

CLIMATE CHANGE LATIN AMERICA

IMPACTS ON VIOLENCE AFFECTED COMMUNITIES AND ACCESS TO HEALTH CARE, FEBRUARY 2022

Introduction

The Norcross Americas team produced in 2021 a thematic paper that provided a general overview of climate change trends and prognoses, and its impact on health in selected Latin American countries¹.

This briefing note provides some key aspects to consider when we try to understand how climate change may worsen access to health care for people living in communities affected by organized armed violence in El Salvador, Guatemala, and Honduras²³.

Climate change alters weather patterns, disaster frequency, and water and food provision, and impacts on humanitarian needs in relation to health, migration, political (in)stability and livelihoods. The degree and extent of climate-related humanitarian needs depend on existing vulnerabilities of affected populations. Needs and vulnerabilities are interrelated – making particular groups and regions more vulnerable to the aggravating stressors of climate change⁴. It is well documented how climate change increases vulnerabilities in humanitarian crises settings⁵.

The underlying question in this briefing note is:

How does climate change translate to communities heavily affected by organized armed violence? Is it possible to find correlations between climate change and organized criminal gangs' ability to exert control? And if so, does this have implications on access to health care services?

The aim of this briefing note is not to conclude on these questions, but rather to inform Norcross internal discussion on climate change in humanitarian crises settings. The aim is to point to existing research, propose research questions and give guidance on what to focus on and not⁶.

¹ Tønnessen-Krokan M. (September 2021), *Climate change Latin-America: Humanitarian consequences of climate change*, retrieved from: [Microsoft Word - Humanitarian consequences of climate change Central America September 2021 \(sharepoint.com\)](#), accessed February 22, 2022.

² According to the ICRC, there are about 600 non-state armed groups globally and 100 million people live in areas controlled by NSAGs.

³ International review of the Red Cross (January, 2022), *Non-state armed groups*, retrieved from: [Non-State armed groups | International Review of the Red Cross \(icrc.org\)](#), accessed February 21, 2022.

⁴ Norwegian Red Cross (June, 2019), *Overlapping vulnerabilities. The impacts of climate change on humanitarian needs*, retrieved from: [rk_overlapping-vulnerabilities_digital_singles.pdf \(reliefweb.int\)](#), accessed February 21, 2022.

⁵ IFRC (2019), *The cost of doing nothing. The humanitarian price of climate change and how it can be avoided*, retrieved from: [2019-IFRC-CODN-EN.pdf](#), accessed February 21, 2022.

⁶ I.e.: Ambient temperatures that can influence mental stress disorders, aggressive behavior and the disposition to commit crime may be beyond the scope for Norcross' focus. Reference: Igarape institute (August, 2021), *Climate change and crime in cities*, retrieved from: [Climate-change-and-crime-in-cities.pdf \(igarape.org.br\)](#), accessed February 22, 2022.

Why is this relevant?

Latin America and the Caribbean is among the regions most challenged by extreme hydro- meteorological events. This was clearly demonstrated in 2020 by the death and devastation from Hurricane Eta and Iota in Guatemala, Honduras, Nicaragua and Costa Rica, and the intense drought and unusual fire season in the Pantanal region of Brazil, Bolivia, Paraguay, and Argentina. Notable impacts included water and energy-related shortages, agricultural losses, displacement and compromised health and safety⁷.

Between 1998 and 2020, climate-related and geophysical events resulted in the loss of 312,000 lives and directly affected more than 277 million people in Central America⁸.

Organized armed violence is causing severe direct and indirect health consequences in El Salvador, Guatemala, and Honduras⁹. It is one of the main reasons why people don't have access to health care services. If climate change impacts on the drivers of the endemic violence it is a humanitarian concern to know more about it.

Structure of the briefing note

The first part briefly presents the findings on climate change and its impacts on health in Central America based on the IPCCs sixth assessment report¹⁰. Anecdotal information on climate related events worsening access to health care is included in this section.

The second part looks at the status of organized armed violence in El Salvador, Guatemala, and Honduras. It further describes how organized criminal groups negatively impact access to health care services. Anecdotal information on security incidents impacting health care services is included in this section.

The third part introduces research on organized crime and climate change.

The last part proposes a list of research questions and mapping to advance the understanding of the relationship between climate change and access to health care services in violence affected communities.

⁷ World Meteorological Organization (August 17. 2021), *New report shows impacts of climate change and extreme weather in Latin America and Caribbean*, retrieved from: [New report shows impacts of climate change and extreme weather in Latin America and Caribbean | World Meteorological Organization \(wmo.int\)](#), accessed February 4. 2022.

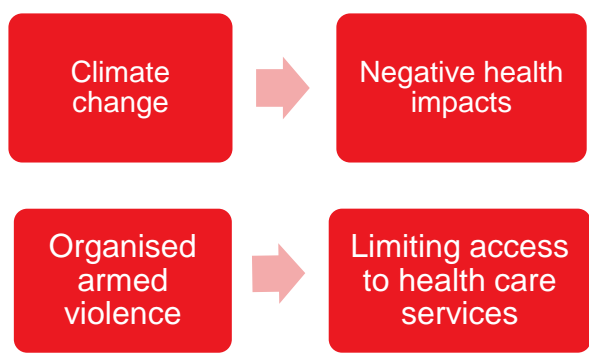
⁸ World Meteorological Organization (August 17. 2021), *New report shows impacts of climate change and extreme weather in Latin America and Caribbean*, retrieved from: [New report shows impacts of climate change and extreme weather in Latin America and Caribbean | World Meteorological Organization \(wmo.int\)](#), accessed February 4. 2022.

⁹ REDLAC (June 2020), *Violence and Protection in the North of Central America, REDLAC Protection Snapshot #9: The Impact of Violence on the Right to Health for Displaced Persons in the North of Central America and Mexico (June 2020)*, retrieved from: [protection-snapshot-9---july-2020---english.pdf \(reliefweb.int\)](#), accessed February 16. 2022.

¹⁰ IPCC (February 24. 2022),

To illustrate the aspects and presumptions covered in this briefing note:

Well documented correlations



Spurious or possible correlations?



1. Climate change and health in Latin America

Across Latin America, vulnerable communities are facing unprecedented challenges to recover from the compounded effects of hydrometeorological hazards worsened by climate change and environmental degradation. Between 1960 and 2020, the average annual temperature in the subregion increased from 0.5 to 2 degrees¹¹.

- Hurricanes across Central America
- Extreme droughts and food insecurity in the Dry Corridor
- Extreme weather events that spread between intense droughts and wildfires and floods in South America
- Loss of natural resources and ecosystems that communities depend on, due to the environmental and pollution crises.

¹¹ CEPAL (February 2022), *Panorama de las actualizaciones de las contribuciones determinadas a nivel nacional de cara a la COP 26*, retrieved from: [Panorama de las actualizaciones de las contribuciones determinadas a nivel nacional de cara a la COP 26 \(cepal.org\)](https://cepal.org), accessed February 9, 2022.

The sixth IPCC Assessment Report states that:

Central and South America are highly exposed, vulnerable, and strongly impacted by climate change, a situation amplified by inequality, poverty, population growth and high population density, land use change particularly deforestation with the consequent biodiversity loss, soil degradation, and high dependence of national and local economies on natural resources for production of commodities (high confidence). Many extreme events are already impacting the region and projected to intensify including warming temperatures and dryness, sea level rise, coastal erosion, ocean, and lake acidification resulting in coral bleaching, and increasing frequency and severity of droughts in some regions, with associated decrease in water supply, that impact agricultural production, traditional fishing, food security and human health (high confidence)¹².

The effects of poverty and the pandemic have also magnified levels of food insecurity in the region. According to the UN World Food Program, the number of Guatemalans, Hondurans, and Salvadorans affected by moderate or severe food insecurity nearly quadrupled from 4.8 million in 2019 to 17.3 million by Fall 2020. Over the same period, the share of households in the three countries who reported an intention to migrate increased from 8 percent to 15 percent¹³.

Health

The World Health Organization has warned that climate change threatens to undermine the last fifty years of progress in public health. Through direct and indirect consequences of changing temperatures, water availability, and extreme weather events, climate change poses a health burden by impacting food security, disease outbreaks, and risks of mortality¹⁴.

The observed impacts of climate change include a wide spectrum of conditions especially affecting the epidemiology of infectious diseases (high confidence). Examples are the growing extent of vector-borne diseases that are especially epidemic such as Malaria, Leishmaniasis, Dengue, Chikungunya, Zika and Chagas disease (medium confidence). The impacts of climate change are more severe for women because of socially constructed gender norms and associated structural gaps more severely affecting women (high confidence)¹⁵.

Climate change related extreme weather and rising temperatures have increased the frequency of droughts and floods leading to knock-on effects such as economic hardship, child labor, severe malnutrition, lack of access to clean water and WASH facilities, child marriage and lower school attendance¹⁶.

¹² IPCC (February 28, 2022), *IPCC sixth Assessment Report*, retrieved from: [PowerPoint Presentation \(ipcc.ch\)](#), accessed March 1, 2022.

¹³ UN World Food Programme (WFP, September 2020), *Evaluación Remota de la Seguridad Alimentaria – Antes y Durante COVID 19: América Central*, retrieved from: [Panorama Social de América Latina \(cepal.org\)](#), accessed February 22, 2022.

¹⁴ Watts, N, M. Amann, S. Ayeb-Karlsson, et al. (WHO (2018), *COP24 Special Report: Health and Climate Change*, available from: [9789241514972-eng.pdf \(who.int\)](#), accessed 22.January, 2022.

¹⁵ Watts, N, M. Amann, S. Ayeb-Karlsson, et al. (WHO (2018), *COP24 Special Report: Health and Climate Change*, available from: [9789241514972-eng.pdf \(who.int\)](#), accessed 22.January, 2022.

¹⁶ IFRC (July 5, 2021), *Urgent action needed to protect children against climate related disasters in Africa*, retrieved from: [Urgent action needed to protect children against climate related disasters in Africa | IFRC](#), accessed February 10, 2022.

Extreme weather events also directly impact on health care services, like in 2020: According to PAHO/WHO, more than 400 health facilities across Honduras reported damage after Eta and Iota, with at least 120 health facilities rendered inoperative¹⁷.

2. Organized armed violence and access to health care services

Though homicide rates appear to be falling, those in El Salvador and Honduras remain among the highest in the world, and parts of Guatemala are equally violent^{18,19}.

Territorial control and the imposition of invisible borders between communities, and a lack of trust in authorities, are among the main reasons preventing people from accessing basic health services, and also affect the work of healthcare providers²⁰.

According to a 2021 study, about one in five residents across Honduras and El Salvador reports being the victim of a crime every year. And nearly one in ten Hondurans and Salvadorans report experiencing extortion annually, paying gangs and local criminal groups just so they can live in their homes or run small businesses²¹. There is a mounting body of evidence specifically in the global public health literature linking war and other traumatic events to negative psychological and physical population health outcomes²².

In communities controlled by criminal groups in Honduras, El Salvador and Guatemala, there are significant barriers to accessing the right to health. Ongoing generalized violence, with invisible barriers in communities, healthcare workers who can no longer access neighborhoods, and a lack of trust in authorities, mean that people are often unable to access basic services²³.

¹⁷ UN OCHA (2. December, 2021), *Global humanitarian overview*, retrieved from: [Global Humanitarian Overview 2022.pdf \(reliefweb.int\)](#), accessed Februar 3. 2022.

¹⁸ Selee A. et. al. (Washington, DC: Migration Policy Institute, 2020), *Building a New Regional Migration System: Redefining U.S. Cooperation with Mexico and Central America*, retrieved from: [Research: Building a New Regional Migration System.. | migrationpolicy.org](#), accessed February 22, 2022.

¹⁹ Insight Crime (February 1. 2022), *InSight Crime's 2021 Homicide Round-Up*, retrieved from: [InSight Crime's 2021 Homicide Round-Up](#), accessed February 22, 2022.

²⁰ REDLAC (June 2020), *Violence and Protection in the North of Central America, REDLAC Protection Snapshot #9: The Impact of Violence on the Right to Health for Displaced Persons in the North of Central America and Mexico (June 2020)*, retrieved from: [protection-snapshot-9---july-2020---english.pdf \(reliefweb.int\)](#), accessed February 16. 2022.

²¹ Selee A. et. al. (Foreign Affairs, April 13, 2021), *The Real Migration Crisis is in Central America*, retrieved from: [The Real Migration Crisis Is in Central America | Foreign Affairs](#), accessed February 22, 2022.

²² Jesus M. et. al. (September 2019), *Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America's "Northern Triangle"*, retrieved from: [\(PDF\) Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America's "Northern Triangle" \(researchgate.net\)](#), accessed February 16. 2022.

²³ REDLAC (June 2020), *Violence and Protection in the North of Central America, REDLAC Protection Snapshot #9: The Impact of Violence on the Right to Health for Displaced Persons in the North of Central America and Mexico (June 2020)*, retrieved from: [protection-snapshot-9---july-2020---english.pdf \(reliefweb.int\)](#), accessed February 16. 2022.

High-level governmental corruption as well as lower-level corruption amongst security actors and public officials can undermine people's faith in institutions and drive them to consider emigration²⁴. Emigrants and refugees, face similar barriers after displacement, either due to their nationality, lack of residency or migration papers, or due to the historical structural deficiencies in healthcare systems across the region²⁵. Increased population displacement could generate negative feedback loops while armed groups across the region are profiting from instability to expand their influence²⁶.

Violence, crime, and corruption are also key drivers of migration. In two years, the percentage of people who consider migrating internationally increased more than five-fold, from eight per cent in 2019 to 43 per cent in 2021²⁷.

Generalized violence in Central America does not function solely as a driver of out-migration. For a portion of youth who do not migrate, one study highlights how the day-to-day generalized violence produces a pervasive threat to the overall health and human security of youth as well as the key protective factors and resiliencies that have mitigated some of this threat²⁸. The study looked at generalized violence as a threat to health and well-being and included 60 in-depth interviews and six focus groups among Salvadoran, Guatemalan, and Honduran youth living in urban areas²⁹.

²⁴ WFP (November, 2021), *Charting a New Regional Course of Action. The Complex Motivations and Costs of Central American Migration*, retrieved from: [Charting a New Regional Course of Action: The Complex Motivations and Costs of Central American Migration \(wfp.org\)](#), accessed February 22, 2022.

²⁵ REDLAC (June 2020), *Violence and Protection in the North of Central America, REDLAC Protection Snapshot #9: The Impact of Violence on the Right to Health for Displaced Persons in the North of Central America and Mexico (June 2020)*, retrieved from: [protection-snapshot-9---july-2020---english.pdf \(reliefweb.int\)](#), accessed February 16, 2022.

²⁶ Schmidt P, Muggah R. (Igarape institute, February 2021), *Climate change and security in Africa*, retrieved from: [Climate Security in Africa - Igarapé Institute \(igarape.org.br\)](#), accessed February 10, 2022.

²⁷ WFP (November, 2021), *Charting a New Regional Course of Action. The Complex Motivations and Costs of Central American Migration*, retrieved from: [Charting a New Regional Course of Action: The Complex Motivations and Costs of Central American Migration \(wfp.org\)](#), accessed February 22, 2022.

²⁸ Jesus M. et. al. (September 2019), *Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America's "Northern Triangle"*, retrieved from: [\(PDF\) Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America's "Northern Triangle" \(researchgate.net\)](#), accessed February 16, 2022.

²⁹ Jesus M. et. al. (September 2019), *Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America's "Northern Triangle"*, retrieved from: [\(PDF\) Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America's "Northern Triangle" \(researchgate.net\)](#), accessed February 16, 2022. The study was carried out qualitative research in 2015 and 2018 over a 6-month period.

Table 1 reflects the experiences of the majority of the youth focus group participants and the interviewees in the study:

Meta-Theme 1: Lack of Health, Defined as not Experiencing Peace within the Family, the Community, and the Country			
Thematic Clusters: Violence as a Common Occurrence	Living in Fear and Insecurity	Victimization	Lack of State Protection and Services
-Massacred bodies on the streets	-Something bad will happen at any time		-No security from the state and the police
-Rival gangs kill each other and other victims	- Scared to go anywhere especially outside my neighborhood	-Getting extorted and threatened by gang members	-No health and social services
-Police-gang killings		-Getting robbed is the norm	-Fragmented families and children are on their own
-Girls and women disappeared or are recruited by gang members	-Culture of silence, mistrust, and fear		-Children ripe for recruitment

All of the focus group participants and interviewees spoke about the lack of health and social services in their countries. They also emphasized that the scarce resources (e.g., state-funded hospitals) that did exist were of poor quality, including not being staffed by well-trained personnel. Carlos, an interviewee from San Salvador, stated: “No one here goes to the hospital unless they are in extremely dire need of health care³⁰.”

Access to basic healthcare in Central America largely depends on socioeconomic status and environment (urban or rural). El Salvador, Guatemala, and Honduras have worked to improve access and quality of care, particularly in rural settings. Despite improvements to health services and systems, rural populations still have difficulty accessing basic health services. In Guatemala, it is estimated that basic health and nutrition services meet only 54% of the needs of the rural population. Similarly, in Honduras, 88.3% of the total population receives care from the Ministry of Health. However, the majority of health services are located in the most developed cities, not easily accessible for rural and indigenous populations³¹.

The social violence afflicting these countries jeopardizes the safety of health workers and their institutions. However, workers tend to perceive the threats as normal and become accustomed to them, underestimating their risks³².

Attacks on health care workers, incidents reported are typically:

³⁰ Jesus M. et. al. (September 2019), *Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America’s “Northern Triangle”*, retrieved from: [\(PDF\) Generalized Violence as a Threat to Health and Well-Being: A Qualitative Study of Youth Living in Urban Settings in Central America’s “Northern Triangle” \(researchgate.net\)](#), accessed February 16, 2022.
³¹ CDC (2015). *Central American (Guatemalan, Honduran, Salvadoran) Minor Refugees*, retrieved from: [Central American Refugee Health Profile | CDC](#), accessed February 22, 2022.
³² PAHO (February 2019), *Central America: Strengthening access to health services in violence-prone areas*, retrieved from: [PAHO/WHO Emergencies News - Central America: Strengthening access to health services in violence-prone areas](#), accessed February 22, 2022.

Honduras:

September 2. 2021: In Comayagüela, Francisco Morazán Department, a male patient being treated at a coronavirus unit was killed by armed perpetrators disguised as doctors. The victim was reportedly the brother of a local politician³³.

May 25. 2020: In an unspecified location in Honduras, a nurse was reportedly assaulted with stones on her way back from work and yelled at for being a source of infection³⁴. In Honduras it is estimated that 18 per cent of the population (almost 1.8 million Hondurans) do not have access to health care services³⁵.

El Salvador: In El Salvador, two human rights and social services organizations reported 2,016 people forced displaced due to violence, climate change or a combination of the two³⁶.

While an important source, police statistics only capture a portion of crimes due to under-reporting and under-recording³⁷.

3. Organized crime and climate change: Spurious or possible correlations?³⁸

The connections between climate change and security are complex^{39,40,41}. The interaction with other factors and the speed and type of social change varies across different contexts. Climate change rarely, if ever, causes insecurity directly; intervening variables – most of them related to governance, development, and resource management – mediate this relationship⁴².

³³ [Safeguarding Health in Conflict](#) (May 5. 2021), *More Than 4000 Attacks Against Health Workers, Facilities, and Transports Since 2016 Underscore Need for Action to Protect Health Care in Conflict*, retrieved from: [Health Map | Insecurity Insights](#), accessed February 16. 2022.

³⁴ [Safeguarding Health in Conflict](#) (May 5. 2021), *More Than 4000 Attacks Against Health Workers, Facilities, and Transports Since 2016 Underscore Need for Action to Protect Health Care in Conflict*, retrieved from: [Health Map | Insecurity Insights](#), accessed February 16. 2022.

³⁵ Milian L. et. al. (Archives of medicine, 2017), *Situation of the health system in Honduras and the new proposed health model*, retrieved from: [\(PDF\) Situation of the Health System in Honduras and the New Proposed Health Model \(researchgate.net\)](#), accessed February 16. 2022.

³⁶ Bernal D. (La Prensa, February 15. 2022), *2,016 salvadoreños fueron víctimas de desplazamiento*, retrieved from: [2,016 salvadoreños fueron víctimas de desplazamiento \(laprensagrafica.com\)](#), accessed February 16. 2022.

³⁷ Sutton H. (Insight Crime, December 14. 2017), *What Is Missing From Police Crime Statistics?*, retrieved from: [What Is Missing From Police Crime Statistics? - InSight Crime](#), accessed February 4. 2022.

³⁸ Environmental crime, such as illegal logging and fishing etc. is not considered in this briefing note.

³⁹ ICRC (9. July, 2020), *Seven things you need to know about climate change and conflict*, retrieved from: [7 things about climate change and conflict | ICRC](#), accessed February 3. 2022.

⁴⁰ SIDA (2017), *The relationship between climate change and violent conflict*, retrieved from: [working-paper-climate-change-and-conflict.pdf \(sida.se\)](#), accessed February 3. 2022.

⁴¹ This comparison has its limitations which should be studied further. This is not the scope for this briefing note.

⁴² Igarape institute (December, 2019), *Climate and security in Latin America and the Caribbean*, retrieved from: [2019-12-02-publication-Clima-and-Security-EN-web.pdf \(igarape.org.br\)](#), accessed February 10. 2022.

The Igarape institute, of which this section draws on, has in recent years looked into the relationships between climate change and crime and violence. The idea is to understand when the impact of climate favors situations that lead to the mobilization of force⁴³. The below table proposes a conceptualization:

Conceptualizing the climate-crime link

When examining the climate change-crime nexus, it is important to clarify the variables under consideration. With respect to climate change, one can distinguish between *short-term shocks* such as cyclones, tornadoes, forest fires and floods and *long-term stressors* including droughts and sea level rise.

Meanwhile, crime can be disaggregated into *violent* and *non-violent* categories ranging from homicides and assaults to robberies and burglaries. The relationships between shocks and stresses and violent and non-violent crime are not necessarily straight-forward or linear.

Conceptualizing the climate-crime connection

	Short-term	Medium-term	Longer-term
Shocks: Flood/storm surges; tornadoes; cyclones; forest fires	Loss of life/injuries - especially vulnerable groups; Stress on health and medical facilities; Evacuations and displacement; Disruption of power grids/ services; Rising non-violent property crime	Disease outbreaks - especially among vulnerable groups; Disruption of basic services; Rising prices for goods and services; Food insecurity and livelihood stress; Supply chain fragmentation; Intimate partner and domestic violence; social unrest	Mortality/morbidity due to divested care; Diversion of expenditures from public services; Declining tax revenue and investment; Degraded social and physical infrastructure; Deepening grievances and mistrust; Increasing crime associated behavioral changes; rising violent crime
Stressors: droughts; water scarcity; heat islands; air pollution (GHGs); pest infestations	Increasing mortality/ morbidity for at risk groups; grievances and competition over services; Evacuations and relocations; Disruption to energy grid and drain on basic services; Intimate partner and domestic violence	Disruption to food security; rising prices for services and essentials; increased resort to violent and non-violent criminality to substitute for lost livelihoods; increased risk of social unrest and demonstrations	Mortality and morbidity associated with cardiovascular diseases; Heightened risk of violent aggression among at-risk/ exposed populations

Source: Igarape⁴⁴.

⁴³ Igarape institute (December, 2019), *Climate and security in Latin America and the Caribbean*, retrieved from: [2019-12-02-publication-Clima-and-Security-EN-web.pdf \(igarape.org.br\)](#), accessed February 10, 2022.

⁴⁴ Schmidt P, Muggah R. (Igarape institute, February 2021), *Climate change and security in Africa*, retrieved from: [Climate Security in Africa - Igarapé Institute \(igarape.org.br\)](#), accessed February 10, 2022.

The connection between violence and climate change can be considered from three main categories: individual violence, group violence, and interstate violence⁴⁵.

Erosion of public security because of weather extremes such as hurricanes, extreme rainfall and flooding, makes the action of the state in an already deficient area even more difficult. If there is a systematic lack of response from the police and civil defense in face of extreme situations, the absence of the state can be translated into organized crime entering places where it previously had no presence.

In the aftermath of hurricane Irma (Saint Martin, 2017) and hurricane Paula (Honduras, 2010), crime increased through criminal groups monopolizing humanitarian aid to launder money in the first case and through increased property crimes in the second^{46,47}.

The decline in agricultural and fishery production impacting the degradation of food security, employment and exports has the potential to increase crime. In particular, the migration of populations deprived of such economic opportunities can supply criminal networks in the cities⁴⁸.

The deterioration of food security and depreciation of jobs in agricultural and fisheries areas, may lead to domestic or cross-border migrations.

If states are unable to deal with these effects, their legitimacy may deteriorate even further, with negative effects on democratic governance and territorial control within a region⁴⁹.

Practically, if disasters are associated with rising property crimes and intimate partner and domestic violence, preparedness plans and targeted services need to anticipate these dynamics⁵⁰.

Hence, public authorities and civic leaders should initiate a conversation about the types of climate change and crime-related outcomes that are likely at the neighborhood scale. There is a very real risk of resorting to narrow policing responses which can potentially exacerbate existing inequities and insecurities⁵¹.

⁴⁵ Igarape institute (December, 2019), *Climate and security in Latin America and the Caribbean*, retrieved from: [2019-12-02-publication-Clima-and-Security-EN-web.pdf \(igarape.org.br\)](#), accessed February 10, 2022.

⁴⁶ Igarape institute (December, 2019), *Climate and security in Latin America and the Caribbean*, retrieved from: [2019-12-02-publication-Clima-and-Security-EN-web.pdf \(igarape.org.br\)](#), accessed February 10, 2022.

⁴⁷ Albaladejo A. (September 23, 2017), *The Perfect Storm: How Climate Change Exacerbates Crime and Insecurity in LatAm*, retrieved from: [The Perfect Storm: How Climate Change Exacerbates Crime and Insecurity in LatAm \(insightcrime.org\)](#), accessed February 23, 2022.

⁴⁸ Igarape institute (December, 2019), *Climate and security in Latin America and the Caribbean*, retrieved from: [2019-12-02-publication-Clima-and-Security-EN-web.pdf \(igarape.org.br\)](#), accessed February 10, 2022.

⁴⁹ Igarape institute (December, 2019), *Climate and security in Latin America and the Caribbean*, retrieved from: [2019-12-02-publication-Clima-and-Security-EN-web.pdf \(igarape.org.br\)](#), accessed February 10, 2022.

⁵⁰ Schmidt P, Muggah R. (Igarape institute, February 2021), *Climate change and security in Africa*, retrieved from: [Climate Security in Africa - Igarapé Institute \(igarape.org.br\)](#), accessed February 10, 2022.

⁵¹ Schmidt P, Muggah R. (Igarape institute, February 2021), *Climate change and security in Africa*, retrieved from: [Climate Security in Africa - Igarapé Institute \(igarape.org.br\)](#), accessed February 10, 2022.

Suggested research questions

To further understand possible correlations between climate change, organized armed violence and access to health care services, the following areas and research questions could be of relevance:

1. Extreme weather events such as floods, drought, and hurricanes: How do they impact on/motivate organized armed groups to gain more control over territories and resources?
2. Is deteriorating livelihoods increasing recruitment of gang members as it lead to less job opportunities, diminishing prospects and hopelessness?
3. How do climate related events reduce people's access to health care services in general, i.e. (forced) migration?
4. Is it possible to establish a direct correlation between climate related events and organized armed groups and violence?
5. Climate change leads to greater health needs which increases the relative number of people not accessing health care services.
6. Mapping and analyses of number of violent incidents, attacks on health care workers and facilities, climate related events and change in number of people cut off from health care services.
7. Mapping of invisible borders which is currently undertaken by Norcross and ICRC.
8. What are the trends in criminal gangs with regards to their ability to exert control and their strategies?