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The Cycle of Risk: Impact of Climate Change on Security Challenges in the Caribbean

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THE CYCLE OF RISK

IMPACT OF CLIMATE CHANGE ON SECURITY
CHALLENGES IN THE CARIBBEAN

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EXECUTIVE SUMMARY

Climate change has a disproportionate effect in the Caribbean due to the region's vulnerabilities as a collection of Small Island Developing States. Caribbean smallness and geographic location mean that the effects of climate change occur in three forms—sudden onset disasters, slow onset events, and the intersection of both. The first form are events, such as hurricanes, earthquakes, flash floods, etc. Slow onset events occur over longer periods and include rising sea levels and temperatures, forest degradation, and ocean acidification. The most destructive form is the third. Slow onset events destroy the natural barriers that protect infrastructure and populations from sudden onset disasters. For instance, rising temperatures and soil erosion limit the natural absorption of rainfall, causing more devastating flooding. In addition, climate change effects an array of areas. It creates water scarcity in the Eastern Caribbean, food insecurity across the region, and presents challenges to energy grids. Also, sudden and slow onset events cause damage to infrastructure and contribute to severe economic contraction.

Along with climate change challenges, there is existing and growing security risks in the Caribbean. The proliferation of organized crime groups, gang violence, narco-trafficking, border controversies, and common crimes are among the region's contemporary challenges. Several Caribbean countries have high homicide rates relative to the rest of the Americas. As a transit hub for transnational criminal groups, illegal arms and drug flows permeate the region.

The impacts of climate change on security challenges in the Caribbean creates cyclical or recurrent risk for the region. The effects of climate change, in its three forms, damages infrastructure, limits access to social services, and disrupts the provision of public, private, and common goods. When this occurs, Caribbean governments need to mobilize resources to provide these goods, services, and rebuild infrastructure. The resources used is taken from investments in other economic sectors or is sourced through development loans and financing from international financial institutions. The challenge is that Caribbean governments are debt-burdened, making them hesitant to incur additional debt, and resources in

other economic and public sectors are often already insufficient. As Caribbean governments build back, extant security challenges continue to grow as funds are deprioritized from security forces, education, health, and others. As goods and services are limited, frustrations among populations grow and existing organized crime groups become replacements for some local and national governments. As employment decreases, memberships of organized crime groups grow as well. The result is that Caribbean governments' ability to combat security challenges dwindles, all while more climate disasters and events occur year-round.

The cyclical risk that the intersection of climate change and security presents for the Caribbean is creating a new, dual role for the region's militaries. Security forces will contend with traditional security challenges and be responsible for providing humanitarian assistance and disaster response in the aftermath of climate events. The dual role puts a strain on already-limited personnel, funds, and expertise. These limitations will grow as the scope and intensity of security and climate challenges increase.

Further, the intersection of climate change and security risks in the Caribbean adds to complex geopolitical dynamics. China has increased its financing for Caribbean renewable energy projects and frequently provides disaster assistance after climate disasters. In addition, some countries benefit from Venezuelan assistance after hurricanes, which affects different relationships with Caribbean states that still recognize Nicolás Maduro.

Resilient recovery, access to low-interest financing, expansion of the regional security system, and enhancing military-to-military coordination between the United States and the Caribbean would help the region address current and forthcoming challenges. Needed climate-resilient infrastructure requires significant financing. But debt-burdened Caribbean economies cannot afford it, which is why access to low-interest financing is key. Also, regional security cooperation helps alleviate pressures from Caribbean countries facing the brunt of climate and security risks. And the knowledge and expertise that aids in disaster preparedness, humanitarian relief, and combatting transnational crime can be learned and shared between US Southern Command and Caribbean security forces.

INTRODUCTION

The Caribbean, particularly the members of the Caribbean Community (CARICOM),¹ are among the most vulnerable to the effects of climate change. The region sits in the Atlantic Ocean, putting it in the path of most hurricanes and tropical storms that develop during the summer months. Moreover, most Caribbean states are low-lying islands, with large segments of the populations located on the coasts, leaving them susceptible to flooding and rising sea levels. In addition, CARICOM members are dependent on tourism or agricultural and natural resource exports, meaning the ebbs and flows of international markets and prices due to climate events have disproportionate effects at home.

Caribbean states, which are globally categorized as Small Island Developing States (SIDS), have similar characteristics and challenges. On average, they have Exclusive Economic Zones (EEZ) that are 28 times larger than their landmass, collectively hold less than 1 percent of the world's population, and depend on the international system for development and sustainability.² Therefore, their challenges are often the same. As natural disasters strike Caribbean countries, unemployment and poverty increase, as does dependence on the international system for recovery and resilience, such as new loans for the already indebted region.

The Caribbean is also home to security challenges. The region is a natural transit hub as it borders the United States and Latin America, and many of the countries have porous borders, allowing for freer movement of illicit goods, people, and arms. Due to stifled development and limited security forces, homicide rates and gang proliferation are on the rise, and the region is frequently used for human and drug trafficking.

At the same time, the region is linguistically, culturally, and geographically diverse, with the latter most important for understanding how climate change impacts the various Caribbean states. CARICOM members range from Antigua and Barbuda in the Eastern Caribbean, Belize in Central America, Guyana situated between Venezuela and Brazil in South America, and The Bahamas to the east of Florida. This means that although Caribbean countries, due to their geographic location and smallness, ex-

perience climate change similarly, the climate events they face are distinct of one another. The diversity is a particular policy challenge at the regional level. Countries in the Southern Caribbean, particularly Guyana and Suriname, do not experience hurricanes and tropical storms, although this differs for The Bahamas and the Eastern Caribbean. Haiti and Jamaica are at risk for major earthquakes, while St. Vincent and the Grenadines experienced a devastating volcanic eruption in 2021.³

The combination of security risk and vulnerability to climate change places the Caribbean—along with the region's security forces—in a precarious position. The effects of climate change limit Caribbean governments' resources to address current security challenges, such as gang proliferation, organized crime, and drug and arms trafficking. It also causes severe economic contraction and increases unemployment, poverty, and inequality, all of which incentivizes more people to turn to illicit activities to secure their livelihoods. In addition, climate change decreases access to public and common goods, creating spaces of competition and potential conflict. Therefore, climate change is frequently regarded as a threat multiplier. However, the intersection of climate change and security challenges should be categorized as a cyclical or recurrent risk to make it more applicable to the Caribbean's current and future circumstances. At the same time, the role of Caribbean security forces will change, placing many of them in new, uncomfortable positions. Caribbean militaries will have to adapt to a new, dual function, balancing disaster resistance and rapid response with rising domestic and external security risks. Consequently, security officials should be involved in government planning regarding climate crisis response, adding a new layer to civil-military relations. But as security conditions worsen due to climate change, Caribbean militaries will become more involved in domestic affairs, as is the case in Jamaica, where there is a strong gang presence. More crossover from national defense to domestic situations could usher in a new age of gang interactions with security forces, putting civilians at risk.

The Caribbean's proximity to the United States means that what affects the former often has implications for the latter. In this case, increased security challenges in the Caribbean

would affect U.S. interests and national security, especially as climate change amplifies and strengthens these challenges. Transnational criminal groups that gain more of a foothold in the Caribbean due to increased poverty and unemployment can counter the ability of the region's security forces to protect the rule of law and citizen livelihoods. As narcotics and arms proliferation continue, more gangs and organized crime would further affect U.S. national security, as would displacement from poverty and natural disasters, meaning increased migration to U.S. shores.

At a broader level, the intersection of climate change and security has geopolitical considerations for Caribbean countries and the United States. Addressing climate change through recovery, resilience, and adaptation requires significant financing. In an indebted region, most governments will look elsewhere before agreeing to accept new loans from international financial institutions. Caribbean decision-makers are pragmatic actors, meaning there are opportunities for U.S. counterparts, such as China and Russia, to strengthen diplomatic ties by offering aid or low-interest loans to governments and others on a smaller scale, such as Venezuela and Cuba.

CLIMATE CHANGE IN THE CARIBBEAN

The effects of climate change in the Caribbean tend to occur in three forms: (1) sudden onset disasters, (2) slow onset, and (3) the intersection between the two. Sudden onset forms are typically the climate events that grip headlines, such as hurricanes, volcanic eruptions, earthquakes, and flooding, while slow onset forms occur over longer periods, including rising sea levels, rising temperatures, forest degradation, and ocean acidification. Each form presents a significant risk to the region, but the combination of sudden and slow onset disasters offers a unique and grim outlook for the Caribbean's future. Slow onset events either turn into sudden onset events or increase the state's vulnerability to the latter. Rising sea levels that contribute to coastal erosion limit natural protection against storm surges, and rising temperatures

and desertification slowly cause soil erosion, which increases the likelihood of flooding after heavy rainfall. In sum, slow onset events reduce the natural environment's ability to organically protect livelihoods against sudden onset disasters.

Water scarcity: Although surrounded by water, many Caribbean states are considered or are on the verge of becoming water-scarce nations.⁴ For example, Antigua and Barbuda, Barbados, St. Kitts and Nevis, and The Bahamas rely on groundwater as sources of freshwater. These resources are typically replenished by rainfall, meaning that droughts and changes in precipitation patterns alter freshwater availability, leaving governments and citizenry with limited access to clean water, depending on the climate. The sixth assessment of the climate change report from the Intergovernmental Panel on Climate Change indicated that small Caribbean islands are likely to see decreased rainfall and increased droughts over the next few decades, putting more states at risk of becoming water-scarce nations.⁵ Freshwater is essential to the societal and economic functioning of Caribbean states; it is integral for consumption and the production of agricultural products. For states with existing reservoirs but low-lying coasts, a rise in sea level increases salination, further compromising water systems. At the same time, water infrastructure in the Caribbean is at risk. Sudden and slow onset climate disasters compromise the integrity of water systems. Strong storms and high winds damage existing water infrastructure, which could cut water access to local populations. After Hurricane Maria, almost half of the small water systems in Puerto Rico suffered significant operational challenges due to damaged water pipes and distribution lines.⁶

Food insecurity: The effects of climate change threaten to exacerbate the challenges for an already food-insecure region. For the broader Caribbean, more than 80 percent of the region's food is imported, demonstrating a heavy dependence on international markets.⁷ Droughts and global agricultural degradation, which stem the flow of food products to the Caribbean, limit the ability of governments to secure food for their populations. At the same time, unemployment and poverty caused by agricultural degradation, hurricanes, and declining fisheries decrease the purchasing power of citizens, forcing them to

cut down on food consumption. Climate change also affects food procurement within the Caribbean due to declining fisheries and damage to fishing equipment. Sudden onset events damage fishing gear and fishing vessels, impairing the ability of local fishers to source food and thus, hinders their employment. And slow onset events, such as ocean acidification and dying coral reefs, are causing substantial declines in fishing populations. According to the Food and Agriculture Organization of the United Nations, annual catch rates have declined in the Caribbean by 25 percent since the 1990s.⁹

Economic decline and unemployment: The economies of Caribbean states are small and open, often dependent on tourism and the agricultural or fishing sector. Sudden and slow onset events affect both sectors, contributing to economic contraction and unemployment across the region. According to the Inter-American Development Bank, 10 of the top 20 tourism-dependent economies globally are CARICOM members.⁹ When natural disasters like hurricanes and tropical storms reach Caribbean shores, tourism, a main source of revenue, is halted. For instance, the World Travel and Tourism Council noted that the 2017 hurricane season generated an estimated loss of US\$741 million due to tourism declines, affecting 11,005 jobs across the region.¹⁰ Furthermore, while a small factor of the Gross Domestic Product (GDP) of Eastern Caribbean countries, the agricultural sector plays a large role in Haiti, Guyana, Suriname, and Dominica, contributing between 12 to 17 percent.¹¹ Beyond its contributions to GDP, for some—especially in the Southern Caribbean—it is linked to almost 25 percent employment. Declining fisheries due to climate change affect employment. As of 2014, at least 64,000 people in CARICOM countries are employed by small-scale fisheries, and 180,000 are involved in fish processing.¹²

Challenges to energy: As the effects of climate change worsen, challenges to the Caribbean's energy security will increase. During intense storms in the hurricane season, energy infrastructure, such as power plants, is routinely damaged, leaving parts of Caribbean countries without power for days or even weeks. These blackouts increase panic among the populace and, depending on response time, can raise questions about the legitimacy of certain leaders. Besides Guyana and Trinidad and Tobago,

the Caribbean is dependent on energy imports from abroad, resulting in a high cost for electricity. This has forced Caribbean governments to look toward renewable energy as a method of lowering energy costs and increasing resilience. But the impact of climate change limits governments' ability to turn to some renewable energies, such as hydropower. Droughts and limited rainfall affect hydropower output, and for countries in the Eastern Caribbean, smaller islands might not have enough available land to generate necessary energy. For instance, during the 2009-2010 drought in the Caribbean, hydropower contribution to electricity production in St. Vincent fell from 28.1 percent in 2008 to 8.2 percent in 2010.¹³ The result is a continued overreliance on other forms of energy, such as oil, of which Eastern Caribbean states are import-dependent.

Infrastructure: Broadly, infrastructure is at risk in the Caribbean due to both sudden and slow onset climate events. Homes and government buildings are destroyed, immediately contributing to displacement, poverty, and longer government response time. For instance, when Hurricane Maria hit Dominica in 2018, it damaged 90 percent of the island's structures and 62 percent of homes, leaving 35 percent of those families displaced.¹⁴ Roads and bridges, essential for delivering public goods and disaster relief after strong storms, are usually compromised. In the aftermath of Hurricane Maria, roads and bridges were flooded, destroyed, or blocked by debris. Beyond hurricanes, slow onset events, such as rising sea levels and coastal erosion, pose risks to the Caribbean, whose country capitals are mostly located on the coasts, which tend to house higher concentrations of the population. According to an Economic Commission for Latin America and the Caribbean study, more than 50 percent of the Caribbean's population live within 1.5 kilometers of the shore.¹⁵ Thus, as the sea level escalates and flooding becomes more likely, large segments of Caribbean people will be affected, lose livelihoods, and migrate.

CURRENT SECURITY CHALLENGES

Although considered a relatively stable region, the security risk in the Caribbean at the domestic and regional levels is increasing. Common crimes, gang violence and kidnappings, narco-trafficking, border disputes, and mass migration are among the region's contemporary security challenges. In addition, many of these challenges do not occur independently of each other but are often compounded or contribute to additional security risks. For example, mass migration across the region, especially after natural disasters, increases the susceptibility that people will fall victim to human trafficking or, if they are without sources of income, will join organized crime groups. In Jamaica, those most at-risk of joining gangs come from socioeconomically challenged communities and those unemployed in the formal sector.¹⁶ In addition, border controversies between Caribbean countries or with Latin American neighbors provoke nationalist sentiment; when this is combined with competition for public goods or natural resources, the probability of conflict increases. For instance, due to Guyana's oil reserves, Venezuela detained and intercepted several Guyanese fishing and naval vessels in 2013, 2018, and 2021.¹⁷

Common crimes and homicides are among the most worrisome security challenges in the Caribbean. According to *InSight Crime*, Jamaica had the highest homicide rate in Latin America and the Caribbean at 46.5 per 100,000 people, with Trinidad and Tobago (28.2) and Belize (24.3) not far behind.¹⁸ And although Barbados is not near the top of the list, its homicide rate has more than doubled since 2012.¹⁹ In the first half of 2021, Haiti has seen a rise in homicides and kidnappings.²⁰ In Jamaica and Haiti, violent crimes are driven by gang proliferation and the availability of guns. From 2008 to 2018, 56 percent of murders in Jamaica resulted from gang-related violence, with this number peaking at 78 percent in 2013.²¹ From 2010 to 2018, the number of gangs in Jamaica increased from 191 to 381,²² and as of 2021, there are more than 90 gangs in Haiti.²³ And these gangs, particularly in Jamaica, are fueled by the flow of illegal guns that enter the country, mainly from the United States. According to *The New York Times*, Ja-

maican authorities commented that, on average, 200 guns a month are illegally smuggled into Jamaica.²⁴

Caribbean countries' porous borders and geographic location have primed the region as a transit hub for drugs, arms, and people. *InSight Crime* has documented the rise in gun and drug smuggling between Caribbean countries, particularly between Jamaica and Haiti.²⁵ The U.S. Drug Enforcement Administration (DEA) highlights that Jamaica is the largest marijuana supplier to its Caribbean neighbors and that Colombian transnational criminal organizations use Caribbean nations to ship heroin and cocaine to the United States.²⁶ In 2020, Guyana was linked to "the largest overseas drug bust ever, worldwide" after 11.5 tons of cocaine were seized in Belgium after it departed Guyana.²⁷ The DEA's 2020 National Drug Threat Assessment underscored that the largest quantity of cocaine seized and reported by the DEA occurred at the U.S. Southwest border and the Caribbean corridor.²⁸

CLIMATE CHANGE AS A THREAT MULTIPLIER IN THE CARIBBEAN

Conditions that are often conducive to security risks are exacerbated by climate change. The U.S. Department of Defense (DOD) defines the effects of climate change as a threat multiplier. In its 2014 Quadrennial Review, DOD asserts that the impact of climate change "aggravates stressors abroad such as poverty, environmental degradation, political instability, and social tensions—conditions that can enable terrorist activity and other forms of violence."²⁹ Contextualized to the Caribbean, the effects of climate change are less about increases in terrorist activity and more about contributing to instability in a relatively stable region, thus placing it into cyclical or recurrent risk.

Although climate change is best described as a threat multiplier in the Caribbean, it is equally important to understand the intersection of climate change and security as a cyclical or recurrent risk. Simply put, climate change contributes to limited access to social services and public, private, and common goods for citizens. Social services include access to education and

healthcare, while public, private, and common goods include clean air, water, food, and national defense. The loss of one or a combination of these can lead to unemployment, poverty, displacement, and frustration. These conditions increase security challenges, particularly in the Caribbean, by incentivizing people to either engage in criminal activity to regain access to goods and services or increase their susceptibility to joining criminal groups and falling victim to their operations. The cyclical nature of the risk occurs because, as the loss of commodities and services increases, so do the effects of climate change. Therefore, governments must contend with addressing dual crises. The impact of climate change exacerbates security risks in the Caribbean, and governments that devote resources to addressing security challenges limit their ability to recover and build resilience against ongoing or future climate change events.

Domestic challenges: At the state level, sudden and slow onset climate events have significant implications for security conditions in the Caribbean, particularly in terms of governance and state capacity. As a region in the Atlantic Ocean, Caribbean states are vulnerable to frequent sudden onset events, such as hurricanes and earthquakes, with one or both occurring within days or weeks of one another. The most recent example was the August 14, 2021, 7.2 earthquake that struck Haiti and Tropical Storm Grace, which hit the country a few days later.³⁰ This scenario is not uncommon, especially in the summer months, when multiple tropical storms or hurricanes can strike Caribbean countries. This was the case in 2017, when the Caribbean suffered damages from Hurricanes Harvey, Irma, and Maria.

The result is that Caribbean governments often do not have the appropriate time or capacity to address the aftermath of one sudden onset event, much less two or three. Given the length of time recovery takes, even back-to-back destructive hurricanes one year apart do not provide a government with sufficient recovery time. In this scenario, at least three circumstances can arise: social unrest, challenges to government legitimacy, and corruption. All three are interconnected and can occur simultaneously. For instance, if government response time slows or is deemed inefficient by the populace, questions about government competency may

arise. After a period or multiple periods of citizen frustration, opposition groups can stage rallies in defiance of an incumbent government, or citizens might simply protest or riot due to increasing resentment. This can result in quick changes of power through either no-confidence votes or leaders forced to step down. In the aftermath of Hurricane Irma, this transpired in Saint Maarten. Prime Minister William Marlin lost two no-confidence votes after members of Parliament argued that he mishandled recovery efforts.³¹ Therefore, through quick successions in leadership, instability is introduced into the governance system.

Due to the two-party nature of Caribbean politics and increased natural disasters, this problem could occur more frequently in the future. Incumbent and opposition parties often operate in zero-sum manners. Therefore, many issues in the Caribbean are polarized, as most recently evidenced by the COVID-19 pandemic. During the pandemic, border closures and vaccine hesitancy across the Caribbean culminated in protests and often contributed to a politically charged atmosphere. For instance, during anti-vaccine mandate demonstrations in St. Vincent and the Grenadines, Prime Minister Ralph Gonsalves was hit with a rock, causing bleeding and a few days in the hospital.³² And as sudden onset events grow in intensity and frequency, limiting access to critical services and goods, the same is likely to occur regarding climate change. In the aftermath of Hurricane Maria in neighboring Puerto Rico, former Governor Ricardo Rosselló resigned from office due to citizen frustration over his mismanagement of recovery efforts.³³ The anger also drew upon discontent about inequality in Puerto Rico, which is consistent with climate change as a threat multiplier. It aggravated an existing stressor, and the combination of Rosselló's mismanagement alongside social cleavages led to a forced resignation. With opposition groups looking for issues to galvanize political mobilization, more protests and riots will likely ensue in CARICOM countries.

The aftermath of climate events also creates new opportunities for corruption. When devastating events like earthquakes and hurricanes strike the Caribbean, disaster aid is usually administered by partner nations and international humanitarian organizations. The influx of cash, particularly to governments with weak institutions, a history of corruption,

high debt, and economic underdevelopment, increases the chances of corruption. In the Caribbean, there is a long history of democratic institutions, but their resilience is likely to dwindle as they are regularly challenged by the effects of climate change. And although there has been measurable improvement regarding anti-corruption legislation in the region, implementation is a challenge.

After the 2010 earthquake, Haiti received more than US\$13 billion in disaster aid, but there was little oversight by international actors and the Haitian government, leading to calls of corruption and severe mismanagement. For CARICOM governments—particularly in Jamaica, Suriname, Guyana, and Trinidad and Tobago—where the perception of corruption is high relative to Caribbean neighbors,³⁴ climate change events will test their ability to resist corrupt practices as more disaster aid is distributed annually. Among CARICOM members, more than half the population of Trinidad and Tobago (85 percent), The Bahamas (80 percent), Jamaica (78 percent), Guyana (59 percent), and Barbados (53 percent) considered corruption a “big problem.”³⁵

As previously noted, the effects of climate change increase the likelihood that ordinary citizens lose access to social services and key goods. Limited goods create competition among the population, which can devolve into low-level conflict. The risk of this occurring today in the Caribbean is small, but social and class cleavages in the region can cause security concerns when there is competition for goods. First, due to the two-party nature of Caribbean politics, incumbents can prioritize their supporters (over those that follow the opposition) to remain in power. In countries where ethnic or racial tensions have existed, such as Guyana, Suriname, Trinidad and Tobago, and Haiti, ethnically motivated political groups can use competition for goods as a political mobilizer. In Guyana, for instance, where agriculture is a primary economic sector, arable land is essential. However, coastal and soil erosion increases the likelihood of flooding and storm surges, effectively wiping out crops and future farming capacities. In a country where ethnic mobilization is prevalent during election cycles, one ethnically oriented party can distribute land grants to one demographic over another to secure votes.

Outside of governance challenges, the effects of climate change in the Caribbean can increase the legitimacy and membership of gangs. Climate change's contribution to poverty and unemployment leaves people without the means to acquire food, access clean water, and purchase clothing. Sudden onset events and degradation of natural beaches harm Jamaica's tourism economy, of which the island is heavily dependent. Therefore, as more people are left jobless and with limited prospects in the formal economy, people are likely to turn to illicit means. For instance, a recent study of Jamaica has linked poverty and unemployment to the involvement and motivation of participation in gangs.³⁶ In countries such as Haiti, where gangs are becoming increasingly political, they can increase their legitimacy among citizens without access to goods, stripping governments of their ability to corral citizens. As a legitimized force or political actor, governments and security forces will thus have more trouble combating gangs or decreasing their membership. This might be the case in Haiti soon; in the aftermath of the 2021 earthquake, gangs seized control of the roads that led to badly hit areas.³⁷ And while the earthquake was not caused by climate change, the tropical storm that followed—which are increasing in frequency due to rising temperatures—was related.

As part of the cyclical risk associated with climate change's effects on security, increases in crime have significant economic costs. The Inter-American Development Bank said that 23 percent of Caribbean businesses reported theft, arson, robbery, or vandalism in 2013-14, higher than the global average of 19 percent.³⁸ In the region, Guyana scored the highest at 33 percent, and the overall Caribbean reporting an average loss of 2.6 percent of annual sales.³⁹ Volatility and instability can deter foreign direct investment to the Caribbean, a leading economic driver for development. At the same time, violence and gang proliferation can increase emigration from Caribbean islands that already have limited populations.⁴⁰ The International Monetary Fund (IMF) noted that victims of crimes are 30 percent more likely to emigrate within three years of victimization. This implies that with deterred foreign direct investment, more people are impoverished, mirroring the same conditions directly and indirectly created by climate change events, which becomes

a motivator for joining gangs and transnational criminal groups. And as more people leave the country, governments lose out on much-needed human capital essential to security forces and government services. The result is a cycle that continues to suppress economic growth, limiting the capability of governments to respond to climate change.

Regional and international challenges: The dependence on fisheries for export and food consumption increases the security risk in the Caribbean due to declining fishing populations. As noted, the competition for goods creates areas of conflict and social unrest. But declining fisheries presents a unique problem for the Caribbean. As fisheries are compromised, more people are likely to venture into other countries' EEZs to find new schools of fish, which could challenge relations between countries, with potential skirmishes arising between locals and commercial fishers. In 2019, Surinamese authorities arrested five Guyanese for fishing in Suriname's EEZ.⁴¹ In 2021, French authorities off the coast of French Guiana stopped a Venezuelan fishing vessel in its territorial waters with illegally caught red snapper.⁴²

Further, as fisheries become more scarce, Caribbean countries will have to contend with a rise in illegal, unreported, and unregulated fishing (IUU). Besides jeopardizing food security and losing revenue, IUU disproportionately affects poorer communities.⁴³ The resulting loss of livelihoods can increase displacement or lead to poverty, making engaging in criminal activity more likely. In addition, IUU as a crime does not occur in a vacuum; it is linked to additional criminality, such as forged fishing licenses and the simultaneous use of the vessels for drug and arms trafficking.⁴⁴

Both sudden and slow onset disasters contribute to displacement. Domestically, the loss of agricultural jobs from environmental degradation and flooding in coastal towns forces citizens to migrate to urban centers. As rapid urbanization occurs, competition over goods and living space can create small pockets of conflict and increase common crime and violence. In Haiti, where more than half the population lives in cities, urbanization has coincided with high crime and violence. And this is exacerbated after natural disasters. After the 2010 earthquake in Haiti, crime rates increased 10 percent,⁴⁵

and after the 2021 earthquake, media outlets reported increases in gang activity in rural and urban areas.

At the same time, displacement drives people to migrate across borders. As noted, Caribbean borders are not well guarded, making it easier for people to jump from country to country, particularly for citizens in countries bordering Latin American neighbors (e.g., Guyana, Suriname, and Belize). And on islands such as Haiti and The Bahamas, which are close to U.S. shores, citizens displaced after a hurricane or fatigued over impoverished conditions could attempt to migrate to the United States. The latest example is the massive outflow of migrants from Haiti into the Western Hemisphere, including to US borders.⁴⁶ The outflow resulted, in part, due to the combination of economic contraction, increased gang presence and violence, and a devastating earthquake. The combination of all three, among additional internal and external factors, has placed Haiti into its current pattern of cyclical risk. Haiti's troubles provide an insight for Caribbean countries in the medium term. The indirect implication is forced migration. Vulnerable groups like women and children will be most affected, as they are likely to fall victim to organized crime activities, such as human trafficking.

A DUAL ROLE FOR CARIBBEAN MILITARIES

As climate change increases security risks in the Caribbean, its militaries will need to adapt to a new, dual role. On the one hand, as security risks are amplified, they will have to contend with traditional challenges, such as combating gang proliferation, social unrest, and other low-level forms of conflict. On the other hand, Caribbean security forces will need to continue to develop their Humanitarian Assistance and Disaster Response (HADR) efforts. The need to expand both is costly, as they require more personnel, trainings, equipment, and monetary resources.

Caribbean security forces will need to become more involved in domestic affairs as security conditions worsen due to climate change. Increased gang membership and the availability

of guns, which rise due to the poverty caused by climate change, will draw defense forces into confrontation. In 2017, the Jamaican government deployed the Jamaican Defence Force (JDF) into communities with high murder rates due to gang presence.⁴⁷ While homicide rates dropped in the following years, they remained high, setting a new tone for local gangs. The JDF officers carry alternative weapons and are trained differently than police forces, introducing a new level of combat to the community, which, in turn, could spark more violent confrontations. The immediate risk is that civilians are placed in harm's way.

As sudden onset events become more frequent and intense, Caribbean security forces will have to adapt. Rather than only focus on addressing traditional security conflicts, disaster response and additional military-led humanitarian support will require increased attention. U.S. Southern Command (SOUTHCOM) leads HADR efforts in the aftermath of natural disasters, but Caribbean security forces will need to take on more responsibility to increase response times. Caribbean militaries will require a new identity, relinquishing the traditional learned roles instituted during the colonial era. This new identity should be one equipped to deploy to disaster zones and aid in evacuations. However, as noted, traditional security challenges will remain or even increase, meaning that training to combat gangs and transnational crime groups remains necessary.

THE GEOPOLITICS OF CLIMATE CHANGE AND SECURITY IN THE CARIBBEAN

Caribbean countries depend on the international system and structure for their development and remain small states engaged in asymmetrical relationships with wealthier, more powerful states, such as the United States and China. Foreign policy decisions and loan agreements are decided by considering how populations' livelihoods are impacted; therefore, Caribbean leaders take the best offer available. As Antigua and Barbuda's Prime Minister Gaston Browne noted, the Caribbean is about "pragmatism, about providing for our [Caribbean] people, and

we [the Caribbean] are too small to have enemies."⁴⁸ This framing is essential to understand how Caribbean governments have and will continue to make decisions regarding recovery after sudden onset events and building future climate resilience.

Alongside growing security challenges, significant financing is needed to build resilience and recover after natural disasters. Since many Caribbean governments are cash-strapped and already debt-burdened, they are hesitant to incur additional debt by accepting more loans from international financial institutions. The COVID-19 pandemic only worsened this predicament, wiping out years of economic growth. The result is that Caribbean leaders will look to bilateral relationships for economic support.

Within this context, the effects of climate change in the Caribbean will increase geopolitical complexities, including for the United States. While Caribbean governments will turn to the United States for support, China is an additional option that frequently provides economic support to its diplomatic partners in the region.⁴⁹ Caribbean countries, specifically those that will turn to alternative methods to address energy interruptions that occur due to climate change—such as solar, wind, and hydropower—might look to China for financing. Mechanisms at the World Bank and the IMF exist, but the issue of debt remains a concern. Further, China is committed to investing in renewable energy in Latin America, which is extending to the Caribbean. Several agreements have already been signed, specifically between China and Barbados. In 2015, China began donating solar units to Barbados,⁵⁰ and in 2019, Prime Minister Mia Mottley announced she signed an agreement with China to purchase electric vehicle buses.⁵¹ And as the pandemic subsides and Caribbean economies recover, many will turn their attention to renewables as a method of lowering the cost of electricity and lessening dependence on the global system. Only 10 percent of energy production presently comes from renewable sources for subregions such as the Eastern Caribbean.

Outside of renewable energy, China is a global leader in providing assistance in the aftermath of sudden onset events, and the Caribbean is not excluded. After Hurricane Maria, China allocated almost US\$18 million to Dominica.⁵² After

Hurricane Irma, China launched the Post-Disaster Roof Restoration project that repaired 250 roofs in Barbuda, using new national building code standards.⁵³ Both efforts went a long way toward each island's recovery and, in Barbuda's case, building resilience. In the aftermath of Hurricane Elsa in 2021, China announced it would donate 150 prefabricated homes to Barbados to help house displaced persons.⁵⁴ Importantly, these efforts are framed as "South-South" cooperation, a theme that resonates deeply with the post-colonial Caribbean states.

Beyond China, other actors are likely to see climate resilience and security conditions as an opportunity to further their geopolitical interests in the Caribbean. On a smaller scale, the Cuban and Venezuelan governments tend to use disasters as an opportunity to build or strengthen goodwill in the region. As a longtime medical partner in the Caribbean, the Cuban government routinely sends doctors when disaster strikes. The most recent example was in the aftermath of the 2021 earthquake in Haiti. After Hurricane Irma in 2017, Cuba sent more than 750 medical professionals to six CARICOM countries.⁵⁵ The medical support is often reciprocated with diplomatic support, as CARICOM members issue annual declarations condemning the U.S. embargo on Cuba and in defense of the island.

Venezuelan aid in the aftermath of disasters is substantially less than what is distributed by the Caribbean's other partners in the hemisphere, but it achieves a similar effect in building goodwill and strengthening diplomatic relations. Venezuela's relations with CARICOM members are diverse. Larger Caribbean economies, such as Trinidad and Tobago, and smaller ones in the Eastern Caribbean, have supported Maduro due to the benefits each gain from the relationship. Natural resources for Trinidad and Tobago border Venezuela's maritime border, making the latter a strategic partner. For Eastern Caribbean states with small populations, limited aid from Venezuela still has a significant impact on the livelihoods of Caribbean citizens. After Irma, Venezuelan military planes flew water, food, and mattresses to affected Eastern Caribbean islands,⁵⁶ resulting in strengthened goodwill between Caribbean islands and Venezuela, which is useful in multilateral forums. In the Organization of American States, most CARICOM members have yet to recognize Juan

Guidó's appointed representative to the institution and instead recognize that Maduro withdrew from the regional body in 2017.

POLICY RECOMMENDATIONS

There is a need for both short-term and long-term solutions to prevent or mitigate the cyclical or recurrent risk of the impact of climate change on security challenges.

- **Resilient recovery:** How structures are rebuilt and reinforced in the aftermath of sudden onset events or during slow onset ones is critical to their resilience for the next disaster. For instance, homes and government offices that are destroyed must be rebuilt with climate resilience in mind, using up-to-date building codes and quality materials. U.S. private sector investment is needed. As the United States focuses on building climate-resilient structures at home, private sector companies should look to the Caribbean for similar projects. Facilitating investment to the region has the benefit of enhancing U.S.-Caribbean partnership in climate change and deters the conditions that feed security challenges that ultimately affect U.S. national security.
- **Access to low-interest financing:** U.S. private sector investment is not the only channel to provide the financing Caribbean countries require. International financial institutions such as the World Bank and IMF can assist. However, the challenge of incurring more debt deters Caribbean governments. Therefore, along with the U.S. government and Caribbean leaders, these financial institutions should expand low-interest assistance to the region, particularly members that often do not qualify for these loans due to their high to middle-income status. This would allow powerful financial institutions to acknowledge that Caribbean countries are disproportionately vulnerable and more at risk for underdevelopment due to the changing climate. And an additional benefit for U.S. and Caribbean interests is that by working within the multilateral system, the region's governments can become less dependent on bilateral relationships. They can use their collective clout to influence loan agreements with these institutions, whether through high-level meetings or the Caribbean Development Bank.

- **Expand the regional security system:**

While access to financing and investment can help mitigate the effects of climate change that amplify security risks, Caribbean governments still need to address current and future challenges. First, this means expanding the scope of CARICOM's Regional Security System, which is often a key component of HADR during the aftermath of a natural disaster. Currently, its membership extends to countries in the Eastern Caribbean, but the rest of CARICOM is not part of the group. Membership should be expanded to include these countries, particularly because the geographical diversity of the entire region can aid in storing vessels, equipment, and personnel, all of which can increase response. For instance, naval vessels housed in Guyana and Suriname can assist in disaster response after hurricanes or help with evacuations alongside SOUTHCOM. Further, other countries could more quickly deploy troops to disaster zones.

- **Enhanced military to military coordination:** Enhanced U.S. and Caribbean military coordination and cooperation are essential for addressing current and forthcoming climate security risks. SOUTHCOM houses humanitarian assistance and disaster response technical expertise and personnel capacity, and Caribbean security forces have the indigenous understanding of their respective countries. The latter is vital, specifically in terms of deploying disaster assistance in remote or rough-terrain areas. Indigenous information from Caribbean security forces can help SOUTHCOM tailor training exercises to administer in the region. In addition, due to the porous nature of Caribbean borders, U.S. military support is needed to help curb human, arms, and drug trafficking and the eventual skirmishes that might arise along maritime borders once fisheries decline. As noted, Caribbean militaries are facing a new, dual role. SOUTHCOM can lend resources and expertise to help Caribbean security personnel contend with new challenges.

END NOTES

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