NAVIGATING COMPLEXITY:

Climate, Migration, and Conflict in a Changing World

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Cover Photo: Internally displaced people seek shelter, Jowhar, Somalia, November 2013 (Tobin Jones/UN Photo)

Above Photo: At a UN High Commissioner for Refugees center, Lebanon, January 2014 (Mohamed Azakir/World Bank)

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EXECUTIVE SUMMARY

Record levels of displacement and accelerating climate change have prompted many to wonder if the world is headed toward a more violent future. Whether a policymaker, practitioner, diplomat, or peacebuilder, the nexus of climate change, migration, and conflict is posing fundamental challenges in a myriad of ways. This document is a response to requests from development and diplomacy professionals for insights that will help them understand and respond to these challenges in the field.

Climate change is expected to contribute to the movements of people through a variety of means. At the same time, there is significant concern climate change may influence the form, type, and location of violent conflict. Our understanding of these dynamics is evolving quickly and sometimes producing surprising results. There are, in fact, considerable misconceptions about why people move, how many move, and what effects they have. Although not exhaustive, we give some sense of the major lines of thinking here. We seek to help answer the following questions: What do we know (and not know) about the links between climate change, migration, and violent conflict? And what can be done to maximize the potential for constructive outcomes?

Experts generally agree that the risk of violent conflict or instability related to climate change-induced migration is highly dependent on local context. Climatic factors are very difficult to separate from other critical factors in decisions to move or engage in armed conflict. These economic, political, and social factors will always be key parts of any analysis of climate change, migration, and conflict. Nevertheless, climate change and large movements of people clearly present major societal and governance challenges. Governments, international organizations, and civil society are being asked to respond, whether they are prepared or not.

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We provide a background scan of relevant literature and an in-depth analysis of the high-profile cases of Darfur and Syria to discern policy-relevant lessons. Five major takeaways are:

1. **Labels such as "climate refugees" are misleading**, given the current underdevelopment of legal frameworks defining these terms, lack of formal protections or status, and multiple causes of human mobility.

2. Because the vast majority of migration and displacement occurs within national borders, **strengthening local institutions**, including customary institutions, **and encouraging flexibility in resource rights may help enable the peaceful accommodation of new arrivals**. The primacy of resource rights also suggests the principles of environmental peacebuilding can help reduce vulnerability in areas prone to climate problems.

3. **Conflicts where climate change and displacement play substantial roles may begin at the communal level but can quickly expand beyond.** Related peace processes will therefore likely need to be carried out at **multiple spatial and political levels**.

4. Movement in response to environmental change has a long history, and **migration can be a successful and peaceful means of climate adaptation** if enabled by smart policy. **Although taking action is essential, simplistic analyses of climate's impacts on migration, displacement, and conflict can prompt misdirected responses**. Political, economic, and social contexts are as important to understanding vulnerability as exposure to the physical effects of climate change itself.

5. **Some mechanisms for coping with climate change are tenuous and susceptible to policy change**, as in the case of Darfur's *hakura* land tenure system, which helped alleviate resource tensions before it was dismantled. Indeed, climate change responses can contribute to the displacement of people and social conflict. **"Do no harm" should be the operating principle—though not "do nothing," as people will adjust to their situation, regardless of how prepared the policy environment is**, potentially turning to destructive responses if faced with few other options.

The Zaatari refugee camp, Jordan, December 2012 (UN Photo)

Members of the Yazidi sect flee the Islamic State, Iraq, June 2016 (Rodi Said/Reuters)

MIGRATION

In the 1990s, a number of studies suggested tens of millions of "environmental refugees," driven in part by climate change, would soon be flooding across borders as a result of resource scarcity and rising sea levels [Myers 2002]. Those flows, with direct climate causes, did not materialize, and the methodology for producing the most prominent estimate was based on "heroic extrapolations" [Brown 2008]. But two decades later, the large movement of people from unstable Syria, Iraq, and Afghanistan to Europe has pushed migration and its causes to the top of the priority list, and there is some evidence that climate change has played a role [Kelley et al. 2015, Gleick 2014]. The United Nations estimates a total of 65.3 million people were displaced by the end of 2015, the most since World War II [UNHCR 2016]. What's more, joining the fear of the "other" that migration often provokes, is the perception that people from war-torn regions may bring violence with them. "Pictures of war, flight, famine, and human ruin may be replacing the iconic and controversial 'polar bear on the iceberg' as the central public images representing the consequences of climate change" [Wihbey 2015].

Though "displacement" and "relocation" are sometimes used for more specificity, the International Organization for Migration, a member organization of more than 160 countries, defines "migration" as encompassing all movements of people within and across borders, including "refugees, displaced persons, economic migrants, and persons moving for other purposes" [IOM 2016b]. To put migration into context, it is important to understand that refugees are only the most visible part of a much larger circulation of people around the world—people moving for a huge variety of reasons and for different periods of time, from seasonal to temporary to permanent.

Global evidence shows that most migration occurs within borders, not across them. The United Nations estimates that internal migration accounts for about 75 percent of all migration [UNDESA 2015a, UNDESA 2013]. Of those migrants who do cross borders, only a third move from developing countries to developed [UNDP 2009]. Displacement related to environmental factors in particular is more likely to result in internal migration than international because of the political and socio-economic costs of crossing borders [Hunter et al. 2015, Hugo 1996]. After a disaster, most households, if displaced at all, are likely to move only a short distance and return quickly [Government Office for Science, London 2011, Adger et al. 2014].

The decision to move is often the most rational choice available, a form of risk management employed by people for millennia to diversify incomes and reduce household vulnerability [Webber and Barnett 2010, McLeman and Hunter 2010]. Migration is more often a result of conflict, rather than a contributor. And in some cases, because of the economic and political costs of moving, it is those who have relatively greater financial resources, skills, or social networks who are most likely to go.

BEYOND FACE VALUE: UNTANGLING CLIMATE CHANGE

Environmental factors are rarely understood to be the primary reasons for migration. There are multiple push and pull factors affecting migration decisions that are not easily isolated, including security, political, social, demographic, and economic factors. Data on migration of all kinds—national versus international, causes and effects—are generally lacking, fragmented, and difficult to access. Environmental data—how flooding, crop loss, or other environmental changes affect migration—are especially rare because it has been difficult to separate environmental factors from others [Hunter et al. 2015].

It can be especially difficult to separate climate factors from other environmental factors. Changes to rainfall and temperature, drought and agricultural yields, and unpredictability or variability are understood to prompt movement in some cases by threatening certain livelihoods, especially natural resource-based livelihoods in rural areas [Hunter et al. 2015]. However, discerning the effects of climate change from background variability is a major challenge. Climate change has in fact been used as a pretext to move, as in Vanuatu's Torres Islands, where subsidence (the sinking of land) may have been as much to blame as sea-level rise for what some called the first "climate refugees" [Ballu et al. 2011, UNEP 2005]. It is important, therefore, to deeply consider claims about climate-related migration or displacement beyond face value.

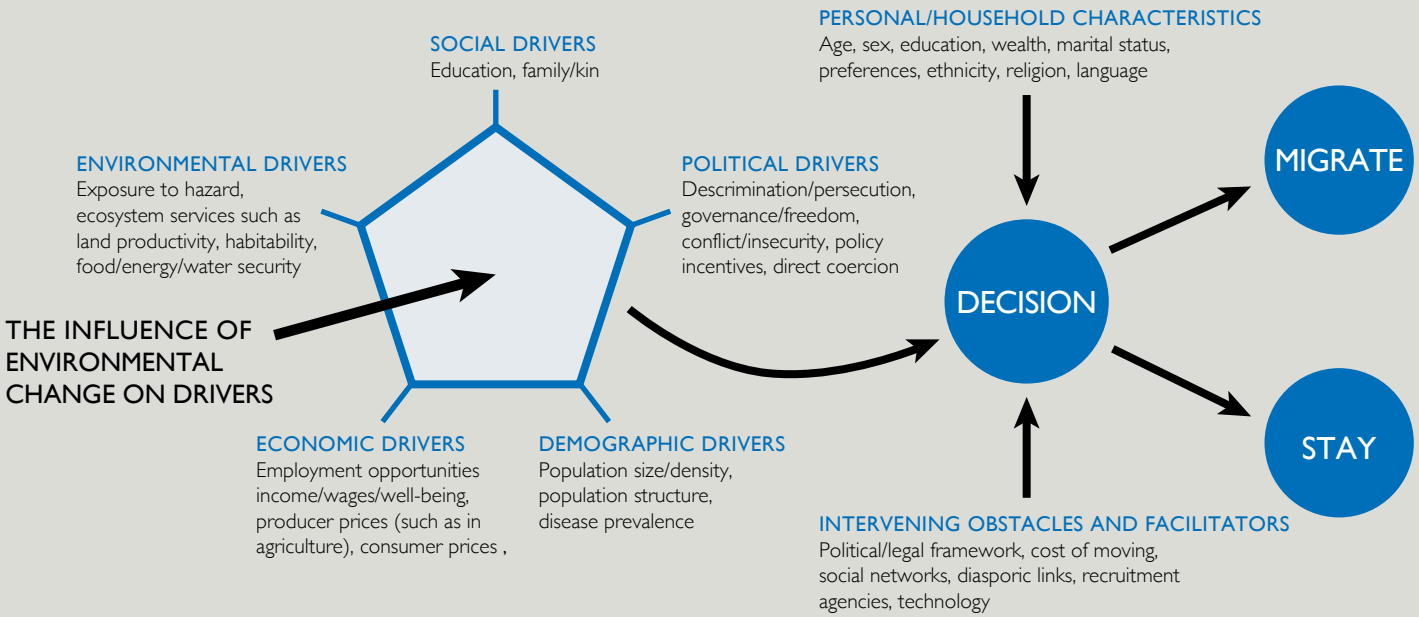
The IPCC finds that a general increase in climate-related migration can be expected.

The exception to this rule may be found in certain situations that are uniquely tied to climate change, as in the complete inundation of small islands or coastal areas, or planned relocation of certain communities explicitly on account of climate change (e.g., as seen in the United States in Louisiana and Alaska) [Burkett 2016, Davenport and Robertson 2016]. These seemingly more clearly defined movements are anticipated by some to become more common as the effects of global warming accelerate, creating a stronger environmental signal in migration patterns than has been possible to discern in the past.

The Intergovernmental Panel on Climate Change (IPCC) finds that a general increase in climate-related migration can be expected [Adger et al. 2014]. "Environmental refugee" and "climate refugee," commonly heard terms, are nevertheless considered inappropriate shorthand by most experts because they obscure critical complexity [Adger et al. 2014]. Refugee status connotes certain legal protections and a political context. The United Nations, via the 1951 Convention Relating to the Status of Refugees and 1967 Protocol Relating to the Status of Refugees, defines a refugee as someone crossing international borders driven by a "well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion" [UNHCR 2010]. Those who are displaced by natural disasters, face inexorably rising seas, or whose livelihoods change as a result of climate change do not fit into this framework and therefore do not have the same legal protections and status rights as refugees. The unsuccessful attempt before New Zealand's high court in 2015 by the i-Kiribati man Ioane Teitiota to avoid deportation on humanitarian grounds is a case in point. Teitiota claimed that erosion and climate change were making his home island uninhabitable, but "the court noted that there was no evidence he would face persecution in Kiribati, and that there was no evidence the government of Kiribati was failing to protect its citizens from harm" [McLeman et al. 2016].

THE DRIVERS OF MIGRATION

Many drivers influence whether a person or family will migrate. In turn, these drivers can all be influenced by environmental change. Their effects are closely intertwined, so it makes little sense to consider any of them in isolation.



[Figure: Black et al. 2011]

Near the Zam Zam camp for displaced persons, North Darfur, April 2014 (Albert González Farran/UN Photo)

Most experts argue that those affected by climate change will never be included in the refugee convention, given political and technical complexities. Many governments are wary of their existing obligations under the treaty, making the prospect of re-opening it unlikely. There is also the technical challenge of differentiating between climate factors, other environmental factors, and non-environmental factors. Others, however, argue that because it is a man-made problem, having some framework for identifying—and therefore assisting—those displaced by climate change is a critical mechanism for climate justice, whether it is a "climate refugee" treaty or something else [Burkett 2012, Null 2016]. A mechanism to account for the unique situation of small islanders and those moved by governments under the pretext of climate change could enable a framework that is "more reparative than simply accommodating" [Burkett, quoted in Null 2016].

REMITTANCES AND RESILIENCE

Experts stress that migration in response to climate change is not a "good" or "bad" result; it can be either, or a mix, depending on context. There are likely to be those who benefit, those who do not, and those caught somewhere in between. One conception of this paradigm breaks outcomes into four categories [Wilson Center 2015]. Those who benefit tend to be those with greater resilience in the first place, with extensive social networks, higher incomes, and more resources. A second group ends up about the same, no worse or better off than before. A third group persists at a lower economic level than before. And the final group, the poorest and worst off, can't move and faces devastation.

Migration in response to climate change is not a "good" or "bad" result; it can be either, or a mix, depending on context.

This "disassembly" effect, where parts of a community are impacted differently, was observed by David Wrathall in Honduras [2015]. Wrathall interviewed 89 homeowners displaced by flooding in three villages. Some young people who were not materially affected by the flooding left for urban areas solely to follow friends who were affected. Other groups—the elderly, unskilled, sick, non-Spanish speakers—also migrated to urban areas but faced continued vulnerability as they could not capitalize on opportunities and absorb costs as easily as others. Social networks were the strongest determinant of migration outcomes; those who had access to the most resources via their networks were most likely to end up better off.

In this way, migration can act as a release valve for social or environmental pressures in origin areas and produce valuable streams of remittances, allowing origin communities to peacefully adapt to changing conditions and improve resilience. Host communities can also benefit from the skills and capabilities of migrants and the additional resources and attention that sometimes follow. A case study in Guinea in the late 1990s found that aid funneled through existing institutional frameworks (e.g., schools, health clinics, agricultural programs) to help communities absorb refugees from Liberia and Sierra Leone increased the overall capacity of those institutions for all residents [Black and Sessay 1998].

Remittance streams to origin areas can also improve the resilience of those who remain. Although concentrated in a small number of countries with large diasporas, remittances nonetheless account for the largest flow of financing to fragile states worldwide [OECD 2015]. For Somalia, remittances account for an estimated $1.3 billion in income a year, more than development assistance,

humanitarian assistance, and foreign direct investment combined [Paul et al. 2015]. Monies sent by Somali migrants and refugees pay for basic necessities that keep society functioning. In a survey by the Food and Agriculture Organization, a third of respondents in Somaliland and Puntland said they would not be able to afford food, medicine, and school fees without remittances [FAO 2013, Somalia Resilience Program et al. 2015]. The networks established by money transfer businesses are sometimes the most effective way to reach rural households as well. During a 2011 drought in Somalia, the humanitarian organization Adeso used these networks to distribute cash aid to nearly 150,000 rural people to blunt hunger [Orozco and Yansura 2013]. Jürgen Scheffran et al. [2012] have also explored how "co-development" projects in Mali, Mauritania, and Senegal, funded in part by migrants living abroad and facilitated by governments on both ends, improved resilience and social capital in origin communities.

LEFT BEHIND: TRAPPED POPULATIONS

Despite the effect of remittances, there is concern about the vulnerability of those left behind. Migration can be relatively expensive and there are many social and legal barriers in the way, making it a rather poor bet for households already on the brink [McLeman 2001, Webber and Barnett 2010]. Many simply cannot move, regardless of how bad things get, and are sometimes referred to as "trapped" populations [Government Office for Science, London 2011]. One study in Bangladesh found that the households most likely to move after crop failures were not those that suffered direct losses but that lived in areas where others did—families proximate to but not materially affected by disaster [Gray and Mueller 2012]. Clark Gray and Valerie Mueller postulate that migration becomes more difficult for those households that are directly affected because resources are reduced. On the other hand, for those households whose resources remain intact, reduced opportunities for employment and "undermined risk-sharing networks" in the region increase their motivations to leave.

What happens to trapped populations is of particular concern as the impacts of climate change escalate. Estimates suggest that the number of people unable to move away from areas degraded by climate change may reach into the tens of millions by the middle of the 21st century [Government Office for Science, London 2011]. The exodus of large portions of societies, taking with them their skills and capabilities, alongside changes in resource availability, could erode existing governance mechanisms. The value of remittances and release-valve social effects of migration may be of little help for small islanders, too, who face the loss of their entire dry land.

INTERNATIONAL POLICY FRAMEWORKS

There are a handful of decisions, principles, and non-binding international agreements that seek to provide guidance on climate-related migration, though most are relevant specifically to displacement.

A definition of "environmental migrants" and a set of **Guiding Principles on Internal Displacement** were prepared by the International Organization for Migration for the United Nations Commission on Human Rights and presented in 1998. These non-binding principles acknowledge that governments have a responsibility to protect and assist people who have been displaced by disasters [UNCHR 1998].

Leading up to the 2015 COP-21 climate conference in Paris, a group of governments proposed to create a "climate change displacement coordination facility." This idea was dropped before the summit, however [Milman 2015]. The final **Paris Agreement** does acknowledge climate-related displacement is an issue that the Conference of Parties needs to address and sets in motion the creation of a task force to study it in paragraph 50 [McLeman et al. 2016]. The text "requests the Executive Committee of the Warsaw International Mechanism to establish, according to its procedures and mandate, a task force to complement, draw upon the work of, and involve, as appropriate, existing bodies and expert groups under the Convention, including the Adaptation Committee and the Least Developed Countries Expert Group, as well as relevant organizations and expert bodies outside the Convention, to develop recommendations for integrated approaches to avert, minimize, and address displacement related to the adverse impacts of climate change" [UNFCCC 2015].

The 2015 UN World Conference on Disaster Risk Reduction produced the **Sendai Framework for Disaster Risk Reduction**, a non-binding agreement under which countries agree to cooperate on reducing the risk of disasters through 2030. The framework includes climate-related disasters and related displacement but also non-climate related disasters, like earthquakes and tsunamis.

The **Nansen Initiative**, launched by Norway and Switzerland in 2011, is a response to "the need for a more coherent approach to the protection of people displaced across borders in the context of disasters and the effects of climate change" [2016]. The initiative organized meetings between governments in the Pacific, South and Southeast Asia, Horn of Africa, and Central America. The aim of these inter-governmental consultations was to "build consensus among states on the elements of a protection agenda," rather than produce new binding standards [Nansen Initiative 2016].

The results of the Nansen Initiative [2015], in the form of a two-volume "Protection Agenda," were introduced in October 2015 and endorsed by 109 states. It compiles effective responses and highlights three priority areas of action: collecting data on cross-border disaster displacement; encouraging the use of humanitarian protection measures by governments in these situations; and improving disaster risk management in countries of origin, including by integrating migration into climate change adaptation strategies. In the spring of 2016, Norway and Switzerland announced a successor to the initiative, the **Platform on Disaster Displacement**, led by Germany and Bangladesh, to encourage governments to utilize the Protection Agenda.

Notably, these frameworks primarily focus on short-term disaster displacement, rather than minimizing long-term vulnerability (the "release valve" effect) or facilitating preemptive climate adaptation. One notable exception is an **International Organization for Migration** program that facilitates seasonal migration from Colombia to Spain and back for farm labor, recruiting workers specifically from displaced communities and high-risk disaster zones [IOM 2016a, De Moor 2011].

Tacloban City, Philippines, after Typhoon Haiyan, November 2013 (Erik De Castro/Reuters)

UN peacekeepers patrol Abyei, Sudan, May 2011 (Stuart Price/UN Photo)

CONFLICT

If there is little comprehensive data on migration, there is even less on conflict connected to migration and environmental factors, including climate change. The challenge, from a policy perspective, is to minimize the possibility of violent conflict, especially in already conflict-affected and fragile regions, and to maximize the potential for positive peacebuilding effects.

There has not been a comprehensive study of distress migration and conflict [Raleigh et al. 2008]. What we know comes from scattered case studies, some of which contradict one another, others of which point to similar conclusions. This shortcoming is perhaps not surprising given that conflict zones are inherently difficult places to work and we are only just beginning to see the dramatic effects of climate change and its interaction with other systems.

Ethnic competition between newly arrived people and host area groups does have a long history of leading to violence. The migrations of Han Chinese into Uyghur, Mongolian, and Tibetan areas; Bantu expansions into southern Africa; and the forced movement of many groups within the Soviet Union are prominent examples [Raleigh et al. 2008; Côté and Mitchell 2015]. There is also some evidence that refugees fleeing conflict zones increase the chances of conflict at their destinations, as has occurred in the Balkans and Central Africa [Lischer 2006]. But in these examples the environmental connection was absent or secondary; political motives—desire to control territory or weaken the opposition—were primary.

People displaced by extreme weather events or disasters, or who migrate in response, are unlikely to provoke the same kind of tensions because they are often weak and marginalized compared to non-migrants in host areas and tend to want to merge with host area ethnic groups [Raleigh et al. 2008]. Rune Slettebak [2012] in fact argues that there is a tendency for populations to unite rather than come apart after natural disasters. That is not to say conflict does not happen—if there are factors that prevent new groups from peacefully integrating with host area populations, for example—and these are the cases that policymakers and practitioners should be most concerned with.

HEATING UP: CLIMATE AND CONFLICT

There is ongoing debate about the link between violent conflict and climate change generally [Burke et al. 2009, Buhaug 2010, Koubi et al. 2012, O'Loughlin et al. 2012, Theisen et al. 2011]. Some macro studies and case studies have found correlations between rainfall or temperature change and conflict [Burke et al. 2009, O'Loughlin et al. 2012, Hsiang et al. 2013, Caruso and Ricciuti 2016]. But others argue fiercely over the methodological decisions of these studies and point to the old adage that correlation does not equal causation. As with migration, there are many intervening factors between climate change and the end result of violence. Some entities like the U.S. military and European Union have settled on referring to climate change as a "threat

multiplier" to reflect its exacerbating effect on existing problems [Hagel 2014, U.S. Department of Defense 2014, European Council 2008].

Where tension and conflict have arisen around the environment, it is where political systems have failed to enable adaptation, actively stood in the way, or, worse, been exploitive, in particular around land and resource rights [Brown et al. 2007]. "The environment is quintessentially political," writes Harry Verhoeven [2011]. "Ecological problems are real but environmental changes impact differently on people according to their levels of vulnerability; they are functions of deeper-lying material dynamics and discursive processes."

The causal chain by which climate change can exacerbate conflict is thought of in much the same way as the migration-to-conflict pathway by many researchers. Adaptation to climate change requires a change in the way resources are used, and all resource use operates through land rights systems (access, claim, ownership, use). Such systems can either facilitate or subvert adaptation [Unruh 2012]. The case of Darfur (see page 20) shows that a system of communal land rights that focuses on flexibility and accommodating multiple uses and users, for example, can more easily adapt to new arrivals than more rigid systems based on individual ownership and single-use optimization [Abdul-Jalil and Unruh 2013]. The Syrian case (see page 25) is an example of government negligence leading to a complete failure to adapt resource rights systems to changing conditions.

COMMUNAL CONFLICTS, NOT "CLIMATE-MIGRATION WARS"

In some ways perceived insecurity is more critical than actual insecurity.

The community, as opposed to the household or nation state, appears to be the key unit to understanding migration-conflict results. Migration-related conflict generally arises when access to resources and livelihood opportunities is contested or disrupted at this level [Wilson Center 2015]. This is an important distinction, both in terms of ensuring that peacebuilding efforts target the appropriate decision-makers and in terms of undermining the idea that increased climate-related migration will lead to international conflict. "Climate-migration wars" are unlikely in the near to medium term, while sub-national, communal conflicts appear to be the bigger threat. There is a danger that communal conflict can cascade into general instability if governments fail to respond adequately, as in Syria, where poor response to a massive and prolonged drought appears to have been among the many grievances that pushed people to protest and triggered a violent government backlash [Kelley et al. 2015, Gleick 2014]. Such collapses in strategic locations—similar to fear of the "spillover" effect from failed states—may induce an international response [Patrick 2007].

A central question to resolve in seeking peaceful outcomes is whether community-based systems that manage rights and resources are respected and considered legitimate by multiple groups (migrants and hosts, the powerful and the marginalized). If so, migration may be a positive, rational way to let people adjust to changing conditions—environmental or otherwise—a release valve for rising pressures that, despite inevitably creating some friction, leads to the most peaceful outcome overall.

National governments are unlikely to see things this way, and the negative outlook on migration is a major challenge for climate change adaptation and related peacebuilding efforts [Webber and Barnett 2010, Barnett and Adger 2007]. There is evidence that "framing migration as a threat leads to policies that do little to control migration, but which do limit the benefits of migration to migrants,

their communities of origin, and their host communities" [Webber and Barnett 2010]. Kate Burrows and Patrick Kinney [2016] write that "uncertainty about the future is one of the most crucial factors that can lead to violent conflict, and in some ways perceived insecurity is more critical than actual insecurity. As such, even if in reality migrants do not pose a significant threat to political or economic power, the perceived risk may be enough to provoke conflict."

The good news is that inter-state policies and institutions are not always the most pertinent forces when it comes to climate-conflict-migration dynamics. Most migration occurs within national borders, and in many places, local institutions tend to have the most influence over land and resource rights. International legal and human rights organizations have also recognized the shortcomings of international law in this area and are increasingly focusing on developing new rights-based protections for those affected in climate-migration-conflict scenarios.

A CAUTIONARY NOTE ON CAUSALITY

Despite the lack of universal rules describing the interaction of climate change, migration, and conflict, or simple causal connections, there is evidence that climate change can play a role in conflict and migration—primarily through increasing natural resource scarcity and its effects on livelihoods, stressing already overtaxed or inadequate governments, and introducing new fissures along which predatory leaders can exploit [Adger et al. 2014, Verhoeven 2011].

The distinction between climate change or migration factors being the drivers of conflict, on one hand, and climate change or migration factors *mitigated through socio-economic or political factors*, on the other, may seem minor, but this recognition of complexity is important from a policy perspective. If conceptions of the threat associated with climate change and migration are rooted in environmental factors, then policy solutions may focus primarily on interventions that address those environmental factors; that is, improving food security, flood protection, water management, large infrastructure projects, and similar technically oriented measures [Crutzen and Stoermer 2000]. There is some level of rational, unbiased governance assumed in these efforts—to guide them, ensure equitable distribution of gains, and make some attempt to reach the most vulnerable. But by the time violent conflict has broken out, it is often because whatever system of governance was in place before is no longer functioning properly.

The danger then is that aid—to protect migrants, the displaced, or host communities—is unable to protect the most vulnerable and stabilize the situation because it is focused on the symptoms of a much larger political problem that it is not well suited to fix. For example, efforts to increase agricultural productivity will not reduce instability if the real problem is how yields are distributed or land is controlled. Even worse, misdirected aid can further exacerbate schisms by privileging one group over another.

Outside the Zam Zam camp for displaced persons, North Darfur, November 2010 (Albert González Farran/UN Photo)

THE FUTURE TENSE

An important consideration in assessing how climate change affects both migration and violent conflict is that climate change is a dynamic and accelerating phenomenon. We have a broad understanding of what to expect in terms of the physical effects in the near term, but few specifics in terms of long-term timing and magnitude. What's more, we know very little about how our political and social systems will react to the most significant changes ahead, including sustained higher temperatures, inundation of low-lying areas, and more frequent humanitarian disasters.

The depth and breadth of the effects of climate change on human and natural systems and the level of uncertainty associated with them are in many ways unprecedented. Some climate change scenarios describe environmental conditions that have not been experienced by humans in recorded history, much less modern history [Hansen et al. 2016]. "We have effectively entered a 'no-analogue' state," says Richard Zeebe [University of Hawaii at Manoa 2016]. "This represents a big challenge for projecting future climate changes because we have no good comparison."

There are also significant environmental challenges not necessarily driven by climate change that are affecting global ecosystems and natural resource reserves, including soil degradation, aquifer depletion, fishery declines, and species extinction [Amundson et al. 2015, Ceballos et al. 2015, Richey et al. 2015, FAO 2014].

Human geography is changing rapidly as well. More people live in urban areas than rural areas for the first time. It is estimated that 3 million people move to cities around the world every week—cities that are often low-lying or on the coast and therefore at heightened risk to flooding and extreme weather [IOM 2015]. Overall, world population is projected to reach nearly 10 billion people by 2050, with the vast majority of growth occurring in Africa where the effects of climate change will be severe [Population Reference Bureau 2016, UNDESA 2015b]. The demands of a growing global middle class may also strain production of food and other commodities [FAO 2009].

Though there is uncertainty surrounding the most dire projections of environmental change, including climate change, the fact that there are so many potential trajectories throws into question the notion that the future will look like the past [King 2016]. At some point, we may need to rethink comfortable assertions based mainly on the historical record about the environment's role in violent conflict and migration [Wolf 1998].

Flooding in Port-Au-Prince, Haiti, after Hurricane Ike, September 2008 (William S. Parker/U.S. Navy)

CASES IN COMPLEXITY

It is critical to understand how migration can be a productive climate adaptation response and to avoid conflict results in situations where tensions are likely to arise. Case studies of Darfur and Syria offer lessons that can help us avoid the worst outcomes and encourage the most positive aspects of migration while building resilience to the impacts of climate change.

DARFUR

Perhaps no violent conflict has been more connected to climate change in the public eye than the fighting since 2003 in Darfur, a region in western Sudan. Darfur has been called the "first modern climate change conflict" by some, while others claim United Nations Secretary-General Ban Ki-moon absolved Khartoum of responsibility when he wrote in a 2007 editorial that "the Darfur conflict began as an ecological crisis, arising at least in part from climate change" [Mazo 2009, Ban 2007]. Migration and displacement have been important parts of the public narrative, as nomadic Arab pastoralists from the north were pitted against sedentary black farmers from the south. In an area roughly the size of Spain, as many as 2.5 million people were displaced during peak fighting and the total number of deaths were perhaps as high as 300,000 [UNOCHA 2016a, BBC 2008].

Sudan's recent history is checkered by ethnic competition exacerbated by exploitative policies radiating from the capital. A destructive environmental narrative lies behind many efforts by Khartoum to "civilize" the country since the time of British rule: the idea that Sudan can be the breadbasket of the Middle East and East Africa if only "backwards" agro-pastoral techniques could be replaced with mechanized modern agriculture [Verhoeven 2011]. This perspective has been supplemented in recent decades by "the language of jihad" and deliberate efforts by the central government to divide people along sectarian and tribal lines to weaken periphery areas [Verhoeven 2011]. Elements of South Sudan have been fighting for autonomy since the 1950s, but the once-independent sultanate of Darfur in the west has also been at odds with Khartoum for years.

Into this context came a decade of drought in the 1970s and 1980s that prompted large movements of people within the region of Darfur as well as into it from neighboring areas seeking more fertile land. There is debate about how much of this drying can be attributed to natural variability, climate change, or rangeland degradation, but various studies suggest it was likely a combination of all three [Kevane and Gray 2008, Chavunduka and Bromley 2011, USGS and USAID 2011]. The migration flows can be broadly broken down into two parts [Abdul-Jalil and Unruh 2013]. First, people from northern Darfur moved into the more fertile southern and central areas in waves and began to claim areas for pastoral and agricultural use. Second, pastoralists and traders, including large numbers of Arab Zaghawa agro-pastoralists, crossed over from Chad seeking permanent resettlement. Though certainly not entirely attributable to in-migration, population increased substantially during this time. A census in 1973 counted 1.4 million people in Darfur; in 2003, it was up to 6.5 million, a nearly

* South Sudan gained independence in 2011

fivefold increase [Abdul-Jalil and Unruh 2013]. Livestock numbers skyrocketed as well, from an estimated 28.6 million cattle, camels, and sheep in 1961 to 134.6 million in 2004 [UNEP 2007].

The new arrivals' need for land—both for agriculture and grazing—caused tension, which slowly escalated into outright hostility and eventually the explosive violence beginning in 2003. But the political side of this story is just as important as the ecological and demographic narratives [Adger et al. 2014].

Large movements of people and periodic resource scarcity are not new dynamics for Darfur. The local system of governance had evolved specifically to prevent conflict over resources, facilitate farming and grazing on the same plots of land, and accommodate new arrivals. The prevailing landholder system, called *hakura*, was initially able to adapt rights and resources for new groups—to the extent that the aspirations of incoming people actually increased [Wilson Center 2015]. Similar to a feudal system, the traditional means of land and political control in southern Darfur granted tribal leaders control of an area (though not necessarily ownership), the ability to raise taxes, responsibility for dispute mediation, and the power to allocate land and water. Some hakuras—which were only sometimes written documents—granted more limited powers, but eventually these writs came to be nearly synonymous with tribal land tenure [Abdul-Jalil and Unruh 2013].

Hakura was administered by a series of officials appointed by the controlling tribes, called Native Administration. First among the responsibilities of these *sheiks, omdas*, and paramount chiefs was

mediating land disputes and ensuring seasonal migrations went smoothly. Each man was more or less guaranteed a plot of land to farm and space for a hut in the village, but grazing rights and access to water points were communal and nomads negotiated transient access to land to ensure long-distance grazing routes remained clear and crops were not damaged [Abdul-Jalil and Unruh 2013]. There was an understanding, for example, that rain-fed farmland, called *talique*, would only be worked for part of the year and then opened to pastoralists at other times while laying fallow. When new people entered an area, the village sheik would be responsible for finding them land to work and negotiating the terms on which they could stay.

The rules of Native Administration were elastic and specific to the communities affected; it was a forum primarily for negotiation, not enforcement [Wilson Center 2015]. If the village sheik could not resolve a conflict, it would be passed up to the omda, and finally to the paramount chief. There was friction—hakura grants were hereditary, which meant smaller tribes and newcomers had few ways to break into the system—but the customs were widely understood and respected [Wilson Center 2015]. Many pastoralists reported being welcomed and accepted as guests and the Zaghawa fought on the side of the southern tribes against Khartoum in later years [Abdul-Jalil and Unruh 2013].

The British colonial government reinforced hakura, happy to rely on the larger tribes to administer an area they did not much care about [Verhoeven 2011]. After independence however, and in the midst of the 1970s droughts, the Khartoum-based government took major steps to dismantle the system, which had never been codified into statutory law. In 1970, the Unregistered Land Act was passed declaring all land not registered by that date property of the government. This created uncertainty for many people in Darfur. Individual ownership was not compatible with the hakura

Dali, North Darfur, August 2011 (Albert González Farran/UN Photo)

system and it was unclear if the traditional control over land granted by even written hakuras, not to mention the many writs not on paper, satisfied the requirement. In 1971, the national government went a step further and dissolved Native Administration entirely. This created an enormous vacuum for managing resources and land rights, just as Darfur was coping with a major influx of people. It also split wide the wedge slowly developing between Darfur's traditional political elite and Khartoum. Native Administration was later reinstituted, but packed with members selected by the national government instead of local constituencies.

The result was highly destructive. The customary system for managing grazing rights, access to watering points, transit of cattle, crop rotations, and integration of migrants was now distrusted and ineffective. As stress from the droughts of the 1970s and 1980s accumulated, land disputes, particularly between farmers and pastoralists, became unnegotiable [Wilson Center 2015]. Migrants began to claim land rights under statutory law, ignoring customary law. Tenure security decreased enormously for farmers, who then prohibited and evicted nomads. North-south migratory routes, an important avenue for pastoralists to adjust to seasonal conditions, became highly restricted. Farmers burned large areas around their fields to discourage entry. Nomads then grazed in active fields and burned sedentary villages. Farmers responded by killing livestock and arming themselves, and the cycle of violence escalated. In some places, year-round, water-intensive cash crops replaced seasonal rotations, degrading the land and eliminating grazing areas entirely [Abdul-Jalil and Unruh 2013].

Darfur may be a kind of Rorschach test for the "high politics versus climate conflict" debate.

Rebel groups, composed mainly of elements from the major southern Darfur tribes, formed and attacked government targets in retaliation for what they saw as systematic marginalization. In 2003, the conflict escalated to new levels when the government responded to a rebel attack by arming and encouraging northern Arab militias, the Janjaweed, to target rebel soldiers and their bases in southern Darfur. In keeping with the government's misunderstanding of how important land rights were in this conflict, the Janjaweed largely ignored rebel military forces and instead took advantage of impunity to seize as much land as possible. Hundreds of thousands of civilians were killed and displaced, and non-Arab groups were singled out by attackers [Hagan and Kaiser 2011]. In some cases, physical hakura writs were targeted for destruction, and there are unverified claims that the government explicitly promised the Janjaweed they could keep any land "liberated" during the war [Abdul-Jalil and Unruh 2013].

The case of Darfur demonstrates the complexity of determining how environmental and demographic factors contribute to violent conflict. Though it is clear drought and migration played a role in the tensions that eventually turned violent, the major changes in rainfall happened 20 to 30 years before fighting erupted [Kevane and Gray 2008]. Extracting a single central conclusion from the chain of events, which is assuredly more complex than presented here, is impossible.

Darfur may in fact be a kind of Rorschach test for the "high politics versus climate conflict" debate [Bromwich 2015]. "The regime loves the 'climate war' rhetoric," argues Verhoeven [2011], "because it obscures its own role and, above all, Sudan's fundamental problem since independence: Khartoum's logic of rule is inextricably linked to exclusion, patronage, and violence." While on the other hand, Jeffrey Sachs [2008] writes: "The only reliable growth in Darfur was its population, from less than one million at the start of the 20th century to an estimated six to seven million today. But as

the population has soared, the carrying capacity of the land has declined because of long-term diminished rainfall... The striking pattern is the decline of rainfall starting at the end of the 1960s, a pattern that is evident throughout the African Sahel... The results have been predictably disastrous. Competition over land and water has become lethal."

LESSONS FROM DARFUR

Setting aside questions of causality, there are lessons from Darfur that may be applicable to other contexts to prevent conflict:

- **Flexibility and ambiguity in resource rights can be valuable**. The common Western assumption that "clarity, predictability, and rigidity" are universally desirable in the context of land and resource rights is not always true. A degree of inexactness can provide space for local institutions to experiment with adaptation and for authorities to deal with adaptation-related tensions as they emerge [Unruh 2012].

- **Customary institutions are potentially very valuable as dispute resolution forums**, even if imperfect, because their legitimacy ensures tensions remain negotiable. Maintaining these forums of negotiation is often a more desirable outcome than violence for all parties involved. As shown by Khartoum's failed re-institution of Native Administration, however, such institutions are not easily imposed or replicated by outside parties [Unruh 2012].

- **Adaptation will occur, regardless of how prepared the policy environment is**, potentially leading to conflict outcomes. Both migration and climate change can prompt changes in livelihood patterns and access to resources. People will find ways to adapt to these changes, but they may not be positive. The breakdown of hakura and the gutting of Native Administration—both the result of policy decisions—removed a major means of dispute resolution. This change did not prevent adaptation from occurring, it merely pushed people toward more destructive responses including "certain interpretations of religious law; warlord law; highly discriminatory, exploitive and abusive land rights arrangements; resource extractive approaches which degrade lands; and...armed conflict" [Unruh 2012].

- **Governments and NGOs should take special care to understand how reactive local land and resource rights may be to policy changes** and be aware that inappropriate interventions (e.g., a model designed for a different area of the world or country being hastily applied to another) can not only fail to build resilience or prevent conflict but make matters worse [Verhoeven 2011, Unruh 2012, Dabelko et al. 2013].

- **Peace may require conflict resolution at multiple levels**. The influx of people into Darfur was an international process, the dismantling of hakura was partially an effort by the national government to exert control over a subregion, and conflict over access to land and resources was a fundamentally communal problem. A similar mix of spatial and political levels may be common in situations where climate change and migration interact in dangerous ways [Bromwich 2014, Bromwich 2015].

Refugees at a UN High Commissioner for Refugees registration center in Tripoli, Lebanon (Mohamed Azakir/World Bank)

SYRIA

The conflict in Syria has made headlines for its horrific violence and geopolitical implications, but also for the large numbers of internally displaced persons and refugees it has generated, and a potential connection to climate change.

As of this writing, the United Nations estimates nearly 4.8 million registered refugees from Syria are spread across the Middle East and Europe, with the vast majority residing in Turkey, Lebanon, Jordan, Iraq, and Egypt [UNHCR 2016]. According to Amnesty International [2016], only 162,151 resettlement places—admittances of refugees to a country for permanent settlement—have been offered globally. There are an additional 6.1 million displaced people within Syria and 13.5 million in need of humanitarian assistance [UNOCHA 2016b]. Estimates of the number killed are as high as 470,000 [Syrian Centre for Policy Research 2016].

In the late 2000s prior to the uprising, a three-year drought—the most severe on instrumental record—caused large-scale food and livelihood insecurity and displaced up to 1.5 million Syrians [Kelley et al. 2015]. Modeling exercises have found that drought was more likely under conditions of anthropogenic climate change than "normal" conditions [Hoerling et al. 2011, Kelley et al. 2015]. The factors leading to the Syrian civil war and subsequent large-scale exodus of people are complex and rooted in a historical and political context that predates the drought, however.

Given how recent the conflict is and how restricted access to the country has been since fighting broke out, there has been much less in-depth analysis of Syria than Darfur. But a closer look at the sequence of events leading up to the uprising appears to show one way climate change can interact with existing vulnerabilities and poor policy to the point of contributing to a major humanitarian crisis and violent revolution.

In 2007, a drought began that would eventually last three years and lead to the collapse of crops and livestock in the northeastern bread-basket region of Syria [Kelley et al. 2015]. By 2008, the share of GDP accounted for by agriculture had dropped from 25 percent to 17 percent and Syria was forced to import wheat for the first time in 15 years [De Châtel 2014]. By 2009, 800,000 Syrians had been severely affected by the drought, earning just 10 percent of their previous incomes and subsisting "mostly on a diet of bread and sugared tea" [UNOCHA 2010]. A 75 percent increase in the price of animal feed had dire consequences for livestock as well [UNOCHA 2009]. In 2009, the United Nations estimated that livestock herds were reduced by 70 percent and small herders had lost up to 90 percent of their animals [De Schutter 2011].

Two studies have linked the drought explicitly to climate change. The *Journal of Climate* published a paper in 2011 finding that 10 of the 12 driest Mediterranean winters had occurred in the last 20 years, and anthropogenic climate change was likely responsible for roughly half of the increased dryness observed in the region since 1902 [Hoerling et al. 2011]. And in 2015, Colin Kelley et al., writing in *PNAS,* found droughts of the severity and duration of the kind experienced from 2007 to 2010 were two to three times more likely "as a consequence of human interference in the climate system."

While droughts lasting three or more years had occurred in Syria during the late 1950s, 1980s, and 1990s, the 2007-2010 episode had more devastating consequences because of a confluence of reasons:

Even as the 2007 drought entered its second and third years, the Syrian government continued canceling state subsidies.

The Lasting Effects of Previous Drought: In 2007, Syria had not yet fully recovered from previous droughts experienced during the 1990s. "In fact," write Kelley et al., "the region has been in moderate to severe drought from 1998 through 2009, with 7 of 11 years receiving rainfall below the 1901-2008 normal" [2015]. Pointing to the role of climate change, they note that "three of the four most severe multiyear droughts have occurred in the last 25 years, the period during which external anthropogenic forcing has seen its largest increase."

Population Growth: Syria's population has grown from 3.3 million in 1950 to nearly 22 million today. A pro-natalist policy "led to an official ban in the trade and use of contraceptives in the 1970s" [De Châtel 2014]. While fertility rates have since declined, they continue to be among the highest in the region and the 2050 population is projected to reach 35 million [United Nations 2015].

Poor Governance and Resource Mismanagement: Syria is a relatively dry country that experiences high natural hydrologic variability. Agricultural policies that encouraged growing water-intensive crops, like wheat and cotton, and the spread of inefficient irrigation methods resulted in a steep decline in groundwater levels [IRIN 2010, Gleick 2014]. Under President Bashar al-Assad's father, Hazef al-Assad (1971-2000), aquifer overuse, growing water scarcity, and more frequent droughts were ignored. Policies instead focused on increasing production and irrigation, including by providing subsidies for

diesel fuel, which powered wells and helped link farms further away from markets [Kelley et al. 2015]. Between 1985 and 2010, the size of Syria's irrigated area doubled, from 651,000 hectares to 1.35 million hectares, 60 percent of which was irrigated with groundwater [De Châtel 2014].

When Bashar al-Assad came to power in 2000 he took steps to liberalize the economy, including the highly regulated agricultural sector. A kind of crony capitalism emerged that provided advantages to urban and military elites and wealthy landowners connected to the Assad regime while crippling small-scale farmers [Woertz 2013]. Between 2001 and the start of the drought, agricultural GDP increased by nine percent, but 460,000 people—33 percent of those employed in the agricultural sector—lost their jobs [De Châtel 2014].

Even as the 2007 drought entered its second and third years, the Syrian government continued canceling state subsidies, effectively multiplying the price of fuel and fertilizer overnight and pulling safety nets out from under farmers who had grown reliant on them [De Châtel 2014]. "Seen from a purely environmental point of view, the move to abolish subsidies was entirely justified given the alarming state of the country's groundwater reserves that have been largely depleted since the introduction of diesel motor pumps in the 1960s," writes De Châtel [2014]. However, the cuts came just weeks before harvest in an already difficult season and acted as a double-edged sword:

small farmers relied on diesel subsidies not only to help pump water to fields, but to transport harvests to market.

The northeastern governorates of Al-Hasakah, Dayr az Zawr, and Ar-Raqqah, already home to "the greatest incidence, depth, and severity of rural and urban poverty," suffered the most severe and prolonged decline in rainfall [De Châtel 2014]. As a result of the drought, there was a "marked increase" in nutrition-related diseases, especially in children under five and pregnant women [UNOCHA 2008]. The cost of education became too heavy a burden to bear for many households and children were removed from schools to help supplement incomes [UNOCHA 2008].

As crops failed, livestock died off, and economic and health effects accumulated, families began to migrate, mostly to urban areas. While seasonal migration for men in rural communities had been a common method of supplementing income, movement of entire families was less common until that point [De Schutter 2011]. As early as 2007-2008, internal migration had increased 20 to 30 percent compared to the previous year [UNOCHA 2008]. Referring to the movement of people as distress migration and listing it alongside other "damaging coping mechanisms," such as reducing food intake, removing children from school, and selling assets, the 2008 Drought Appeal prepared by the United Nations Office for the Coordination of Humanitarian Affairs warned that "migration to major cities will affect the already strained urban infrastructure and open the potential for regional instability" [UNOCHA 2008].

As crops failed, livestock died off, and economic and health effects accumulated, whole families began to migrate.

As the humanitarian crisis intensified, the Syrian government downplayed it, restricting media coverage and framing the situation as a result of the global food crisis, financial crisis, and climate change—in effect "portraying Syria as a victim of external factors and natural disasters beyond its control" [De Châtel 2014]. According to De Châtel, as a consequence of this misdirection and an overall lack of transparency, appeals for emergency aid received minimal support. The 2008 Drought Appeal by the United Nations received just 26 percent of the $20.4 million requested [UNOCHA 2016d]. The 2009-2010 Syria Drought Response Plan received just 33 percent of the requested $44 million [UNOCHA 2016c].

In 2010, the United Nations reported the drought had affected 1.3 million Syrians, 95 percent of whom were from Al-Hasakah, Dayr az Zawr, or Ar-Raqqah. The UN Special Rapporteur on the Rights to Food Olivier De Schutter [2011] estimated 50,000 families had migrated to the western part of the country, mostly small-scale farmers from Al-Hasakah governorate, following 65,000 families in 2009. Some estimates of the number of families forced to move are even higher. The director of the Environment Department at the Syrian State Planning Commission said the drought forced as many as 1.25 million people to leave their villages for cities like Damascus and Aleppo [IRIN 2009].

Informal settlements lacking water, sanitation, and electricity expanded around urban centers as migrants sought work. Many cities were already burdened by the addition of more than 1 million Iraqi refugees who had entered Syria between 2003 and 2007 following the U.S. invasion [De Schutter 2011]. In 2010, internally displaced persons and Iraqi refugees made up roughly 20 percent of Syria's urban population, representing a 50 percent increase in Syria's urban population in just eight years and straining limited resources and deteriorating infrastructure [Kelley et al. 2015].

Against this backdrop of hardship and rural and urban discontent, the Arab Spring was beginning to sweep across the region. In March 2011, peaceful protests broke out in Dara'a, a town in the southern governorate of the same name, when 15 youths were jailed and reportedly tortured for writing on a wall, "The people want the regime to fall" [Abouzeid 2011, BBC 2016]. Provincial security forces responded with deadly force and several protesters were killed. Rather than quelling dissent, the reaction fueled public anger and protests against corruption spread [De Châtel 2014]. What had previously been considered an unlikely uprising began to take shape as Syrians rose to challenge President Assad.

It is difficult to know what Syria would look like today if the government, in partnership with the international community, had responded to the severe conditions brought on by the 2007-2010 drought. Maybe there would have been less movement to already burdened urban centers, or the migration would have occurred more slowly. Perhaps public frustration would not have increased to the same level. However, the nature of the Assad regime, sectarian divisions, and ongoing revolutions in the region point to the unlikelihood of this alternative. A maelstrom of tensions across the country, exacerbated by grievances over how poorly the government handled the drought and a brutal response by security forces, created a chaotic landscape into which Islamist extremists poured, turning the country into an international battleground and prompting millions to flee.

LESSONS FROM SYRIA

The challenges of conducting research in a state being ravaged by war make it difficult to draw conclusions, but there are lessons to be gleaned from Syria:

- **Regional dynamics can play a significant role** in climate change, migration, and conflict dynamics. The U.S. invasion of Iraq caused an influx of more than 1 million Iraqi refugees into Syria between 2003 and 2007, straining urban areas. In 2011, the Arab Spring took hold, inspiring a wave of civil unrest that encouraged demonstrations against corruption and entrenched autocrats. In the years since, Syria has become an international battleground for various local forces and the major powers that back them. The climate changes affecting Syria are regional too. Modelling shows "an increasingly drier and hotter future mean climate for the Eastern Mediterranean" [Kelley et al. 2015].

- **Climate change should not obfuscate responsibility**. De Châtel [2014] argues that focusing on the role of climate change is an "unhelpful distraction" that "strengthens the narrative of the Assad regime that seizes every opportunity to blame external factors for its own failings and inability to reform." This may be true in the short term, but for others looking to prevent similar outcomes in the future, the Syrian government's response to the drought—or lack thereof—is an example of what not to do. Climate change should be seen as an added layer of complexity that, like any adversity, provides a test. Some institutions will fail this test, potentially leading to negative environmental effects (land degradation), migration (emergency displacement to cities), and/or conflict results. Unlike the case of Darfur, where intentionally exploitative policies fueled conflict, Syria is an example of how policymakers ignored environmental change, weakening the social contract. Other countries in the region were also affected by drought, but Syria

was the only one to experience a humanitarian crisis. Good governance that is responsive to constituents and accounts for environmental factors in policies and practice can reduce vulnerabilities and encourage better outcomes [Salehyan 2008]. Working with governments to **enhance understanding of climate impacts and develop early warning systems** can promote the integration of climate change into policy and planning [Brown and Crawford 2009].

- **Lack of transparency can hinder aid and lead to more emergency migration or displacement**. There were multiple opportunities for the Syrian government to avert disaster, but these were missed. A culture of secrecy around water, "considered a strategic resource that pertains to national security," outdated institutional frameworks; a lack of capacity in the water sector; and a lack of accountability hindered the availability of accurate data, contributing to decades of resource mismanagement [De Châtel 2014]. Security forces may even have discouraged private citizen initiatives to help migrants settle in other governorates [De Châtel 2014]. These efforts, in addition to a push by the government to "uphold the image of Syria as a self-sufficient producer of wheat"… "and to avoid any closer examination of the deeper causes of the humanitarian and environmental crisis" resulted in minimal international assistance for a population in desperate need [De Châtel 2014]. To enable better regional cooperation and international engagement, Brown and Crawford in a 2009 report for the Danish government recommended the international community use other mechanisms, such as negotiations over trade and investment in water and energy technologies, to complement efforts to deal with climate change in Syria.

Zaatari refugee camp, Jordan, June 2014 (Dominic Chavez/World Bank)

POLICY IMPLICATIONS

Though the magnitude is unclear at this stage and the causes manifestly complex, it is clear that climate change is a significant factor in increasing levels of migration—short-term displacement, long-term migration, planned relocation, within borders and across them, from rural areas to urban, from vulnerable areas to less vulnerable, and sometimes to areas of higher vulnerability. There is a risk of violent conflict if governments or other political systems fail to enable adaptation—whether intentionally, through neglect, or because they do not have the capacity—or if actors actively exploit environmental changes for destructive purposes. These dynamics have important implications for those pursuing development, climate change adaptation and mitigation, and peacebuilding:

- **Broadly speaking, the importance of context is clear**. Over-determinism in concluding how climate change or any environmental change affects migration and conflict is a danger and can lead to misdirected responses. It is not simply exposure to the effects of climate change that make a people or place vulnerable to climate change (and migration and conflict), but the political, economic, and social contexts in which they exist. A focus on the interactions of environmental factors with society and politics is critical to enabling adaptation, preventing conflict, and building peace [Hunter et al. 2015, Verhoeven 2011]. An analytical framework that starts with context, focuses on institutions and good governance, and addresses state and societal factors of vulnerability is indeed consistent with existing guidance provided in the climate change and conflict annex to the U.S. Agency for International Development's Climate-Resilient Development Framework [2015]. In addition, Burrows and Kinney [2016] put forward **five questions that can help determine risks at the local level:**
  - » **What are the climate risks?**
  - » **What is the potential for resource scarcity?**
  - » **Is migration economically viable?**
  - » **What is the status of stabilizing or destabilizing factors?**
  - » **Is there a history of conflict?**

- On a practical level, **answering questions about local vulnerability will require more and better data**, both on climate effects and how they may interact with political, social, economic, and demographic factors. This is one of the priority areas identified by the Nansen Initiative and Platform on Disaster Displacement.

- **Some forms of adaptation are tenuous and responsive to policy changes and implementation**. In Darfur, local customary institutions broke down when the state dissolved the mechanism for mediating land and resource disputes and negotiating passage of seasonal

migrants. In Syria, water and fuel subsidies, though damaging to the land in the long run, were the only safety nets available to many small farmers. Their repeal in the years leading up to the country's most severe drought on record affected the livelihoods of hundreds of thousands [De Châtel 2014].

- **Interventions that bar certain forms of adaptation will not necessarily stop adaptation but may instead force groups to pursue destructive alternatives**. If resource disputes become unnegotiable, certain resource rights arrangements can flourish, including reliance on warlords, extremists, violence, and exploitive and extractive approaches that degrade lands and displace people [Unruh 2012]. In Syria, as farmers were forced off their land, anti-government sentiments grew, while in Darfur, the rule of the gun became the predominant means to secure resource rights.

- **Strengthening inclusive, local forms of resource management—whether customary or statutory—may be key to ensuring disagreements remain negotiable and building adaptive capacity**. The results of the breakdown of the hakura system in Darfur strongly suggest this is true. Similarly, in Senegal and Guinea, Richard Black and Mohamed Sessay [1998] found that local customary institutions that were able to absorb new populations into their decision-making frameworks were crucial to preventing environmental degradation. Jon Unruh argues that national institutions are often unable to move quickly enough to provide assistance to communities dealing with these stressors, or do so clumsily, while local governance mechanisms are most applicable to preventing communal conflict [Wilson Center 2015]. Addressing core drivers of migration, however, may require a more regional or international perspective. Regardless of scale, there is evidence that democratic institutions, because they are more accountable to their constituents, are able to control and prevent environmental degradation better than non-democratic institutions, potentially defusing one avenue for tension [Salehyan 2008].

- **Clarity, predictability, rigidity, and exclusivity in resource rights are not necessarily useful in all situations**. Particularly where experimentation in adaptation is needed, ambiguity and elasticity can be more useful in facilitating mediation. A challenge for development, climate, and peacebuilding practitioners, however, is if local customs are discriminatory or destructive themselves, e.g., via gender roles, ethnic, sectarian, or class hierarchies, etc. [Black and Sessay 1998].

- **The primacy of resource rights in enabling peaceful migration is an argument to engage with environmental peacebuilding principles**, which have shown the potential to channel competition over natural resources into non-violent resolutions [Adger et al. 2014, Conca and Dabelko 2002, Jensen and Lonergan 2013]. "To practitioners and policymakers working on the nexus [between water, energy, and food], particularly in drylands, the conclusion that Darfur's pattern of weak governance is both a contributory factor to, and a victim of, conflict makes a compelling case for enhancing environmental governance in vulnerable areas already at risk of conflict and struggling to manage," writes Bromwich [2015].

NEXT STEPS FOR POLICY AND RESEARCH

There are several major global policy efforts underway to address climate, migration, and conflict dynamics, and the record number of displaced people around the world is spurring momentum [UNHCR 2016].

At the international level, the Warsaw International Mechanism for Loss and Damage is expected to establish a task force to develop recommendations for integrated approaches to avert, minimize, and address displacement related to the adverse effects of climate change. The Platform on Disaster Displacement and Sendai Framework may also help governments harmonize their understanding of how to treat international migrants (a fraction of the total number of people on the move but the most politically charged) and better prevent and respond to disasters and long-term climate-related displacement. The World Bank [2016], in its climate change action plan, has also committed to producing an analytical report on climate change, migration, and conflict in 2017.

The Platform on Disaster Displacement encourages governments to consider including migration as a climate change adaptation method, but there are few examples of states formally and explicitly doing so. The International Organization for Migration [2015] counted 24 countries that made reference to migration in their Intended Nationally Determined Contributions before the COP-21 climate conference in Paris, or 18 percent of the submissions. More official efforts to enable migration as adaptation by supporting host and migrant communities—e.g., by reducing the costs of sending remittances or directing development funds to host areas—would ensure the process, whether within borders or across, is as peaceful as possible and reduce pressures in origin areas [Webber and Barnett 2010]. Efforts to support migrant and host communities are perhaps most critical, in terms of preventing conflict, in areas hosting international migrants coming from war zones [Lischer 2006].

Small islands that face total inundation are special cases that require more research and attention.

More data on planned relocation efforts is especially important from a policy perspective given how little guidance currently exists in this realm [McLeman et al. 2016]. Policymakers may find past experiences with development-induced displacement helpful in this respect [Wilmsen and Webber 2015].

Small islands that face total inundation are special cases that require more research and attention. If some islands with considerable populations are lost entirely, we may see new climate-migration-conflict dynamics. The nature of their displacement, compared to other situations where climate-related push factors may be less clear, is potentially a strong case for formal recognition by the international community as a unique situation as well [Burkett 2012, Null 2016].

The lessons outlined above from Darfur, Syria, and elsewhere may help guide development, climate, and peacebuilding work. They provide examples of principles and relationships that played consequential roles in the breakdown of adaptive capacities and, eventually, in the emergence of violence. The climate change, migration, and conflict space is, however, evolving rapidly. An active research community continues to study environment and conflict dynamics, drivers of migration and displacement, the specific manifestations of climate change, various forms of adaptation and mitigation, and peacebuilding results. We are likely to learn much more in the coming years. The

The Mugunga I and II displacement camps, North Kivu, Democratic Republic of Congo, April 2008 (Marie Frechon/UN Photo)

ongoing violence in Syria makes a deeper analysis of that conflict and the roles of environmental and migration drivers especially difficult. Burrows and Kinney [2016] suggest that a general theory predicting where climate migration-related conflict will emerge is unlikely, but more specific "place-based" research may prove valuable in informing policy and preparedness.

Despite the complexity and lack of data, the imperative to understand and address these issues is clear. Climate change and migration present major challenges to societies that policymakers have a responsibility to grapple with. The opportunities for positive dividends from environmental and humanitarian cooperation are strong arguments for a proactive approach. And no matter how nuanced the interactions between the environment, migration, and conflict, the accelerating nature of climate change suggests the magnitude of associated problems will only increase.

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