

CLIMATE-FRAGILITY RISK BRIEF

# THE CARIBBEAN

Carlos Fuller, Hannah Elisabeth Kurnoth, Beatrice Mosello

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# CLIMATE-FRAGILITY RISK BRIEF: THE CARIBBEAN

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## SUMMARY

The Caribbean region is considered to be relatively peaceful and politically stable, but highly vulnerable to direct and indirect impacts of climate change. Caribbean countries, most of which are small-island developing states (SIDS), have long suffered from the destructive impacts of natural hazards, including hurricanes, severe weather events, drought and sea level rise. Climate change is projected to make them worse; rising temperatures and an increase in flooding risks are anticipated. Tropical cyclones are becoming more frequent and intense. Changing precipitation patterns, as well as sea level rise and ocean acidification, are threatening the livelihood and physical security of coastal communities.

However, climate change is not acting alone. Its impacts are adding to the pressure of population growth and rapid urbanisation on land space and already limited food, water and energy resources, resulting in environmental degradation and rising unemployment, inequality and poverty levels. This will have significant consequences for the Caribbean countries' economies. Climate change impacts will also amplify existing social and security challenges, such as loss of livelihoods, urban migration, crime, labour market inequalities, and the feminisation of poverty. In turn, these dynamics risk putting additional stress on governmental support structures, which could lead to political instability as citizens increasingly question their legitimacy. The COVID-19 pandemic is adding a further layer to these risks, slowing foreign direct investments, halting tourism, increasing unemployment and decreasing remittances.

To address these challenges fully and effectively, it is important that these risks are analysed and understood in an integrated way. In this paper, we identify three possible pathways through which climate change interacts with other drivers of fragility and insecurity in the Caribbean region:

1. Climate-induced disasters can cause political instability through their impacts on key economic sectors;
2. Climate impacts could lead to social unrest by compounding livelihood and food insecurity;
3. Climate-induced loss of livelihoods could increase opportunities for criminal activity and increase urbanisation challenges.

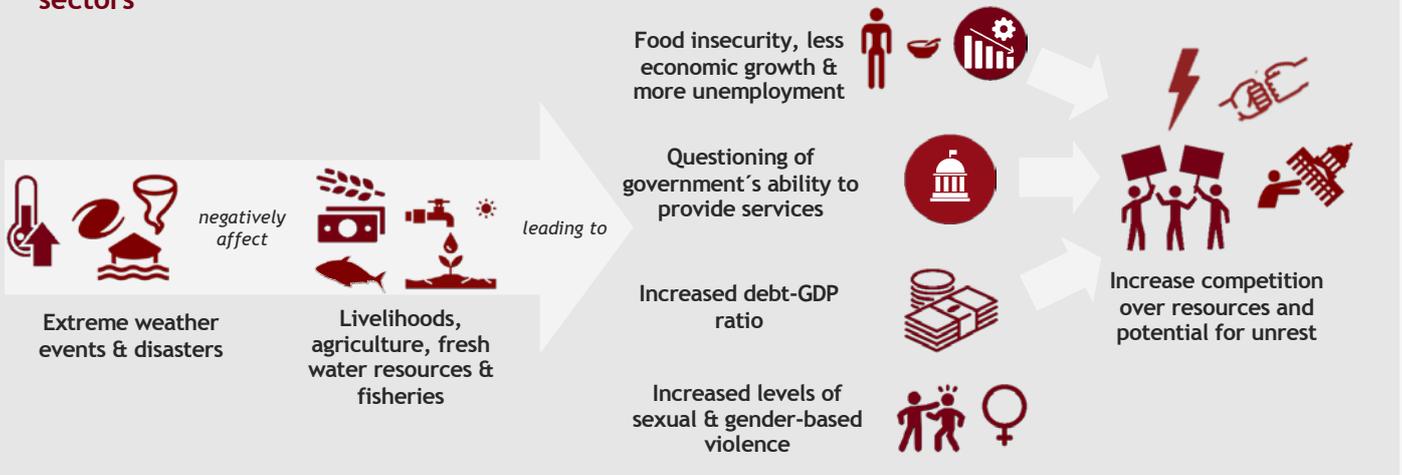
These threats are not inescapable. Governments in the region have taken important initiatives to address climate risks and are at the forefront of climate action, especially in terms of disaster risk response. However, to date, they have failed to implement more comprehensive and integrated responses that go beyond climate adaptation and disaster risk response, and have overlooked other socio-economic and political drivers that also contribute to security challenges. Moreover, the international community has focused on the immense disaster risks in the Caribbean, but has paid less attention to slow-onset changes and their consequences on livelihoods, which are just as worrisome.

Based on our analysis, we suggest that to address the compound climate and fragility risks, governments and political decision-makers at national, regional and local levels should move towards:

- Understanding and addressing climate risks in an integrated way;
- Coordinating more systematically across sectors;
- Promoting bottom-up collaborative approaches to resilience-building;
- Leveraging regional cooperation to address climate-security challenges;
- Continuing engagement at the international level.

## Climate fragility risks in the Caribbean

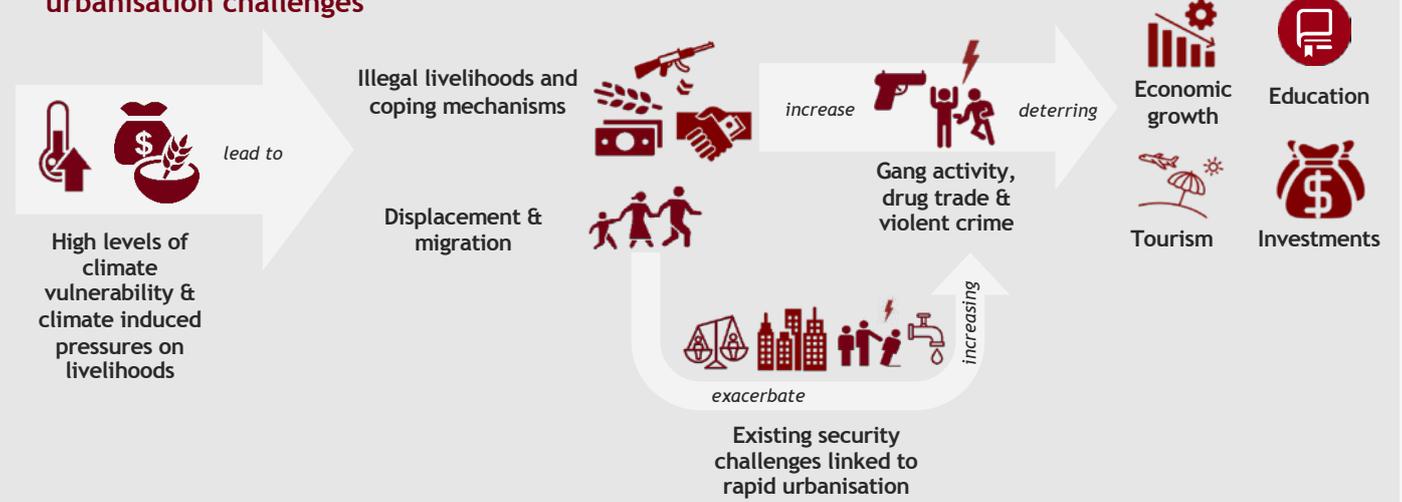
### 1. Climate-induced disasters can cause political instability through their impacts on key economic sectors



### 2. Climate impacts could lead to social unrest by compounding livelihood and food insecurity



### 3. Climate-induced loss of livelihoods could increase opportunities for criminal activity and urbanisation challenges





## SOCIO-ECONOMIC DEVELOPMENT AND POLITICAL CONTEXT

### Social and demographic context

The Caribbean region is comprised of more than 7,000 islands, islets, reefs, and cays scattered over a wide geographical area and surrounded by the Caribbean Sea and the Atlantic Ocean. The islands of the Caribbean are organised into 30 territories, which include sovereign states, overseas departments, and dependencies. At the region's core is the Caribbean Community (CARICOM), whose members include Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago. Bermuda and the Turks and Caicos Islands in the Atlantic Ocean are associate members to CARICOM.<sup>1</sup>

According to United Nations (UN) data, about 43.5 million people live in the region, accounting for 0.56% of the world's total population (as of November 2020) (UN, 2020a). The population of the Caribbean is primarily Afro-Caribbean, with the largest minority being of Indo-Caribbean descent, followed by Chinese and European. There are still some very small communities of Arawak, Carib and Taino, the original inhabitants of the Caribbean. The predominant languages are Spanish, English, French and Dutch. The majority of the people (90%) identify themselves as Christians (Anglican, Catholic and Evangelical), but there is also a significant proportion of Muslims.

The degree of urbanisation has remained relatively stable over the past years among most of the region's countries. With the exception of Haiti, urbanisation has increased only slightly over the past 25 years. The share of the Caribbean population living in urban areas is around 50%, as it has been since 1990 (FAO, 2019). There are significant inequalities between urban and rural areas. Overall, the educational attainment is lower within the latter population (i.e. higher ratios of individuals without education and less people with tertiary/university education). Rural households also have a smaller average monthly income and hence lower levels of consumer spending than urban households (ILO, 2016).

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<sup>1</sup> In this paper, we mostly refer to the CARICOM countries as Caribbean countries.

The Caribbean region has witnessed rapid demographic, social, economic and political transformations over the last 50 years (World Bank, 2019). Since the beginning of the 2000s, most of the region's countries have made good progress in lowering the prevalence of poverty. The average poverty level across Caribbean countries is around 26%, but it is as high as 77% in Haiti, and 36% in Grenada and Guyana (FAO, 2019). However, the levels of extreme poverty have increased since 2015, particularly in female-headed households (ECLAC, 2018b). Moreover, most Caribbean countries have had a negative evolution in Human Development Index rankings. Jamaica and Dominica, two extreme cases, have fallen 23 and 10 positions respectively (UNDP, 2016). Access to health and education remains a challenge. For all Caribbean countries, combined public social protection and health expenditures as a proportion of gross domestic product (GDP) lag behind the weighted average of 13.2% for Latin America and the Caribbean (LAC) as a whole (UNDP, 2016).

Furthermore, Caribbean economic growth has not been inclusive, and many disparities and vulnerabilities are evident in assessments of poverty, inequality and multidimensional progress (UNDP, 2016). Persistent gender inequalities manifest at household level, at the workplace and labour market, and in the wider Caribbean society. For example, women bear a disproportionate share of caregiving and domestic unpaid work in the household and face higher levels of unemployment, in addition to a gender earnings gap in the workforce (UNDP, 2016). Marginalised groups in the region also include older persons, a growing age group in the Caribbean society whose challenges are exacerbated by weak social protection systems, inadequate access to care services, and patterns of migration which disrupt family structure (ECLAC, 2018b). Youth unemployment is among the highest in the world (UNDP, 2016; ECLAC, 2018b).

## Political context

Overall, Caribbean countries enjoy a relatively stable political climate. The former British colonies employ the Westminster style parliamentary system, while the others have Presidential systems in place. Elections are held regularly according to the respective countries' constitutions and electoral laws, and the transfer of power normally occurs peacefully (New York Times, 2019; Nicholls, 2016). Most countries have two large political parties and there are very few differences in their policies (Collier, 2000). There is a general sense among the population that corruption within the leadership often goes unpunished and that such corruption is widely accepted by the major parties and their supporters (Transparency International, 2019). Evidence from LAC as a whole shows that more than 50% of citizens in the region think that the majority of all elected politicians and their officials - at both national and local levels - are corrupt and favour private over public interests (Transparency International, 2019).

The diverse processes of colonisation of the Caribbean territories have produced cultural, ethnic and political heterogeneity and the development of multiple Caribbean sub-regional traditions: the English-speaking Caribbean, the Hispanic Caribbean, the Dutch Caribbean and the 'Continental Caribbean'. Despite this diversity, regional integration has been a permanent element of Caribbean politics since the early attempts at independence (Briceño-Ruiz, 2013). Since its establishment in 1973, the CARICOM has made strides in constructing a gradually deeper and wider intergovernmental regional network, which has been further enhanced by the recently introduced Caribbean Single Market and Economy (CSME). The Caribbean Regional Negotiating Machinery (CRNM) - which is actually an agency of the Caribbean Forum of African, Caribbean and Pacific States (CARIFORUM) - has played a vital technical role in managing the region's numerous bilateral and multilateral negotiations with trade partners worldwide. The Association of Caribbean States (ACS) has contributed to the creation of linkages between the Caribbean islands and their Central and South American neighbours bordering the Caribbean Sea. Finally, the Organization of Eastern Caribbean States (OECS) and the Eastern Caribbean Central Bank (ECCB) have the mandate of helping to stabilise the region's political economy (Bishop and Payne, 2011).



## Economic context

The Caribbean is a diverse region with significant economic potential and growth opportunities. However, the countries' economies are highly vulnerable to recurrent disaster-related hazards and climate change impacts (see chapter 2.2 Climate Vulnerability).

Most Caribbean countries are middle-income countries; GDP per capita varies from around US\$ 8,300 in Dominica to over US\$ 32,800 in Puerto Rico (World Bank, 2019). The economies of the Caribbean, originally based on plantation agriculture, have shifted towards tourism-related activities and services over the last two decades. However, economic diversification remains a challenge (UN, 2020b).

Agriculture represents less than 1% of GDP for several countries, but in others such as Haiti, Dominica, Guyana and Grenada, it is still an important sector in the economy. It only contributes 7-17% of GDP, but has a significantly larger share of employment (typically 10-25%, and almost 50% in Haiti) (FAO, 2019; USAID, 2018). Overall, agriculture accounts for 23% of employment in the region, and makes significant contributions to rural development and food security (Tandon, 2014). Fishing is also an important activity for many Caribbean countries. However, while fishing activities in the Caribbean Sea have almost doubled since the 1990s, the annual catch has declined by more than 25% as a result of overfishing and consequent resource degradation (FAO, 2019).

Currently, approximately 60% of the Caribbean's GDP is derived from the provision of services, of which tourism is the most important (Cain and Trotz, 2020). In 2018, the Dominican Republic recorded more than 6.5 million tourist arrivals, making it the most visited Caribbean island; Dominica was least visited with 63,000 tourists (World Bank, 2019). In the same year, the whole Caribbean region earned a total of US\$ 58.9 billion from tourism alone, contributing 8% of GDP directly, and 25% indirectly. Broadly speaking, in the SIDS, which are most dependent on tourism, the total contribution can be as high as 40% (FAO, 2019).

Remittances are another significant contributor to GDP in the Caribbean region, which has one of the highest emigration rates in the world (Alleyne and Solan, 2019). They are also the fastest growing source of currency inflows, amounting to three times the total value of all agricultural exports and roughly two-thirds of earnings from tourism. For example, in countries such as Haiti and Jamaica, remittances make up 38.5% and 15.6% of GDP respectively (World Bank, 2020c). Remittances to CARICOM countries grew from US\$ 1.7 billion in 2000 to US\$ 4 billion in 2009. However, their growth has slowed down considerably since 2008 (IOM, 2017c), and is likely to be severely impacted by the current COVID-19 pandemic (IOM, 2020; World Bank, 2020b).

Caribbean economies also receive high levels of foreign direct investments (FDI) flows. In 2014, the ratio of FDI inflows to GDP was equal to 7% for the whole sub-region, and reached 10% for some countries such as Saint Vincent and the Grenadines, Saint Kitts and Nevis, Guyana, Trinidad and Tobago and Saint Lucia. By comparison, in Latin America, the FDI ratio is approximately 3%. Most of the investments take place in the service sector, which account for the majority of FDI in Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. Guyana and Trinidad and Tobago have the highest share of FDI in natural resources, while in Jamaica the majority of FDI is directed towards market-seeking services (telecoms, finance, etc.). In Trinidad, FDI in the oil and gas industry dominate (ECO Consult et al., 2012; ECLAC, 2014). This simultaneously means that a large share of the economic activity in the region is conducted by transnational corporations.

FDI inflows into CARICOM countries continue to originate from the traditional sources of North America and Europe. However, in recent years, significant FDI inflows have been received from other sources, including China and the Middle East (ECLAC, 2014; ECO Consult et al., 2012). During the last ten years, China has particularly been a major funder of massive infrastructure projects in the Caribbean, as part of the Belt and Road Initiative. These investments - largely in the form of loans – create high debt ratios towards China (Diplomatically Speaking, 2020). Moreover, it is estimated that approximately 200,000 Chinese nationals are smuggled into the Caribbean each year as a result of increased economic interaction with China (IOM, 2017d), fueling some public sentiment that this is contributing to local unemployment (Diplomatically Speaking, 2020).

The 2008-2009 financial crisis strongly affected the economic performance of the Caribbean region. While Anguilla and Antigua and Barbuda were worst-hit by the crisis and experienced negative GDP rates of 18% and 12% respectively, others like the Dominican Republic and Guyana did not experience negative rates but rather an economic slowdown (World Bank, 2014). More recently, the COVID-19 pandemic is hitting especially hard the region's smaller economies that are tourism-dependent, due to the near halt in tourism activities. Overall, the World Bank expects the Caribbean economy to contract by 1.8% in 2020. With the informal sector in some Caribbean countries amounting to as much as 40% of GDP, this "health" crisis will likely cause poverty and inequality to rise substantially in its wake (World Bank, 2020a; UN, 2020b).

## Security context

The primary source of citizen insecurity in the Caribbean arises from social violence, including violence of citizens against other citizens. A 2017 study by the Inter-American Development Bank (IDB) revealed that, on average, 13% of residents in The Bahamas, Barbados, Jamaica, Suriname and Trinidad and Tobago were victims of common crime over the past year. Such trends were more pronounced in some countries – and their capital cities in particular – than in others (Sutton & Ruprah, 2017). For example, in 2013, murder rates in The Bahamas, Jamaica, and Trinidad and Tobago were comparable to countries in armed conflict, with a rate of over 30 homicides per 100,000 citizens, while Suriname and Barbados have kept relatively low homicide rates (Sutton & Ruprah, 2017). This prevalence of violence comes down to a number of factors, but is particularly due to gang presence and gun possession. In the capital of Trinidad and Tobago, Port of Spain, around 60% of victims of violence reported gang presence where they lived (Sutton & Ruprah, 2017). Furthermore, it is estimated that 1.6 million illegal firearms are circulating in the Caribbean (InSight Crime, 2017).

Organised crime linked to narco-trafficking also creates severe security challenges in the region. Since 2010, there have been indications that the Caribbean Sea has re-emerged as one of the routes for Latin America's drug traffickers. Today, it is estimated that the Caribbean route represents around 15% of all cocaine movement in the Western Hemisphere, with the Dominican Republic, Haiti, Jamaica, Trinidad and Tobago and The Bahamas as key transit hubs (InSight Crime, 2017). The illegal drug trade has fuelled high levels of violence in the region. In Puerto Rico, for example, at last 80% of killings are believed to be drug-related (InSight Crime,

2017). Contraband and money laundering are also prominent activities, with the Caribbean being home to a number of tax havens such as the British Virgin Islands and Puerto Rico, which are exploited by criminals to hide illicit proceeds (InSight Crime, 2017).

Domestic violence is also a major concern in the Caribbean – the region has one of the highest rates of gender-based violence in the world (UN, 2007). Women and children are often the primary victims. According to a recent survey conducted by CARICOM and the Caribbean Development Bank in five Caribbean countries, 39-55% of women aged 15-64 have experienced at least one form of violence, and 28-38% have experienced physical or sexual violence from a partner in their lifetime (CARICOM Today, 2020). Generally, violence is linked to “early problem behaviours” that spur violence in later life, such as youth engagement in sexual behaviour and alcohol consumption (Sutton & Ruprah, 2017). In Trinidad and Tobago, domestic violence claims the lives of 25 persons annually. In The Bahamas, the murder of women in domestic disputes represent 50% of all homicides (ECLAC, 2013).

There are no major disputes between countries in the Caribbean. A dispute regarding fishing rights between Barbados and Trinidad and Tobago was settled through a judicial process in 2006 (Blake and Campbell, 2007). However, countries across the region have experienced social protests arising from labour and union issues, as well as socio-economic problems, such as unemployment. There have also been instances of civil unrest and conflict within individual countries. Haiti, for example, has been in a state of civil unrest on and off since 1994 when President Jean-Claude Duvalier was overthrown. This political instability has been compounded by a series of natural disasters and other challenges that have hit the country over the past decade (Reuters, 2019). These include the 2010 earthquake and subsequent cholera epidemic (Pallardy, 2010; UN GA, 2017), as well as Hurricane Matthew in 2016, which left more than 35,000 Haitians homeless (National Hurricane Center, 2017). Successive governments have been unable to regain the trust of the population, who believe that massive corruption has prevented the fair distribution of relief supplies and equal access to essential services such as water and sanitation (Lawless and Girault, 2020).

Mass migration is another challenge in the Caribbean region, especially in Cuba and Haiti. In 2007, the Caribbean emigration rate was four times higher than the rest of Latin America. Migrants were attracted to certain islands by large economic projects or industry booms, for example the construction of the Panama Canal and the growing tourism and oil and gas industries (Thomas-Hope, 2005; IOM, 2017c). This trend has slowed in recent years, but the region remains nevertheless an area of net emigration. Guyana and Saint Vincent and the Grenadines show the strongest emigration movements: 9.65 and 9.6 per 1000 people respectively were emigrating in 2013 (IOM, 2017c). In absolute terms, however, Cuba, the Dominican Republic and Haiti have the largest diaspora communities: over a million emigrants each, most of them living in the United States (World Bank, 2015). According to the International Organization for Migration (IOM), these international migration trends will be intensified by environmental vulnerability, related to the depletion of local natural resources, extreme weather events, and global climate change (IOM, 2017c).





## CLIMATE CONTEXT

### Current climate situation and future projections

Largely situated on the Caribbean Plate, the region has more than 700 islands, islets, reefs and cays; island arcs delineate the eastern and northern edges of the Caribbean Sea. These island arcs are of volcanic origin and are therefore rugged and mountainous; there are also coralline islands, which have very little elevation and are very flat (UNEP, 2005). The climate is tropical maritime, warm and humid with temperatures ranging from 25°C in the winter to 32°C in the summer. The mean monthly temperature varies seasonally by 5°C in the northern regions and 3°C in the southern regions (Owuor, 2019). The annual wet season runs between May/June and November/December, and the dry season occurs during the other half of the year. Due to similar drivers, the wet season coincides with the hurricane season. Furthermore, heat stress is much higher during the wet season, especially during dry spells, as there is no relief from intensely humid heat by rain and cloudiness. Heat stress during the dry season is comparably low (CIMH, n.d.).

The Caribbean region has experienced changes in its climate over the past few decades. Historically, climate change impacts on the region included an increase in average annual temperature by 0.2-0.7°C, varying between the different countries. The minimum increase was recorded in Suriname, while the maximum increase occurred in Saint Vincent and the Grenadines (USAID, 2018). Meanwhile, rainfall patterns are changing, with more intense rainfall events being observed in the northern Caribbean, and drier conditions in the south (McClellan et al., 2015). For example, in Saint Vincent and the Grenadines, precipitation levels have decreased by 8.2 mm (-5.7%) every 10 years since 1960. In Guyana, monthly precipitation has increased by 4.8 mm per month every 10 years since 1960 (USAID, 2018). Moreover, the average rate of sea level rise in the Caribbean was about 1.8 (+/- 0.5) mm per year from 1962 to 2012 (IPCC, 2013).

The Caribbean region has also been dramatically exposed to natural disasters. Since 1950, 324 natural disasters struck the Caribbean, killing around 250,000 people and affecting more than 24 million people (IMF, 2018b). Although Asia has recorded the highest numbers of affected population and total disaster occurrences, the Caribbean has suffered the most in terms of damages as a share of GDP (Moody's Investors Service, 2016). Six Caribbean islands are in the top 10 most disaster-prone countries in the world, while all Caribbean countries are in the top 50 (Moody's Investors Service, 2016). In Dominica, the costs of the 2015 floods were equivalent to 96% of GDP; in Grenada, the 2004 hurricane cost damages corresponded to 200% of GDP; and the 1998 storms cost Saint Kitts and Nevis over 100% of the country's GDP (IMF, 2018b). The average annual damage cost from disasters in the Caribbean is equivalent to 2.4% of regional GDP, which is about 0.6% higher than other small states (IMF, 2018b).

Recent studies project that these changes will continue in the future, and have the potential to exacerbate existing socio-economic conditions (see chapter 2.2 Climate Vulnerability). Mean annual temperatures in the Caribbean are estimated to increase by 0.9-1.5°C by 2050 in most of the region (IPCC, 2018). Warming is projected to be greater over land areas, and in the northwest Caribbean territories (Cuba, the Dominican Republic, Haiti and Jamaica) (IPCC, 2018). An increase in hot days is predicted for Dominica, Saint Vincent and the Grenadines and Saint Kitts and Nevis, leading to 25-65% of annual days being hot by 2060. Cold weather events are anticipated to disappear by 2060 (USAID, 2018). Precipitation is projected to change throughout the region, including a 15-20% decrease in Saint Lucia, and a decrease of up to 29% in Guyana. Overall, the frequency of categories 4 and 5 hurricanes is expected to increase by 25-30% (USAID, 2018). Sea levels are also anticipated to rise due to global warming, although it is difficult to make accurate predictions due to the influence of the El Niño Southern Oscillation and volcanic and tectonic crustal motions (IPCC, 2018).

## Climate vulnerability

Even though the region accounts for only a small fraction of global greenhouse gas emissions, it is disproportionately vulnerable to the consequences of climate change. Recurrent floods, droughts, hurricanes, and rising sea levels endanger coastal areas, agriculture and other livelihoods, increasing the risk of water and food insecurity. Therefore, future climate change impacts have the potential to exacerbate existing socio-economic conditions, including the risk of long-term and permanent loss and damage.

The following sectors are especially vulnerable to the impacts of climate change:

### Water resources

Water resources are already strained in the Caribbean region because of forest and wetland depletion and degradation, with urbanisation and tourist needs leading to increased water consumption. This is especially true for countries such as Antigua and Barbuda, The Bahamas and Barbados, which are already under high levels of water stress due to their dependency on groundwater (CWWA, 2019; Global Water Partnership Caribbean, n.d.). For example, in Barbados, only 306 cubic meters of fresh water resources per capita per year are available, making it the 15<sup>th</sup> most water-scarce nation in the world (Forbes, 2019). Another example is Petite Martinique, which almost entirely depends on rainwater harvesting and imported water from Grenada during the dry season (CCCCC, 2017).

Climate-induced sea level rise, over-exploitation of groundwater and progressing forest and wetland depletion and degradation are expected to exacerbate these trends by leading to the contamination of water resources (UNDP, n.d.; USAID, 2018). Furthermore, changes in the hydrological cycle and saline intrusion of groundwater sources from sea level rise will affect infrastructure for the supply of fresh water. The consequent reduced availability - and increased costs - of potable water could have severe consequences especially for the local population and the tourism sector (CWWA, 2019). In turn, the exacerbation of existing challenges with regard to water governance, water resources management and service delivery could fuel tensions and conflict (CWWA, 2019). As some Caribbean countries depend on hydropower for electricity production, power supply is also under threat, which could lower economic productivity (CWWA, 2019; Global Water Partnership Caribbean, n.d.).

### Agriculture

The agricultural sector represents the second most important source of employment and foreign exchange earnings in the Caribbean, and is critical to meeting subsistence needs and ensuring the food security of island nations. However, it is also highly vulnerable to extreme weather events, as shown in 2015 and 2016 when severe droughts reduced yields across the region (IPCC, 2014). Generally, climate change could lead to a reduction of agricultural productivity - current models project reductions in yields of up to 20% for rice and 15% for beans and maize (FAO, 2013), resulting in a loss of employment and foreign exchange earnings, as well as increased

risk of food insecurity (UNDP, n.d.). Stronger storms and hurricanes will also increase the frequency of crop failure and crop losses beyond current levels, and lead to an increase in soil erosion and landslides. These impacts will increase existing challenges, such as market loss, declining value of traditional exports and increasing reliance on imports due to declining local food production (FAO, 2013).

### Tourism

The World Travel and Tourism Council predicted that the Caribbean region will become the most at-risk tourist destination in the world between 2025 and 2050, due to the projected increase in frequency and intensity of extreme events (UNESCO, 2017). Indeed, what could be considered as the main drivers of tourism in the Caribbean region, such as natural beauty, agreeable climate, touristic infrastructure, beaches and coral reefs, are all threatened by climate change and variability. For example, sea level rise poses a threat to hotels and resorts, which are largely located close to the ocean and in low-lying areas. Food availability, transport and communication infrastructure and potable water and energy supply - all vital components of the tourism industry – are also highly vulnerable to both sudden- and slow-onset climatic changes (USAID, 2018). Coral bleaching due to increasing ocean temperatures could likewise have significant impacts on the sector, as it would reduce the appeal of activities such as scuba diving and snorkelling, and increase exposure to beach erosion, leading to further losses of tourism-based amenities (USAID, 2018). This could represent a huge setback to the economy of the majority of the Caribbean countries, leading to increased unemployment, poverty and crime rates, as well as more exposure to the drug trade and migration by those seeking a better quality of life elsewhere.

### Human health

Decreasing freshwater availability, droughts and more intense hurricanes due to climate change can negatively affect health standards in the region (Cashman et al., 2010). Heatwaves are also resulting in an increase in respiratory, skin and eye diseases and related death (USAID, 2018). Barbados, Jamaica and Trinidad and Tobago, for example, have been identified as the countries with the highest per capita annual incidence rates of leptospirosis in the world, surpassed only by the Seychelles (Pappas et al., 2008). Studies in Guadeloupe and Trinidad and Tobago show that the incidence rates of these diseases rise significantly during the rainy season and during El Niño (wet) years, and vary seasonally, depending on the strength of the El Niño period (Herrman-Storck et al., 2008; Mohan et al., 2009).

Moreover, increased storm intensity and frequency could damage critical infrastructure for health service delivery, such as hospitals, roads, clean water and electricity. Increased temperatures are creating the conditions for new diseases to emerge and become prevalent, as in the case of the dengue fever and the Zika virus (USAID, 2018). The COVID-19 pandemic is exacerbating some of these climate-related risks by putting additional pressure on health systems and infrastructure (World Economic Forum, 2020).

### Fisheries

By destroying fishing gear, vessels and coral reefs, as well as reducing investments, extreme weather events can be very damaging to the fishing industry. Sea level rise and saline intrusion threaten coastal vegetation, which normally acts as a protective barrier for coastlines. They also threaten coral reefs, which serve as suitable habitat for shellfish, spiny lobsters, conchs and other high-value catches (FAO, 2013). Furthermore, as the ocean warms up and becomes less oxygenated and more thermally layered and acidic, changes in the distribution of marine fish and shellfish species may occur. These could lead to lower spawning rates, smaller fish sizes, poorer fish and coral reef health, and different marine community structures, all of which may lead to a reduction in fish resources (Commonwealth Marine Economies Programme, 2017).

In Barbados, Grenada and Saint Kitts and Nevis, these trends could have severe repercussions, as large-scale fishing represents an important part of their economies. In other countries of the region, fishing is small-scale and on a community level, so the climate impacts on fisheries will be especially felt by local communities that still rely on this sector as their main source of livelihood (USAID, 2018).

### Energy

Climate change can negatively affect energy security in the region. Overall, more than 90% of the Caribbean population has access to electricity. The Caribbean's energy supply is heavily dependent on petroleum, but the only countries with significant petroleum resources are Trinidad and Tobago and Guyana (OGEL, 2020; UNEP and ECLAC, 2010). All other countries import their energy from abroad. This means that electricity costs throughout the region fluctuate heavily in line with global oil prices, translating in increased costs of doing business and loss of competitiveness (IMF, 2016). For example, while the average electricity rate for LAC is 18 cents per kWh, it jumps to 34 cents per kWh for Saint Kitts and Nevis and Saint Lucia, and can get as high as 41 cents per kWh in Grenada (IMF, 2016; CARICOM Energy Unit, 2018). Some countries have tried to reduce their dependency on energy imports by developing their domestic renewable energy market. For example, Barbados is a leading producer of solar water heaters and is estimated to save US\$ 283.5 million through a 29% switch to renewables by 2029 (Steiner, 2014).

However, as the region transitions to more renewable energy sources, climate change will have a greater impact on energy systems and infrastructure. Hydropower output will likely decline because of lower rainfall levels and higher evaporation rates (Arent et al., 2014). Moreover, severe weather events such as hurricanes and landslides, resulting from heavy rainfall, can cause major disruptions to energy supply and distribution systems in the Caribbean. With more severe events related to climate change anticipated, these disruptions will increase (CARICOM Energy Unit, 2018). Additional challenges are posed by the islands' scattered and sparse electrical grid infrastructure, as well as the limited availability of land for renewable energy infrastructure, especially on small islands, all of which could further limit power generation (Renewable Energy World, 2019).

### Infrastructure and transport

Due to their small land sizes, the majority of Caribbean countries' infrastructure is situated within 25 km from the coastline; in several countries, over 20% of the population lives in low elevation coastal zones (ECLAC, 2018b). Both factors - coastal exposure and low-lying geography - contribute to the Caribbean countries' vulnerability to sea level rise, erosion, and storm surges. Transportation infrastructure and networks will be severely disrupted: it is estimated that with a one-metre rise in sea levels, 10% of the region's airports will be lost, the land surrounding 14 of the region's 50 ports will be inundated, and 2% of the road network in The Bahamas will need to be rebuilt (Simpson et al., 2009).

These devastating impacts will add to those caused by hurricanes, which hit the island states particularly hard between the months of June and November. In the past few years, hurricanes have severely affected The Bahamas, Barbuda, Dominica, Grenada and Saint Lucia, destroying bridges, roads and energy, telecommunications and water infrastructure. Other extreme weather events also threaten the islands' infrastructure, as tragically demonstrated by the 2013 Christmas Day flooding in Saint Lucia, or perennial flooding in Trinidad and Tobago in recent years (St. Lucia News Online, 2013; TTWC, n.d.). A well-working infrastructure is vital to the economic success of the region, particularly with regards to transporting tourists and importing and exporting goods. Climate-related impacts on infrastructure therefore pose the risk of negatively affecting economic performance, employment, food supply and wealth in the region (Fay and Morrison, 2006).



## Policy and institutional context

Because of their high vulnerability to climate change, the majority of the Caribbean countries consider climate change adaptation a priority. Adaptation planning has been largely concentrated at the national level - although some adaptation investments and actions have also taken place at sub-national scales, with a focus on coastal zones and agricultural and water sectors (Thomas et al., 2019; Robinson and Dornan, 2018). Most Caribbean countries have government agencies responsible for climate change, which are either embedded within environmental agencies, as in the case of Antigua and Barbuda, or solely dedicated to climate change, as in the Dominican Republic (Dominican Republic, 2017). Moreover, some countries such as Grenada, Saint Lucia, St Vincent and the Grenadines and Suriname have developed National Adaptation Plans, while others have sector-specific adaptation plans. For example, Belize and Guyana have adaptation plans for the agricultural sector, Barbados for the tourism sector and Jamaica for the water sector. These documents are the basis for the implementation of projects and programmes to address climate change through both mitigation and adaptation actions (UNFCCC, n.d.). Trinidad and Tobago adopted a pathways approach to address climate variability and climate risks across all sectors in the short to medium-terms, with a view towards long-term adaptation, aiming to reduce greenhouse gas emissions (WHO, 2020).

Despite having some of the lowest carbon footprints in the world, Caribbean countries are committed to contributing to the global effort of reducing greenhouse gases emissions. All CARICOM Member States have signed and ratified the Paris Agreement (UNFCCC, n.d.), and have submitted their Nationally Determined Contributions under the Paris Agreement; many are now in the process of updating them and seeking the financial and technical resources for their implementation. Most countries have also laid out plans to make greater use of renewable energy sources and implementing energy efficiency measures, particularly for the hotel industry (CAIT Climate Data Explorer, 2020).

The Caribbean plays an important role in climate change negotiations at the international level. In 1990, Caribbean countries joined other SIDS to establish the Alliance of Small Island States (AOSIS), which led to the adoption of the UN Framework Convention on Climate Change (UNFCCC) in 1992. Today, AOSIS remains an important forum for SIDS to advocate for

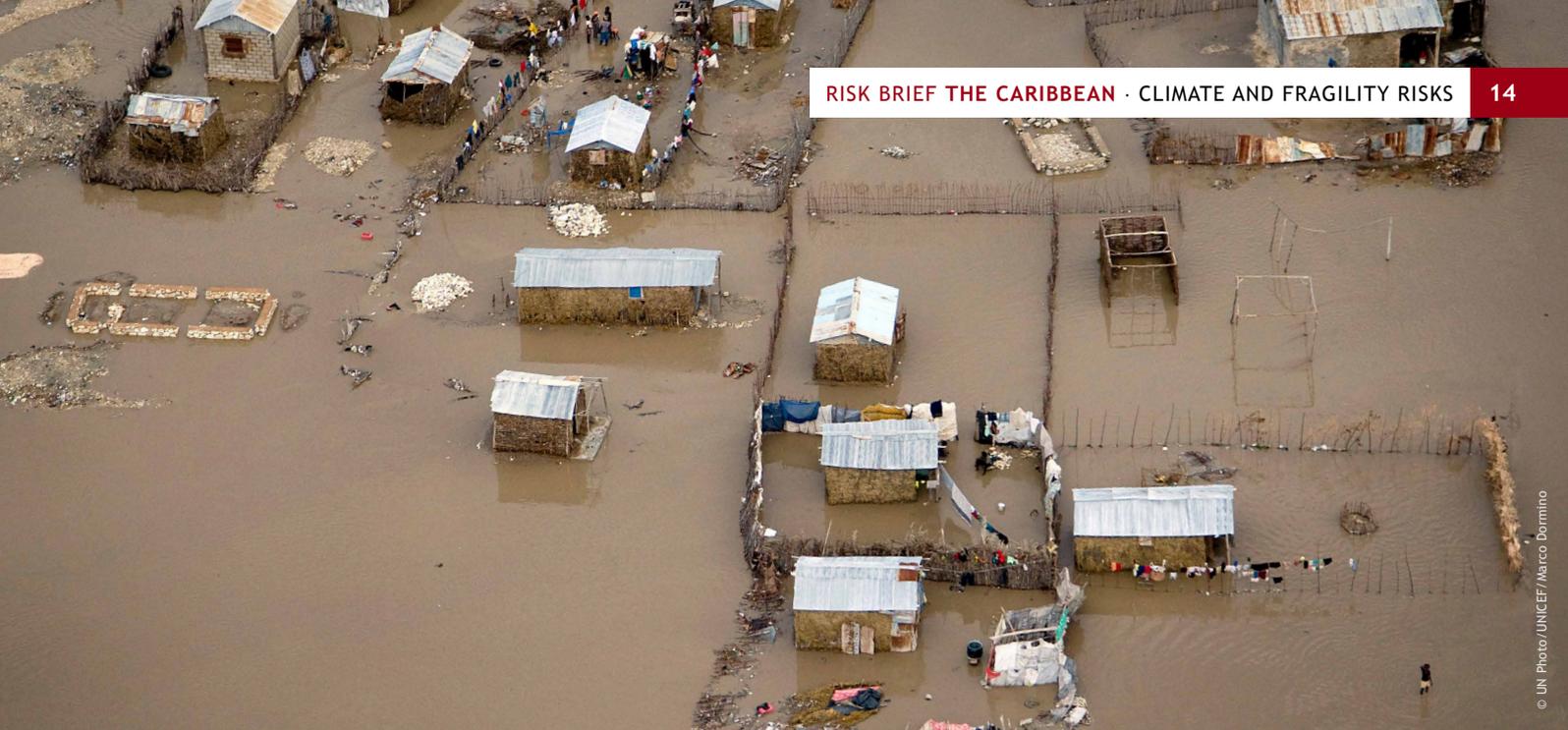
international climate action and to prioritise sustainable development (Bolon, 2018). Over the years, members of the Caribbean delegations have served in various capacities as Chairs of bodies of the UNFCCC and the Kyoto Protocol. In 2019, the Dominican Republic as a Member of the UN Security Council championed the cause of climate change within its chambers and led the debate on the topic (Werrell and Femia, 2019).

In 2002, CARICOM established the Caribbean Community Climate Change Centre (CCCCC) to coordinate the groups' response to climate change. The CCCCC developed a regional strategy and implementation plan, which is now the centrepiece of 11 of the Caribbean countries' response to climate change (Cuba, 2015). CARICOM has other regional specialised institutions that assist its member states in other sectors such as agriculture, defence, disaster preparedness and response, fisheries, meteorology, hydrology and public health. These agencies also collaborate with non-member states such as Cuba and the Dominican Republic. All countries can access support from the European Union (EU) through regional programmes funded through CARIFORUM. Additionally, all Caribbean countries are also members of the Organization of African, Caribbean and Pacific States (ACP), which also has programmes addressing climate change and disaster risk reduction.

Climate change projects in the region are implemented by various national, regional, and international agencies. For example, in 2015, the IDB originated the implementation of a five-year regional US\$ 10.39 million Pilot Programme for Climate Resilience (PPCR) in Dominica, Grenada, Haiti, Jamaica, Saint Lucia and St Vincent and the Grenadines. The programme aims to improve the geospatial data system in the Caribbean, strengthen the regional climate-monitoring network, and improve climate projections to enhance the resilience of the agricultural, health, marine and water sectors (University West Indies, 2017). With funding from the EU, the ACP is also implementing the Global Climate Change Alliance Plus (GCCA+) programme, which consists of 11 projects in 17 Caribbean countries valued at €70 million (ACP, 2018). The German Development Agency (GIZ) also supports a number of climate change programmes in the Caribbean, including the Global Water Partnership - Caribbean (GWP-C) programme in integrated water resource management (IWRM), the Energy Unit of the CARICOM Secretariat, and programmes focusing on integrated climate change adaptation in Grenada (GIZ, 2019).

Regional cooperation is especially strong on disaster risk management. Eighteen Caribbean states and territories are members of the Caribbean Disaster Emergency Management Agency (CDEMA) whose primary responsibility is the coordination of emergency response and relief efforts to participating states (CDEMA, n.d.). The Caribbean also participates in ParlAmericas, the parliament of the Americas that convenes parliamentarians of North, Central and South America as well as the Caribbean, which has developed several policy documents on disaster risk reduction (DRR) over recent years. The World Meteorological Organization (WMO) has a regional hurricane warning system in place; warnings are issued by the National Hurricane Centre in Miami, which functions as the WMO Regional Specialized Centre in coordination with the national Meteorological Services of those countries that are forecasted to be hit by a hurricane. The meteorological services then coordinate preparedness and response measures with their counterpart and national emergency management agencies (CDEMA, n.d.).

Security responses to climate-related risks in the region have, to date, remained limited. The United States (US) Army Southern Command holds an exercise called Fuerzas Aliadas Humanitarias (FA-HUM) each year with their military, emergency management and civil defence counterparts in the Caribbean and Central America, to prepare to respond to emergencies in the region. FA-HUM provides team building among the various countries and agencies, and ensures that their assets, capabilities, and responses are coordinated (US Southern Command, 2019). In 2010, Caribbean countries and the US also established the Caribbean Basin Security Initiative to reduce illicit trafficking, increase citizen security and promote crime prevention. In this framework, the US committed over US\$ 600 million to strengthen the region's law enforcement and interdiction capacities, port security and legislation.



## CLIMATE AND FRAGILITY RISKS

Climate change can threaten long-term peace and stability in the Caribbean through its direct and indirect impacts on the region's environment, economies, societies, and political structures. The following section describes three possible pathways through which climate and security risks can interact in the region.

### Climate-induced disasters can cause political instability through their impacts on key economic sectors

The Caribbean region is already prone to disasters, but climate change is likely to aggravate their impacts over the next years and decades to come, with the frequency of categories 4 and 5 hurricanes anticipated to increase by 25-30% by 2050 (USAID, 2018). Hurricanes Irma and Maria, which hit the Caribbean with unfamiliar intensity and destroyed infrastructure and livelihoods to an unprecedented extent, provide a stark reminder that past experiences in handling extreme weather events do not prepare the Caribbean to withstand future impacts of climate change (Taylor, 2017).

Short-term shocks from natural disasters can increase citizens' frustration if responses are perceived to be delayed or inadequate, and can lead to shakeups in governments in the aftermath of disasters or in subsequent elections. This was the case in Puerto Rico in 2019, when tens of thousands of Puerto Ricans demanded the resignation of Governor Ricardo Rosselló due to discontent over the slow recovery after Hurricane Maria - building on pre-existing racial and class tensions, as well as frustrations over income inequality (Coto, 2019). Dependency on external countries for humanitarian assistance and disaster response can also amplify dissatisfaction when such aid is perceived to be delayed or ineffective. In 2017, for example, response to Hurricane Irma on Saint Martin from the French and Dutch militaries was criticised as being slow, amidst reports of looting, bank robberies and theft at tourist facilities. Following the storm, decisions around reconstruction funding led to the collapse of the government and fresh elections (Dutch News, 2018; Semple, 2019).

Moreover, climate-induced disasters can pose a direct threat to people's livelihoods, contributing to rising food insecurity, poverty and unemployment in the region. Extreme weather events can add to water stress by damaging critical water supply infrastructure (UNDP, n.d). Changing weather circumstances and events have also led to decreasing agricultural productivity in Caribbean countries. For example, after Hurricane Dean hit the southern food-

growing parts of Jamaica in 2007, the country lost a large share of its export crops. Similarly, in the same year, Haiti lost large portions of banana, bean and yam crop production, due to high winds and saltwater intrusion on its southern coast (ECLAC, 2011). Given the importance of the agricultural sector for the region, this can mean a loss of livelihoods, reduced local food production and consequently increased food insecurity.

**Successive extreme events can impair economic recovery and reconstruction efforts, eventually undermining governments' financial resources and ability to provide essential services, including security.** Many Caribbean countries already have high debt-to-GDP ratios, as in the case of Haiti (31.1% of GDP), the Dominican Republic (32.7%), Jamaica (101%) and Barbados (157.3%) (IMF, 2018a). Most of this debt is held by China, which is increasing its political and economic presence in the region by financing large infrastructure projects in the agriculture, tourism, minerals and energy fields. While this may bring financial means, improved infrastructure, economic diversification and employment opportunities in the short term, it also bears the potential to inhibit economic growth for the next decades, as indebted Caribbean economies will have to repay costly loans (Caribbean Journal, n.d.; Planetary Security Initiative, 2019). The impacts of disasters on income from key economic sectors such as tourism and agriculture may make servicing this debt even more difficult. Currently, the COVID-19 pandemic is aggravating this financial dependence and the debt-to-GDP ratio of Caribbean countries for the future (Global Dispatches, 2020). Forecasts already warn that the Caribbean economy is likely to contract by 1.8% in 2020 (and excluding Guyana, by 3.1%) due to the COVID-19 pandemic (World Bank, 2020). A contraction of the state's financial resources may limit its ability to provide effective policing and well-functioning justice systems to counter criminal activities, thereby also having important security implications.

**Women are especially vulnerable to the impacts of climate-induced disasters on key economic sectors.** Occupational sex segregation remains high throughout the region. The Country Gender Assessment Synthesis Report from the Caribbean Development Bank (CDB) in 2016 revealed that women tend to have lower-waged occupations, and fewer women participate in the labour force.<sup>2</sup> For example, the agricultural sector tends to be male-dominated, largely as a consequence of gender-based inequalities in access to land, credit and other means of production. However, official statistics do not take into account women's unpaid work in subsistence agriculture. Also, in the tourism sector, while men outnumber women as business owners, women account for the majority of employees. These hurdles make women and their families more vulnerable to poverty. Indeed, the report showed that a higher proportion of female-headed households live in poverty and struggle with high dependency ratios (CDB, 2016). In times of economic distress and instability (caused by climate change or other factors such as the COVID-19 pandemic), a progressing feminisation of poverty and migration towards urban areas could therefore be expected.

**Recent studies also show that natural disasters in the Caribbean region correlate with increasing levels of sexual and gender-based violence** (Franchini and Viola, 2019). This type of violence is already prevalent in the region. While the worldwide average for rape was 15 per 100,000, The Bahamas had an average of 133, followed by Saint Vincent and the Grenadines (112) and Jamaica (51) (UN, 2007). Caribbean countries represent three of the top 10 recorded rape rates in the world (UN, 2007). Gender-based violence does not only negatively impact women's health, disrupt families and put lives at risk, but it also diminishes women's economic performances and therefore reinforces economic dependencies and the structures of long-term inequality (UNFPA, 2009). It is important to note that, although perpetrators are predominantly men, an increasing share of men and boys are also reporting gender-based violence in the region (CDB, 2016). These dynamics pose significant human rights challenges and threaten the physical and mental well-being of the population, but also ultimately constrain the region's prospects for economic growth (CDB, 2016).

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<sup>2</sup> With reference to the following countries: Anguilla, Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Montserrat, Saint Kitts & Nevis, Saint Lucia, and Saint Vincent and the Grenadines,



## Climate impacts could lead to social unrest by compounding livelihood and food insecurity

Climate change is expected to negatively affect food security in the Caribbean by decreasing both domestic food production and agricultural exports. More frequent and intense droughts associated with climate change can further increase agricultural exposure to water stress, which is already high in countries such as Jamaica, Trinidad and Tobago, and Puerto Rico. This could result in reduced food access as well as increased poverty and unemployment. Food insecurity is already a challenge in some countries such as Haiti, where the undernourishment rate stands at around 53%. Moreover, because of their limited land availability, most Caribbean countries import 60-80% of the food they consume. The most populous ones, including Haiti, Jamaica and Trinidad and Tobago, are the biggest importers (FAO, 2015). This makes Caribbean countries highly vulnerable to food price increases and shocks, which have been a source of grievances and protests in the past, for example in Jamaica (Planetary Security Initiative, 2019).

Climate-induced sea level rise and coastal erosion are also expected to have heavy impacts on food and livelihood security in the coastal areas of the Caribbean, where most of the population and the major share of the region's economic activities are located, including tourism, agriculture and fisheries. Recent models predict that while the total land area permanently inundated by a one-metre sea level rise would be less than 1% for the Caribbean region as a whole, this would correspond to the most valuable land, and therefore have substantive economic implications. For individual nations, land losses can be much more substantial. The Bahamas and Antigua and Barbuda, for example, could lose up to 5% and 2% of land respectively (Simpson et al., 2010). Sea level rise, increasing sea surface temperatures and ocean acidification are expected to result in declining catches for both self-provisioning fishers and commercial exporters, with significant economic implications, including the loss of foreign exchange (Planetary Security Initiative, 2019). Declining catches may also lead to greater illegal, unreported and unregulated fishing and increasing conflicts between users, or between the tourism sector and local consumers (Barange et al., 2018).

Irreversible biodiversity losses, linked to climate-induced coral bleaching, could exacerbate food and livelihood insecurity in the region. In 2005, a marine heatwave led to the bleaching of more than 95% of the reefs around the Caribbean islands, adding to human impacts such as overfishing, sewage discharge, urban runoff, infrastructure construction, marine-based pollution, watershed-based pollution and tourism development (ECLAC, 2011). Mass coral bleaching events, driven by increasing sea surface temperatures, have already been occurring more frequently, and could become annual occurrences by the mid-21<sup>st</sup> century. This has severe economic implications for key economic activities such as fisheries and reef-based tourism (UNDP, n.d.; Van Hooidek et al., 2016). The net economic value accumulating from coral reefs through tourism, fishing and the protection of the shores is estimated to amount from US\$ 350 million to US\$ 870 million per year (World Resources Institute, 2009).



## Climate-induced loss of livelihoods could increase opportunities for criminal activity and increase urbanisation challenges

Evidence from the broader LAC region shows that increasing levels of climate vulnerability could aggravate domestic public security. Recent research on LAC countries most affected by El Niño found that the impacts of the climatic phenomenon on agricultural production and fisheries resulted in a twofold increase in civil conflict risks over the period of 1950-2004 (Franchini and Viola, 2019). Gang activity and organised crime, which are already widespread particularly in the region's urban centres, could also benefit from people turning to illegal livelihood strategies, as legal ones become scarcer due to climate change impacts. These trends have been observed in other regions such as Lake Chad, Afghanistan, Nepal, North Africa, and the Sahel (Brown, 2019; Vivekananda et al., 2019; Pandey et al., 2020; Brown, 2020). Although there is little research and evidence directly linking the increase in drug trading to the impacts of climate change in the Caribbean region, it is clear that these networks have already widely profited from rising economic inequality, poverty and unemployment (PADF, 2016).

This has important economic costs, in addition to social and political ones. Increased crime rates deter investors and cause capital flight as well as a loss of skills and talents as people move to safer environments. They also worsen the perception of the Caribbean investment climate and harm the tourism sector. Moreover, crime negatively affects social development, diverting limited resources from health and education to security, crime control, and the provision of administration of justice facilities, as shown by studies from the IDB and the University of the West Indies (The Caribbean Council, n.d.). A vicious cycle is thus created, in which climate impacts, combined with fewer economic opportunities and a static labour market, result in young people turning to illegal activities and crime, thereby further depressing growth and inhibiting future economic development (IMF, 2018b).

Climate-induced pressures on livelihoods can become a driver of displacement and migration, especially from coastal and rural areas to cities. This can exacerbate existing security challenges linked to rapid urbanisation (IOM, 2017c; Steiner, 2014). Cities in the region are already under stress because of limited job opportunities and scarce service provision and resources. Internal displacement from coastal areas can lead to increasing competition between different groups over resources, jobs and living space (FAO, 2013; Faure, 2018). The resulting erosion of living standards, increasing unemployment and overcrowded spaces without adequate services in many Caribbean cities contribute to rising crime and dissatisfaction - especially among the young (Harriott, 2002). Episodes of violence and crime, including petty theft, robberies, illegal gang activities, kidnapping and homicides, have increased significantly in recent years in every Caribbean country for which data is available (Harriott, 2002; Sutton & Ruprah, 2017). In Jamaica, more than 60 homicides per 100,000 inhabitants were recorded in 2009, and in Trinidad and Tobago the rate rose from 9.5 to 35.6 between 2000 and 2010 (UN, 2017). Besides the direct effects of increased urban crime and violence faced by victims, there are also significant societal costs, including declining tourism, losses for local businesses, and an overburden of the justice system (PADF, 2016).



## ENTRY POINTS FOR ADDRESSING CLIMATE-FRAGILITY RISKS

To date, governments in the region have tended to approach climate change and its impacts more as an ‘environmental issue’, without necessarily considering it in relation to the economic, political, social and security issues it raises. Also, the international community has focused on the immense disaster risks in the Caribbean that climate change is increasing, but largely overlooked many of the slow-onset changes and their consequences on livelihoods, which are just as worrisome. Equally problematic is the perception of climate change as a long-term issue that will have impacts only in the future, leading policy makers to prioritise other more immediate issues such as poverty, high unemployment, and large external debts. This however hides the fact that both rapid and slow-onset climate changes are contributing to making these problems worse.

Caribbean countries should adopt a more integrated approach to addressing climate-security risks. To this end, governments and political decision-makers should:

### ➤ **Understand and address climate risks in a more integrated way**

All the economic sectors that are likely to be impacted by climate change should have the appropriate resources and capacities to take action to address climate change. Businesses should also have greater incentives to take climate action. Moreover, it will be key that these risks are understood in an integrated way - not just in one sector, but across sectors. This requires strengthening the institutional architecture for coordinating responses to these interconnected threats, and promoting cooperation and dialogue between ministries and governmental departments at both national and local levels, and between government and other stakeholders, including the private sector.

### ➤ **Coordinate more systematically with other sectors, and especially with the security and defence ones**

Most countries have climate change committees, but representation there is often delegated to junior officers that do not have the authority to recommend major policy changes or take action. Elevating responsibilities for climate action in these institutions could help ensure a more integrated and cross-sectoral response to address the full breadth of the environmental, economic, social, political, and security challenges linked

to climate change. Given the security implications of climate impacts, coordination with Ministries of national security and other security actors in the region would be especially needed. As an example, this could entail inviting representatives of enforcement agencies to participate as members of national climate change committees, where they should be provided with regular updates on how climate change affects various sectors and the social order.

➔ **Promote bottom-up collaborative approaches to resilience-building**

At the same time, it will be important for governments to look more systematically at and promote community-driven planning for resilience-building. This will institutionalise local knowledge - including indigenous knowledge - and capacity into resilience-building activities and strategies. Simultaneously, it will also provide an opportunity for the equal and meaningful participation of women, youth with diverse backgrounds, and particularly vulnerable groups such as indigenous communities or persons with disabilities. This will require high-level political commitment and championship, as well as thorough coordination and capacity-building systems for gender and youth mainstreaming.

➔ **Leverage regional cooperation to address climate-security challenges**

Cooperation between the Caribbean countries to improve climate adaptation, regional disaster response, resilience and security is already ongoing. For example, regional initiatives such as ParlAmericas could help diffuse national-level political conflicts on climate change. Instead, these initiatives could enable parliaments to debate and adopt long-term climate change policies that transcend short election cycles, thus resulting in long-term national development rather than the typical short-term horizon for political capital. Similarly, regional security responses such as the Caribbean Security Initiative can provide a basis for more integrated and comprehensive risk management, including between different sectors and communities of practice.

➔ **Continue engagement at the international level**

There is growing international attention to climate-related security risks faced by SIDS, including the Caribbean region. For example, many Caribbean states are part of the Group of Friends on Climate and Security, working to advance the climate security agenda in the Security Council and elsewhere in the UN system. This represents an opportunity for Caribbean states to receive support and establish partnerships to address climate and security risks, for example by broadening early warning capabilities and strengthening their response to foreseeable security issues. At the same time, countries in the Caribbean region have considerable climate resilience expertise, which could offer useful lessons for other SIDS to learn from, as well as for regional cooperation.



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