ODM)	Integrated	(i) Stage 02 – DANA Continuum: No set template (ii) Stage 03 – DANA Continuum: IDHNA Form	(i) No set template (ii) IDHNA Form: Head of household (age), number of persons in household (adults, children under 18 years old, infants), number of disabled members (adults, children under 18 years old, infants), human casualties (dead, injured and missing people), and number of persons with special health needs	(i) No set template (ii) IDHNA Form: No indication of fields directly related to the human mobility dimension
Grenada	National Disaster Management Agency (NaDMA)	Integrated	(i) Stage 02 – DANA Continuum: Situation Report Template (ii) Stage 03 – DANA Continuum: Form 400.1 – Damage and Needs Assessment Report	(i) Situation Report Template: Human casualties (deaths, injured and missing people) (ii) Form 400.1: Human casualties (deaths, injured and missing people)	(i) Situation Report Template: No indication of fields related to the human mobility dimension (ii) Form 400.1: Displacement and evacuation

Country	Responsible	CDEMA DANA Continuum	Data collection form	Disaggregated data	Human mobility dimension
Saint Kitts and Nevis	National Emergency Management Agency (NEMA)	Integrated	Post Hazard Impact Community Assessment (PHICA) Form (No indication whether the Form is used for Stage 02 or 03 – DANA Continuum)	Head of household and family members, age, sex, disabilities	No indication of fields directly related to the human mobility dimension
Saint Lucia	National Emergency Management Organisation (NEMO)	Integrated	(i) Stage 02 – DANA Continuum: Damage Assessment and Needs Analysis, Local Situation Report – Initial (LSR-I) ii) Stage 03 – DANA Continuum: Damage Assessment and Needs Analysis, Local Situation Report – Complementary Assessment (LSR-CA)	(i) LSR-I: Human casualties (deaths and injured people) (ii) LSR-CA: Name of person responsible for family, family members with indication of sex and age (adults, children), human casualties (deaths, injured and missing people)	(i) LSR-I: People evacuated (ii) LSR-CA: No indication of fields directly related to the human mobility dimension
Saint Vincent and the Grenadines	National Emergency Management Organisation (NEMO)	Integrated	(i) Stage 02 – DANA Continuum: Damage Assessment and Needs Analysis, Local Situation Report – Initial (LSR-I) (ii) Stage 03 – DANA Continuum: Damage Assessment and Needs Analysis, Local Situation Report – Complementary Assessment (LSR-CA)	(i) LSR-I: Human casualties (deaths and injured people) (ii) LSR-CA: Name of person responsible for family, family members with indication of sex and age (adults, children), human casualties (deaths, injured and missing people)	(i) LSR-I: People evacuated (ii) LSR-CA: No indication of fields directly related to the human mobility dimension

Source: Compiled by authors (2021).

All the national agencies have indicated that the predetermined forms are adjusted to collect the information as stipulated within the CDEMA DANA Continuum for the ISO and IDHNA phases. Overall, the forms presented by the countries for data collection and reporting basically indicate the type of event and weather conditions, date, and location. The corresponding fields usually divide damages into two dimensions: human and economic/material damages. In effect, the forms used by the countries do not capture all information proposed by CDEMA's predetermined forms. Normally, the adjustment is done to cater to the specific needs and context of the country and not what is presented or structured by the regional agency. The National Disaster Management Agency (NaDMA) of Grenada, for instance, still applies the predetermined forms provided by CDERA (the agency that transitioned to CDEMA).

Whereas the CDEMA Situation Report Form enables the collection of data on the number of displaced and evacuated people under the field on human damages, the adjusted country forms tend to be restricted to the number of deaths, injured and missing people, as well as damaged/destroyed housing. An exception is the form presented by Grenada's NaDMA where it captures the number of deaths, injured and missing people, as well as numbers on displacement and evacuation. Even when the Situation Report Form is further subjected to critical analysis, its purpose is basically to help collect qualitative information that will help give a quick overview of the extent of impact, as well as to identify situations that need immediate or priority response.

However, under questions 7 ("Casualties") and 9 ("Welfare/relief assessment") of the form, the information respectively requested seems to be looking to quantify numbers on: "dead", "injured", and "missing" (question 7), and "numbers in shelters", "displaced population", and "other" (question 9) (see Annex III). While this seems irreconcilable or at least contradictory in that the situation report (ISO) is expectedly qualitative, there is no clarity on the various categories listed. For example, there is no definition or explanation on when a person is considered displaced or what considerations could be made in the determination of persons missing. For those who have probably been moved to temporary shelters, it is unclear whether they will still be considered as displaced persons. Even with these numbers generated, it is also unclear as to how this data or information is integrated into the qualitative situation report or the IDHNA report.

While these are obvious inconsistencies identified, the predetermined forms provided by CDEMA are standardized. As such, they allow for the collection of similar data in a much more harmonized way. However, it is not about how far countries have thoroughly harmonized their forms or themes in data collection. These apparent inconsistencies in regard to the differences in the forms tend to affect the quality and comparability of data on the subject across countries. For the issues of data collection and management in the national disaster management sphere, the specific aspects of the human mobility dimensions are not sufficiently reflected in the predetermined forms. As a result, mobility remains mostly invisible in the whole context of disaster data, with the available data diluted in broader categories of affected people.

Even though the six countries collect data in the wake of a disaster or emergency through the CDEMA DANA Continuum procedures, there are no identifiable national repositories in which the information that is initially compiled and translated in the format of reports could be managed and disseminated. Given that this information is directly shared with CDEMA, data provided by international and regional databases (e.g. IDMC, UNDRR-DesInventar and IOM-DTM) usually come from what are made available on the regional agency's website (mainly the publication of the national situation reports).

5. GAPS AND LIMITATIONS TO ENHANCED DATA COLLECTION, ANALYSIS AND DISSEMINATION ON HUMAN MOBILITY IN THE CONTEXT OF CLIMATE AND ENVIRONMENTAL CHANGE AND DISASTERS

Effective measures and strategies to manage climate- and disaster-related mobility through informed planning and decision-making depend on robust and reliable data. In this regard, enhanced data collection, analysis and dissemination is key to evidence-based policies, climate adaptation, as well as disaster preparedness, response, and recovery both at the national and regional levels. This section highlights the gaps and limitations to enhanced collection, analysis and management of data on human mobility in the context of climate and environmental change and disasters across the six Eastern Caribbean States.

5.1. Identified data gaps in relation to national immigration departments

Regarding the national immigration departments within the six Eastern Caribbean States, improvements in the generation of data on climate-, environment- and disaster-related mobility could be facilitated by way of adjustments in the established procedures or systems at the various ports of entry and departure in the island nations. Considering that all residents and visitors arriving in or departing from any of the six countries, either by air or sea, will have to transit through one of these ports, enhanced protocols and revised forms could assist in effectively capturing relevant information on climate change and disasters as potential precursors for movement. In regard to the process of data collection within the six national immigration departments, the following overlapping gaps were identified:

i. The analysis of the ED Cards from the six countries indicates that data collected by the national immigration offices are not uniform. The absence of a common ED Card among OECS member States suggests insufficient comparable data on who arrives in and departs from the countries in the region. Moreover, even though some countries include purpose of visit in their ED Cards, they do not encompass climate- and environment-related factors as options or possible reasons for movement.

ii. The lack of established national procedures or protocols on data management and storage has also been noted. As a result, there is no clarity and well-defined roles, such as who manages and disseminates data generated by the six national immigration departments across the region.

iii. None of the six countries has official databases or repositories hosting information on immigration and emigration. However, all of them have established the BMS to administer and quantify the number of passengers and visitors arriving in or departing from the respective countries. Yet the information compiled through the BMS in the countries is not harmonized/coordinated across the region.

5.2. Identified data gaps in relation to national statistics departments

The inclusion of environmental and human mobility indicators in the data often collected by the national statistics departments is key for the generation of data on human mobility in the context of climate and environmental change and disasters. While environmental indicators would encompass specific statistics on disasters, as well as climate risks and related vulnerabilities, human mobility indicators would include variables on migration, displacement and planned relocation. This would also mean acknowledging other aspects of mobility (i.e. evacuation). The gaps and limitations that constrain the development of enhanced statistical information on human mobility, environment, disaster and climate change in the Eastern Caribbean countries are as follows:

i. All the six countries compile and present statistics on demographic dynamics and population distribution. However, data collected tend not to consider the climate and environmental change and disaster dimensions of human mobility.

ii. All the questionnaires used for the last census activities conducted in the six Eastern Caribbean States have dedicated specific sections to international and/or internal migration, often including questions on the reasons for moving and/or returning to the country. Nevertheless, except for Grenada's questionnaire, none of them incorporated environmental factors in the options listed as reasons for moving and/or returning.

iii. The lack of specific statistics and indicators on climate change and disasters on the one hand, as well as insufficient statistics and indicators on all human mobility dimensions on the other, hampers the overlapping/combination of information and thus the production of data on climate- and disaster-related mobility. Also, the distinct time and spatial scales on existing data constrain the generation of comparable data on the topic.

5.3. Identified data gaps in relation to national disaster departments

Even though the six Eastern Caribbean States adhere to the disaster data collection procedures established in the frame of the CDEMA DANA Continuum, there are still visible gaps in the availability, reliability and accessibility of disaster data at the national level. At the regional level also, CDEMA receives data related to disaster from the participating States through the situation reports (ISOs) and IDHNAs generated. However, as the regional and focal body for data sharing, CDEMA has not yet taken advantage of the available data on disasters to include new layers of information in its Caribbean Risk Information System (CRIS). Other identified gaps or limitations in terms of collection of data on disaster are as follows:

i. The forms used by the six countries do not capture all the information proposed by CDEMA's predetermined forms. In fact, countries have not thoroughly harmonized the forms or themes in data collection.

ii. Whereas CDEMA's Situation Report Form enables the collection of data on the number of displaced and evacuated people under the field on human damages, the IDHNA Form does not collect data directly linked to the human mobility dimension other than just compiling quantitative information on the extent of impact and damage caused by a disaster.

iii. Another limitation is that none of the six national disaster departments have any identifiable or established official databases or repositories on disaster that could serve as references or portals that are readily accessible by any interested party.

6. GUIDELINES FOR IMPROVED AND STANDARDIZED DATA COLLECTION ON THE CLIMATE AND ENVIRONMENTAL CHANGE, DISASTER, AND HUMAN MOBILITY NEXUS AT THE REGIONAL LEVEL

Building on the analysis of the preceding sections, this section presents concrete steps that could be taken for collecting improved and standardized data on the climate and environmental change, disaster, and human mobility nexus at the regional level.

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

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

A common protocol detailing the methodological aspects of data collection with similar indicators will depend highly on effective coordination and cooperation among regional bodies and national agencies. As a first step, therefore, the OECS Commission and CDEMA could consider establishing an ITWG. Akin to the setup and activities of the Intergovernmental Working Group (IWG) on Drought within the framework of the United Nations Convention to Combat Desertification (UNCCD, n.d), the proposed ITWG could be in charge of addressing the questions regarding human mobility in the context of climate and environmental change and disasters in the Eastern Caribbean. A regional ITWG of this kind could contribute to maintaining a focus on addressing climate and disaster impact on human mobility. Second, its activities would allow for transparency across regional bodies and national 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 organizations (e.g. IOM and its GMDAC) to help establish the structures and build capacity.

The ITWG could, in addition to being composed of national focal points (NFP), also include regional or international experts on migration, environment, disasters and climate change. To facilitate its work and activities, the ITWG could further be divided into Task Groups consisting of NFPs and experts for each theme or to focus on each of the six Eastern Caribbean States (that is, six groups of Task Groups). This may include officers from departments related to immigration, statistics, and disasters, as well as representatives from all agencies dealing with data collection, management and dissemination at the national level. With these NFPs (and Task Groups), the ITWG could then also assign a designated official with expertise in data management who is to be responsible for queries and serve as a liaison between national authorities and the ITWG at the regional level.

As an alternative to the proposed Task Groups, a Regular Task Force could be established to foster cooperation and stand as an effective liaison between the ITWG and other national agencies producing data. Mostly, Task Forces (like Task Groups) serve to meet regularly and explore in depth the specific data needs and collection problems already identified. Alongside this, complementary annual meetings and seminars could be held for representatives of regional and national agencies, as well as related experts and academia. This would promote better understanding of climate- and disaster-related human mobility and the relevance of data on the topic. Also, annual meetings and seminars would help

address common challenges, while creating the opportunity for exchange of knowledge and expertise in developing a robust regional data system.

Another consideration could be to incorporate or mainstream issues of data on human mobility in the context of climate and environmental change and disasters in discussions within high-level intergovernmental groups or commissions. In line with this, the topic could be earmarked as a key discussion point for a high-level intergovernmental platform like the Forum of Ministers of Environment of Latin America and the Caribbean or as part of the Caribbean Migration Consultations (CMC). Besides the visibility that the topic will gain, it would help in bringing diverse insights and cooperation in addressing issues of data, climate change and disaster-related human mobility.

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.*

The general commitment could be geared at ensuring the standardization of procedures that guide the collection, management and dissemination of data on climate- and disaster-related mobility at the national and regional levels. As such, the focus could be on the development of protocols with harmonized methodologies to be adopted by the national departments via the NFPs. The drafting of the common protocols could be guided or aligned with international standards outlined by, for example, the Expert Group on Refugee and Internally Displaced Persons Statistics (European Union and the United Nations, 2018a); the United Nations Statistical Commission's Decisions on International Migration Statistics (UNSC, 2019, 2021a); as well as the International Labour Organization's guidelines concerning statistics on international labour migration (ILO, 2018). Most importantly, the harmonized methodologies could be designed to also align with the indicators on human mobility and migration data disaggregation established under the Sendai Framework (UNSC, 2021b), as well as the 2030 Agenda for Sustainable Development (UNSC, 2017). As an example, the data indicators highlighted in Text box 2 could serve as pointers or reference for the collection of data on climate-, environment- and disaster-related mobility at the national level.

Text box 2. Data indicators on climate-, environment- and disaster-related mobility

Essential	Data indicators on human mobility due to climate and environmental change and related disasters and emergencies that could be considered	Note*
Full name Age Sex/gender Nationality/ nationalities Ethnicity/ethnicities Residing community/ country Educational level Income country	Number of people dead Number of people missing Number of people injured Number of people sent overseas for medical attention Number of people internally displaced: • In emergency shelters • Relocated (unplanned) • Homeless Number of people who migrated overseas: • By land • By sea Number of children migrating unaccompanied Number of people officially evacuated Number of people trapped in communities/original locations Number of children orphaned or in need of placement Number of houses damaged or destroyed Number and classification of people coming in to assist with relief, response and recovery Number and category of employment sectors whose number of staff migrated overseas Number and category of employment sectors who gained overseas staff due to the gap created by the disaster/ emergency Number of people in planned relocations Number of planned relocations	* Capture "purpose" of movement (e.g. due to hurricane, coastal erosion, sea level rise, drought, flood, storm surge, landslide, climate and environmental change, and related disaster drivers). * Endeavour to link these to the SDGs, DesInventar, etc. * Input in a system that can accommodate changes. * Add qualitative context to these quantitative indicators.

Furthermore, attention could also be given to the adoption of a common regional glossary with standardized categories and concepts for data collection. The proposed common glossary could draw or build on the definitions and terminologies in the IOM *Glossary on Migration* (2019) and *Migration, Environment and Climate Change: Evidence for Policy (MECLEP) Glossary* (IOM, 2014a). This regional glossary could then serve as reference for the national immigration, statistics and disaster departments, as well as other national agencies working with data in the six Eastern Caribbean States. The concepts and definitions would serve to provide sufficient clarity on themes so as to enable the collection of statistical data, indicating the main elements of each human mobility category (IOM, 2014b). This will not only facilitate comparison of data, but also allow for harmony, as well as the effective management and dissemination of information both nationally and regionally.[9] As an example, the establishment of a common definition for "human displacement" in data collection, management and dissemination is key. In this regard, the definition of "internal displacement" to be adopted could be aligned with the concept provided by the 1988 United Nations Guiding Principles on Internal Displacement (UN OCHA, 2004).

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 OECS Commission in partnership with the national immigration departments could take the lead in coordinating the collection of data on cross-border movements associated with climate and other environmental changes, including disaster at the regional scale. By providing a standardized ED Card, for example, the proposition is for the OECS Commission to facilitate or advocate the integration of distinct environmental factors among the options for purpose of visit or stay – that is, state explicitly not only disaster-related impacts, but also other environmental changes (e.g. weather conditions, food scarcity, soil erosion/fertility, deterioration of livelihoods) as reasons for seeking entry into or departing from the territory.

On the part of the CDEMA (DANA Continuum procedures) and national disaster departments across the six Eastern Caribbean States, the focus could be more on gathering data on (forced) internal population movements as a result of environmental change, disasters and related emergencies. 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 (see Annex IV). As such, revising or adapting the current forms being used would facilitate the collection of disaggregated data (e.g. age and sex), and information related to human casualties (e.g. deaths, injured and missing people) and houses damaged/destroyed. It will also facilitate the effective accounting of the human mobility dimension (number of displaced, evacuated and relocated persons) in the six countries and at the regional level.

With the data being collected, an opportunity for validation by both the OECS and CDEMA, as well as respective national departments, is also important. Validation of the data being collected would enhance the credibility of the source and the accuracy and reliability of the numbers. It could also help stem duplication of work and information, especially in the case of disasters afflicting multiple Eastern Caribbean States at the same time. For each new event, for example, a specific identifier could be established to allow for not only the identification of the disaster, but also the correct quantification of people affected or displaced by the emergency.

Additionally, the collection of data related to human mobility in the context of slow-onset processes could also be strengthened. This aspect has been proven to be more difficult to capture by national departments related to migration and disaster management. The findings of this study show that available data are usually related to rapid-onset events and restricted to the emergency moment, mostly focused on evaluating, for instance, the number of evacuation and housing damages. Nevertheless, attention

[9] The United Nations Task Force on Key Concepts and Definitions Related to International Migration is already undertaking a revision of the related 1998 Recommendations on Statistics of International Migration. More information is available at https://unstats.un.org/unsd/demographic-social/migration-expert-group/task-forces/TOR_TF2_2019%2006%2021.pdf.

could also be on promoting data collection and analysis on population movements that are more likely instigated by slow-onset or gradual processes like drought, coastal erosion or sea level rise, which most often tend to affect more people on aggregate as compared to rapid-onset events. In view of its distinct nature, information on the slow-onset processes and related human mobility could be captured by the national statistics offices through regular household and other demographic (population-based) surveys or environmental statistics compendiums. For instance, the regional body could consider (depending on availability of necessary resources) facilitating national surveys dedicated to only assessing human mobility patterns, where attention could be given to probing or asking about the main reason for migration. This could then be complemented by another query about relevant or contributing reasons for migration as a way to tease out movements that may be associated with slow-onset processes (e.g. sea level rise, coastal erosion/salinization, drought, land degradation), and impact on human mobility could be one of the critical thematic focus areas. Considering the difficulty in distinguishing economic motivations from slow-onset drivers, indicators could be used or developed to help determine the extent to which a move could be associated with a slow-onset event.

As revealed by the study, none of the national agencies and departments working on immigration, statistics and disasters across the six Eastern Caribbean States has a specific repository for data. But with financial constraints often a challenge to enhanced data collection, management and dissemination, the data initially compiled by the six countries could be integrated and synchronized in a common regional database under the responsibility of the OECS and CDEMA. This common regional database could be conceived from the establishment of a regional observatory on the topic or from adjustments in the already existing CDEMA CRIS (by including new variables on the platform). In this way, through the establishment of a specific commission, the two regional agencies could be responsible for processing all the information provided in a systematic way, always taking into consideration the proposed common methodologies and protocols to be established. This would enable the production of statistics and indicators on all the dimensions of human mobility in the context of climate change and other environmental impacts, including disasters. For this reason, data collected should easily be 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, 2018b), as well as the United Nations Statistical Commission's Decisions on International Migration Statistics (UNSC, 2021a).

Step 4: *Disseminate statistical outputs on human mobility in the context of climate change and other environmental impacts through the common regional database and raise awareness.*

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

Once the data are duly managed/processed and available in the common regional database, the specific commission could institute periodic regional reports of the situation regarding human mobility in the context of climate change and other environmental impacts in the Eastern Caribbean. The generation of specific national reports would also be desirable. This could take place in close collaboration with data providers in the respective countries (national immigration, statistics and disaster departments). In line with this, the establishment of a timetable, as well as the formulation of a uniform format/structure for the reports, is key. This would facilitate the production of both regional and national profiles when it comes to data on the topic. These reports could be designed in a way that enables their (electronic) availability to the general public and other relevant stakeholders. In this sense, the development of internal reports would guarantee the confidentiality of possible sensitive information.

As a start, the specific commission could already take advantage of existing data on the topic, mostly provided by global databases (see Annex I) to create a common regional database (or maybe the CDEMA CRIS) with information on the theme. Also, as part of the data-building process, all existing but disjointed data sets could be pooled, and stringent efforts made to facilitate both vertical and horizontal integration. In this regard, the overlapping of existing data layers (e.g. incidence of climate-related risks

and vulnerabilities, and socioeconomic data such as the ones related to food insecurity and poverty) with existing human mobility layers could further consolidate the development of comprehensive data on the topic. Besides being a methodology largely validated by several scientific studies (see, for example, Baez et al., 2017; Spencer and Urquhart, 2018), 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 regional and national levels for enhanced mobility governance.*

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

The implementation of the aforementioned steps would enable the development of regional and country-specific profiles on human mobility in the context of climate and environmental change and disasters in the Eastern Caribbean. 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 regional and national policy and legal frameworks, the robust and reliable set of data generated in the region 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 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 the Eastern Caribbean region. Besides establishing adequate funding mechanisms, the OECS Commission and CDEMA 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 would 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 helpful in ensuring data security and reliability. The availability of credible and reliable data would also contribute to disaster response, planning and development of adaptation strategies towards promoting climate resilience across the region.

7. CONCLUSION AND RECOMMENDATIONS

The report assessed national data systems in relation to migration, environment, climate change and disasters in six Eastern Caribbean States (Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines) to identify strengths, weaknesses, and opportunities to enhance the collection, analysis, management, and dissemination of data on human mobility in the context of climate and environmental change and disasters. While data on the topic are still scant at both the national and regional levels, the development of country/region-specific, disaggregated, and comprehensive data on climate- and disaster-related human mobility calls for enhanced coordination, collaboration, and proactive actions across national departments and regional agencies (OECS and CDEMA).

The generation of data on climate change and disasters as potential drivers of human mobility could be enabled by establishing common forms and procedures at the existing ports of entry and departure in the six countries, developing specific statistics and indicators on environment and human mobility. It also depends on the collection of data on displacement (including evacuations) and other forms of human mobility (i.e. relocation) as part of the CDEMA DANA Continuum procedures. The availability of timely, reliable and readily accessible data is vital to the development of 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 and climate resilience at both the national and regional levels. In view of the aforementioned common challenges faced by the national immigration, statistics and disaster departments across the six Eastern Caribbean States (see Section 5), the following recommendations are outlined for the OECS and CDEMA for collecting improved and standardized data on climate- and disaster-related mobility in the region.

Recommendations for the Organisation of Eastern Caribbean States

Based on the gaps identified across the national immigration and statistics departments in the six countries, the following recommendations are proposed for the OECS to strengthen (statistical) information on climate- and disaster-related mobility in the region:

i. The OECS Commission could endeavour to develop a template for standardized ED Cards for its member States. The recommendation for the proposed common ED Card could be designed to collect disaggregated personal information (by sex, age, country of birth, nationality, among others) that enables the identification of both CARICOM and OECS citizens in the region. In addition to capturing the intended length of stay and address in the final destination, the OECS could also ensure the inclusion of a field for "purpose of visit" that takes into account environmental factors (e.g. weather conditions and disasters) among possible options. Asking about whether the person seeking entry or departing is doing so because of climate or disaster risk or impact could help in accounting for related cross-border population movements in the Eastern Caribbean.

ii. In addition to developing a common ED Card for its member States, the OECS Commission could also develop common methodologies and protocols that would guide how data could be collected and analysed by the national immigration departments. These protocols could be aligned with the United Nations recommendations for migration and refugee statistics (UNSC, 2021a). The established protocols could also outline how the information being collected should be managed and disseminated.

iii. Most importantly, with several actors often involved in collecting data during a disaster, the OECS could consider building national capacities – for instance, by training the team responsible for the completion/registration of the ED Cards at the existing ports of entry and departure in the six Eastern Caribbean States. Large population movements require resources and well-informed staff. This would enable accurate identification and quantification of individuals seeking entry due to disasters and related emergencies.

iv. Considering the challenges associated with financial and technological capacities across the six national immigration departments to develop specific databases nationwide, another proposition is for the OECS Commission to consider the establishment of a regional repository that hosts mobility data collected by the countries. In view of issues relating to data privacy and control across countries, the information or data to be shared and hosted in the common repository could be periodic summaries. For instance, the Education Development Management Unit (EDMU) at the OECS gets Educational Management Information System (EMIS) data (summaries) from the educational sectors in the member States. Providing such periodic summaries could allow for guarantees in sharing less sensitive information by member States. Support from the OECS could also come in the form of resource mobilization, capacity-building of border or port officials, and technology.

    With the BMS already hosting information on passenger arrivals and departures across the six countries, the national systems could be upgraded or transformed as comprehensive data systems with the support and guidance of the OECS. These upgraded systems could be designed to account for immigration and emigration, as well as climate- and disaster-related mobility that may be detected at the ports of each State. In this regard, the OECS could also promote the harmonization of the BMS among the Eastern Caribbean States. This could help in facilitating data comparability across national departments and at the regional level.

v. By recognizing the role that the OECS can play in bringing visibility to population movements in the context of climate and environmental change and disasters, the regional organization could incentivize the generation of comparable data on the topic through the development of common demographic (population-based) surveys. With the six countries having already initiated processes related to the next census activities at the national level (2021/2022), the OECS could extend its mandate by promoting the development of common and synchronized household and other demographic (population-based) surveys to be simultaneously conducted in the six Eastern Caribbean States (see, for example, UNHCR, 2019). Such activities could be formulated in collaboration with the six national statistics departments.

    As already piloted in Saint Lucia (2016 Survey of Living Conditions and Household Budgets), household and demographic surveys to be formulated by the OECS and conducted in its member States could endeavour to incorporate queries about climate and environmental risks and migration into the respective questionnaires (UNSC, 2018). To this end, it would be necessary to integrate not only queries about reasons for migration, but also information on any family members that are currently displaced or returning migrants/displaced persons and their main motivation for the return or inability to move despite the risk or impact. This would also allow for the collection of data on individuals' perception of environmental factors, as well as gauging the influence on their livelihoods, economic situation, security and the decision to move.

vi. To ensure that data collected are of good quality and reflect current developments, the OECS Commission could facilitate or support the conduct of household and other demographic surveys on a "regular" basis. This would promote the development of a robust and current database to support informed decision-making and planning in the whole region. Yet as a strategy, the OECS Commission could consider allocating funding and resources to conduct specific regular surveys to only assessing human mobility patterns. This could enable the production of detailed information that can be associated with climate and other environmental changes (including disasters) in the Eastern Caribbean and, importantly, informed development planning, as well as climate and disaster response and management at the national levels.

Recommendations for the Caribbean Disaster Emergency Management Agency

In reference to the data gaps and constraints identified in the context of the six national disaster departments and CDEMA, the following actions are recommended as viable strategies for collecting improved and standardized data on disaster displacement:

i. CDEMA could adjust its existing protocols to promote migration-inclusive disaster data collection, management and dissemination in the region. This could be designed to clearly highlight the criteria for categorizing human damage (ensuring, for instance, the incorporation of specific categories related to the human mobility dimension – i.e. displacement, evacuation, relocation). Even though the six Eastern Caribbean States rely on the CDEMA DANA Continuum, it is important to emphasize that the procedures of the regional agency do not comprehensively embrace the human mobility perspective in its provisions, hence reflected in the scant data on the topic both at the national and regional levels.

ii. Ensure the integration of specific categories comprising the human mobility dimension – such as displacement, evacuation and relocation – in the CDEMA DANA Continuum forms. Whereas the Situation Report Form encompasses such aspects in a limited way, the IDHNA Form leaves such information out.

    In addition, a system could be developed to monitor the implementation of the DANA Continuum at the national level. What is apparent in the case of all the six Eastern Caribbean States is that they all tend to adjust the predetermined forms that CDEMA provides as part of the DANA Continuum process in accordance with what they deem as relevant for their contexts. While this may present opportunities to integrate human mobility indicators at the national levels, the situation creates challenges in terms of data comparability.

    The possibility then is that participating States could collaborate and build a consensus on key or standardized elements (migration-inclusive) to be integrated into each of the forms. This could allow for comparison across States. The harmonization could particularly focus on the disaster data collection forms (the CDEMA DANA Forms), especially in terms of migration/mobility-inclusive categories, concepts, and criteria defining specific damages and impacts, albeit with consideration to country-specific needs. Most importantly, a complementary monitoring mechanism could ensure that the data collection on the human mobility dimension (displacement, evacuation, relocation) is integrated not only into the situation reports but also into post-disaster assessment, such as the IDHNA.

iii. Even though data on disaster are captured through the CDEMA DANA Continuum, the information gathered is not available in a common regional database. Databases and repositories on disaster and, more precisely, disaster-displacement data are non-existent at the regional level of the Eastern Caribbean. Based on the development of single/common protocols detailing methodological aspects of data collection and compilation, the data collected could be integrated or synchronized in a common/single database under the responsibility of CDEMA (e.g. the inclusion of new layers of statistics on the climate and environmental change, disaster, and human mobility nexus in the CRIS).

iv. Considering that humanitarian agencies (i.e. International Federation of Red Cross and Red Crescent Societies (IFRC)) also operate in the region during disasters and related emergencies, the mandate of the CDEMA could be extended to promote better coordination among these humanitarian agencies when it comes to the collection of disaster data. This would enable synergies in data collection on climate- and disaster-related mobility.

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 obliged 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, 2016b: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)

Disaster risk reduction (DRR): "Policy objective to prevent new and reduce existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development." (IOM, 2019:52)

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)

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; see also IOM, 2014b: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 governance: "The combined frameworks of legal norms, laws and regulations, policies and traditions as well as organizational structures (subnational, national, regional and international) and the relevant processes that shape and regulate States' approaches with regard to migration in all its forms, addressing rights and responsibilities and promoting international cooperation." (IOM, 2019:138)

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)

Residence: "The act or fact of living in a given place for some time; the place where one actually lives as distinguished from a domicile. Residence usually means bodily presence as an inhabitant in a given place." (IOM, 2019:184)

Return migration: "In the context of international migration, the movement of persons returning to their country of origin after having moved away from their place of habitual residence and crossed an international border. In the context of internal migration, the movement of persons returning to their place of habitual residence after having moved away from it." (IOM, 2019:186)

Skilled migrant worker: "A migrant worker who has the appropriate skill level and specialization to carry out the tasks and duties of a given job." (IOM, 2019:198)

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)

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." (IOM, 2019:230)

Work permit: "A legal document issued by a competent authority of a State authorizing a migrant worker to be employed in the country of destination during the period of validity of the permit." (IOM, 2019:232)

ANNEX I. GLOBAL, REGIONAL AND NATIONAL DATABASES ON MIGRATION, ENVIRONMENT, DISASTER AND CLIMATE CHANGE DATA

Data sharing mechanism	Responsible	Scope	Countries examined	Governance area	Data on the climate and environmental change, disaster, and human mobility nexus	Human mobility dimension	Other categories adopted	Updated data	Disaggregation	Link
DesInventar Sendai	UNDRR	Global	All six countries	Disaster	Yes	Relocation	Houses destroyed/ damaged, indirectly/ directly affected, evacuated	2014	-	www.desinventar.net
Global Internal Displacement Database	IDMC	Global	All six countries	Mobility	Yes	Displacement	-	Yes	-	www.internal-displacement.org/database
Displacement Tracking Matrix (DTM)	IOM	Global	Antigua and Barbuda, Dominica	Mobility	Yes	Displacement	-	2017/2018	-	https://dtm.iom.int
The Humanitarian Data Exchange	OCHA	Global	All six countries	Disaster	Yes	Displacement	Houses destroyed/ damaged, indirectly/ directly affected, evacuated, internal displacement	Yes	Age, gender	https://data.humdata.org
ACAPS API – Global Humanitarian Datasets	NRC	Global	All six countries	Disaster	Yes	Migration, displacement	-	Yes	-	www.acaps.org

Data sharing mechanism	Responsible	Scope	Countries examined	Governance area	Data on the climate and environmental change, disaster, and human mobility nexus	Human mobility dimension	Other categories adopted	Updated data	Disaggregation	Link
World Bank Open Data	World Bank	Global	All six countries	Disaster, mobility	Yes	Migration	-	Yes	-	https://data.worldbank.org
Federation-wide Databank and Reporting System	IFRC	Global	All six countries	Disaster, conflicts	Yes	Migration	Shelter	2018	Age, gender	https://data.ifrc.org/fdrs/data-download
EM-DAT (The International Disasters Database	CRED	Global	All six countries	Disaster	Yes	-	Affected people	Yes	-	https://public.emdat.be
Red de Información Humanitaria para América Latina y el Caribe (RedHum)	OCHA	Regional	All six countries	Disaster, mobility	Yes	Displacement	Affected, evacuated, displacement, migration	Yes	-	https://redhum.org/home
CEPALSTAT – Databases and statistical publications	ECLAC	Regional	All six countries	Disaster, mobility	Yes	Migration	Affected in the context of disasters	2017/2018	Age, gender, schooling	https://estadisticas.cepal.org/cepalstat/PerfilesNacionales.html?idioma=english
Environmental profile of CARICOM countries	CARICOM	Regional	All six countries	Disaster	Yes	-	Human losses	2013	-	http://statistics.caricom.org/EnvironmentProfile.html
The Enhancing Knowledge and Application of Comprehensive Disaster Management (EKACDM) – Historical disasters	UWI	Regional	All six countries	Disaster	Yes	Displacement	Affected, evacuated	2017/2018	-	www.uwi.edu/ekacdm/

Data sharing mechanism	Responsible	Scope	Countries examined	Governance area	Data on the climate and environmental change, disaster, and human mobility nexus	Human mobility dimension	Other categories adopted	Updated data	Disaggregation	Link
Migration Data Portal	IOM	Global	All six countries	Mobility	No	Migration	Immigration, emigration, forced migration (refugees and asylum seekers)	Yes	Age, gender	https://migrationdataportal.org/
Global Knowledge Partnership on Migration and Development (KNOMAD)	World Bank	Global	All six countries	Mobility	No	Migration	Immigration, emigration, forced migration (refugees and asylum seekers)	2018	Gender	www.knomad.org/data/migration/emigration
Portal Operacional: Situaciones de Refugiados y Migrantes	UNHCR	Global	None	Mobility	No	Displacement	Displacement and forced migration (refugees and asylum seekers)	Yes	-	https://data2.unhcr.org/es/countries/
Caribbean Migration Consultations	IOM	Regional	All six countries	Mobility	No	Migration	Forced migration (refugees and asylum seekers)	Yes	Age, gender	https://caribbeanmigration.org
Caribbean Risk Information System (CRIS-CDEMA)	CARICOM	Regional	All six countries	Disaster	No	-	-	-	-	https://geocris2.cdema.org/
Regional Clearinghouse Database	CCCCC	Regional	All six countries	Climate change	No	-	-	-	-	http://clearinghouse.caribbeanclimate.bz/
Caribbean Natural Resources Institute	CANARI	Regional	All six countries	Climate change	No	-	-	-	-	https://hub.canari.org/#abtc

Data sharing mechanism	Responsible	Scope	Countries examined	Governance area	Data on the climate and environmental change, disaster, and human mobility nexus	Human mobility dimension	Other categories adopted	Updated data	Disaggregation	Link
DEWETRA Platform	Italian Department of Civil Defence	Regional	All six countries	Disaster	No	-	-	-	-	www.mydewetra.org
Caribbean Platform for Migration Governance	IOM	Regional	All six countries	Migration	No	-	-	-	-	https://caribbeanmigration.org/sites/default/files/hojainformativa-april2018_cambios5-9.pdf
PLISA Health Information Platform for the Americas	PAHO	Regional	All six countries	Health	No	-	-	-	-	www.paho.org/data/index.php/en/
The CARIWIG Portal	CARIWIG, CCCCC	Regional	All six countries	Climate change	No	-	-	-	-	http://cariwig.caribbeanclimate.bz/#info
CARiDRO – Caribbean Assessment of Regional Drought	INSMET, CCCCC	Regional	All six countries	Climate change	No	-	-	-	-	http://caridro.caribbeanclimate.bz
OPEN DRI – GeoNode Antigua and Barbuda	GFDRR	National	Antigua and Barbuda	Disaster	No	-	-	-	-	http://geonode.data.gov.ag
Environmental Information Management and Advisory System (EIMAS)	EPMA	National	Antigua and Barbuda	Environment	No	-	-	-	-	www.environment.gov.ag/programs#Data-Management/EIMAS

Data sharing mechanism	Responsible	Scope	Countries examined	Governance area	Data on the climate and environmental change, disaster, and human mobility nexus	Human mobility dimension	Other categories adopted	Updated data	Disaggregation	Link
OPEN DRI – GeoNode Dominica	GFDRR	National	Dominica	Disaster	No	-	-	-	-	www.dominode.net
OPEN DRI – Saint Lucia Integrated National GeoNode (SLING)	GFDRR	National	Saint Lucia	Disaster	No	-	-	-	-	http://sling.gosl.gov.lc

ANNEX II. LIST OF REGIONAL STAKEHOLDERS AND NATIONAL DEPARTMENTS INVOLVED IN THE QUESTIONNAIRE ACTIVITY

Regional	
Stakeholder	**Department**
Organisation of Eastern Caribbean States (OECS)	Climate Change and Disaster Resilience Unit (CCDRU)
Caribbean Community (CARICOM)	Secretariat
African, Caribbean and Pacific Group of States (ACP)	Special Committee on Disaster Risk Reduction
Global Climate Change Alliance (GCCA)	Caribbean Planning for Adaptation to Climate Change Project (CPACC)
Caribbean Portal for Migration Governance (CPMG)	Secretariat
Caribbean Disaster Emergency Management Agency (CDEMA)	Secretariat
Caribbean Natural Resources Institute (CANARI)	Secretariat
University of the West Indies (UWI)	The Disaster Risk Reduction Centre (DRRC) – Institute for Sustainable Development
Caribbean Policy Development Centre (CPDC)	Secretariat
United Nations Office for Disaster Risk Reduction (UNDRR)	Regional Office for the Americas and the Caribbean
National	
Country	**Department**
Antigua and Barbuda	Department of Immigration
	Statistics Division
	National Office of Disaster Services (NODS)
Dominica	Immigration Division
	Central Statistics Office
	Office of Disaster Management (ODM)
Grenada	Immigration and Passport Department
	Central Statistics Office
	National Disaster Management Agency (NaDMA)
Saint Kitts and Nevis	Immigration Department
	Statistics Department
	National Emergency Management Agency (NEMA)
Saint Lucia	Immigration Department
	Central Statistical Office
	National Emergency Management Organisation (NEMO)
Saint Vincent and the Grenadines	Passport and Immigration Department
	Statistical Office
	National Emergency Management Organisation (NEMO)

ANNEX III. INITIAL SITUATION OVERVIEW (ISO) FORM

SITUATION REPORT FORM

1. NAME OF EOC GENERATING REPORT: _____

2. EVENT (Name of Hurricane, Identification of flood, etc.): _____

3. DATE OF EVENT: _____

4. SITUATION REPORT NUMBER: _____

   Date: _____ Time: _____

5. BRIEF DESCRIPTION OF EVENT: _____

6. AREAS AFFECTED (Include any major infrastructural damage, loss of roads, bridges, etc.):

   _____

7. CASUALTIES: (a) Dead: _____ (b) Injured: _____ (c) Missing: _____

8. ACTIONS TAKEN (Since last Sit Rep): _____

9. WELFARE/RELIEF ASSESSMENT

   (a) Health of affected Population, including hospitalized: _____

   (b) Nos. in Shelters: _____

   (c) Displaced Population: _____

   (d) Other: _____

10. DAMAGE SUMMARY

    (a) Critical Facilities: _____

    (b) Infrastructure: _____

    (c) Communications Facilities: _____

    (d) Ports of Entry: _____

    (e) Utilities: _____

    (f) Buildings: _____

    (g) Agriculture: _____

    (h) Tourism/Commerce/Industry: _____

    (i) Others: _____

11. SITUATIONS NEEDING IMMEDIATE RESPONSE FROM NEOC: _____

_____

12. RESOURCES NEEDED FOR RESPONSE (Not available locally)
- Indicate type, quantity and order of priority:

Water: _____

Food: _____

Shelter: _____

Sanitation: _____

Medical Aid: _____

Temporary Repairs: _____

Other: _____

13. ACTIONS TO BE TAKEN/FUTURE OPERATIONS AND TIMING: _____

_____

REPORT SUBMITTED BY: _____

CONTACT NUMBERS: _____

ANNEX IV. INITIAL DAMAGE AND HUMAN NEEDS ASSESSMENT (IDHNA) FORM

CDEMA CARIBBEAN DISASTER EMERGENCY MANAGEMENT AGENCY
Resilient States - Safer Lives

INITIAL DAMAGE & NEEDS ASSESSMENT SURVEY FORM - Health Assessment Included

PAGE ..... OF .....

AREA (ED): ..... AGENCY/UNIT: ..... TYPE OF EVENT: .....

DATE OF EVENT: .....

PARISH: ..... NAME OF ASSESSOR: ..... DATE OF ASSESSMENT: .....

(Codes listed below are to be used under the columns indicated)

Line No.	Name of Occupant (Head of Household)	Address/Location	Age (of Head)	ID or Social Security No. (of Head)	Employment Status (of Head)	Type of Employment (of Head)	No. of Persons in Household Employed	Contact Telephone Number (H/W/C)	House Tenure	Type of Residence	House Insured?	No. of Persons in Household						No. of Disabled Members						Housing Required?	Assistance in Kind	Immediate Needs	Level of Damage	Line No.	No. of Persons injured or ill						Deceased or Missing Persons						No. of Persons with Special Health Needs						Comments (*) c
					(Code)	(Code)			(Code)	(Code)	(Code)	Adults		Children (under 18 Years)		Infants		Adults		Children (under 18 Years)		Infants		(Code)	(Code)	(Code)	(Code)		Adults		Children (under 18 Years)		Infants		Adults		Children (under 18 Years)		Infants		Chronic Illness		Functional Needs (*) a		Evacuation Needed? (*) b		
												M	F	M	F	M	F	M	F	M	F	M	F						M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(0)																			

CODES					
5 – Employment Status	1 = Unemployed	2 = Employed Part-Time	3 = Employed Full-Time		
6 – Type of Employment	1 = White Collar	2 = Blue Collar			
9 – House Tenure	1 = Owned	2 = Rented/Leased	3 = Rent Free		
10 – Type of Residence	1 = Single-Storey Dwelling	2 = Multi-Storey Dwelling	3 = Single-Story Apartment	4 = Multi-Story Apartment	5 = Other
11 – House Insured?	1 = Yes	2 = No			
24 – Housing Required	1 = Yes	2 = No			
25 – Assistance in Kind	1 = Food	2 = Clothing	3 = Furnishings	4 = Medication	5 = Prosthesis (eg: glasses, hearing aids, artificial limbs)
26 – Immediate Needs	1 = Food	2 = Shelter	3 = Medication	4 = Personal Hygiene Supplies	5 = Sanitary Supplies/Disenchants
27– Level of House Damage	1 = No Significant Damage	2 = Minor Damage	3 = Major Damage	4 = Destroyed	
(*) a – Patients with auditory, vision, mobility, or other functional limitations. Provide details under comments.					
(*) b – Patients who need to be relocated because of injuries, illness, or because treatment is not available.					
(*) c – Expand on or specify requirements or findings not explained in the table and that will assist in decision making.					

ANNEX V. STUDY QUESTIONNAIRES (NATIONAL/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

Diogo Andreola Serraglio

Stephen Adaawen

Benjamin Schraven

October 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

Regional 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 have been collected, managed and disseminated.

Respondents are encouraged to utilize the best strategies and engage relevant actors and agencies to complete this questionnaire, which is due **26 October 2020**. All questionnaires, together with the signed Consent Form, are to be submitted through e-mail to Mrs Gelina Fontaine (gfontaine@iom.int) and Mr Diogo Andreola Serraglio (diogo.aserraglio@gmail.com).

IOM Glossary

Key definitions on migration, environment and climate change

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 obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border."

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."

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."

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."

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."

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 also encompassing 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."

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."

Access IOM's 2019 *Glossary on Migration* online for additional reference and clarification, available at https://publications.iom.int/books/international-migration-law-ndeg34-glossary-migration.

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. Organization: _____

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

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

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

Comments:

_____

_____

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

Climate-related "disaster"/"hazard" in the region	Frequency in the past two decades (2000–2020)		
	Does not/hardly occurs[1]	Occurs occasionally[2]	Occurs frequently[3]
Hurricane			
Drought			
Heat wave			
Coastal inundation (sea level rise)			
Flash flood			
Landslide			
Fires			
Others:[4] _____			

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

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

   _____

   _____

[1] "Does not/hardly occurs" – not occurring at a regular interval, not often, seldom, rarely.
[2] "Occasionally" – occurring from time to time, now and then, once in a while, irregularly at infrequent intervals.
[3] "Occurs frequently" – frequent intervals.
[4] 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 region? (If possible, please list some of the relevant documents.)

_____

_____

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.

   _____

   _____

7. At the regional level (Eastern Caribbean), 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?

_____

_____

Regional disaster risk reduction (DRR) policy framework

8. Does the region (Eastern Caribbean) 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 regional legal frameworks recognize and address "human mobility" in the context of climate and other environmental changes (rapid- and/or slow-onset events)?

   (a) Yes _____ (b) No _____

   9.1. If yes, in what context and how?

   _____

   _____

Regional migration policy framework

10. Does the region (Eastern Caribbean) have specific policy and legal frameworks dealing with **migration** and related issues? (a) Yes _____ (b) No _____

    10.1. If yes, please name and list them.

    _____

    _____

11. Do these regional 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 _____

11.1. If yes, in what context and how?

_____

_____

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

12. Do regional 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 _____

12.1. If yes, please indicate.

_____

_____

13. Please list the **main agencies or actors** on DRR and migration responsible for collecting, managing, and disseminating data on migration, environment and climate change at the regional level.

_____

_____

13.1. Please list other/secondary actors who collect data related to "human mobility" in the context of climate and other environmental changes:

(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: Do climate/environment agencies/departments collect, analyse and share data related to "human mobility" in the context of climate and other environmental changes?

_____

_____

(c) Do actors at the regional level (Eastern Caribbean) cooperate and exchange information about human mobility data and on how data should be collected, analysed and disseminated? If yes, how and when is this done?

_____

_____

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

_____

_____

15. 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.

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

    16.1. How do the frameworks define "migration"?

    _____

    _____

    16.2. How do the frameworks define "displacement"?

    _____

    _____

    16.3. How do the frameworks define "planned relocation"?

    _____

    _____

17. In what way or to what extent do the legal frameworks 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?

_____

_____

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

    18.1. Please outline disaggregation categories.

    _____

    _____

19. 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?

_____

_____

20. 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 regional level

21. 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 regional level? (a) Yes _____ (b) No _____

    21.1. 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)

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

    22.1. If yes, how or for what purposes?

_____

_____

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

23. 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 regional (Eastern Caribbean) level:

    23.1. What synergies across existing data-sharing mechanisms do you see?

_____

_____

    23.2. What are the gaps and inconsistencies?

_____

_____

24. How would you rate the status of data on "human mobility" in the context of climate and other environmental changes at the regional level (Eastern Caribbean)? 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

25. What strategies would help enhance data collection and sharing on "human mobility" in the context of climate and other environmental changes at the national level and regionally?

_____

_____

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

_____

_____

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

_____

_____

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

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

    28.1. Location of the event: _____

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

    28.3. Duration of the event: _____

    28.4. Source of information and/or data-sharing system used to collect this data/information for this case study? _____

    28.5. Number of displaced people: _____

    28.6. Measures taken by national/regional authorities (if any):

    _____

    _____

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

    _____

    _____

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

Thank you for your collaboration!

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

Diogo Andreola Serraglio

Stephen Adaawen

Benjamin Schraven

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
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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.

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Methodology
Conduct six migration, environment, and climate change data assessment through a questionnaire for expert interviews and desk review of existing sources of information and data-sharing mechanisms on environmental migration for each of 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 have been collected, managed and disseminated.

IOM Glossary

Key definitions on migration, environment and climate change[5]

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 obliged 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

[5] See: IOM, 2019.

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."

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, salt water 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 also encompassing 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	Significant impact	Very severe impact/ devastating
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[6]	Occurs occasionally[7]	Occurs frequently[8]
Hurricane			
Drought			
Heat wave			
Coastal inundation (sea level rise)			
Flash flood			
Landslide			
Fires			
Others:[9] _____			

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.

   _____

   _____

[6] "Does not/hardly occurs" – not occurring at a regular interval, not often, seldom, rarely.
[7] "Occasionally" – occurring from time to time, now and then, once in a while, irregularly at infrequent intervals.
[8] "Occurs frequently" – frequent intervals.
[9] 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)?

(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 frameworks 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:

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

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 change 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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International Organization for Migration
Global Migration Data Analysis Centre
Taubenstr. 20-22, D- 10117 Berlin, Germany

Tel.: +49 30 278 778 21 | Fax: +49 30 278 778 98

gmdac@iom.int | @IOM_GMDAC