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Global Futures Bulletin

CLIMATE MIGRATION AND DISPLACEMENT

NO PLACE TO RUN

Summary

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Abstract

Concern with climate migration and disaster displacement is rising-up the humanitarian and development agendas. Yet the response of national governments, international agencies, the private sector and non-governmental organisations falls far short of what is needed to prevent future population dislocation generated by climate shocks and stresses. While all estimates should be treated with caution, almost 60 million people have already been displaced as a result of food insecurity and livelihood disruptions associated with rising temperatures, floods and storms. Between 216 million and 1.2 billion more will face escalating pressures to migrate across borders or be dislocated within them as a result of stresses ranging from heat waves to rising seas. The current focus on *managing* migration and displacement must be strengthened with a focus on strengthening adaptation, preparedness and resilience particularly at the regional, national and local levels.

Introduction

The world is gradually waking up to the threat of climate change. Warming temperatures and extreme weather events are increasingly shaping decisions about how and where people live. A steady drumbeat of scientific reports, such as those published by the Intergovernmental Panel on Climate Change (IPCC), and the alarms raised by an increasingly visible climate justice movement are helping sharpen collective awareness of the many risks ahead. Government and private sector-led investments into climate mitigation, and to a lesser extent adaptation, are also gathering pace, but still falling short. Yet the sheer scale of climate change, including its impacts on food security and associated social stresses, mean that population dislocation is likely to increase, especially in lower-income settings. Global, regional and national investment in early warning, preparedness and resilience must be accelerated.

The past few years have revealed the catastrophic consequences of a rapidly warming world. In many parts of the world climate shocks and stresses are becoming increasingly frequent and intense. Climate shocks – heat waves, droughts, wildfires, hurricanes, and storms – are typically rapid onset events that can trigger sudden movements of people if not adequately prepared for. By contrast, climate stresses such as declining precipitation, the drying out of forests and rising sea levels generally unfold more gradually over time. Although shocks and stresses are occurring virtually everywhere they are disproportionately impacting the most vulnerable, especially in settings where political authorities are unable or unwilling to provide adequate protection and assistance.

There is growing consensus across scientific communities that a heating planet will accelerate climate migration and disaster displacement. On the one hand, population movement is often a coping strategy that can yield benefits for those on the move and host communities. On the other hand, the rapid and forcible dislocation of people is not just traumatic for those forced to move, but can trigger multiple security, humanitarian and development challenges if not anticipated or prepared for. Growing concerns with the implications of rising temperatures helps explain why the US White House released a paper on climate migration in 2021, the government's first official statement on the topic. The US Defence Department likewise outlined similar concerns in 2022.

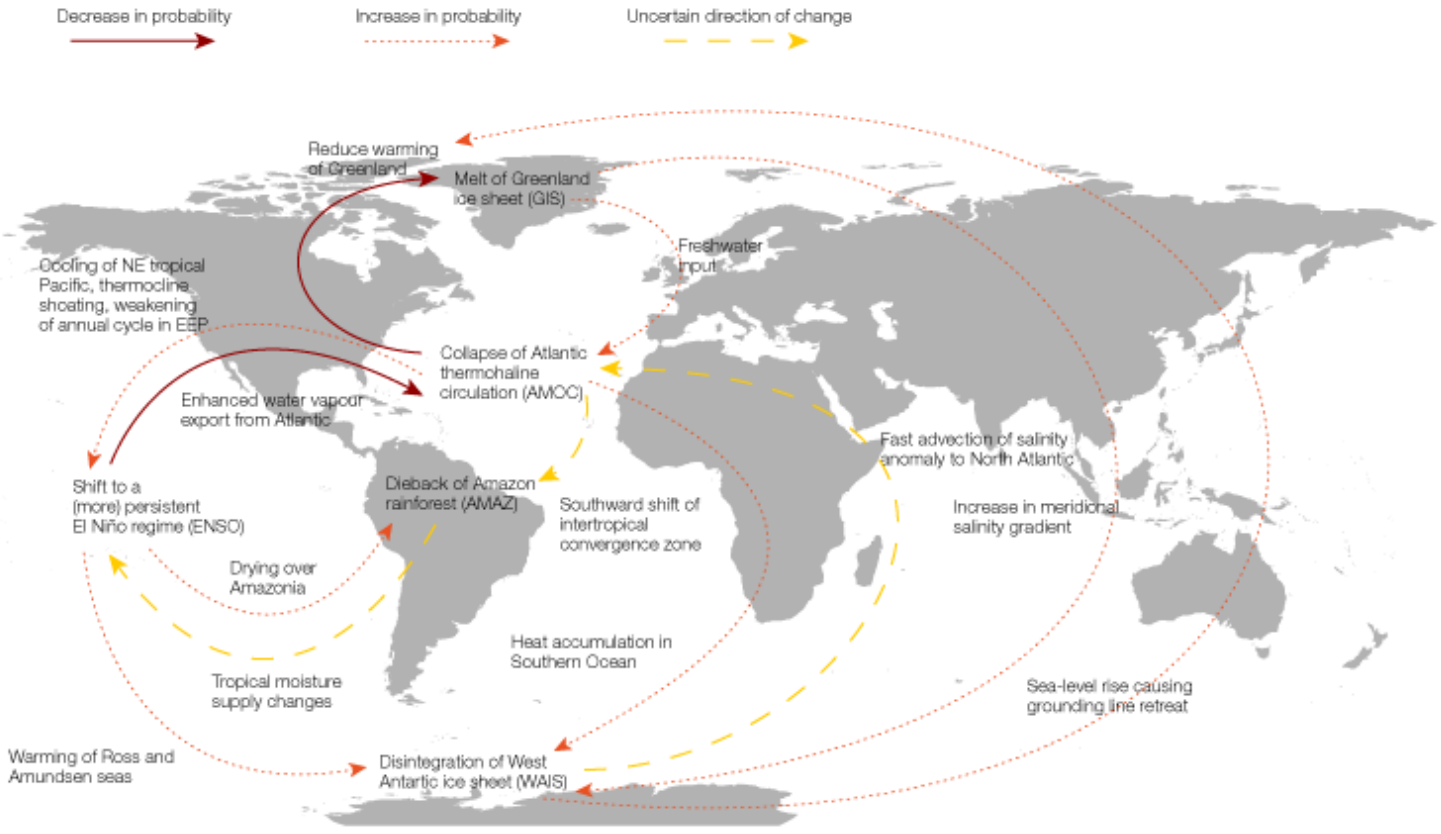
Worries over climate migration and displacement extend from their politically destabilising effects to the economic costs of response. Concerns are particularly acute in small island states where climate threats are existential and entire populations are preparing to evacuate, in some cases permanently. Analogous risks exist for hundreds of coastal cities and thousands of communities in low-lying deltas that are facing rising sea levels, storm surges and dangerous levels of heat. The compound disasters of climate, conflict and underdevelopment are even more disconcerting when considering rising populations in those parts of the world that are likely to be most at risk. Despite these clear and present dangers, global, regional and national measures to forecast risks and invest in resilience are insufficient.

A warming world will redraw the global map for where people live over the coming decades. Yet there are few coordinated efforts to construct a coherent response. A concerted effort is needed to anticipate and mitigate risks and strengthen resilience in the most vulnerable parts of the world before the challenges overwhelm countries altogether. The first section of this bulletin highlights shifting climate change patterns – including hot spots – that are contributing to migration and displacement. Section two considers underlying theories and assumptions of climate migration and displacement, and how they intersect with other forms of population movement. The third section examines trends in migration and displacement, together with the potential geopolitical implications. The bulletin closes with a short review of global, regional and national responses, with a focus on the Americas.

Climate patterns and trends

The global climate is a complex system connecting the atmosphere, oceans, poles, basins and a multitude of ecosystems. While global warming is beyond dispute, the impacts of a heating world are nonlinear, cascading and compounding – rising temperatures hasten the melting of ice caps, roil atmospheric and ocean currents, and accelerate die-back in major forest basins. While our understanding of the timing and intensity of feedback loops is still evolving, there is widespread recognition that warming is already transforming oceans, carbon sinks and biodiversity. Increasing temperatures, diminished rainfall, declining soil moisture and shortening dry and wet seasons is altering planting and harvesting cycles, with devastating effects in many parts of the Americas, Africa and Asia, especially for populations highly dependent on subsistence farming and livestock rearing.

Figure 1. Climate systems in a warming world

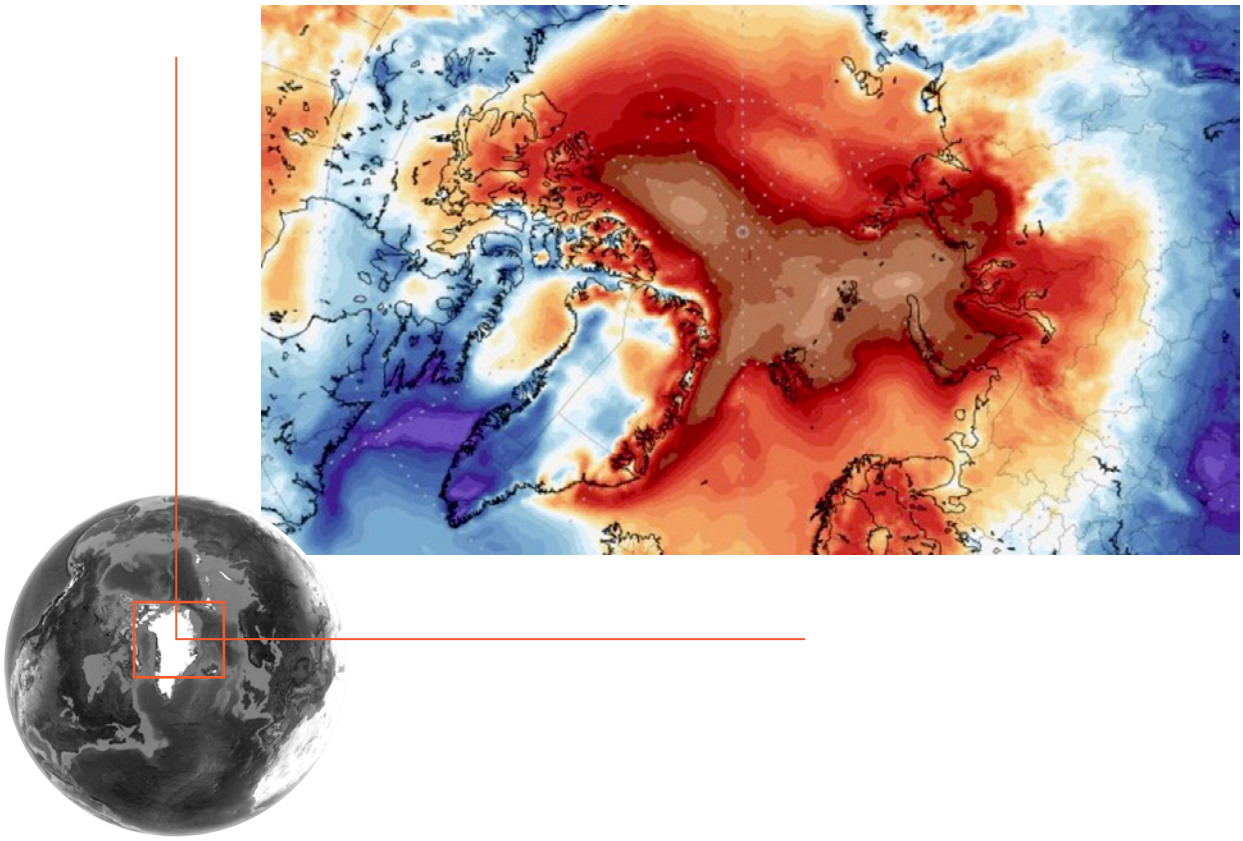


Source: Cai et al (2016)

Scientific assessments indicate that the planet is warming faster than expected, with some regions heating faster than others. Researchers broadly agree that the world could undergo more dramatic temperature increases over the next 50 years than experienced in the previous 6,000. Today, just one percent of the planet falls within so-called "barely liveable" hot zones: by 2050, the ratio could rise to almost twenty percent. Other studies suggest that by 2100, temperatures could rise so high that spending a few hours outside in parts of India and Eastern China could be lethal. The implications for the lives and livelihoods of billions of people, particularly the young and elderly, are profound.

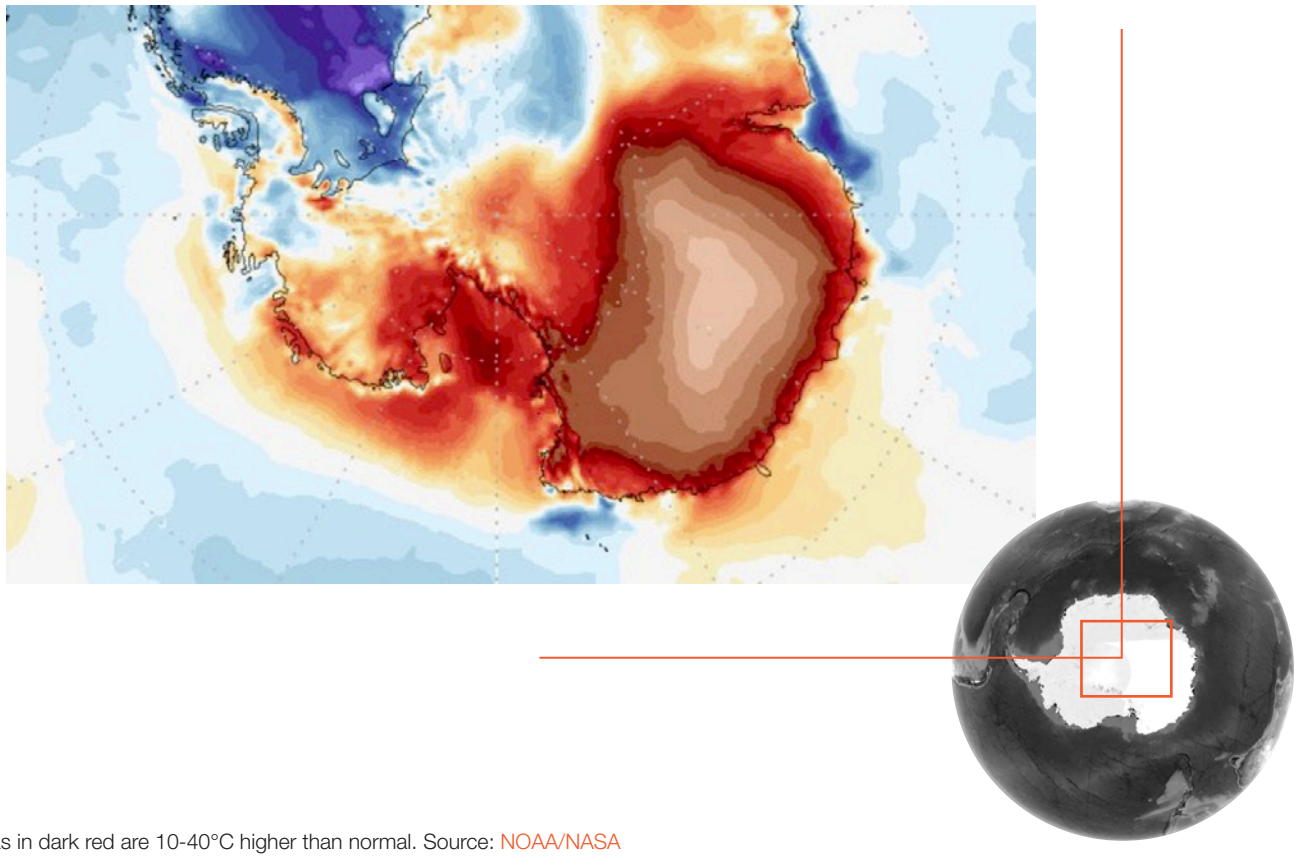
The specific relationships between climate change - particularly global warming - and climate-induced migration and displacement are not always clear cut. To be sure, there are a wide range of calculations that determine an individual or household to relocate. The correlations appear to be strongest in small island states, where rising seas have already submerged eight islands in the western Pacific, with another 50 expected to disappear by 2100. Indeed, the first people to successfully apply for refugee status on account of sea level rise recently were islanders from Kiribati to New Zealand. There are also clear relationships between climate change and the decision of people to leave across the Sahel and Horn of Africa. The combination of warmer weather, less predictable rains, lowered food productivity, collapsing common property resource mechanisms and rising tensions are all tightly connected to in-country and cross-border population movements.

Figure 2. Antarctic warming



Areas in dark red are 10-40°C higher than normal. Source: NOAA/NASA

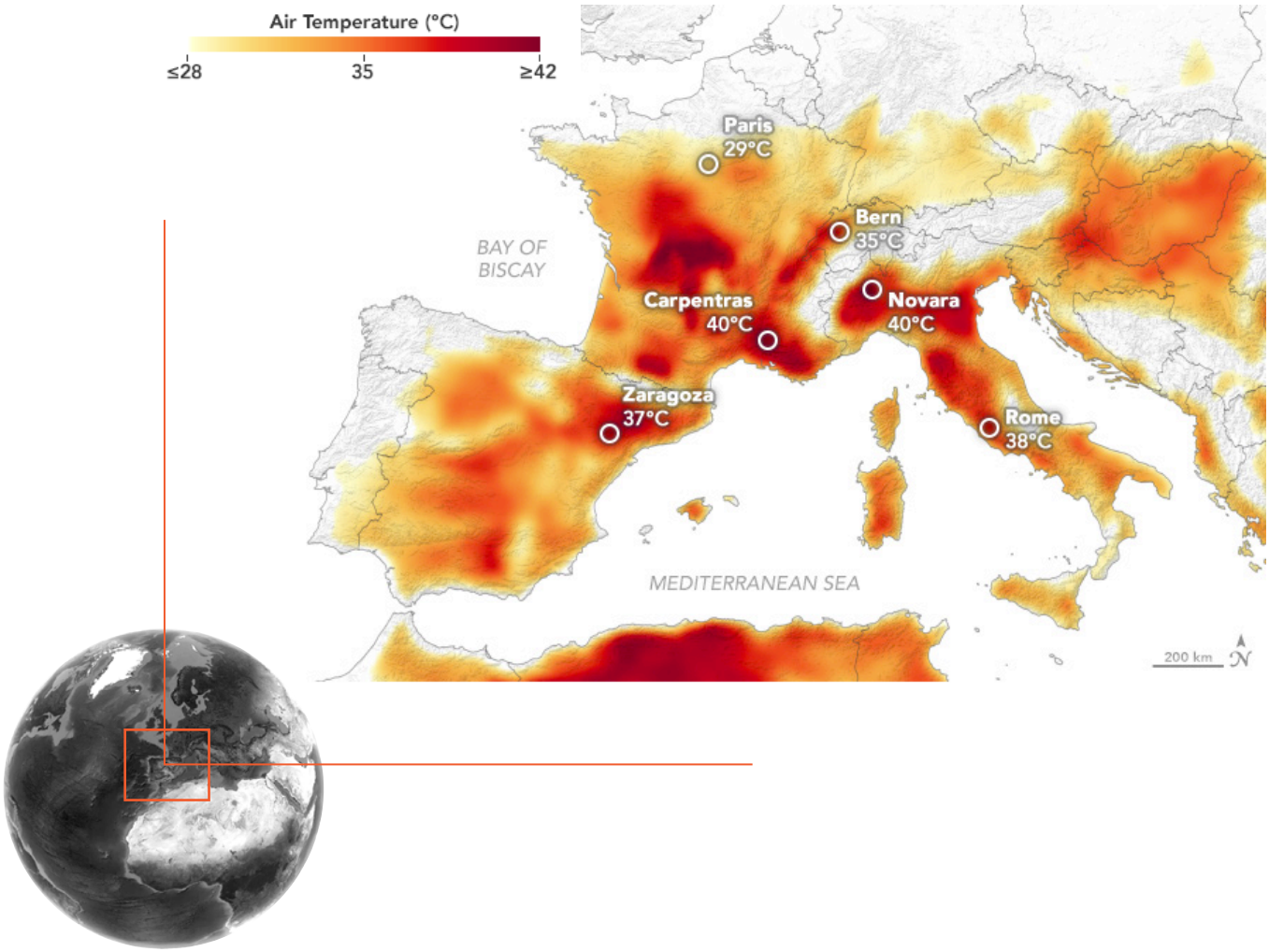
Figure 3. Arctic warming



Areas in dark red are 10-40°C higher than normal. Source: NOAA/NASA

Rapid global warming is occurring in the two poles, the Arctic and Antarctic, as well as the third pole, the Himalayas. The Arctic and Antarctic are warming four times faster than the rest of the world with significant ramifications for the global climate. For example, if the Greenland sheet melts entirely, global sea levels could rise by about 20 feet. If Greenland ice sheets, as well as the Arctic and mountain glaciers also melt, waters could rise up to 230 feet. The poles are already experiencing melting of some 13 per cent a year - and the Arctic could be ice free by 2040. Not only will these changes contribute to rising temperatures and massive inundation of coastal communities, they will profoundly stress food production and generate massive carbon and methane emissions.

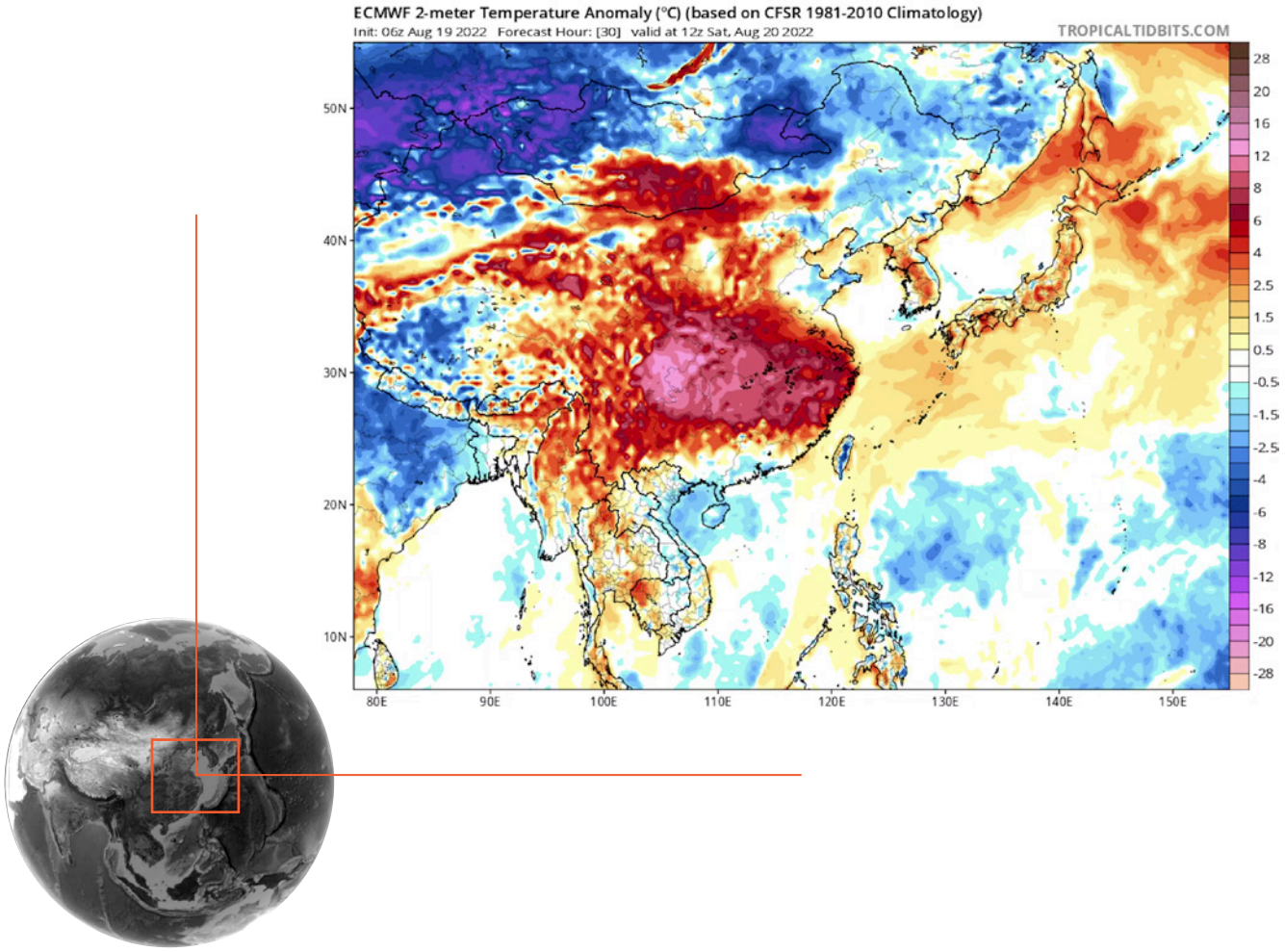
Figure 3. Heatwaves in Europe



Source: NASA (2022)

Europe is also experiencing changes in both average and extreme temperature and precipitation as well as rising sea levels and reclining snow and ice cover on land and seas. In 2022, the continent experienced the worst drought in 500 years. During the summer months at least two thirds of European Union members faced drought warnings and extreme heat alerts contributing to over 50,000 excess deaths. Major rivers and tributaries ranging from the Danube and Po, the Loire and Rhine registered partial drying in 2022. While global warming is contributing to searing heat and potentially declining agricultural yields in western and southern Europe, it may lead to expanded production in parts of Russia, including the northern and Siberian territories. The European Union (EU) is investing in both mitigation and adaptation, including exploring possible legal frameworks for “climate refugees”.

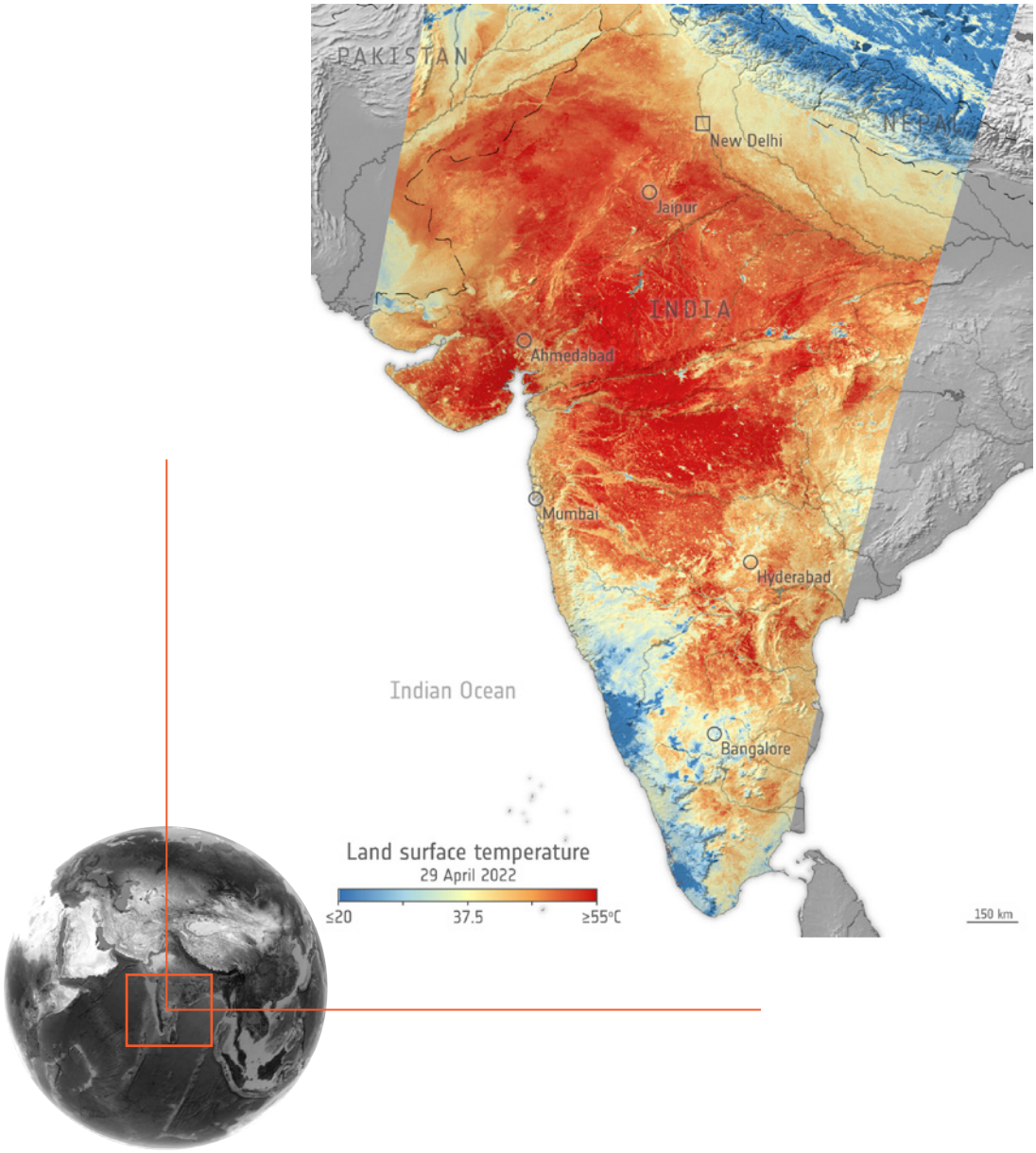
Figure 4. Unprecedented heat waves in China



Source: Axios (2022)

Global warming is already contributing to a rapid increase in weather-related shocks and stresses in East Asia, the most populous part of the world. China registered record-breaking heatwaves, drought and rainfall in 2022, contributing to historic floods and food insecurity. Prolonged dry spells are reducing water availability: major basins such as the Poyang, a key feeder for the Yangtze, shrank by 75 percent this year. And at least 244 Chinese cities regularly exceeded 40°C in 2022, making them dangerous for human habitation. China, the world's largest greenhouse gas emitter, is expected to dramatically decrease its carbon intensity in the coming years. The authorities are also undertaking investments in sponge cities and a host of other adaptation strategies to limit disruption.

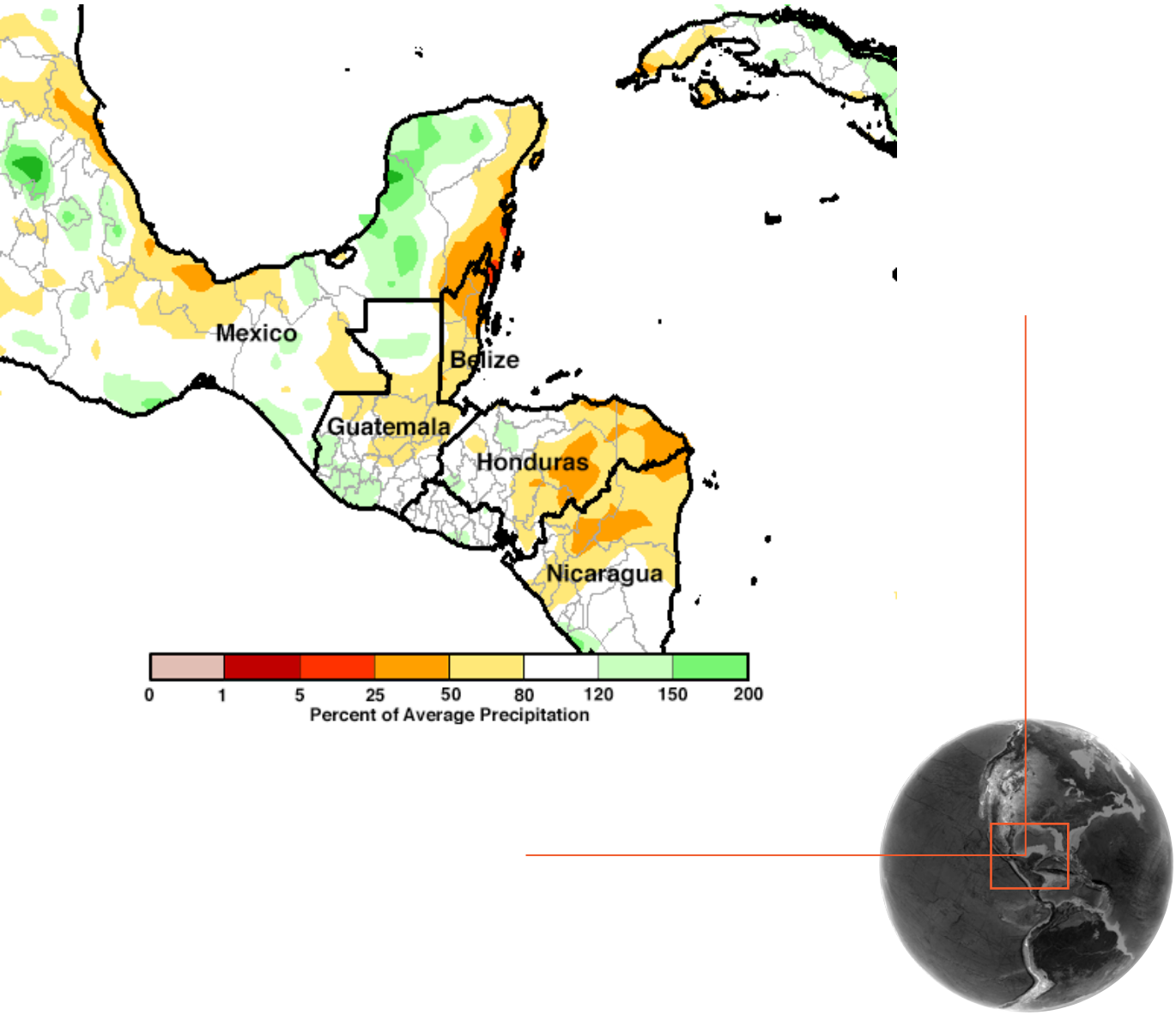
Figure 5. Extreme heat in South Asia



Source: ESA (2022)

Meanwhile, India and Pakistan also experienced the hottest heat waves in over 120 years in 2022. Climate change reportedly made extreme heat 30 times more likely to recur in both countries, with disastrous consequences for human health. Weather stations across the region detected temperatures of between 45 and 50°C this year, affecting human and animal wellbeing and undermining agricultural production and food security. Below average rainfall affected hundreds of hundreds of millions of residents in India while floods in Pakistan were the deadliest in its history and left over two million people homeless and affected another thirty three million residents. South Asia is already home to 18 of the 20 of the planet's most polluted cities, which further aggravates both extreme heat while also threatening population health.

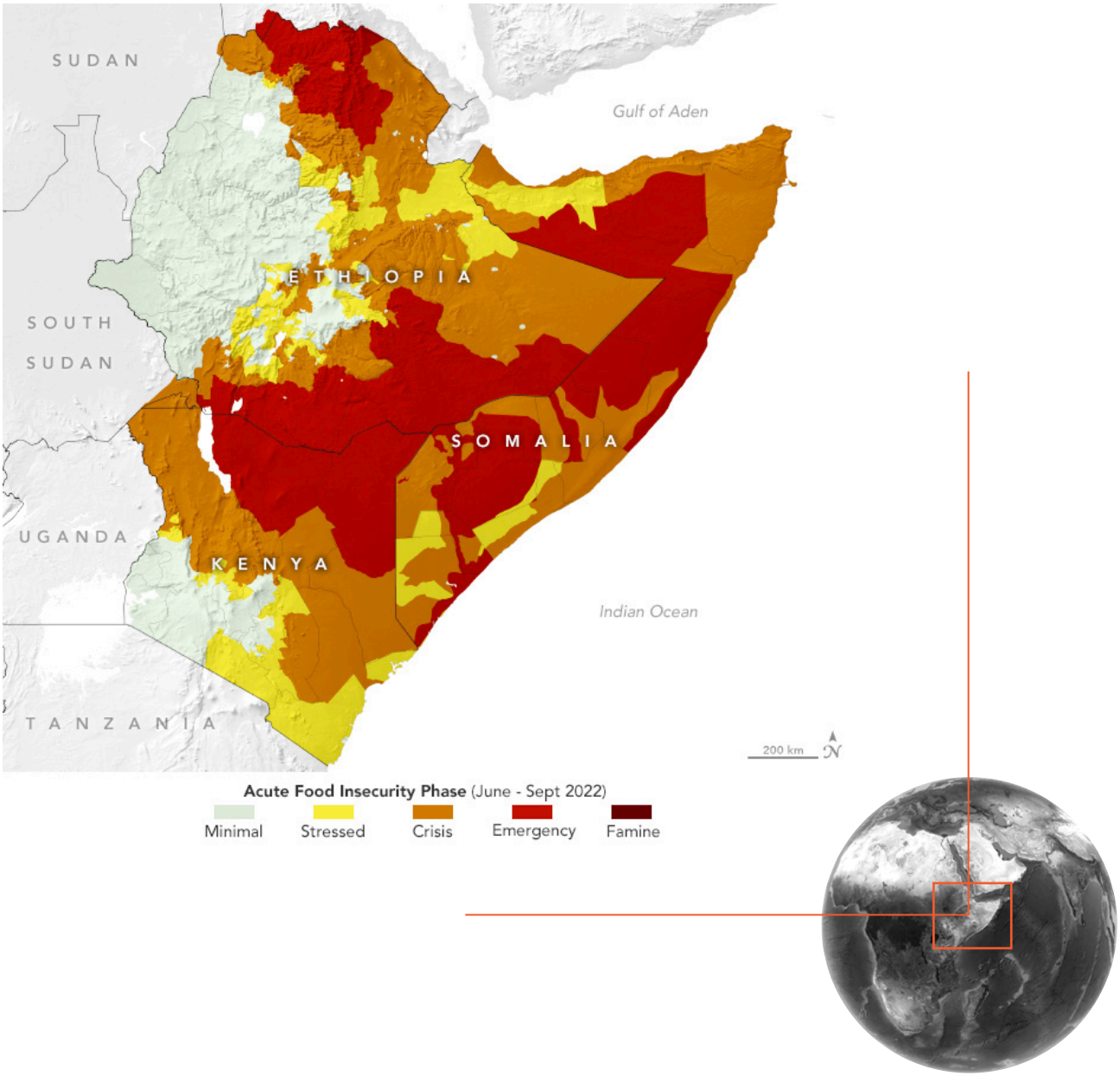
Figure 6. Drought in the Americas



Source: NASA (2022)

Large areas of Mexico, Central and South America also faced soaring temperatures and protracted drought in 2022. Specifically, Mexico experienced the worst drought in 30 years - affecting over 85 percent of the country in 2021 - and a 20 percent reduction in rainfall and decline in agricultural production. In Central America, migrants are leaving less viable areas with lower water availability and crop productivity and moving to cities, many of them already overheating. Brazil - among the world's largest producers of beef, soy, corn and sugar - has wrestled with drought since mid-2018, as have parts of Argentina, Bolivia and Paraguay since 2020. This has intensified fires, lowered crop yields and delayed planting and contributed to dangerous die-back in parts of the Amazon. Complicating matters, the drying up of rivers hampers shipping and disrupts supply chains.

Figure 8. Food insecurity in the Horn of Africa



Source: NASA (2022)

Africa and the Middle East are among the most vulnerable regions to global warming. Countries across the continent face above-average rainfall stress, crop failure, and extreme heat. The Greater Horn of Africa is particularly vulnerable, especially Somalia, Ethiopia, and Kenya - over 30 million people facing food insecurity. One person is likely to die of hunger every 36 seconds between now and the end of the year in drought-stricken East Africa as the most affected areas move rapidly towards famine. Increased temperatures there contributed to a 34% reduction in agricultural productivity growth. Meanwhile, sea level rise is expected to impact as many as 115 million people by 2030. And in the Sahel region, global warming is occurring two times faster than the global average. Extreme heat is resulting in dramatic declines in maize and wheat production, reducing river flows, shrinking critical water supplies and contributing to rising food insecurity.

Figure 9. Small island states under stress

Source: Island states under stress, Wiki Commons

According to the IPCC, among the countries most heavily impacted by climate shocks and stresses are small island states (SIDS). Among them are 38 UN member states and 20 non-member states in the Caribbean, Pacific, and Atlantic, Indian and South China Seas. SIDS are at the forefront of global discussions on climate change for good reason. Many have experienced a sharp rise in tropical cyclones, sea level rise and coastal flooding. Most SIDS have significant proportions of their residents and assets in areas exposed to climate hazards such as changes in sea levels, coastal erosion and extreme sea-level events. As a result climate change has a disproportionate impact on their tourism, fisheries and agriculture sectors.

Climate migration and displacement theory

The combination of rising temperatures, intense rainfall and extreme weather is leading to increased food insecurity, stresses on livelihoods and climate migration and disaster displacement. While sharing some characteristics, there are conceptual and legal differences between the two concepts. For the most part, migrants move voluntarily and their mobility across borders is managed through national emigration and immigration laws. By way of contrast, displaced people move involuntarily and do not have the option to remain. Those who cross international borders may be accorded a series of protections under the 1951 Refugee Convention. However, those who do not cross a border - who are internally displaced - may or may not qualify for special protections.

Growing attention to the complex relationships between global warming, migration and displacement has given rise to a new lexicon. The term "climate refugee" emerged in the mid-1990s from researchers associated with the United Nations Environment Program (UNEP). It was met with resistance from diplomats for political and legal reasons but continues to circulate in policy and media circuits. Other expressions such as "environmental refugee", "climate migrants" and "disaster displaced" have also become part of the public conversation albeit without grounding in international law. Notwithstanding the proliferation of labels, there are some basic characteristics that distinguish migrants from displaced people.

Figure 10. Categories of migration and displacement

Category	Type	Characteristics
Migration	Motivated by labor and family related factors	Short-, medium- and long-term. Can be both cross border and internal. General voluntary but can also described as forced or involuntary.
Development	Usually linked to infrastructure and urban upgrades	Short-, medium- and long-term. Typically internal. May involve land or housing appropriation and often affects lower-income populations. Can be both voluntary and involuntary.
Violence	Triggered by state, para-military or non-state groups ranging from insurgents to extremists and gangs	Short, medium- and long-term. Can be both cross-border (refugee or asylum claimant) or internal (IDP). Is always involuntary.
Climate	Associated with slower-onset climate stresses and rapid disaster events	Short-, medium- and long-term displacement and linked to a range of other "migration" events, both voluntary and involuntary.
Statelessness	Either born into or latterly affected, with exclusion from nationality and basic rights	Long-term, often acquired at birth, and linked to race, ethnicity, religion, language and gender.

Source: Muggah (2017)

First, migration and displacement are typically distinguished by the degree to which their movement is voluntary or involuntary. As noted above, migration is the result of a rational decision taken voluntarily, while displacement is a result of a denial of the option to stay and is thus involuntary. While migration is usually associated with a personal or household decision to seek more optimal conditions and opportunities, displacement is usually connected to a specific event - including shocks and stresses. While the voluntary-involuntary distinction seems straightforward, it often blurry and can start to break down. Indeed, many migrants facing the prospect of rising seas or increasing temperatures may feel they have no option but to leave their place of origin if the means of livelihood are likely to evaporate.

Second, the timing and duration of climate migration and displacement are also often opaque. For one, both migration and displacement can occur before a shock or stress occurs. Some migrants and displaced people may relocate prior to a major storm or a heat wave, precisely to avoid being affected. Moreover, both migrants and displaced people may relocate for days or years depending on whether climate-related threat is perceived to be persistent or irrevocable. The question of when migration or displacement begins and ends is not trivial. There are significant legal and operational implications about defining the duration of population movement from determining asylum status to qualifying for relief.

Third, climate migrants and displaced people often face similar risks as other people compelled to move as a result of armed conflict or development schemes. For example, before or following a climate shock or stress, people may relocate suddenly without government support or legal assistance. During their move, they may become separated from their family and care-givers and end up in socio-economically and environmentally distressed areas. They often have similar needs for emergency shelter, health, education and counselling. They may also encounter complicated property rights challenges on their return. When crossing a border, they may face similar obstacles to admission, length of stay, and durable solutions. The lack of formal status for climate migrants and displaced peoples makes these steps all the more challenging.

Finally, the relationships between climate-induced displacement and security are coming under closer scrutiny. Some researchers have pointed to the ways that climate change, food insecurity and mass population movements can potentially increase the risk of unrest and conflict. A widely cited example is the Darfur conflict in 2003, what some refer to as the "first climate conflict". In the decade leading-up to bloodshed, median rainfall fell by as much as 30 percent fuelling tensions between herders and farmers. Pasture and grazing corridors shrunk faster than communal land tenure systems could cope. Another widely cited case is Syria, where an historic drought between 2005-2010 devastated livestock and agricultural production, driving 1.5 million Syrians to move from rural to urban areas. Rising protests in cities and government crackdowns led to social unrest and a subsequent civil war, with millions of refugees moving to neighbouring countries and Europe.

Climate migration and displacement trends

The magnitude and dimensions of climate displacement are not yet fully understood. To be sure, all estimates are predicted on a set of assumptions and must be treated with caution. The UN High Commissioner for Refugees (UNHCR), for example, estimates that roughly 21 million people have been internally displaced each year since 2009 because of extreme weather and cumulative climate shocks and stresses. The agency also contends that approximately 80 percent of all refugees and people of concern under its supervision hail from countries poorly prepared to cope with climate-related shocks and stresses. Likewise, the Internal Displacement Monitoring Center (IDMC) contends that an average of 25 million people have been internally displaced due to climate change each year since 2008. The IDMC claims that three times more people are displaced due to droughts and floods than armed conflict.

The scope and scale of climate migration – people moving voluntarily on account of environmental and ecological changes - is even more uncertain. Because climate migrants are not formally recognized as a distinct legal category, they are rarely properly accounted for. In 2019, for example, the World Bank projected that an estimated 143 million people could be forced to move by 2050, most of them in lower- and middle-income countries. In 2021, the World Bank updated their forecast to 216 million people forcibly uprooted by 2050 - including 86 million internally displaced in Sub-Saharan Africa, 49 million in East Asia and 40 million South Asia and 17 million in Latin America. The Institute for Economics and Peace (IEP) estimates that by 2050 the number of climate migrants and disaster displaced could be exponentially higher, reaching some 1.2 billion people in more than 30 countries. The methodologies for how these figures were determined are rarely complementary and not always transparent.

Notwithstanding disagreements over the actual numbers of climate migrants and displaced people today there is consensus that unless action is taken there could be an order of magnitude more dislocation in the coming decades. The relationships between climate shocks and stresses, migration and displacement and instability are starting to generate international concern. To be sure, the intensity of the risks vary from place to place and depend on a host of geographic, demographic, environmental, political and economic factors. In parts of the Americas, Africa and Asia, the compounding effects of warming temperatures, droughts and floods are potentially more strongly correlated with food insecurity, migration and increasingly violent tensions. At least three hypothetical impacts are weighing on policy makers.

The first involves the way climate migration and displacement can exacerbate social and political instability. Climate migration is described as a “major geopolitical risk” by some forecasting groups. Tensions between new arrivals and host communities can flare over scarce resources (particularly among farmers and herders).The challenges of protecting and assisting migrants and the displaced on limited government resources, and intensifying xenophobia in communities receiving large caseloads of newcomers are other possible triggers for stress. In the US, for example, blaming migrants and displaced people for environmental degradation - a phenomenon known as “eco-bordering” - is increasingly commonplace. Likewise, some critics have long pointed out the dangers of securitizing migration and exaggerating the “migration threat”.

A second concern about climate migration and displacement is the way it can be instrumentalized by non-state actors. For example, in parts of West Africa and Central America, organized crime groups and gangs along with extremist and terrorist organizations are exploiting climate migrants and displaced for profit, including through human trafficking and extortion rackets. In other cases, as in Iraq and Syria, local interest groups have threatened to trigger climate displacement for political ends, whether to terrorize communities or force governments into a particular action. Non-state actors are also generating new forms of climate displacement and migration in the context of environmental crimes forcing populations to relocate or face violent retaliation.

A third flashpoint lies in the way that inherent tensions from climate migration and displacement are magnified in non-democratic and weak states. Forced population movement is more disruptive in areas experiencing democratic deficits, particularly when public authorities are unable or unwilling to provide basic protection or assistance. Some governments may also leverage climate shocks, stresses and associated migratory and displacement flows to their advantage. A case in point was Belarus cynically facilitating waves of Iraqi Kurd migrants crossing into Poland and other EU countries. Many of these populations were escaping government mismanagement and climate change in their home countries.

Tentative global solutions

Climate migration and displacement crises are not only increasingly common, they are growing more intense. Hence, the international debate is currently less about how to "stop" related population flows and more about how to "manage" their movements in a more predictable and equitable manner. The concept of "managed migration" is present in global decision-making processes, most recently the 2019 Global Compact for Safe, Orderly and Regular Migration and the 2018 Global Compact for Refugees. Yet for all the rhetoric about expanding protections and safeguards for migrants and displaced, international action falls far short of what is required. Indeed, the response to climate migration and displacement appears to be bordering on dysfunctional. A closer inspection of global, regional, national and local measures suggest that many are inadequate despite a narrative of success.

Clearly, a critical starting point for managing climate migration and displacement involves mitigating global warming and associated shocks and stresses in the first place. Doing so requires radical reductions in greenhouse gas emissions, the rapid transition to green energy and a green economy, and dramatically scaling-up nature-based solutions. The 2015 Paris Climate Agreement established a roadmap to achieve zero carbon commitments and there is growing investment in green financing to reach these goals. Of course, the other essential strategy to limiting the effects of climate migration and displacement involves adaptation. Most experts agree that measures for detecting, protecting, assisting and supporting migrants and displaced people and improving resilience in "hot spots" all have to be improved. A range of frameworks are emerging to accelerate adaptation, including disaster risk reduction strategies as well as hard and soft measures to improve resilience, but these are still not receiving the kind of investment required.

One priority involves strengthening the official recognition of climate migrants and displaced people. To date, there is still no dedicated global legal instrument to protect and assist people moving on account of climate change. Nor are the prospects especially encouraging for developing legal safeguards in the current polarised multilateral environment. Instead, international agencies such as UNHCR are adopting a more pragmatic approach. Climate migrants and displaced people do not qualify for "refugee status" under the 1951 Convention, but are referred to instead as "environmental migrants". The UNHCR is not adopting a leadership role since it lacks the mandate and resources to do more. Rather, it provides legal guidance, specialized funds and strategies to assist countries strengthen their national adaptation plans and advocates for the promotion of local resilience. UNHCR also recently established the position of special adviser on climate action to raise attention to the issue and articulate responses.

Another priority involves greater advocacy on behalf of climate migrants and displaced people and strengthening national cooperation to address the drivers of population movement. Organisations such as the International Organization for Migration (IOM) and the United Nations Environment Program (UNEP) are also seized of the issues of climate migration and disaster displacement. Specifically, IOM initially began working on the issues of climate and migration in 2007 and set up a dedicated unit in 2015. A focus of the IOM is on shaping migration governance – highlighting the relationship between environmental factors and migration, advocating and providing protection and assistance, and supporting small scale projects to foster resilience in at-risk areas. In the meantime, the UN Human Rights Council recently established a special rapporteur on climate change in 2021, seeking also to draw attention to the issue.

Among the most prominent international efforts to develop responses to climate displacement in particular is the Nansen Initiative. Launched in 2013 by Norway, Germany, Switzerland and the European Union (EU), it facilitates state-led consultations to build consensus, cooperation, standards and responses for cross-border displaced. A particular focus is on people fleeing across frontiers as well as internally displaced from disasters and slower moving crises. The Nansen Initiative has proposed an Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change. Meanwhile, the IOM has created an environmental migration portal that centralizes research and data on climate migrants and displaced.

Incremental regional responses

Regional responses to climate migration and displacement are incipient and most limited to declarations. For example, the African Union (AU) adopted a broader definition of refugees than that spelled out in the 1951 Convention, but only recently started engaging the topic. The AU's Africa Migration Report in 2020 and most recent Pan-African Forum on Migration in 2022 highlight the impacts of climate change on migration and displacement and emphasize the critical role of regional organizations for mitigation and adaptation. Likewise, the 2022 Kampala Declaration on Migration, Environment and Climate Change explicitly recognizes internal displacement arising from climate-related events. In Asia, climate migration was identified as a challenge over a decade ago, and a host of consultations, including some led by the IOM, have led to frameworks and initiatives across the region. Meanwhile, the EU adopted the Nansen

Initiative in 2015 and the bloc's 2021 strategy on climate change adaptation explicitly reinforces the role of climate finance and the fostering of resilience to accommodate people moving on account of climate change.

The issue of climate migration and displacement has also kick-started diplomatic action in Mexico, Central America and South America. The 1984 Cartagena Declaration applied a wider definition of refugees than the 1951 Convention and 1967 Protocol, to include situations involving disturbances to public order (that can be extended to natural disasters). Since then a succession of statements - the San Jose Declaration (1994), Puebla Process (1996), Mexico Declaration (2004), Brasilia Declaration (2010) and Cartagena Anniversary Declaration (2014) - have gradually broadened the categories of displacement warranting greater attention. Regional organizations such as the Bolivian Alliance for the Americas (ALBA) and Union of South American Nations (UNASUR) also launched small-scale initiatives to attend to the needs of disaster displaced, including from Haiti, Chile and Colombia. For the most part, however, these rhetorical commitments to collaborative migration and displacement management have not been matched with resources, much less enforcement.

Evolving national strategies

Several countries are also incrementally revisiting and revising their policy and programmatic approaches to climate migration and disaster displacement. A prominent example of this is the US, including the aforementioned report on the impacts of climate change on migration in late 2021. The White House report draws attention to the multiple and complex relationships between migration, insecurity, instability, and conflict and recommends forging an interagency policy process on climate change and migration to coordinate responses. The White House also recently signed an executive order for "rebuilding and enhancing programs to resettle refugees and planning for the impacts of climate change on migration". Meanwhile, the EU is also urging member states to ramp up action stressing that inaction will have devastating consequences. It is likely that most OECD countries and a growing number of states in the Americas, Africa and Asia will ramp up similar legislative efforts in the coming years. The extent to which they match these rhetorical gestures with investment in preparedness, adaptation and resilience for the most vulnerable countries and communities is far less clear.

Countries faced with looming climate emergencies are first movers. Faced with the prospect of climate-related exodus from the Pacific Islands, both Australia and New Zealand put in place policies starting in 2018 to accept migrants and displaced people fleeing climate change. Describing these populations alternately as "climate refugees" and "environmental refugees", New Zealand intends to accept up to 650 migrants from Fiji, Tonga, Tuvalu and Kiribati every year as well as 1,100

Samoans. Australia intends to admit such populations on a temporary basis, as migrant workers, with provisions for nine countries. On the other side of the world, Argentina also created special three-year humanitarian visas in 2022 for people displaced by disasters from Mexico, Central America and the Caribbean.

For the most vulnerable countries and cities, more extreme adaptation measures are on the table. Many are not waiting for international assistance. Indonesia, for example, is relocating its capital city, Jakarta, on account of rapid sea level rise and sinking coastal infrastructure. Several island countries are also proposing more radical strategies, from physically hoisting their lands above sea level to relocating populations entirely. Bangladesh, with exposed delta areas, is reinforcing climate resilient towns and helping populations resettle from more vulnerable hamlets. The Maldives is also developing floating cities and intends to relocate some population to western Sri Lanka.

For some particularly vulnerable countries and cities, more extreme measures are on the table. Indonesia, for example, is relocating its capital city, Jakarta, on account of rapid sea level rise and sinking coastal infrastructure. Several island countries are also proposing more radical strategies, from physically hoisting their lands above sea level to relocating populations entirely. Bangladesh, with exposed delta areas, is reinforcing climate resilient towns and helping populations resettle from more vulnerable hamlets. The Maldives is also developing floating cities and intends to relocate some population to western Sri Lanka.

Preparedness, adaptation and resilience

The costs of inaction on climate migration and displacement in the coming decades will be dramatically higher than early intervention in the next few years. Moving forward, the focus for many governments, businesses, philanthropists and non-governmental groups must be on strengthening preparedness, expanding adaptation and fostering resilience. This should involve targeted investment in particularly vulnerable areas to reduce the risks of climate migration and displacement to begin with. National and subnational authorities will need capacity development to design and implement solutions. The private sector - including investors, pension funds and insurance companies - must be partners in this endeavor.

A combination of preparedness and adaptation strategies are required. Soft measures include the deployment of early warning systems and forecasting models, the introduction of smarter building and zoning codes, the deployment of funding mechanisms to support at-risk communities, as well as strengthening local governance to manage climate threats over time. National and subnational governments are increasingly investing in disaster risk management strategies, but with an eye to enhancing social justice through initiatives for equity and inclusion, indigenous rights, accessibility and child protection. Harder responses include designing protective infrastructure such as sea walls, restoring coastland and wetlands, and building biophilic and more resilient urban infrastructure, from green to sponge cities.

Ultimately, enhancing resilience demands both future-looking planning and innovative financing. Blended finance approaches involving multilateral aid from development banks and bilateral agencies, philanthropic support and private equity are critical, particularly with governments and societies facing budget shortfalls and liabilities exacerbated by the global pandemic and ongoing geopolitical tensions. Some governments in the Caribbean, for example, are developing innovative tools such as "multi-country risk pools" to diversify exposure to catastrophic risk (in the Caribbean). Others are expanding contingency finance options in which governments set aside public funds or secure loans for early response and recovery. To be sure, all governments, businesses and societies will need to rapidly quantify the costs and benefits of increased migration and displacement in a warming world.

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