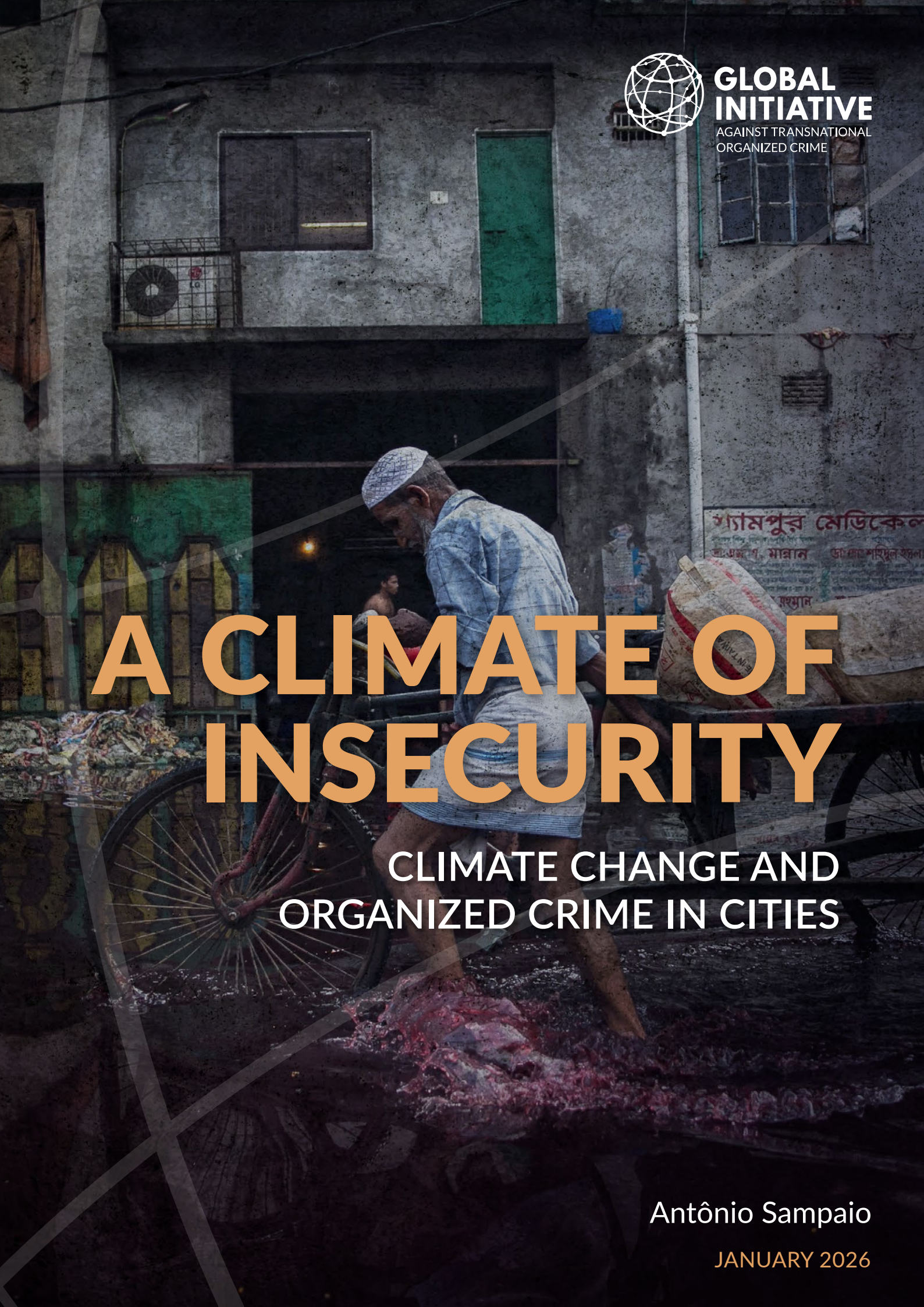

GLOBAL INITIATIVE
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A CLIMATE OF INSECURITY

CLIMATE CHANGE AND ORGANIZED CRIME IN CITIES

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CONTENTS

Summary 2

Key points 3

Introduction: cross-cutting vulnerabilities 4

Human trafficking and modern slavery in rural-to-urban migration 7

Resource scarcities and criminal opportunities: the case of water 12

Land speculation and grabbing 14

Conclusion 17

Recommendations 18

Notes 19

SUMMARY

There is widespread academic and policy recognition that climate change is transforming and redefining global security and development.[1] Global efforts to tackle this challenge have occupied national governments and international organizations through diplomacy, mitigation, and policies for sustainability and cutting emissions. More recently, studies and policy engagement by city-focused organizations such as C40 – a network of local governments in large cities – have shed light on the increasing impact of climate change on cities and their challenges and opportunities in responding to it. Ten large global cities examined by C40 in a 2024 study are expected to receive 8 million climate migrants by 2050.[2] But estimates vary widely – and some go higher. The World Bank estimates that 143 million people could be forced to move within their own countries in sub-Saharan Africa, South Asia and Latin America by 2050. It is highly likely that most of this population will flock to cities in search of jobs, education and family networks. The World Bank specifies that 'urban and peri-urban areas will need to prepare for an influx of people'.[3]

Climate change and organized crime need to be studied together to achieve a broader understanding of both phenomena and their symbiotic intersections. A few studies – for example, one examining crimes involving waste, wildlife trafficking and fishing,[4] and an article highlighting how illegal logging is linked to land conversion for agricultural use[5] – have looked at how crime contributes to CO_2 emissions and broader climate change, but existing studies fail to provide recommendations for what urban and peri-urban areas should do to prepare for the impact of organized crime.[6]

This report examines the intersection of climate change and organized crime in cities. The relationship between these issues is a critical area for policy and programming in governments and multilateral organizations. There is already significant evidence of the central role that cities play as destinations for climate-affected migrants fleeing both rapid- and slow-onset disruptions to their rural livelihoods or moving within cities affected by sea level rises, increased flooding or heat islands. Urbanization is not necessarily a negative or crime-inducing trend, but the rapid movement of people to areas unprepared to cope with service provision and law enforcement demands, coupled with increased pressures on resources such as water and land, can provide opportunities for criminal groups to profit through exploitative, predatory and violent practices.[7] Three such areas require policy and expert attention: human trafficking and modern slavery affecting rural-to-urban migrants; organized crime involvement in water provision in cities; and corruption and the operation of mafia-style groups in urban land and housing.

Key points

- Cities and towns are particularly vulnerable to organized crime in regions affected by climate change, due to the rapid movement of people migrating or being displaced by disruptive weather patterns – most of whom will move to cities. This increases the risk of migrants falling prey to human trafficking, modern slavery and extortion. Scarcity or increased demand for resources such as water and land also creates opportunities for urban mafias.
- Migrants escaping the disruption to their agricultural lifestyles are at risk of falling into situations of modern slavery. A lack of savings, skills and local social support networks puts them at risk of exploitation, particularly in domestic work and the construction sector. This is compounded by the often inadequate rule of law in many rapidly growing informal settlements, where low-income rural migrants are likely to settle.
- Women and girls are vulnerable to trafficking into domestic or sex work, both of which can lead to debt bondage and intimidation.
- The rapid influx of people fleeing climate-affected areas into large cities puts additional pressure on resources. The issue of water is emblematic, with extremely low supplies already causing alarm in several drought-stricken cities. Water is also a resource that has frequently been exploited by organized crime groups with corrupt connections to public agencies, as in South Asia.
- Perhaps the most profitable criminal enterprise exploiting climate-related shocks in cities is land theft. Rapid rural-to-urban migration encourages price rises and speculation, and predatory mafias or corrupt employees in public agencies can profit greatly from illegally occupying land, falsifying land ownership documents and illegally constructing buildings that are often unsafe. This voracious urban land rush can put further pressure on the climate by degrading the vegetation surrounding cities.

INTRODUCTION: CROSS-CUTTING VULNERABILITIES

Cities, organized crime and climate change form an important but overlooked nexus of vulnerability. Despite the gaps in research, there is already ample evidence that urban communities, particularly the poor, ethnic minorities and informal settlements, face multiple and escalating criminal threats linked to climate change.

Cities and towns are particularly important for the convergence of climate change and organized crime due to their roles as receiving hubs for natural resources and people. Urban areas depend on constant flows of resources from peri-urban or rural areas, such as water, food and energy, and are destinations of choice for rural communities whose farming, fishing or cattle ranching lifestyles have been disrupted through increased rainfall, storms or desertification. According to the World Bank, urbanization is a stressor that affects global mobility patterns and puts pressure on urban areas to prepare their infrastructure and social services for additional influxes of people.[8]

A scarcity of housing is a cross-cutting source of vulnerability for the urban poor, both long-time residents and migrants, who are also highly affected by climate change. Global warming and sea-rise scenarios – already evident in places such as Bangladesh – indicate that long-time urban residents, in addition to vulnerable migrants, might be displaced due to precarious accommodation in risky locations such as informal housing in hilly terrain vulnerable to increased rainfall.[9] The urban heat island effect – caused by the absorption of heat by buildings and other urban infrastructure – affects low-income areas more than affluent ones, due to unequal distribution of vegetation, building mass and housing near water.[10]

Intra-city and intra-town displacements may place people at the mercy of gangs and other armed groups, which sometimes provide aid with conditions – such as the recruitment of those assisted into criminal practices – and sometimes carry out extortion and human trafficking. For instance, a study conducted among migrants in Chattogram, Bangladesh's second-largest city, showed that even long-term migrants perceived low security against both environmental hazards and crime.[11] The fear of crime after extreme weather events, in turn, can lead to increased marginalization of the poor. A vivid example is the aftermath of Hurricane Katrina in New Orleans, when police reacted with extreme violence to sporadic cases of looting, highlighting the need for law enforcement training and adaptation to implement proportionate responses to crime amid climate-related disruptions.[12]

A brick kiln on the outskirts of Fayzabad, Afghanistan. Brick kilns, feeding an ever-growing construction industry, are not only causes of air pollution but are frequently sites of exploitation of children trafficked from rural areas. © *Omer Abrar/AFP via Getty Images*

Urban areas are important magnets for people moving to rebuild their lives or send remittances to distressed family members due to disrupted rural livelihoods in a changing climate. Rural migrants arriving in cities generally lack social support networks and specialized skills for urban economies, making them unaware of certain risks – such as exploitative human trafficking networks, dangerous urban areas and gang rules – and therefore more exposed to forced labour. Cities concentrate a large share of places identified as particularly convenient for employers or traffickers to exploit migrants, such as the houses of economic elites, small factories in informal settlements and other areas with little oversight by state agencies, and poorly lit streets where the night economy includes demand for sex workers.[13] A study conducted in Bangladesh suggests that women and girls are more likely to be trafficked into domestic or sex work, both of which place them at risk of being bonded by debt and intimidation.[14]

Climate change also affects organized crime in cities through resource scarcity. This area of research is still embryonic, and few studies have been carried out specifically on the confluence of climate change and criminal opportunities in cities. But evidence shows that mafia groups, often in collusion with state actors, exploit scarcity or higher demand for certain resources such as water and land, amid rapid urbanization. Research indicates that conditions of climate stress leading to scarcity of some resources increase opportunities for organized crime groups because they use their competitive advantage in coercion to capitalize on the growing price of commodities.[15] The exploitation of scarcity is not confined to essential resources but extends to other prized items, for example the abalone market in South Africa.[16]

Scarcity of vital resources in cities is likely to increase. Nearly 1 billion urban residents worldwide already face water scarcity, and the United Nations expects this number to increase by 80% by 2050.[17] Cities in low-income countries are expected to expand their land area by 141% between 2020 and 2070 – a much higher increase than middle- or high-income countries.[18]

Other sources of risk are more complex but no less harmful to vulnerable and low-income communities. Urbanization can serve as a further catalyst for certain organized criminal sectors that also benefit from climate change. Kilns used to turn clay into bricks for the construction industry are a frequent site of exploitation of people, including children as young as five, who are trafficked from rural areas. In Cambodia, for instance, farming communities have been forced to migrate to cities due to drought-related crop failures, where they are then exploited by the very brick kiln facilities that contributed to the climate change impact on their livelihoods.[19] Brick kilns cater to a booming demand for construction materials amid urban growth in South Asia, one of the world's most rapidly urbanizing regions.[20]

Risks are therefore intertwined in complex ways, and climate change is recognized to be a catalyst more often than it is the single causal mechanism for rural-to-urban migration or security problems such as conflict or organized crime. Knowledge of the intersection of these challenges is needed to inform better policies and protection of vulnerable populations.

This report is an initial scoping exercise of the evidence available. It is divided into three sections: human trafficking and modern slavery affecting rural-to-urban migrants in areas under pressure from climate change; water mafias in some of the many cities currently experiencing scarcity or unmet demand; and land grabbing and mafias operating in real estate and housing. The third is a growing concern in the context of climate-linked migration as it increases the price of urban land and thus the opportunities for organized crime in this sector. The concluding section provides policy recommendations that build on the work already being done to address both issues – climate change and organized crime – to more directly address the convergence of these trends.

HUMAN TRAFFICKING AND MODERN SLAVERY IN RURAL-TO-URBAN MIGRATION

Population movement to cities – either from rural areas or from other towns and cities – is one of the most well documented types of impact from climate hazards and slow-onset events on human societies. This movement usually involves poor sectors of the population, such as small rural communities that have had their livelihoods disrupted, making them vulnerable to predatory human trafficking rings and exploitative labour arrangements in urban industries.

The term 'climate refugees', coined in the 1990s, is now widely perceived to underestimate the multiple causes of migration. Climate change has since come to be regarded as a factor that compounds and interacts with other push factors, driving people to move in search of better opportunities or seeking greater chances of survival.[21] Climate factors are rarely the single causal mechanism of population movement, but are recognized as exacerbating problems leading to migration.[22]

Rural-to-urban migration is perceived as the predominant form of climate migration and is a real and present challenge linked to climate change.[23] In Africa, worsening climatic conditions in agricultural areas of arid countries have been decisively linked to urbanization.[24] A World Bank study predicts significant future population movements to escape the slow-onset impact of climate change in sub-Saharan Africa, South Asia and Latin America, showing strong evidence of rural-to-urban migration linked to climate change.[25] A study by C40, a global network of large cities, estimates that 8 million people will move to 10 major global cities by 2050 as a result of climate change.[26]

This population movement has some positive aspects, as even precarious accommodation in cities may place rural migrants closer to accessing health, education and jobs. But also common is the replacement of old rural problems for new urban ones, including anti-migrant sentiment, unemployment, exclusion from policy processes, insecure land tenure and vulnerability to more environmental shocks such as flooding, sea level rise and increasing heat in cities.[27] Inadequate conditions of housing, basic services and security lead many migrants to informal settlements. In Pakistan, disasters such as the 2022 floods that left some 8 million people displaced have helped drive growth in informal settlements around large cities.[28]

Human trafficking affecting rural communities induced to migrate to urban areas due to disruption to their livelihoods is probably the most well-documented category of climate-related organized crime, though even this area of research has only picked up pace in the last few years.[29] Rural-to-urban migrants face a dual risk from criminals seeking victims for situations of modern slavery: at the point of origin, when they are promised temporary or permanent jobs in cities, and at the point of arrival, usually in informal settlements, where their lack of savings, skills and local social support networks place them at risk of exploitation, especially in domestic work, the construction sector and related industries such as brick kilns.[30]

Bangladesh is one of the countries most heavily affected by rural-to-urban migration linked to various climate effects, of both rapid and slow onset. Residents of rural communities leave for cities either permanently or temporarily in search of jobs or to live with relatives as their agricultural or fishing livelihoods are disrupted. Those affected by slow-onset climate impacts such as increased rainfall or droughts tend to migrate further afield to large cities like Dhaka. Many of them, particularly the poor, fall prey to human trafficking rings associated with exploitative work in the city, partly because these offer desperate families advance payment for work.

In cities such as Dhaka, large numbers of men, women and children are exploited in situations of modern slavery in low-income areas, particularly in the garment industry. Research in two such areas from 2022 showed that 86% of informal workers met the classification for modern slavery.[31] Women and girls are particularly vulnerable to exploitative domestic work or to being coerced into sex work or forced marriages.[32] Human traffickers also work in collusion with members of rural communities who identify women and girls particularly vulnerable to offers to move to the city.[33]

Migrant workers wait to cross the Poshur River in Bagerhat, Bangladesh. Intensifying climate impacts, coupled with limited access to education, health care and employment, are fuelling waves of displacement in the country. © *Zakir Hossain Chowdhury/Anadolu via Getty Images*

Climate migration and crime in Dhaka

Bangladesh faces some of the world's most severe climate-related risks, driven by its location in a storm-prone region, low elevation, poor infrastructure and high population density.[34] Rural areas – especially the Sundarbans, the world's largest mangrove forest, located at the confluence of three rivers – have been increasingly affected by riverine flooding, sea level increases and catastrophic cyclones.[35] While many people have to move simply due to the destruction of their homes, another significant impact of repeated climatic events has been disruption of agricultural or fishing economies – heavy rains can pollute waters and ruin crops, for example.[36]

The disruption of their livelihoods puts families in desperate conditions, which makes them vulnerable to human trafficking rings offering opportunities in urban manufacturing or domestic work. As a consequence, towns and large cities are the top destinations for migrants and displaced populations due to climate hazards. Research on households in a heavily affected area found that people affected by slow-onset events – such as droughts and repeated floods destroying crops – predominantly move to cities due to opportunities in employment, education and social networks, whereas those displaced by a rapid-onset disaster such a cyclone tend to move to nearby towns.[37] Rapid population growth in small or medium towns tends to bring vulnerability to organized crime due to unprepared or nonexistent law enforcement structures.[38]

The capital city of Dhaka has been at the eye of the storm, receiving huge numbers of climate migrants that contributed to the population ballooning from 1 million in 1971 to over 20 million in 2025.[39] Some estimates point to 10 million of those being climate migrants.[40] Although detailed numbers of urban climate migrants or displaced populations are not available, the mayor of Dhaka estimated in 2021 that climate hazards were a major reason why the city received 2 000 migrants daily.[41] According to the International Displacement Monitoring Centre, most of Dhaka's informal settlement residents 'are thought to have migrated there as a result of some kind of environmental hardship'.[42]

The practice of using trafficking and smuggling networks is reported as widespread among communities in the Sundarbans, including sometimes in collusion with local families who identify vulnerable women and girls in low-income households for arranged marriages or sex work.[43] Many trafficked people later find themselves bonded by debt in exploitative employment, such as in the construction or garment industries, or sex work in the case of women. A 2022 research report by the Global Fund to End Modern Slavery showed that 86% of informal apparel workers in the garment industry in two Dhaka areas met the International Labour Organization's criteria for modern slavery, while 66% experienced actual or threatened physical or sexual violence.[44]

Men, women and children are affected in different ways. Research into human trafficking in Bangladesh by the United Nations Office on Drugs and Crime (UNODC) has shown that women and girls are frequently trafficked into sexual exploitation on the street and in brothels and into exploitative domestic work where they are subjected to verbal, physical and sexual abuse.[45] Women who have separated from their male partners face a higher risk of human trafficking due to loss of social support networks.[46] Families in financial distress sometimes hand their children over to human traffickers in exchange for advance payment, which leads to bonded labour until the debt is paid. A study conducted during 2018 and 2019 in eight informal settlements in Dhaka revealed that 764 (37%) out of 2 000 children were working for money, with just over half of them working between 9 and 12 hours a day, at least six days a week.[47]

The Sundarbans, the world's largest mangrove forest, is under threat from climate change. Reduced livelihood opportunities in the region have led to an increase in trafficking, with women and girls in low-income households being forced into arranged marriages or sex work. © *Jonas Gratzer/LightRocket via Getty Images*

Additionally, as impoverished migrants are likely to move into high-density neighbourhoods, they are vulnerable to organized criminal groups or gangsters known as *mastaans* who operate in extortion, land grabbing and drug selling.[48] Children as young as eight years old are widely employed by criminal groups to conduct petty theft and collect extortion money. According to one study, which drew on the experiences of children in an informal settlement in Dhaka, gangs offer protection from rival gangs, employment and social connections – all of which are essential for survival.[49]

Residents of Dhaka's informal settlements also face violence, intimidation and organized crime linked to land disputes, something that has been aggravated not only by the influx of climate migrants but also by climate effects in the city itself, with rain causing erosion, reshuffling of property borders and the 'disappearance' of pieces of land in hillside settlements.[50] The *mastaans* also play a role in this market as land tenure and house ownership in these areas is very often informal and without official documentation, leading to disputes that *mastaans* can mediate. This role in mediating conflict places *mastaans* in a morally ambivalent position in Dhaka's informal settlements, as they provide services, including dispute resolution, where formal state agencies do not. But they also use their reputation for violence to enforce land ownership and are paid off by some residents or outsiders to expand property or occupy land, thus sometimes also causing disputes.[51] They also operate extortion rackets and fight with each other for control of the rents, in addition to the provision of services such as water, electricity and gas.[52]

Mastaans' impact on land, however, probably pales in comparison to the influence of much more powerful elites that have grabbed an estimated 1.3 million hectares of public land, known as *khas* in Bangladesh, often through violent eviction.[53] The rapid urban expansion in recent decades has fed the land grabbing of agricultural peri-urban land in Dhaka and Chittagong by elite developers to be transformed into industrial land or housing, displacing farmers. ■

The chain reaction of collapsing rural livelihoods due to changing weather patterns, rural-to-urban migration and vulnerability to organized crime has been reported in several contexts.[54] Research using disaggregated data at departmental level in Honduras and Guatemala has shown that increased agricultural stress and reduced rainfall correlate with increased apprehension at the US border of migrants from affected areas.[55] Higher homicide rates in departments increase the magnitude of the association between migration and climate (more migration from areas with both higher homicides and less rain) in the case of Honduras.[56] It has been argued that insecurity due to gang violence in Central American cities has made migrants more likely to move to the US rather than to other places in their own countries. The erosion of rural livelihoods exacerbated by climate-related events has driven migration, particularly among the youth, who are preferred targets for gang recruitment as foot soldiers (especially men).[57]

Urban organized crime also undermines the ability of communities to recover economically from climate hazards. In areas with criminal territorial control, gangs' rules and extortion measures can disregard climate impacts and impede governments or NGOs from helping vulnerable populations. For instance, in Honduras, gang members have reported increased pressure to maintain extortion revenues even in the aftermath of severe storms that wrecked small businesses in gang-controlled areas.[58]

It is usually the most vulnerable people in northern Central America who move to the region's informal settlements, where they face two main threats: repeated exposure to climate hazards, such as landslides in poorly constructed residential areas; and gang activity, such as armed violence, extortion and predatory service provision.[59] A UN-commissioned study stated that gang territorial control undermines efforts to build climate resilience and risk reduction in cities, as it can limit movement between neighbouring areas, prevent access of professionals from outside their turf areas and reduce the activity of civil society organizations.[60]

In Haiti's capital, Port-au-Prince, the power of gangs amid a weak rule of law has shown the type of disruption gangs can cause amid natural disasters. Following a devastating earthquake in August 2021, gangs hijacked aid trucks and ambulances and caused delays in aid delivery as relief agencies tried to bypass gang-controlled areas.[61]

Given the already significant evidence of the vulnerability of climate-linked population flows to human trafficking, modern slavery and gang violence, policymakers and multilateral organizations need to more directly address these security implications. This trend is only going to increase, with some countries now gradually adopting 'retreat' strategies to move people living in places vulnerable to climate change. These present and future movements can help to protect populations but can also lead to eviction of the urban poor to other insecure and deprived locations – something already documented in Lagos and Manila, where low-income populations have been removed from some areas due to climatic risks such as sea level rise, floods and increased concern over the potential for powerful storms.[62]

The continued vulnerability of rural-to-urban migrants to human traffickers, exploitative work and criminality in destination cities threatens their human rights and socio-economic prospects, and that of vast vulnerable communities emerging out of the intersection of climate change and rapid urbanization.

RESOURCE SCARCITIES AND CRIMINAL OPPORTUNITIES: THE CASE OF WATER

Water scarcity in urban areas is very likely increasing due to climate change, according to a 'high confidence' forecast by the Intergovernmental Panel on Climate Change.[63] A 2021 study modelling urban water scarcity under four climate change scenarios forecast the affected global urban population to increase from 933 million in 2016 to between 1.7 billion and 2.4 billion people by 2050.[64]

India is forecast to be the most affected country, with 422 million urban dwellers suffering from water scarcity by 2050. Some of India's main cities, such as the capital Delhi, have already had a long experience with water and tanker mafias, which extract water from illegal bore wells and sell it to impoverished households that are badly serviced by official public water providers, taking a large share of poor families' monthly income and depleting local groundwater.[65]

The case of water illustrates the perverse connection between organized crime and scarcity – as demand outstrips availability of certain materials and formal markets are unable to step up, organized crime can fill the gap. This is accompanied by predatory practices such as higher-than-average prices, lower quality and violence as competition is managed at gunpoint instead of in court.

Another South Asian city that has long been affected by water mafias is Karachi, where criminals were estimated to siphon 10 million gallons of water per day in 2016.[66] This includes free water provided as political patronage by state officials linked to one of the main local parties. Lyari, an area of Karachi historically affected by violence, reportedly had at least 86 illegal hydrants in 2023, operated by tanker mafias with suspected ties to corrupt officials that protect the siphoning of water from formal providers.[67] Mafias operating illegal hydrants are also suspected of conducting land grabbing.[68]

Residents of informal settlements often pay much more for water than those in wealthy neighbourhoods, and some communities that do have piped water have been left in scarcity due to illegal siphoning of water from government pipes.[69] Although some owners of illegal hydrants claim that they are providing a public good – for a price – due to insufficient government infrastructure, the water quality has been known to exacerbate public health problems.[70]

Pakistani men fill water tankers with drinking water for sale across Karachi. Amid chronic water shortages, informal networks often extract water from illegal bore wells and sell it to underserved households neglected by public supply systems. © *Rizwan Tabassum/AFP via Getty Images*

The increasing pressure on existing water infrastructure, coupled with the effects of climate change in some areas, is driving water theft by both organized groups and community users. Both result in unsustainable rates of groundwater extraction and depletion.[71] The sale of water from illegal hydrants also corrodes public revenues and institutional integrity through corruption, especially among low-level employees of water agencies.[72] Corruption is also evident in public service providers that are supposed to protect the health of urban communities by safeguarding water quality instead of allowing the overuse of groundwater and pollution discharge.[73]

Crimes related to the scarcity of water are linked to a complex set of drivers, including climate change, under-investment, outdated infrastructure, and inefficient and corrupt state agencies. The sale of illicitly obtained water is just one of the many service provision roles that gangs and mafias fill in low-income settlements. Security rackets are a widespread practice in Latin American and some African cities, where criminal groups extort small businesses with thinly veiled threats disguised as offers of protection.[74]

The profitability of water for organized crime is particularly concerning for cities, as they are affected by two major factors driving water scarcity: rapid urbanization and climate change impacts, reflected in the fears of 'day zero' events, when water completely runs out in major cities.[75]

The capital city of Indonesia, Jakarta, illustrates the combined effects of urbanization and climate change. The megacity of 11 million inhabitants is sinking due to unsustainable extraction of groundwater and the resulting deflation of ground integrity under buildings, though sea level rise and extreme weather have compounded the issue.[76] Water theft is partly responsible for the city's sinking – expected to be almost complete by 2050 – as the piped water network is famously limited. Many individual and business consumers extract groundwater through illegal connections – with authorities reporting 10 000 such illegal extraction points in 2017.[77] On top of the private water extraction by individual consumers, water mafias have been reported by communities as responsible for siphoning water from unlicensed water pipe connections, cooperating with a syndicate of water tankers and selling water to impoverished communities at prices usually only seen in affluent neighbourhoods.[78]

LAND SPECULATION AND GRABBING

The Jakarta case illustrates the global challenge of managing rising demand not just for water but also land in and around cities to accommodate growing urban populations, especially in areas where natural hazards and slow-onset events are pushing people out of their rural livelihoods. Researchers investigating urbanization trends have warned that 'urban land expansion is one of the primary drivers of habitat and biodiversity loss' and under current urbanization patterns 'more raw materials will be required than the planet can sustainably provide'.[79]

As Jakarta sinks, due to unsustainable water extraction and indirectly due to climate change, some inhabitants will be able to afford to move to other cities but many may be displaced within Jakarta and its surrounds, where land mafias are also known to operate. Amid the plans for a new shiny capital, the existing megacity faces diminishing availability of land, which raises land and housing prices and incentivizes land mafias if law enforcement and anti-corruption measures are not enforced.[80]

Corruption schemes in urban planning and land acquisition are legion.[81] One case that caught the country's attention involved a woman who received an offer to sell her house in a wealthy Jakarta neighbourhood and was asked to provide her land registry document. This was taken to a colluding notary to falsify the resale of the land, which was effectively stolen from her.[82] The woman was the mother of a prominent politician who shared the case on social media. This attracted the attention of Indonesia's then president, Joko Widodo, who ordered a crackdown on organized land theft and fraud.[83] But the issue continues to affect many other residents, including through coercion of current land occupants or house owners to vacate or sell, and corrupt arrangements with state authorities to falsify title documents, manipulate land records and protect the land seizure from prosecution.

The land challenge highlights the connection between climate change impacts and the bad management of urbanization across much of the Global South. Much of the current urban population growth, especially in low-income countries, is happening in the form of urban sprawl – the expansion of land area occupied by relatively low-density housing on peripheral and peri-urban areas. Geographical expansion leads to reduction in vegetation coverage and higher costs for provision of infrastructure, energy and other basic services.[84] Urban sprawl is forecast to eliminate up to 2.4% of cropland globally by 2030, most of it in Asia and Africa, the two continents facing most rapid urbanization. Crucially, this

cropland to be lost around cities tends to be twice as productive as national averages.[85] Urban land area is estimated to grow by 141% between 2020 and 2070 in low-income countries, with UN-Habitat arguing that successful management of this expansion is crucial for global sustainable development.[86]

Organized crime and corruption in land and real estate markets threatens both the sustainability of the urbanization process and the adaptation of rural migrants seeking safety in cities. This is by no means an exclusive process of low-income or Global South countries – on the contrary, some of the most well documented cases of organized crime and corruption in land markets come from Europe, especially those involving the Italian mafia.[87]

In the current context, however, the trend is towards faster urbanization, climate hazards and weak rule of law in low-income countries. Sub-Saharan Africa has been frequently highlighted as a vulnerable region due to several factors, including the proven relationship between climatic variance and urbanization, and the widespread lack of informal – and often insecure – land tenure, placing urban residents vulnerable to land grabs by organized crime, particularly if allied to state actors.[88]

Additionally, World Bank research from 2014 on the effect of decreased moisture on rural areas and urbanization in Africa confirmed that worsening conditions lead rural populations in arid countries to migrate to urban economic centres.[89] Alternative jobs and other economic opportunities are concentrated in very few large cities in each country, leading to skyrocketing land prices.

Rising land prices have led to speculation and more criminal and predatory behaviours. Land speculation occurs when investors seek to buy land, wait for it to increase in value and sell, which negatively affects poorer local people seeking housing. The increasing tension over land tenure in contexts where land grabbers eye valuable urban land has contributed to the emergence of non-state security providers, some of whom extort land owners who have not yet occupied or built on their land.

This is the case in Ghana's capital, Accra, where land disputes have given rise to 'land guards'. Some of these are seen as legitimate traditional authorities, but some are groups of young people who extort land purchasers before they occupy their new plot, demanding 'digging fees' despite the practice of 'landguardism' having been outlawed in the country.[90] In Somalia, the insurgent group al-Shabaab has sometimes demanded levies from companies transporting construction material or items for property development to Mogadishu.[91]

Sand, the tip of the urbanization resource-demand iceberg

The extraction of sand, a crucial raw material for concrete, is an increasingly attractive market for criminal organizations due to the ease of access and regulatory challenges.[92] Sand is the most consumed natural resource in the world after water, and has been fuelling global urbanization through the construction industry.[93] For example, China used 2.4 billion tonnes of cement in 2020 – 23 times the amount used in the US.[94] In India, another rapidly urbanizing country hungry for sand, the illegal sand mafia business is estimated to generate US$17 million per month in revenues.[95] Although sand is a widely available natural resource, extraction is very difficult to regulate or limit, which facilitates illegal and unsustainable extraction practices.[96] ■

Price speculation makes land markets vulnerable to powerful individuals with connections to state actors who are able to authenticate land transactions and formalize the immensely profitable transformation of rural or informally owned land into residential or commercial projects.[97] For instance, in some areas of sub-Saharan Africa, customary land rights managed by communities are being replaced by more commercially minded elites, with more of a tendency towards corruption and land grabbing. In Senegal's Keur Massar, land property brokers and certain state officials reportedly circumvent legal market rules to artificially inflate – sometimes doubling – land prices to profit from the difference. As a result, young people moving from rural areas, due in part to environmental degradation, find house prices or rent unaffordable in urban areas.[98]

Corruption and land grabbing contribute to unsustainable urbanization, and both forms of criminality profit from the resulting rush for housing along urban peripheries. This has been reported in the Brazilian Amazon, which is undergoing an urbanization process linked to the building of highways for cattle ranching and extraction economies. The cases of land mafias in the areas around Santarém and Alter do Chão – important hubs for soybean farming and tourism, respectively – illustrate the nexus between climate change and organized crime in both rural and urban contexts. In rural areas, criminal groups grab land for soybean production, leading to the displacement of small rural producers to urban areas. In the urban areas, land mafias – which may or may not be connected to the rural ones – grab land in peri-urban zones, including forested areas, to create lots for housing that are sold to the rural newcomers.[99]

The neighbourhood of Keur Massar in Dakar, Senegal, faces severe flooding during the rainy season. Environmental degradation coupled with rising land prices – driven by speculation and corruption – make housing increasingly unaffordable for young migrants moving from rural areas. © *John Wessels/AFP via Getty Images*

CONCLUSION

Climate change is already causing millions of people to move to cities – most of them internally but also across national borders. The presence of predatory armed groups or mafias directly affects these migrant populations, host communities, the cities they are based in and broader national stability. Multiple criminal challenges put obstacles between affected communities – both migrant and local – and the opportunities for socio-economic development and personal improvement that have traditionally characterized urban life. Cities are engines of economic growth and social development. Organized crime threatens this connection precisely for the most vulnerable and poorest sections of society as they attempt to cope with the disruptions caused by slow- or rapid-onset climate phenomena. Organized crime is a direct threat to urban resilience in the age of climate change.

Climate change impacts on human security are affected not just in terms of global cooperation to mitigate the phenomenon but also through local and national action to prepare social, political and economic structures. For example, a study on water insecurity and conflicts in Asia shows that resource scarcity is not only due to climate-induced disruptions but also to inequitable distribution, entrenched elite interests and governance failures.[100]

The security implications of climate change are also influenced by the strength and reach of crime prevention mechanisms and law enforcement agencies. Better service provision to the poor and government action to tackle corruption can turn the tide. Cities stand as critical nerve points where the effects of climate change on local communities can be mitigated and turned into positive trends – such as the recovery of affected communities and their ability to prosper afterwards – or compound existing institutional and governance failures. Tackling organized crime and climate change in cities also connects several of the United Nations Sustainable Development Goals, including SDG 11 (pledging to make cities inclusive, safe, resilient and sustainable) and 16 (promoting peaceful and inclusive societies, access to justice for all, and building effective, accountable and inclusive institutions).

There is significant evidence of the interrelationship between climate change and organized crime affecting urban communities and institutions, alongside a worrying lack of attention to organized crime and the effects of urbanization in studying the effects of climate change. There tends to be a 'rural bias' in climate security studies, as the issue is popularly linked to natural resources.[101] Cities do not receive equal attention in the literature on environmentally induced migration.[102] Some research has

shed light on the issue in certain regions or on some popular climate-related sources of vulnerability such as modern slavery and human trafficking, but urban areas are rarely the geographic focus, despite rapid urbanization in some of the regions most vulnerable to climate shifts and hazards, such as South Asia and sub-Saharan Africa.

Addressing this gap in our knowledge by focusing on additional case studies and connecting the dots between common challenges in different cities can help local authorities and civil society to develop better prevention and resilience mechanisms.

Recommendations

Communities of practice and research on the impacts of climate change should incorporate the human security aspect into their policies and work. Whereas climate change has a variety of important implications for affected communities, security from trafficking rings, predatory water mafias and land grabbers is predictably a priority for affected communities, given the physical and mental toll they take on victims. Climate change increases opportunities for such predatory actors, including by exacerbating scarcities in critical urban resources. Therefore, it is high time that climate mitigation and resilience policies integrate organized crime as a central area of analysis and action.

Urbanization should be a central concern for policies and forecasting around climate change. One of the most well-documented effects of climate phenomena, both of low and rapid onset, is population movement to cities and towns. Whereas this fact is repeatedly stated in policy and expert documents, the adaptation and safety of urban areas to receive these flows are rarely addressed explicitly.

Anti-corruption and integrity efforts within countries should focus on urban institutions to combat corruption in urban planning: the example of mafia infiltration into the decision making of some urban planning and zoning authorities in Italy shows how local institutions are just as – if not more – vulnerable to corruption as national ones.[103] As increasing demand for urban land and real estate drives speculation and criminal opportunities, the importance of monitoring and ensuring the integrity of local planning agencies, zoning regulations and local service provision agencies (such as electricity, water, sanitation, waste collection and internet) becomes even more important.

Violence prevention should be incorporated into climate resilience and preparation policies. Preventing violence necessitates addressing individual and community-based dynamics that encourage young people to become involved with criminal groups such as gangs, militias or drug trafficking networks. Policies and programmes to prevent urban violence should incorporate projections on climate change and climate migration to predict additional crime risks – such as youth gang recruitment and extortion – in areas where these two phenomena (organized crime and climate risks) coincide. One important element of prevention involves the strengthening of state institutions beyond the traditional go-to tool of the police to deal with security concerns in informal settlements. These institutions include courts, basic service providers, education and incentives for civil society and the private sector to provide youth with skills and meaningful career opportunities. Violence prevention can be addressed through NGOs and local government agencies, which can be important partners to already overwhelmed national or regional governments. The Peace in Our Cities network has suggested the expansion of offices of violence prevention, which have become increasingly used in the US.[104]

NOTES

1 Kheira Tarif et al, Insights on climate, peace and security, SIPRI and NUPI, December 2023, p 1, https://www.sipri.org/sites/default/files/2023-12/2023_sipri-nupi_insights.pdf.

2 C40, Future urban landscapes: climate migration projections in cities, p 9, https://www.c40knowledgehub.org/s/article/Future-urban-landscapes-Climate-migration-projections-in-cities.

3 Kanta Kumari Rigaud et al, Groundswell: preparing for internal climate migration, World Bank Group, 2018, p xxii, https://openknowledge.worldbank.org/entities/publication/2be91c76-d023-5809-9c94-d41b71c25635.

4 Europol, Environmental crime in the age of climate change, July 2022, https://www.europol.europa.eu/publications-events/publications/environmental-crime-in-age-of-climate-change-2022-threat-assessment.

5 Summer Walker, Environmental crime: the not-so-hidden obstacle to combat climate change, Global Initiative Against Transnational Organized Crime (GI-TOC), 31 October 2021, https://globalinitiative.net/analysis/environmental-crime-climate-change.

6 To give a prominent example, this publication contains three articles focusing on the linkage of climate change to protests, four focused on armed or political conflict, one focused on ethnic tensions, and none on organized crime: Special Issue on Security Implications of Climate Change, *Journal of Peace Research*, 58, 1, January 2021, https://journals.sagepub.com/toc/jpr/58/1.

7 Antônio Sampaio, Urbanization, peace and security: the challenge to global peace, security and human rights in the urban century, Peace in Our Cities and GI-TOC, August 2024, https://globalinitiative.net/analysis/urbanization-peace-and-security.

8 Kanta Kumari Rigaud et al, Groundswell: preparing for internal climate migration, World Bank, 2018, pp xxii and 1, https://openknowledge.worldbank.org/entities/publication/2be91c76-d023-5809-9c94-d41b71c25635.

9 Spencer Robinson, Climate security in cities: an evidence summary, ARUP, pp 8-9.

10 T Chakraborty et al, Disproportionately higher exposure to urban heat in lower-income neighborhoods: a multi-city perspective, *Environmental Research Letters*, 14, 2019.

11 W Neil Adger et al, Human security of urban migrant populations affected by length of residence and environmental hazards, *Journal of Peace Research*, 58, 1, 2021, p 61.

12 Mark Guarino, Misleading reports of lawlessness after Katrina worsened crisis, officials say, *The Guardian*, 16 August 2015. https://www.theguardian.com/us-news/2015/aug/16/hurricane-katrina-new-orleans-looting-violence-misleading-reports.

13 For an overview, see: Fiona David, Katharine Bryant and Jacqueline Joudo Larsen, Migrants and their vulnerability to human trafficking, modern slavery and forced labour, International Organization for Migration (IOM), 2019, https://publications.iom.int/system/files/pdf/migrants_and_their_vulnerability.pdf.

14 Walk Free, Modern slavery in Bangladesh, https://www.walkfree.org/global-slavery-index/country-studies/bangladesh.

15 Lucía Tiscornia, How climate change affects organized criminal group behavior, *Studies in Comparative International Development*, 58, 2023, p 30.

16 Ibid, p 44.

17 Fiona Harvey, Number of city dwellers lacking safe water to double by 2050, *The Guardian*, 22 March 2023. https://www.theguardian.com/environment/2023/mar/22/number-city-dwellers-lacking-access-safe-water-double-2050.

18 UN-Habitat, World Cities Report, 2022, p xviii, https://unhabitat.org/world-cities-report-2022-envisaging-the-future-of-cities.

19 Bethany Jackson, Climate change, migration and human trafficking, University of Nottingham Rights Lab, April 2023, p 5, https://www.nottingham.ac.uk/research/

beacons-of-excellence/rights-lab/resources/reports-and-briefings/2023/september/final-version-climate-change-migration-human-trafficking-september2023.pdf.

20 International Labour Office, Brooke Hospital for Animals and the Donkey Sanctuary, Environment, human labour, and animal welfare – unveiling the full picture of South Asia's brick kilns and building the blocks for change, 2017, p 6, https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_norm/@declaration/documents/publication/wcms_542925.pdf.

21 Jin-ho Chung et al, Climate mobilities into cities: a systematic review of literature from 2011 to 2020, *Urban Climate*, 45, 2022, p 2.

22 Abdulaziz I Almulhim et al., Climate-induced migration in the Global South: an in-depth analysis, *Climate Action*, 3, 47, 2024, p 2.

23 Ibid, p 2.

24 J Vernon Henderson, Adam Storeygard and Uwe Deichmann, 50 Years of urbanization in Africa: examining the role of climate change, World Bank Group, June 2014. https://openknowledge.worldbank.org/server/api/core/bitstreams/40c0c682-78e9-505c-86d2-fd45250bc986/content.

25 Kanta Kumari Rigaud et al, Groundswell: preparing for internal climate migration, World Bank Group, 2018, p xix, https://openknowledge.worldbank.org/entities/publication/2be91c76-d023-5809-9c94-d41b71c25635.

26 C40, Future urban landscapes: climate migration projections in cities, p 9, https://www.c40knowledgehub.org/s/article/Future-urban-landscapes-Climate-migration-projections-in-cities.

27 Spencer Robinson, Climate security in cities: an evidence summary, ARUP, p 38.

28 Gabriela Nagle Alverio, Jeannie Sowers, and Erika Weinthal, Displaced to cities: conflict, climate change, and rural-to-urban migration, United States Institute of Peace, June 2023, p 1, https://www.usip.org/sites/default/files/2023-06/pw_189_displaced_cities_conflict_climate_change_rural_urban_migration.pdf.

29 A 2016 paper from the IOM conceded that it had to rely on 'anecdotal evidence from field practitioners' given the 'absence of academic studies or policy documents on the topic'. IOM, The climate change-human trafficking nexus, 2016, p 3, https://publications.iom.int/books/climate-change-human-trafficking-nexus.

30 Ibid, p 4.

31 Global Fund to End Modern Slavery, Forced labor among informal apparel workers in apparel hubs of Bangladesh: a prevalence estimation report, 2022, p 2, https://humantraffickingsearch.org/wp-content/uploads/2023/03/22.12.14_Informal_Apparel-Prevalence-Brief.pdf.

32 UNODC, First national study on trafficking in persons in Bangladesh, 2022, pp 28–32, https://respect.international/wp-content/uploads/2022/11/First-National-Study-on-Trafficking-in-Persons-in-Bangladesh.pdf.

33 Ritu Bharadwaj et al, Climate-induced migration and modern slavery: a toolkit for policy-makers, IIED, September 2021, p 26, https://www.antislavery.org/wp-content/uploads/2021/09/ClimateMigrationReportSep2021_low_res.pdf.

34 International Displacement Monitoring Centre, Country profile: Bangladesh, https://www.internal-displacement.org/countries/bangladesh.

35 Walk Free and Alliance Bernstein, Bridging ESG silos: the intersection of climate change and modern slavery, p 16, https://www.walkfree.org/reports/climate-change-and-modern-slavery.

36 Ibid.

37 Shahed Mustafa, Darryl Newport and Clare Rigg, Post-cyclonic migration in coastal areas: an assessment of who, where, why migrates, and barriers to migration, *International Journal of Disaster Risk Reduction*, 92, 2023.

38 Antônio Sampaio, Conflict economies and urban systems in the Lake Chad Region, GI-TOC, November 2022, https://globalinitiative.net/analysis/lake-chad-region.

39 Kaamil Ahmed and Rafiqul Islam Montu, The making of a megacity: how Dhaka transformed in 50 years of Bangladesh, *The Guardian*, 26 March 2021. https://www.theguardian.com/global-development/2021/mar/26/the-making-of-a-megacity-how-dhaka-transformed-in-50-years-of-bangladesh.

40 Walk Free and Alliance Bernstein, Bridging ESG silos: the intersection of climate change and modern slavery, p 16, https://www.walkfree.org/reports/climate-change-and-modern-slavery.

41 It is unclear if the then-mayor meant that the figure of 2 000 was solely climate-related migrants or the total number of daily migrants. This report takes a conservative approach and interprets his comment as meaning the total number of migrants. Sadiq Khan and Mohammad Atiqul Islam, World leaders must prepare for the climate migration challenge, *The New Statesman*, 17 December 2021, https://www.newstatesman.com/spotlight/economic-growth/regional-development/2021/12/world-leaders-must-prepare-for-the-climate-migration-challenge.

42 Alexandra Bilak, From island to slum: Bangladesh's quiet displacement crisis, International Displacement Monitoring Centre, 5 March 2019, https://www.internal-displacement.org/expert-analysis/from-island-to-slum-bangladeshs-quiet-displacement-crisis.

43 International Institute for Environment and Development, Climate-induced migration and modern slavery, p 26, https://www.iied.org/20441g.

44 Global Fund to End Modern Slavery, Forced labor among informal apparel workers in apparel hubs of Bangladesh: a prevalence estimation report, 2022, p 2, https://humantraffickingsearch.org/wp-content/uploads/2023/03/22.12.14_Informal_Apparel-Prevalence-Brief.pdf.

45 UNODC, First national study on trafficking in persons in Bangladesh, 2022, pp 28-32, https://respect.international/wp-content/uploads/2022/11/First-National-Study-on-Trafficking-in-Persons-in-Bangladesh.pdf.

46 Ibid, p 28.

47 AKM Maksud et al, Mapping of slums and identifying children engaged in worst forms of child labour living in slums and working in neighbourhood areas, Institute of Development Studies, 2022, p v, https://opendocs.ids.ac.uk/articles/report/Mapping_of_Slums_and_Identifying_Children_Engaged_in_Worst_Forms_of_Child_Labour_Living_in_Slums_and_Working_in_Neighbourhood_Areas/26438323.

48 See, for instance: Sally Atkinson-Sheppard, 'Mastaans' and the market for social protection: exploring mafia groups in Dhaka, Bangladesh, *Asian Criminology*, 12, 2017; Bert Suykens, The land that disappeared: forceful occupation, disputes and the negotiation of landlord power in a Bangladeshi bastee, *Development and Change*, 46, 3, 2015.

49 Sally Atkinson-Sheppard, 'Mastaans' and the market for social protection: exploring mafia groups in Dhaka, Bangladesh, *Asian Criminology*, 12, 2017, p 248.

50 Bert Suykens, The land that disappeared: forceful occupation, disputes and the negotiation of landlord power in a Bangladeshi bastee', *Development and Change*, 46, 3, 2015, p 499.

51 Zahid ul Arefin Choudhoury et al., Poverty and violence in Korail slum in Dhaka, University of Edinburgh, 2016, p 30, https://torturedocumentationproject.wordpress.com/wp-content/uploads/2014/05/poverty-and-violence-in-korail-slum-in-dhaka.pdf.

52 David Jackman, The decline of gangsters and politicization of violence in urban Bangladesh, *Development and Change*, 50, 5, 2018.

53 Samiur Rahman, This land is my land, *Dhaka Tribune*, 18 July 2023, https://www.dhakatribune.com/opinion/op-ed/320539/this-land-is-my-land.

54 UNHCR, How climate change is multiplying risks for displacement, 2 December 2020, https://www.unhcr.org/uk/news/stories/how-climate-change-multiplying-risks-displacement.

55 Sarah Bermeo, David Leblang and Gabriela Nagle Alverio, Rural poverty, climate change, and family migration from Guatemala, Brookings Institution, 4 April 2022, https://www.brookings.edu/articles/rural-poverty-climate-change-and-family-migration-from-guatemala.

56 Sarah Bermeo and David Leblang, Climate, violence, and Honduran migration to the United States, Brookings Institution, 1 April 2021, https://www.brookings.edu/articles/climate-violence-and-honduran-migration-to-the-united-states.

57 Jona Huber et al, Climate-related migration and the climate-security-migration nexus in the Central American Dry Corridor, *Climatic Change*, 176, 79, 2023, p 13.

58 Mark Scialla, How climate change and gang violence intersect in Honduras, *The Nation*, 27 October 2021, https://www.thenation.com/article/environment/honduras-migration-climate-change.

59 Shiloh Fetzek, Climate change, migration and security in the context of urbanization in northern Central America, United Nations Environment Programme and IOM, 2023, https://www.un.org/climatesecuritymechanism/sites/default/files/2024-09/climate_change_migration_and_security_nca.pdf.

60 Ibid, p 16.

61 Gangs offer aid as Haiti earthquake death toll crosses 2 200, Al Jazeera, 22 August 2021, https://www.aljazeera.com/news/2021/8/22/haiti-earthquake-death-toll-passes-2200-gangs-offer-aid; Jess DiPierro Obert and Paula Dupraz-Dobias, In Haiti, gang violence strains aid operations and demands new approaches, *The New Humanitarian*, 7 February 2022. https://www.thenewhumanitarian.org/news-feature/2022/2/7/Haiti-gang-violence-strains-aid-operations-demands-new-approaches.

62 Idowu Ajibade, Planned retreat in Global South megacities: disentangling policy, practice, and environmental justice, *Climatic Change*, 157, 2019.

63 David Dodman et al, Cities, settlements and key infrastructure, in Hans-Otto Pörtner et al (eds), Climate change 2022: impacts, adaptation and vulnerability. contribution of working group II to the sixth assessment report of the Intergovernmental Panel on Climate Change, 2022, p 926, https://www.ipcc.ch/report/ar6/wg2.

64 Chunyang He et al, Future global urban water scarcity and potential solutions, *Nature Communications*, 12, 2021.

65 Sanjoy Majumder, Water mafia: why Delhi is buying water on the black market, BBC News, 28 July 2015, https://www.bbc.co.uk/news/world-asia-india-33671836.

66 Zulfiqar Kunbhar, Meet Karachi's water mafia, The News Lens, 30 November 2016, https://international.thenewslens.com/article/55418.

67 Naziha Syed Ali and Aslam Shah, Selling liquid gold – Karachi's tanker mafia, Dawn, 24 January 2023, https://www.dawn.com/news/1733033.

68 Ibid.

69 Diaa Hadid and Abdul Sattar, For Karachi's water mafia, stolen H2O is a lucrative business, NPR, 10 September 2018, https://www.npr.org/sections/goatsandsoda/2018/09/10/645525392/for-karachis-water-mafia-stolen-h20-is-a-lucrative-business.

70 Zulfiqar Kunbhar, Meet Karachi's water mafia, The News Lens, 30 November 2016, https://international.thenewslens.com/article/55418.

71 Vanda Felbab-Brown, Water theft and water smuggling: growing problem or tempest in a teapot?, Brookings Institution, March 2017, p 7, https://www.brookings.edu/wp-content/uploads/2017/03/fp_201703_water_theft_smuggling.pdf.

72 Noman Ahmed and Nazia Hussain, Water mafia and governance in Karachi, New Security Beat, 14 February 2022, https://www.newsecuritybeat.org/2022/02/water-mafia-governance-karachi.

73 Iñaki Albisu Ardigó and Marie Chêne, Corruption in water and sanitation services, Transparency International, 1 September 2017, https://knowledgehub.transparency.org/guide/topic-guide-on-corruption-in-water-and-sanitation-sector/4498.

74 For a comprehensive overview of criminal governance and service provision by gangs, see: Antônio Sampaio, Criminal governance during the pandemic: a comparative study of five cities, GI-TOC, December 2021, https://globalinitiative.net/analysis/criminal-governance-covid-19.

75 Mohammad Sadeq Ahmadi et al, Towards a global day zero? Assessment of current and future water supply and demand in 12 rapidly developing megacities, *Sustainable Cities and Society*, 61, 2020.

76 Anies Baswedan, With collaboration, Jakarta can battle climate change, *Urban Solutions*, 17, https://isomer-user-content.by.gov.sg/50/d07170b3-3bcd-4c3e-80f2-3f30ca3d485d/04_opinion_jakartacanbattleclimatechange.pdf.

77 Nursita Sari, *Pencurian air tanah diduga terjadi di 10 ribu titik di Jakarta*, Kompas, 31 July 2017, https://kmp.im/app6 https://megapolitan.kompas.com/read/2017/07/31/20060041/pencurian-air-tanah-diduga-terjadi-di-10-ribu-titik-di-jakarta.

78 Dhanang David Aritonang et al, Water mafia exploits the poor, Kompas, 11 June 2021, https://www.kompas.id/baca/english/2021/06/11/water-mafia-exploits-the-poor.

79 Michael Keith, Urbanisation's role in the climate crisis is being overlooked, *Financial Times*, 26 January 2024, https://www.ft.com/content/e9ec7f6d-27a4-4533-a4f2-7b91968e1688.

80 Dianto Bachriadi and Edward Aspinall, Land mafias in Indonesia, *Critical Asian Studies*, 55, 3, 2023, pp 331–332.

81 Emma Colven, A political ecology of speculative urbanism: the role of financial and environmental speculation in Jakarta's water crisis, *Economy and Space*, 2022, p 9.

82 Dianto Bachriadi and Edward Aspinall, Land mafias in Indonesia, *Critical Asian Studies*, 55, 3, 2023, pp 331–332.

83 Nina A Loasana, Authorities hunt down Jakarta 'land mafia', *The Jakarta Post*, 29 April 2021, https://www.thejakartapost.com/news/2021/04/29/authorities-hunt-down-jakarta-land-mafia.html.

84 UN-Habitat, World Cities Report 2022, p 42, https://unhabitat.org/wcr/2022.

85 Christopher Bren d'Amour et al, Future urban land expansion and implications for global croplands, PNAS, 114, 34, 22 August 2017, https://www.pnas.org/doi/pdf/10.1073/pnas.1606036114.

86 UN-Habitat, World Cities Report 2022, p xviii, https://unhabitat.org/wcr/2022.

87 See: Francesco Chiodelli, The illicit side of urban development: corruption and organized crime in the field of urban planning, *Urban Studies*, 56, 8, 2019.

88 Eric Scheye, Heart of Africa's organized crime: land, property and urbanization, ENACT, May 2019, p 2, https://enactafrica.org/research/policy-briefs/heart-of-africas-organised-crime-land-property-and-urbanisation.

89 J Vernon Henderson, Adam Storeygard and Uwe Deichmann, 50 years of urbanization in Africa: examining the role of climate change, World Bank Group, June 2014, https://openknowledge.worldbank.org/server/api/core/bitstreams/40c0c682-78e9-505c-86d2-fd45250bc986/content.

90 Tom Goodfellow et al, Land and connectivity: domain report, Working Paper 12, African Cities Research Consortium, May 2024, pp 30–31, https://www.african-cities.org/wp-content/uploads/2024/05/ACRC_Working-Paper-12_May-2024.pdf.

91 Ibid, p 31.

92 David Taylor, Inside the crime rings trafficking sand, *Scientific American*, 1 February 2024, https://www.scientificamerican.com/article/sand-mafias-are-plundering-the-earth.

93 ES Rentier and L Cammeraat, The environmental impacts of river sand mining, *Science of the Total Environment*, 838, 1, September 2022, https://www.sciencedirect.com/science/article/pii/S0048969722029746.

94 The environmental cost of China's addiction to cement, BBC Future, 23 April 2024, https://www.bbc.co.uk/future/article/20240419-the-environmental-cost-of-chinas-addiction-to-cement.

95 Aunshul Rege, Not biting the dust: using a tripartite model of organized crime to examine India's sand mafia, *International Journal of Comparative and Applied Criminal Justice*, 40, 2, 2016.

96 Aurora Torres, Jodi Brandt, Kristen Lear and Jianguo Liu, A looming tragedy of the sand commons, *Science*, 357, 6355, September 2017, https://www.science.org/doi/10.1126/science.aao0503.

97 Eric Scheye, Heart of Africa's organized crime: land, property and urbanisation, ENACT, May 2019, p 4, https://enactafrica.org/research/policy-briefs/heart-of-africas-organised-crime-land-property-and-urbanisation.

98 Mayke Kaag, Gerard Baltissen, Griet Steel and Anouk Lodder, Migration, youth, and land in West Africa: making

the connections work for inclusive development', *Land*, 8, 4, 2019, p 7.

99 Markus Kröger, Land-grabbing mafias and dispossession in the Brazilian Amazon: rural–urban land speculation and deforestation in the Santarém region, *Globalizations*, 2024, pp 9–12.

100 Nazia Hussain, Scarcity and contention in cities in the Global South: evidence from Karachi and Manila, Institute for Future Initiatives, University of Tokyo, 2019, p 1, https://ifi.u-tokyo.ac.jp/en/news/4113.

101 Spencer Robinson, Climate security in cities: an evidence summary, ARUP, p 23.

102 Jessica L Decker Sparks et al, Growing evidence of the interconnections between modern slavery, environmental degradation, and climate change, *One Earth*, 4, 2, 2021.

103 Francesco Chiodelli, The illicit side of urban development: corruption and organized crime in the field of urban planning, *Urban Studies*, 56, 8, 2019.

104 Hernán Flom and Alfredo Malaret Baldo, Lessons from effective offices of violence prevention, Peace in Our Cities, January 2024, https://stanleycenter.org/wp-content/uploads/2024/01/OVP-English-Report.pdf.

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