© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Contents

A Note to the Reader Regarding Language and Sources *xi*

Introduction. The Fundamentals of Climate Violence 1
Who, where, what, why, how

Chapter 1. Cultivating Terror 19
How did water crises fuel ISIS? A years-long investigation reveals the environmental roots of Iraqi extremism.

Chapter 2. Bandit Fodder 55
Along a Bangladeshi coastline battered by sea level rise, the pirates are king.

Chapter 3. Water Wars? 83
History tells us that nations do not fight over water. Egypt and Ethiopia, roiled by a new mega-dam on the Nile, might break the mold.

Chapter 4. Merchants of Thirst 117
What happens when countries have the bad luck to have bad rulers during bad conditions? Meet the men feasting off Nepal's dysfunction.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Chapter 5. Deadly Pastures 145

As access to water and land in West Africa fluctuates, farmers and herders are duking it out over the scraps.

Chapter 6. No Jobs, No Peace 171

For years, the Jordanian government has recruited unemployed rural men into the military. Now drought is torching that strategy, and no one knows what will take its place.

Chapter 7. Hunger Games 195

Having exhausted their own water, rich nations are seeking food in poor ones, like Sudan. Cue chaos.

Chapter 8. The West and the Rest 223

We think Western democracies are immune from climate violence. They're not.

Chapter 9. Out of Chaos, Hope? 261

In the right circumstances, environment and climate can bring warring communities back together.

Acknowledgments *279*

Further Reading *283*

Notes *287*

Index *303*

About the Author *315*

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

INTRODUCTION

The Fundamentals of Climate Violence

Who, where, what, why, how

The old man took his time to respond. It was late 2014 and I had come to northeastern Syria with one burning question in mind: Was there any evidence that climate change had contributed to the start of that country's civil war? Right from the get-go, reporting went lousily. With ISIS (also known as the ISIL, the Islamic State, or IS) then on the warpath, people were panicked, never more so than when a rumor spread that the jihadists had broken through Kurdish lines, and my colleague and I were roused in the middle of the night to flee. I felt faintly ridiculous asking about drought while fellow journalists reported on—and embedded with—desperately outgunned defenders. Clearly, a few of my interviewees felt the same, and accordingly they fixed me with some very perplexed looks. Then there was the challenge of finding the right people from the right places. Like needles in a stack of needles, the villagers I sought were often indistinguishable from the hundreds of thousands of other refugees, all bundled into rain-sodden camps and swollen towns across a narrow sliver of land along the Turkish border.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

But then I got lucky. After spotting a group of men ogling a herd of grazing cattle, we pulled to the side of the road and got talking. They were all farmers displaced from other parts of Syria, and they—or more particularly, Talal, the older statesman among them—were keen to tell their tale. For many years in the lead-up to the 2011 revolution against the regime of Bashar al-Assad, he and his family had grappled with governmental corruption, as when officials laced state-provided fertilizers with sawdust and sold some of the genuine product on the private market for personal profit rather than passing it on to the intended recipients. And for about three years preceding the uprising, they had reeled from weak rains, which were debilitating enough in themselves but utterly destructive when fused with regime larceny. The very idea, Talal said, that they were being sabotaged by an unscrupulous state when they most needed its help was a "final indignity." So, when anti-regime protests began, he and his similarly outraged friends and relatives were among the first in their area to join—and a little later, in the case of a few of them, among the first to take up arms. The rest, as they say, is history. "Bad rains, bad government, bad times," Talal told me, withholding his surname. "We could not continue."*

This is the story of climate-related violence, and it is already far more common than you might imagine. In large chunks of Africa and Central

* This is a much-simplified version of a complex tale. According to the dominant climate-conflict narrative in Syria, years of drought in the run-up to 2011 had sparked a mass migration of battered villagers to cities, where they struggled to adapt and so were particularly inclined to join anti-regime protests. And that may be at least partly true. But in interviews across several trips to the country's northeast, farmers gave me a slightly different account. That drought hit even harder than it otherwise might because of corruption and state incompetence. If only Damascus had not handicapped them so, perhaps they would have been better placed to cope with both poorly conceived subsidy reforms and a vicious array of climate shocks. Among many other grievances, farmers' sense that the regime was undermining them amid unprecedented hardship was an insult too far.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Asia, climate stresses are fueling fights between farmers and herders. In the Middle East, South Asia, Latin America, and beyond, these changes are intensifying everything from gang warfare in urban neighborhoods, to "old school" piracy in the coastal waters of Bangladesh. Across many of the world's most vulnerable landscapes, climate change and other environmental furies are merging with other, better understood destabilizers, such as corruption, to undermine dozens of countries that can ill-afford additional crises. And that is just the here and the now. As these stresses and shocks come thicker and faster, rapidly changing conditions threaten to apply the kind of pressure that even the richest of places might struggle to withstand.

The Heat and the Fury is an attempt to unpack this "new" violence. Through a range of intensively reported examples, I will try to impress upon you that there are fewer and fewer forms of instability or out-and-out violence that are not at least partly connected to climate or wider environmental woes—and relatively few communities that are not potentially susceptible to warming's violent "entreaties." Because, while climate-related violence is cutting deepest in poor countries, it will, in some form at least, come for "us." As explored in the latter stages of this book, climate is already contributing to everything from increased aggression against women in Europe, to declining military readiness across much of the Western world.

Through an investigation of the muddled, under-the-hood mechanics of this form of violence, I will try to show that climate's contribution to instability can be considerably more complicated—and almost always more nebulous—than is popularly understood. Since the 1990s and especially since the early 2000s, scholars of climate security, as this field is called, have done extraordinary work illuminating the risks that a warming world poses for peace and stability. However, there is still a lot more to uncover.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

From chapter 1 onward, we will explore how climate and environmental drivers can hurl extra fuel onto already-smoldering fires, as per the most widely accepted characterization of climate's contribution to violence, but also how climate change is simultaneously burrowing, termite-like, through the supports that individuals, communities, and nations turn to in times of crisis. What happens, for instance, when drought hobbles a farming village, and its leaders—the ones who used to arbitrate disputes—head for the hills (or, more accurately, the city), leaving the poorest and most vulnerable residents to try and resolve their troubles among themselves? What happens when a person becomes so beaten down by his circumstances that he resorts to behavior that can only be described as wild or deranged?

Many of my interviewees have mused, in seemingly genuine bewilderment, as to why their farmer cousins or pastoralist neighbors took up arms in improbable circumstances. "It's a form of insanity," a young man in Burkina Faso suggested of a nearby village's decision to pick a fight over farmland that it could not hope to win. Amid the dislocation, exhaustion, and sense of powerlessness that climate change can unleash, I think there is something to that.

Crucially, for a book that is meant to be constructive rather than voyeuristic, I will hint at what makes some places more vulnerable to violence than others. As climate security scholars frequently emphasize, climate change need not fuel instability, and in many of the hardest-hit areas it has not. Why, for example, has climate contributed to conflict in Somalia but so far mostly spared the similarly afflicted Somali region of Ethiopia next door?[1] Hint: It has a lot do with governance. Though I yo-yo in my personal assessment of our prospects for avoiding intense climate-related violence, I am heartened by how much can be done to prevent these shocks from spilling into bloodshed, even as temperatures continue to climb. For all its focus on the messy present and potentially

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

much messier future, I—and I hope you, too—see this book more as a call to arms than a cheerless requiem for our planet.

***

The Heat and the Fury is grounded in a decade of environmental reporting from over thirty countries, including frequent visits to every place that figures prominently in the book, and countless hours being bounced around the back roads of four continents. The scores of dirt- and sweat-stained notepads that emerged from that work tell the stories of soldiers, scientists, spies, farmers, government officials, and many others who have been kind enough to share their insights over the years. It is through their often-bitter experiences that I have come to understand climate's capacity to wreak havoc. It is largely through them that I will tell this tale.

But throughout this period, I have also depended on the scholars who have cut a long and, until recently, relatively lonely furrow developing the climate security field. Although I like to think that I am on top of my beat now, I did not come to it as a committed, or even half-informed, environmentalist. I grew up between Washington, DC, and the UK and had a love of wilderness, but no more than a superficial interest in its upkeep. It was not until I moved to Egypt at the beginning of 2013 and began to clock both the scale of environmental and climate trouble and how little political or media energy was being devoted to covering (or stifling) the story that I really became invested in the field. Out of an instinct for self-preservation as much as a sense of journalistic fascination, I have been motivated to try to articulate the severity of the climate crisis ever since. And what tells that story most forcefully than the violence it is leaving in its wake?

The journey to produce this book has not always been smooth. Along the way, there have been more bouts of food poisoning than I care to remember—or than you surely would care to hear about—as well as

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

frequent games of cat and mouse with authorities, and a number of the sort of security scares that one might expect of a hands-on exploration of violence. In one instance, while returning from an interview in one of the fast-expanding slum districts of Basra in southern Iraq in 2015, I noticed that the taxi driver whom I had engaged to drive me between meetings that day was behaving oddly. First, he began to nervously finger the gun that he kept lodged by the gearbox. Then he obsessively scanned his wing mirrors. After two men—"cousins who needed a ride," he insisted—jumped into the back seats, I understood what he had in mind. Leaping out of the car at the next traffic jam, I weaved through the backstreets, the "cousins" trailing for the first bit, and sprinted as quickly as I ever did through school and college track and field. That evening, in an interview with the police chief, I learned that a local militia, one that was fittingly chock-full of recent migrants from the countryside, had noted my presence. "They're desperate," he said. "They saw you as money."

Yet through it all, I have had constant reminders of the importance of this subject. One of the most pointed came the day before that terrifying Basra incident. I had traveled about an hour north of the city to one of the region's fast-crumbling farming villages. There, I met an old man, Abu Mohammed, who lay in bed, struggling to breathe. He had no more than a sputtering fan to cool him, despite the humid 110-degree-Fahrenheit heat. Iraq's severe year-round electricity outages are even more pronounced in the summer when air-conditioning demand overloads the grid. And he had had no functioning refrigerator for his many medicines since the family's harvest had failed the previous year, depriving them of the funds to pay for generator fuel. After a brief, uncomfortable chat, I left him in peace. About an hour later, while conducting interviews next door, I heard a great wail from his daughter. He had had a massive, fatal heart attack that the doctor was adamant could have been avoided had he been living in more hospitable conditions.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

***

On some level, it could be tempting to question what is new about climate- and environment-related violence. After all, conflict connected to water is as old as civilization itself, with some of the first recorded clashes fought between Sumerian city-states around 4,500 years ago, only miles from where Abu Mohammed took his last breath. I read a lot of environmental history, and natural landscapes have figured prominently as drivers, as victims, and as weapons of war over the millennia. According to one prominent theory, ancient Rome's rise owed a lot to a centuries-long period of warmer, rainier, and hence prime crop-growing conditions, which allowed the empire to produce much more food for its tens of millions of people than the period's farming techniques would otherwise have allowed. The violent famine- and plague-ridden fall of the empire's western portion may have turned in part on the end of that climactic idyll a few hundred years later.[2] According to another, rich rains may have facilitated the advance of Genghis Khan's Mongol horde across the steppe to Europe in the thirteenth century, the pasture lush enough to support unprecedented numbers of horses and the troops they carried.[3]

But while the parallels with past perils are clear, I hope readers will emerge with the sense that we are now up against a different beast, or at least one that is striking in different ways with more complex ramifications across a more challenging political landscape. Decades of progressively fiercer warming means that more people have less access to resources, or at least less consistent access to them, while at the same time they must confront rampant extreme weather-fueled disasters, such as floods and fires. These cascading risks are merging with other day-to-day challenges to overtax coping mechanisms and fuel poverty of a sort that is hardly conducive to happy, well-ordered societies. "In the past, summer was summer, and winter was winter, but now everything's

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

mixed up," said Awad Hawran, who grows mangoes, sugarcane, dates, and watermelons on a one-and-a-half-acre plot alongside the Nile in Sudan. "It's hard to continue farming when even the desert and weather are against you."[4]

None of that immiseration necessarily leads to violence, but climate change is desperately unequal in its application of pressure. In my experience, troubles are more likely to emerge in places where some people are suffering mightily from climate-related stress, such as farmers or villagers in general, at the same time as others are getting by just fine or even prospering. It is that relative disparity in fortunes and government responses, a mirror of wider inequalities, that, much more than the poverty itself, can fuel dangerous degrees of resentment. "*We* suffer the most. *They* get all the help," I have frequently heard communities and individuals say of another. Mohammed Atiyeh, a farmer and activist in a dangerously parched part of Jordan, perhaps put it best. "In a country that might run out of water," he said, "there is regulation only for the weak and poor." His own crops, already ailing from weak rains and feeble river flow, had been withered by the water hoarding of a politically connected neighbor.[5]

All the while, a half century or more of intense environmental degradation has combined with prolific population growth to maximize the impacts of these stresses. Climate-induced drought is a challenge. Climate-induced drought is significantly more challenging when it strikes communities that are already reeling from pollution, groundwater depletion, and other very "prosaic" ills. In these instances, minor manifestations of climate change can be enough to pitch struggling people into violence—particularly if they feel that corruption or other forms of state action or inaction are hobbling them at their time of greatest need, à la Syria. "Even a mosquito can make a lion's eye bleed," an Arab proverb goes.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

It is no coincidence that many of the worst climate-related security crises are unfolding in precisely the places that are also battling severe non-climate-related environmental woes. Nor is it an accident that I have chosen to mention plenty of the latter in this book, many of which are either overlooked despite their often greater significance, or incorrectly lumped under the banner of climate change. Climate change is often considered "sexier" by donors and hence talked up by aid recipients too. Sometimes, the distinction between the two is seemingly lost on scientifically illiterate elites.

(Though not necessarily a challenge in absolute "Malthusian" terms, given that we seemingly do have the capacity to provide for eight billion people and counting, booming populations are reducing many communities' and states' margin for error—and sometimes sparking aggressive or erratic behavior from authoritarian governments who fear that climate change could compromise their sourcing of sufficient food and water in the future. As a measure of just how swiftly the global population has mushroomed, the number of people who could be displaced by climate change by 2050 is roughly equal to the total who lived on Earth around the time of Jesus' birth—about 200 million.)

Vitally, climate change is not playing out in a political vacuum, and the world that spawned it and that is, in turn, now suffering from its fallout is arguably more geopolitically complex than at any time in recent history. After a peaceful-ish hiatus through the 1990s and early 2000s, the number of armed conflicts of any sort is at its highest since the Cold War and the number of intra-state conflicts in particular is possibly at its highest since World War II, while the quantity and quality of democracies has wavered badly across the board.[6,7] There are more displaced and hungry people now than at any time since 1945. There is more state mismanagement, or more accurately perhaps, there are more complex issues for more states to mismanage. Almost like a faceless,

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

nameless cartoon villain, climate change is stealing into communities where people are already divided, institutions weak and discredited, and officials reviled, and stomping its metaphorical boot on wounds that often need little encouragement to widen or reopen.

***

There is a good deal new about this book too. Because while *The Heat and the Fury* owes an enormous debt to the academic and security communities that have dominated the climate security space since its inception, it is also written as something of a reaction to the not-always-accessible fare they have often produced over the years. At the same time, some media have been guilty of hyper-sensationalizing accounts of budding water wars and other supposedly inevitable disasters. In attempting to walk the line between the scholarly and the simplistic, I have put together something that I hope will appeal to a wider audience than the climate security field has previously enjoyed.

I have also heard frequent suggestions that we need more real-world illustrations of how you go from X climate stress or shock to Y violence. By writing a book based almost entirely on original reporting, I have tried to fill part of that gap. And by venturing into places and subjects that are less frequently covered, I have sought to expand the web of climate-conflict examples beyond the most-documented. Through the so-called Streetlight Effect, there can be a tendency for researchers to focus on the safest, most accessible, and linguistically familiar locations.[8] In this regard, I hope there is still plenty to interest those who have been in this field for significantly longer than I have.

Above all, this is one of the first books of its kind—if not *the* first—to explain on a very granular level how climate change interacts with and sometimes intensifies *other* drivers of conflict. Indeed, if you are new to this subject but have already heard about climate and conflict, your knowledge is likely related to Syria—and the discussion with which

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

I began this introduction. Almost since that conflict began, there has been an energetic back-and-forth in academia about the precise nature of climate's role in triggering the initial revolution. That is all highly worthy in light of the policy implications, and important, given the tendency of leaders from Assad himself to former Nigerian president Muhammadu Buhari to use climate change as a convenient means of explaining away violence that is often of their own creation. But, to my mind, the "death by a thousand cuts" nature of climate change and the overlapping "polycrises" with which so many communities are now wrestling renders that something of a red herring.

For example, climate can help push long-standing public anger over issues such as state brutality or inequality and corruption into violence—and all in ways that can make it impossible to gauge where one stressor ends and another begins. To that end, *The Heat and the Fury* does not attempt to quantify the magnitude of climate change's contribution to violence (nor, of course, to attribute to climate shocks all, or even most, of the chaos described in this book), but merely to show that it is almost always part of the mix. Again, I feel that a decade-plus of relevant ground-based reporting has given me the capacity to do just that. Ultimately, this book is as much about poor governance and the messy mosaic of other destabilizers as it is about climate change itself.

***

Climate security can seem like the most intractably insoluble—and hence depressing—of topics. For one, we know that good governance is pivotal in preventing climate stresses from spilling into bloodshed, as you will read throughout the book. Yet those very same stresses are also kneecapping governments' capacity to govern well, thereby reducing states' ability to act when their services are most desperately required. You want to help the victims of widespread flooding in Pakistan—and

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

ignore mounting popular fury in the process? Try doing that when those waters have also washed away the very roads and bridges that you need in order to distribute aid, as happened when up to a third of that country was inundated in late 2022.

You want to "climate-proof" farming communities, whose livelihoods are among the most vulnerable to climate change and whose prevalence can be one of the clearest markers of possible climate-related violence?* Good luck with that when technical innovations tend to kill farm jobs and accelerate migration to the cities, which can itself unleash new security challenges. For example, police in Kathmandu already report more frequent fistfights among competing day laborers on construction sites. Officers do not relish the prospect of more turmoil as displaced rural Nepalis continue to pour into the city.

Even well-intentioned attempts to address climate change can prompt as much trouble than the initial challenges, if not more—a concept called *backdraft*. It is clear that large-scale electrification will be pivotal to weaning our economies off oil and gas. But that will require an awful lot of new mining for battery components in troubled countries such as the Democratic Republic of the Congo, which is tricky to envisage without considerable violence. It is possible, too, that we will eventually need to turn to exciting, if still very unproven, carbon-capture technologies to rein in warming. Can we do that without opening a whole new Pandora's box of trouble? At a TED climate summit in Scotland in 2021, an exercise dedicated to gaming out the possible ramifications of

* Scholars Josh Busby and Nina Von Uexkull have identified three characteristics that they deem particularly likely to contribute to climate-related conflict. In addition to a large percentage of the population engaged in agriculture, they noted that places with histories of recent or ongoing conflict (and so with plenty of existing cleavages for climate stresses to exacerbate) and exclusive political systems (which are frequently unresponsive to climate-related crises) are uniquely vulnerable to this form of violence.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

countries using cloud seeding and other forms of geoengineering rapidly descended into war.

There is a deep unfairness to much of this as well, one that goes beyond the fact that it is those who contributed least to climate change who are most vulnerable to its violence. In the long run, some of the most significant climate chaos might emerge from climate-battered states failing to meet citizens' expectations. Those mismatches can undermine authorities' perceived legitimacy and fuel anti-statism, even if the lost or reduced services—regular water supply, superior roads, and so on—are largely a product of recent developmental advances. In other words, climate might punish with violence states that have enjoyed some success in raising living standards, while sparing those that have failed to progress.

Nevertheless, there is still a big question mark as to how much violence climate change will eventually fuel. And a lot of that, beyond issues of governance, boils down to the as-yet-unknowable extent to which the planet actually warms. For every incremental shift toward higher temperatures or more extreme rainfall, some regions could see a 14 percent increase in group-on-group violence, according to one (very contested) study.[9] The amount of warming will determine whether one billion or possibly even three billion people live outside the "human climate niche," the range of conditions that have served us so well, according to another.[10] For all the complications inherent in decarbonization (which I will also get into), there is little doubt that meaningful climate action—and meaningful climate action alone—can stifle the worst of this form of violence. As faint a hopeful note as that might initially seem, the grand reality is that most of this remains in our hands.

***

The Heat and the Fury is ambitious and wide-ranging and, I hope, very readable. But there are plenty of things it is not. For one, this book is

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

more a series of snapshots of the violence that climate change is leaving in its wake than a systematic exploration of the climate security field—and most certainly not of the climate domain in general. There are plenty of key stories that are not told or not told in any depth, such as the instability that could emerge from the prolific mining of rare-earth elements, or the tussle for resources and strategic positioning in a thawing Arctic. There are plenty that are overrepresented. You will read a lot about water, which, as scientist Jay Famiglietti says, "is the stealthy messenger that delivers the bad news about climate change to your town, to your neighborhood, and to your front door."[11] Since 2001, about three-quarters of all natural hazards have been water-related.[12] I will repeatedly revisit the uncertainty that climate change brings, a complication that may be generating more violence than does absolute scarcity, despite the latter's greater celebrity.

You may note a limit to the geographic range of these stories. Having been based in Cairo for almost six years and then Athens, Greece, for six and counting, my reporting has naturally been centered on the Middle East as well as North, East, and West Africa, with frequent forays into South Asia and Eastern Europe. I have not worked in other current or potentially climate-violence-heavy hotspots, such as Latin America, Southeast Asia, and Southern and Central Africa. Adamant as I have been about basing everything on my own research, these other regions remain largely untouched in this book. Fortunately, in reporting terms, climate-related violence is even less equitably distributed than "regular" climate change impacts. In their grimly perfect marriage of severe climate stresses and dreadful governance, I have had a lot to work with on my doorstep.

Progressing through these chapters, you may also perceive an occasionally blinkered-looking focus on *physical* security at the expense of other, arguably more-serious forms of climate-related fallout—that is,

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

spotlighting violence among some Sahelian herders and pastoralists at a time when many more people there are going without sufficient food for similarly climate-related reasons. But there are two explanations for that. The first is that this book would have bloated into an unmanageable mess without a relatively tight focal point. The second is that most books about climate change have explored the subject through the prism of food access, justice, human rights, migration, and so on. And so they should. (Insofar as those subjects relate to security, they come up plenty.) However, I am trying to tell a slightly different kind of story that may appeal to a slightly different readership, which requires a slightly different framing. As Jonathan Franzen writes, "The paradox of nature writing is that to succeed as evangelism, it can't only be about nature."[13] Sometimes it has got to be about violence and war.

Finally, in an attempt to produce something that is compelling for a wide audience, I have also excised a lot of jargon and alphabet-soup-like acronyms, kept statistics to a relative minimum, and trimmed a bunch of country-level context. In doing so while simultaneously deploying frequent anecdotal evidence rather than important contextual studies, this book could come across as somewhat lightweight. The plural of anecdote is not data, after all. But I have almost always taken whatever studies exist into account. Owing to my fixation on un- or under-covered research angles, there often have not been any to cite. Additionally, I argue that the messy interplay between climate change and other drivers of conflict is generally impervious to quantitative study, requiring instead the kind of very "human" stories that I have tried to deploy throughout. For more-detailed, nuts-and-bolts descriptions of climate security, I have provided a list of relevant books and papers in a bibliography at the end.

***

This brings us to the journey that you are about to begin! These chapters could be read in isolation, each effectively a standalone investigation

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

with its own "cast of characters" and plot, but there is a narrative arc throughout, and I would love for you to follow it. Just as climate change builds on other challenges to complicate the lives of millions, so I have tried to sequence these chapters in such a way as to show the cascading nature of climate-related security risks. For lack of a better, less-grim way of putting it, I want the sense of violence to close in on you. Each chapter explains how varying manifestations of climate change are combining with very different socio-economic-political contexts to fuel different forms of violence. More practically, I have tried to fold in relevant science along the way—and generally try not to repeat myself.

Chapter 1 is a years-long investigation in Iraq, where water shortages formed a rich backdrop for ISIS to recruit and conduct its terror operations. Chapter 2 takes you to Bangladesh. There, merciless pirates are making fat profits by kidnapping displaced farmers and holding them for ransom—or worse. Then on to the Nile basin (chapter 3), the scene of a possible conflict between Egypt and Ethiopia centered on a mega-dam, and Nepal (chapter 4), where the state's inability to keep the taps flowing in a water-rich nation may spell its downfall. Chapter 5 is set in Africa's Sahel. Based on reporting across a half-dozen countries, this chapter delves into violence between farmers and herders, who are attacking one another across a drier, less predictable landscape. From there, we will begin to explore some of the violence arising out of *responses* to climate change.

Struggling villagers in Jordan have traditionally leaned on the government for army jobs during lean farming times. But as conditions worsen and public coffers empty, that quick fix is crumbling, with dangers big and small for the country (chapter 6). Chapter 7 is located in Sudan, where drought-wary foreign nations are buying up farmland to secure their food future—at local people's expense. Chapter 8 makes clear that the West is neither safe from direct climate violence, particularly against

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be
distributed, posted, or reproduced in any form by digital or mechanical
means without prior written permission of the publisher.

women, nor invulnerable to the possible fallout from our attempts to mitigate and adapt to warming temperatures. Finally, this book will culminate with a hopeful chapter 9. Because even though climate change is tearing plenty of states and communities apart, it can also in certain circumstances help bring them back together. Through a whirlwind tour of environmental peacebuilding successes, many in the countries that we will have visited beforehand, I will emphasize that there is some reason for optimism.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

CHAPTER 1

Cultivating Terror[1]

How did water crises fuel ISIS? A years-long investigation reveals the environmental roots of Iraqi extremism.

When Iraqi security forces finally routed ISIS from the west bank of the Tigris near Samarra in the early months of 2015, advancing troops were stunned by how little the jihadists had left for them to liberate.

In the riverside village of Huiesh, ISIS had stolen every single water pump, leaving the village—some three thousand people and more than two thousand animals—high and dry for perhaps the first time in its history. Just to its west, beyond a now bombed-out military installation, they punctured the country's main north–south oil pipeline, coating acres of farmland in sticky black crude in their zeal to tap its contents. Throughout the area, ISIS fighters had unearthed dozens of painstakingly laid farm watering grids. That, an army explosives expert explained, was a trick the group sometimes pulled to mold makeshift projectiles from pipes and compensate for a shortage of munitions when cut off from reinforcements. But in other instances, where the jihadists had also pockmarked the pipes with bullet holes, this sabotage seemingly served no purpose other than to impoverish returnees. "What dogs," the expert said of the culprits as he levered a defused device into a flatbed truck.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

The rot only intensified along the Watban Way, the road that extends out into the desert from Huiesh and which was named after Saddam Hussein's half-brother. ISIS (the Islamic State) had not been in quite as much of a hurry to retreat here, which meant more time to empty the two dozen or so roadside agricultural goods shops of their fertilizer—and more time to repurpose that explosive mix into a web of booby traps across the army's line of advance. In this at least, they would eventually grant de-miners an accidental assist. By the time the area was fully secured, many of these farming products had seeped out of their equally make-do canisters, sprouting vegetation in neat, easily identifiable patterns.

Worse was to come, though. Progressing a few more miles into the arid periphery of the Tigris valley, Iraqi troops encountered barely anyone living or anything intact. The jihadists had killed whatever livestock they had not been able to cart away, throwing at least one sheep down a well. They had cannibalized the area's all-important mechanized irrigation systems for anything of value, committing the owners to paying their monthly installments for years after the costly equipment had rusted into unusable hulks. With few people and no means of making the land grow, it did not seem like it would be long before this area returned to the desert from which it had been painstakingly carved. Indeed, a thin layer of sand had already begun to settle across fields that had been almost impossibly lush only a year earlier.

"They have sent us back to the stone age," said my companion, a man who I will call Abbas and who accompanied me throughout the first few of a number of visits to the area between 2015 and 2017. "They have killed our communities."

With Us or Against Us

A paunchy, chain-smoking parody of a mid-level career policeman, Abbas had worked across the Samarra area of central Iraq for seven

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

years before ISIS arrived in the summer of 2014. He had been proud of his role in helping to restore a veneer of calm to an area that had been roiled by sectarian Sunni–Shia violence in the years following the US-led invasion in 2003. And so, when the order came for some state employees to return to the west bank of the Tigris after its liberation, Abbas was among the first to heed the call. Initially, he seemed delighted by the opportunity to reconnect with the agrarian communities he had come to know and like—and whose troubles he could well appreciate. Coming from a farming family himself, he certainly seemed to have a more natural rapport with the locals than did his more urban peers, some of whom saw handling rural grievances as practically a punishment posting.

But as Abbas began to piece together what had happened before and during the jihadi surge, his warmth for the area slowly began to ebb. These villages had bowed far too meekly to ISIS, he soon concluded. Many of their residents were more accessories to the destruction than victims of it. Now, in tandem with district agricultural officials and an internal security agent dispatched from Baghdad, he resolved to help identify which locals had sided with the jihadists. "They fucked us," he said, momentarily losing his poise. "Our approach was: We're going to find out who was with us and who was against us."

Over the following months, Abbas and his colleagues sifted through whatever records had not been torched or stolen during the fighting. They questioned many of those who had stayed behind after the ISIS occupation began, and—though he never explicitly said so—forcibly interrogated others with the assistance of Saraya al-Salam, one of the largest of the pro-government militias and the dominant security force in the Samarra area. (I was pretty sure I heard muffled screams coming from the basement on a visit to one of the group's bases.) Through discussions with community leaders, many of whom knew which of their kin had displayed extremist sympathies in the past, and the examination

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

of scarce and dangerously shot bits of cellphone footage from within the "caliphate," they soon formed a partial picture of which locals had most enthusiastically abetted ISIS.

What they concluded largely matched my own reporting both there and in other parts of Iraq and neighboring Syria. In the villages close to the river, like Huiesh, where most farmers had regular access to the Tigris waters and hence tolerably strong crop yields, few residents had thrown in their lot with the jihadists. "They had good irrigation. They got good harvests," Abbas said. But in the more peripheral communities beyond the river—and the canals that emanated from it, it was a very different story. For the farmers and pastoralists here, almost all of whom shared the same Sunni Arab ethno-religious profile as their riverside peers, the past decade had been one of bitter financial and emotional struggle.

The rains on which they partly relied to sustain their crops had repeatedly failed, shrinking or sometimes wholly extinguishing their harvests. The groundwater that they usually turned to as a substitute at times of drought was disappearing because of the frequency with which they were now having to exploit it—and moreover was often prohibitively expensive to access because of the amount of diesel required to power their generators and extract groundwater from the depths. On one trip, Abbas waxed so enthusiastically about how green these wastelands once were that he completely missed spotting the IED trip wires that jihadist remnants had run across the road the previous night. We later found out that the explosives had already been defused, but we resolved to drive in silence from there on out.

Most infuriatingly, as far as residents were concerned, big Baghdad and Samarra businessmen had snapped up swathes of communal land and then enclosed it with fences to guard their quarter-mile-wide, water-guzzling irrigation pivots. That had put further strain on the aquifer, while simultaneously reducing the space available for grazing the

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

livestock that many locals had acquired to pad their incomes. "Life was hard. People were angry," said a local tribal leader. He, like many others, preferred to speak anonymously for fear of being deemed an ISIS sympathizer, a charge that was thrown around willy-nilly during and after the war. "And angry people can do crazy things." It is no coincidence, several interviewees suggested, that those mechanized irrigation systems were singled out for particularly rigorous jihadi sabotage.

As the drought dragged on longer than locals had ever experienced before, their meager savings vanished, to be replaced, in many instances, by fierce resentment. And, by this time, outsiders were paying attention. Al-Qaeda had previously lavished attention on this area, enticing to them in part by its proximity to Baghdad, some seventy miles to the south, and Samarra, a city with sites holy to Shiite Muslims and one that the Sunni extremist group had successfully attacked on a number of occasions. Now, as ISIS set about trying to build something significantly bigger and more ambitious than its jihadi forebear, the group's recruiters began to pull out all the stops.

Swooping into these villages in the winter of 2013–14, they dangled salaries—of up to $1,000 a month—that broke, desperate residents could otherwise only imagine. Recruiters most energetically targeted families who had lost the most to drought—and those whose small, unproductive fields bordered some of the bigger, more bountiful ones. There is nothing quite like desperation and envy to arouse the worst demons of our nature, the extremists seemingly reasoned. Seizing upon the sectarianism that had flourished after the US-led invasion, they pointed out how little the Shia-led government was doing to help Sunni farmers at their time of greatest need. That was only partly true, with few Shia farmers any better off, but for people who had had less inclination and capacity to visit Shia majority villages since 2003, this narrative resonated. "Farmers are suffering everywhere, but these people were clever," Abbas said of ISIS. "They preyed on the ignorance."

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Though relevant statistics are few and inexact, pastoralists and farmers within semiarid tracts of Tharthar district seemingly joined ISIS at roughly three times the rate of their riparian counterparts, according to Abbas and the local tribal leader. A full two-thirds of those held as suspected jihadists in Saraya al-Salem's Samarra jail were farmers, a media officer for the militia said, a cohort so big that discussion of cattle breeds and seed types reportedly rivaled professions of innocence as cellblock conversation topics. Initially skeptical of my climate-conflict fixation, Abbas too came to accept the link. "The less the water, the more the jihadists. And the countryside is dying," he said. "This is a security nightmare."

Weaponizing Misery

You may well know the meat and potatoes of ISIS's emergence: The seizure and occupation of a chunk of Iraq and Syria the size of Great Britain for varying periods between 2013 and 2019. The group's almost cartoonishly graphic, made-for-camera brutality—and success in recruiting into terrorism misfit youngsters from London to Los Angeles and across the Middle East itself. You may even have read up on the toxic combination of religious fanaticism, avarice, and grievances of various stripes that underlay its triumphant exploitation of preexisting chaos, first in civil-war-ridden Syria, and then across the border in post-invasion Iraq.

But you are unlikely to have heard much about the bleak environmental circumstances that turbocharged ISIS's rise and, arguably, aided in its initial success against the anti-jihadi coalition. Many years of accumulating climate and other environmental woes had thrust both countries' agricultural heartlands into deep economic downturns. Even longer periods of mismanagement and marginalization had fueled tremendous rural fury against the Iraqi and Syrian states, which many

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

villagers held responsible for their reduced circumstances. Like hyenas feasting on a sickly zebra, the jihadists expertly took advantage of that poverty and pent-up rancor to swell their ranks into a force of roughly sixty-thousand fighters at one point.*

National data about ISIS's composition are as limited as those available around Samarra. But what we do know is telling. In Tel Afar, a northern Iraqi town notorious for its vastly disproportionate cohort of native-born ISIS sons, almost a third of respondents in a UN study reported knowing someone who had a joined an armed group for reasons related to climate changes over the war—likely the jihadists, in most instances.[2] In northeastern Syria, ISIS attracted at least a third of its local recruits from pastoralist communities, which accounted for no more than 2 or 3 percent of the country's prewar population and whose already difficult lives had deteriorated in lockstep with the quantity of vegetation in the semiarid *badia*, a Syrian Kurdish security source told me. Over seven years of intermittent reporting across afflicted parts of both countries, I found that the path from water-deprived farming community to armed-group recruitment frequently resembled a well-greased conveyor belt, a highway to hell transporting a frankly stunning number of resentful rural left-behinds.

"These kinds of countryside people ticked all the boxes," Husham al-Hashimi, a top scholar of terrorism, told me over tea in a chic Baghdad hotel a few years ago. "They were poor, they felt they had less power than they deserved, they felt that they were forgotten, they felt that they had all these rich resources that Baghdad was stealing. That was a bad mixture." Having rubbed shoulders with plenty of these men

* Unhelpfully, estimates of ISIS's peak fighting strength in Iraq and Syria ranged from 9,000 to 200,000. The latter number seems improbably high (unless one considers all of its "support staff" and assorted hangers-on). The former is certainly far too low, with an estimated six to seven thousand ISIS militants killed or captured in the Syrian town of Baghouz alone, where the group made its final stand as a coherent military force in 2019.

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

during his own youthful flirtation with jihadism, Hashimi had a better understanding of what propelled people into extremism than most of his peers. That might have contributed to his undoing too, as he soon focused his fine mind and deep connections on the influence of Iraq's powerful Iran-aligned militia groups, at least one of which was seemingly responsible for his assassination in 2020.

In some ways, the black-flag-waving jihadists were in good historic and contemporary company in appealing to the poor and prospectless. Through the eighteenth and nineteenth centuries, European commanders ransacked villages for "sluggards, rakes, debauchees, rioters, undutiful sons, and the like," as the Prussian king, Frederick the Great, referred to his men.[3] A little later on, in the immediate aftermath of World War II, the French Foreign Legion took on an inordinately large number of battered-looking men with strong German accents and suspiciously impressive aptitudes for fighting. Modern militaries from Jordan (which, as we will explore in chapter 6, enlists villagers as something of a safety valve at a time of climate-induced job losses) to the US (which has at times concentrated recruitment in deprived urban areas) have stacked their forces with men who often lack attractive alternatives. In pursuit of cannon fodder for its war in Ukraine, Moscow has partly relied on the most "old school" of tactics, forcibly snaffling poorer, unempowered ethnic minorities like a latter-day Royal Navy pressgang.[4]

I found that this dependence on the poorest of the rural poor is also partly true of the anti-ISIS coalition. The largely Shiite militias, like Saraya al-Salam, that assembled across Iraq to defend Baghdad and other areas as the hollowed out Iraqi army collapsed in the face of the jihadi charge, drew an inordinate share of their men from impoverished, waterless stretches of the southern marshes.[5] So, too, Iraq's Federal Police and the Syrian Democratic Forces (SDF), the umbrella grouping

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

of mostly Kurdish fighters that controls the northeast of that country. These forces have enlisted many villagers whose lands have been lost to drought—or the oil industry.

In Suwaydiyah, a small Syrian village that is surrounded by leaky, crop-killing refineries, some 40 percent of its young men and women joined the SDF, the mayor told me, a figure many times that of more agriculturally viable communities in the area.[6] In Turk Alan, just outside the Iraqi city of Kirkuk, a tribal leader disclosed that no fewer than four hundred of the community's roughly six thousand inhabitants had found work with the police or militias after the jihadi surge. At the entrance to the village, pictures of the roughly twenty of them who had died in combat stare out against a backdrop of flaring oil wells and crude-pocked fields.

Yet there the comparison ends. For, in its weaponization of rural misery and repurposing of it to the grimmest of ends, ISIS transformed common recruiting practices into a dark, hideously effective art. They targeted the most destitute farmers and pastoralists, who were often at their drought-hobbled nadir. They harnessed long-standing political and social grievances to present environmental and climate ills as signs of a government that was out to get them, rather than the unfortunate byproduct of extreme mismanagement and increasingly inhospitable global conditions. With a bevy of former intelligence operatives from Saddam Hussein's notoriously effective security apparatus among its senior leadership, ISIS knew a thing or two about manipulating weakness. A fast-deteriorating natural landscape gave them an ideal setting to do just that.

"This beast [ISIS] has many causes," said Omar, a former agriculture ministry administrator from Mosul, who fled as the jihadists seized his city and who wished to withhold his surname for security reasons. "But in the countryside these new problems just pushed people over the edge."

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Dotted with date palms, the Balad area, just north of Baghdad, was once a rich agricultural area. But as water access deteriorates, many farmers from families like this one have traded in their hoes for assault rifles in the service of militias. (Photo by Emily Garthwaite)

A Countryside Primed to Blow

In retrospect, we could—or perhaps should—have seen some sort of trouble brewing. Over the past half century, rural Iraq has been trapped in a long, sad decline that still shows few signs of reversing. Beginning with the surge in global oil prices from the early 1970s, Baghdad slowly lost interest in agriculture, the source of most village livelihoods and previously a nationally significant economic sector. In the fifty years until 2022, farming's share of national GDP fell sixfold to about 3 percent.[7] With that drop went much of the interest of a state now flush with tens of billions of dollars of monthly fossil fuel revenues.

Then came conflict. Following his seizure of power in 1979, Saddam Hussein quickly sucked Iraq into a number of wars—both abroad

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

against Iran and Kuwait, and at home versus his own people in Kurdistan and the far south—that struck farmers particularly hard. During the eight-year Iran–Iraq War, the dictator forced tens of thousands of them into uniform. He trashed tracts of prime farmland, even destroying millions of southern Iraq's prized date palms for fear that Iranian saboteurs might use them as cover to attack oil facilities. In doing so, he transformed once idyllic stretches of river valley into uncultivable and, on the Faw Peninsula where the far south meets the sea, near-uninhabitable badlands. And not just there. Abbas was always at pains to point out the tree stumps along the road from Baghdad to Kirkuk, victims of Saddam's fear of assassination as he motored between his many palaces.

In the meantime, Iraq launched a series of ill-starred agricultural initiatives, all part of its drive for regime-buffering food self-sufficiency, which were abandoned after the dictator's toppling. Under international sanctions after invading Kuwait in 1990, the state granted farmers most of their seeds and fertilizer for free or at discounted rates in a bid to drive up grain production. In turn, it then purchased much of their crop for up to three times the international price. But that costly system has wobbled badly since 2003, with inputs erratically distributed or of poor quality, and payments for crops often delayed. Having been reared on this "cradle-to-grave" support system, many rural Iraqis have struggled as it has waned. By 2007, some 39 percent of people in rural areas were living in poverty, two and a half times the country's urban rate.[8] Hundreds of thousands of villagers had abandoned their fields altogether, turning instead to the slum districts of Baghdad and other cities.

Yet still the blows kept coming, and off the back of worsening insecurity, rural discontent was starting to crest in the years prior to ISIS's surge. Water shortages, seldom previously a problem in the Fertile Crescent, began to bite due to deepening droughts—and upstream dam construction. Since World War II, Turkey has built dozens of large dams within the Tigris and Euphrates basins, the two river systems on which

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Iraq has historically relied, while Iran has dammed, diverted, or cut off every one of the roughly thirty Tigris tributaries that flow west from its territory. Officials have been either powerless, or in the eyes of experts, too incompetent and focused on lining their pockets to stymie the damage. "The only thing ministers care about water is the water they put into their whiskey," said Talib Murad Elam, at the time an adviser to the prime minister of the Kurdistan Regional Government (KRG) in northern Iraq, smiling the smile of a man who knows he has just said something eminently quotable.[9]

Infrastructural neglect, which had already begun under the sanctions, worsened. What water Iraqi farmers did receive was so tainted with pollution as to be unusable, or so salty from backwashed agricultural wastewater as to corrode water-treatment plants faster than their operators could source spare parts.[10] The system, leaky and susceptible to evaporation, also loses Iraq billions of cubic meters of water that it can no longer afford to squander. In this unvirtuous circle, Iraq may lack the personnel to right these wrongs, even though it once produced perhaps the region's largest class of capable professionals. "We used to produce scientists like they grow on trees. But now they've fled," Jafar Dia Jafar, the father of Iraq's nuclear program, told me from the foreign city that he, too, now calls home. "We don't have the people to fix our problems anymore." Irrespective of whether his take is wholly fair, Iraq has indeed bled talent, the venal political class that US administrators promoted following the toppling of Saddam's Baath regime frittering away the skills of the brilliant individuals that it does still have at its disposal.

Enter more intense climate change stage right. Creeping into this already noxious mix like a vengeful ex-lover, both rapid and slow-moving stresses have barreled across Iraq, imposing an additional challenge that citizens feel woefully ill-placed to handle. Over the past few years, the country has experienced what can feel like an elaborate laundry list of climate disasters. There is that ever-intensifying drought, felt both

(continued...)

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Index

Abdellatif, Osama Daoud, 203
Abdullah II (King of Jordan), 184
Abu Dhabi, UAE, 208
Abu Ghraib, Iraq, 43
Abu Sayyaf Group (ASG), 60
Adarbeh, Amjad al-, 188
"administrative fees," 35–36
Aegina, Greece, 242
agriculture. *See* farming
Agronomes & Vétérinaires Sans Frontières (AVSF), 270
Ahmed, Abdelmajid Mohammed, 216
Ahmed, Abiy, 90, 105
Ahmed, Kaamil, 76
Aila, Cyclone, 65, 72
Akkad, Omar El, 228
alfalfa, 210–211, 212, 214, 218
Al-Jafr, Jordan, 190
AlRawabi for Development, 214
Alwach, Zekra, 50
American War (Akkad), 228
amnesty programs, 56, 68, 78
Anhar, 213
aquifers
  Iraq and, 22–23
  Jordan and, 190
  Nepal and, 128–129
  Nile basin and, 214
  Saudi Arabia and, 207–208
Arab Bani Hillel tribe, 111
Arctic region, 256–257
Arizona, 218, 220
Assefa, Mesenbet, 103
Aswan High Dam, 90, 104, 110, 112
Athens, Greece, 236
Aviram, Ram, 274
AVSF. *See* Agronomes & Vétérinaires Sans Frontières

backdraft, overview of, 12
Baghdad, Iraq, 49
Bahrain, 196
Bangladesh. *See also* Sundarbans
  future of, 78–81

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

migration within, 76–77
piracy and, 56
Shyamnagar region, 66–67
tigers and, 73–74
barrages, 42–43
Bashir, Omar al-, 93, 209, 213, 217
Basra, Iraq, 4
Bauman, Zygmunt, 230
Bedouin tribes, 177–178
Bekele, Simegnew, 91
Belarus, 237, 239
Bhola, Cyclone, 79
Bhola Island, 67
Bin Laden, Osama, 205–207, 209
Blattman, Chris, 250
Bobo-Dioulasso, Burkina Faso, 155
Boki Saboudo, Senegal, 151
Bopiah, Raajeev, 220
bottled water distributors, 243
Brahmaputra River, 63
Brazil, 219
bread, Egypt and, 99–100
Bromberg, Gideon, 267
Burke, Sharon, 244
Burkina Faso
conflict in Kaya area and, 145–148
corruption and, 160–161
governance failures in, 155–156
mud-brick housing and, 166
overview of issues in, 148–150
Busby, Joshua, 12

Captagon, 173, 187–188
carbon capture technologies, 12–13, 252
carbon sinks, 62
Carlson, Tucker, 248
Cecco, Leyland, 100
cement construction, 165–166
Chayes, Sarah, 36
China, 142, 220, 243–244, 253
climate anxiety, 236
cloud seeding, 252
coal, 250
cobalt, 254
Cold War, 264
Congo, 12, 254
conspiracy theories, 247
corruption
Burkina Faso and, 160–161
Iraq and, 35–36, 49
Jordan and, 191
Nepal and, 125–128, 130–131, 134–136
Sudan and, 212
crime, 139–140. *See also* violence
cyclones, 63, 65, 72, 78, 79

Dahra, Senegal, 162–166
dams. *See also* Grand Ethiopian Renaissance Dam
Aswan High Dam, 90, 104, 110, 112
China and, 63
domestic water conflicts and, 108–112
Iran and, 30–31
Iraq and, 29–31
ISIS and, 42–45
Makhoul Dam, 52
Merowe Dam, 108–110
Roseires Dam, 109–110
Sudan and, 108–110
Tabqa Dam, 43
Tigris River Basin and, 29–31, 52
Turkey and, 29–31

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Darfur, 271
date palms, 29, 102, 253
de Waal, Alex, 94
deforestation, Iraq and, 49–50
Dehgan, Alex, 264
Democratic Republic of the Congo, 12, 254
desalination plants, 191, 242
Dhaka, 60, 76–77
Dinder National Park, 94
Dinka people, 111
Douri, Izzat al-, 33
drought
  Ethiopia and, 113
  impacts of, 4
  Syria and, 1–2
drugs, 173–174, 187–188

EcoPeace, 268
ecoterrorism, 235, 242–243
Egemi, Omer, 214
Egypt
  climate change, GERD and, 87
  comparison to Ethiopia, 104–108
  current GERD status and, 114–115
  dependence of on Nile basin, 101–103
  future water needs of, 113–114
  GERD and, 84–85
  Jonglei Canal and, 111
  loss of agricultural land in, 97, 100
  media and, 106–108
  misinformation about, 88
  Sudan, GERD and, 93–95
  threats to stability of, 99–101
  violence over GERD and, 89–91
Elam, Talib Murad, 30
electricity
  GERD, Sudan and, 93
  impacts on in west, 241
  Iraq and, 31, 34
  mining in Democratic Republic of the Congo and, 12
  outages of in Iraq, 6
embargos, 203–204
environmental peacebuilding (EP)
  hope and, 275–277
  Jordan River and, 265–269
  limitations of, 273–275
  on local level in Sahel, 269–271
  overview of, 263–265
  problems with, 271–273
Erdogan, Recep Tayip, 239
erosion, 65, 96
Ethiopia
  climate change, GERD and, 87
  comparison to Egypt, 104–108
  concerns over GERD in, 96, 97–98
  dependence of on Nile basin, 103–104
  displacement of people in for GERD, 110
  drought and, 113
  GERD and, 83–85
  media and, 106–108
  Somalia vs., 4
  violence over GERD and, 90–91
Euphrates River Basin, 29–31, 42–45
Europe, 237–240, 264. *See also specific countries*
European Coal and Steel Community, 264
extreme weather events, Iraq and, 31

Fadil, Mubarak al-, 198, 205, 211–212
fake news, 161

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Falahi, Jassim al-, 47
Famiglietti, Jay, 14
Farakka Barrage, 63
Farmers Defense Force, 244
farming
  decline of in Iraq, 28–29
  failed initiatives for in Iraq, 29–30
  fighting in Kangue and, 158–162
  future of in Sahel region, 164–166
  governance and, 155–158
  green energy and, 244–245
  Jordan and, 180
  Sahel region and, 145–148
  Senegal and, 153–155, 269–271
  in southern Europe, 234
  Sudan and, 195–197
  western economy and, 240–241
fast fashion, 67
Federal Police (Iraq), 26–27
Ferlo herders
  anger over, 152–153
  environmental peacebuilding and, 270
  fear of terrorism and, 157
  governance failures and, 166–167
  Kedougou region and, 164
  technology adaptation and, 162–163
fertilizer shortages, 50
fishing, 97–98, 257. *See also* piracy
flooding, 257
food insecurity, 99, 100
Forest Department (Bangladesh), 61, 68–69
France, 234, 246, 264

Gabon, 232
Ganges River, 63
Gaza, 274–275
Gaza Strip, 267
generators, 34
GERD. *See* Grand Ethiopian Renaissance Dam
Germany, 240, 264
Gezira Scheme, 205
Ghosh, Amitav, 61, 255
ghost employees, 35–36
Ghwar al-Safi, Jordan, 180
Gilet Jaune protest movement, 246
glaciers, 141
GLB Invest Farm, 210–211, 212
Gloninger, Chris, 247
goats, 47–48
gold, 219
Golden Dawn, 238
Grand Ethiopian Renaissance Dam (GERD)
  background of, 89–92
  climate change and, 97–98
  conflicting narratives over, 101–104
  current status of, 112–115
  food production and, 99–100
  reasons for, 95–98
  similarities between Egypt, Ethiopia and, 104–108
  Sudan and, 92–95
  tensions over, 83–85
Greece
  Great Plague of Athens and, 236
  green energy and, 242, 244, 245
  migrants and, 237–238
  tourism and, 241–242
  violence in, 233
  wildfires in, 223–226, 230, 257–258
green colonialism, 254
green energy movement

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

concerns over impacts of, 227, 248–251
militaries and, 258–259
misinformation about, 246–248
problems with transition, 242–246
resistance to, 242–246
grievances, exploitation of by ISIS, 32–35
gun prices, 167
Gyawali, Dipak, 122, 128, 134

Hadid, Ayman Abou, 104
Hakim, Mohsin-ul, 78, 79
Halle, Silje, 271
Hamas, 273–275
Haque Khan, Habibul, 78
Haringar, Bangladesh, 72
Hashimi, Husham al-, 25–26, 44
Hassan (Prince of Jordan), 190
Hatziperos, Panagiotis, 242
heat waves, 31
Hejaz railway, 177–178
herders
climate unpredictability and, 150–153
conflict over, 145–148
fighting in Kangue and, 158–162
future of in Sahel region, 162–164, 269–271
governance and, 155–158
migration and, 168
overview of, 147
overview of challenges of, 148–150
terrorism and, 156–157
hilsa fish, 69
Himalayas, 79
Homer-Dixon, Tad, 114
housing, Sahel region and, 165
Huiesh, Iraq, 34, 40
hunger stones, 229
Huq, Saleemul, 230
Hussein, Saddam, 28–29, 36

India, 63, 142
Inflation Reduction Act (IRA), 245–246
infrastructure, Iraq and, 30
Iran, 30–31, 264
Iran-Iraq War, 29
Iraq. *See also* ISIS; *specific cities*
destruction by ISIS in jihadi surge, 19–20
electricity outages in, 6
factors allowing ISIS to grow in, 28–32
green energy movement and, 248–249
optimism for, 46–48
rise of ISIS in, 24–27
sandstorms and ISIS attacks in, 39–42
water scarcity and involvement in jihadi surge, 21–24
ISIS. *See also* Iraq
climate change and, 1–2
control of water supplies by, 42–45
destruction in Iraq by jihadi surge and, 19–20
exploitation of grievances by, 32–35
factors contributing to rise of, 24–27
low visibility and attacks by, 39–42
recruitment strategies by, 35–39
revived version of, 50–53
Israel, 191–192, 203, 266–268, 273–275
Italy, 234

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Jafar, Jafar Dia, 30
Jak, Abdelazim al-, 196
jaladoshyu, 57. *See also* piracy
Jama'at Nusrat al-Islam wal-Muslimin (JNIM), 157
Janabi, Hassan al-, 31–32, 49
jealousy, 33
Jebel Abdelaziz, 271–273
jihadists, 19–24, 156–157
JNIM. *See* Jama'at Nusrat al-Islam wal-Muslimin
Jonglei Canal, 111
Jordan
  crime and, 187–189
  decline of villages in, 173–174
  declining employment by military in, 174–177
  future of military and, 192–193
  importance of military employment in, 179–181
  Jordan River and, 266–268
  migration and, 186–187
  past role of military in, 26, 177–179
  response to loss of military employment in, 181–186
  strategies of for future, 190–193
  tourism and, 186
  water scarcity in, 8
Jordan River, 178, 265–269
Jubouri, Najim al-, 33–34
Just Stop Oil, 235

Kahin, Khalid, 210–211
Kangue, Burkina Faso, 158–162
Katatni, Saad al-, 89
Kathmandu, Nepal. *See also* tanker men
  crime and, 139–140
  domestic migration to, 119–120, 135–138, 141
  job scarcity in, 137–140
  Melamchi Water Supply Project and, 132–135, 140–141
  private water delivery in, 122–123
Kedougou region (Senegal), 164
Kéré, Francis, 166
Khahare spring (Nepal), 127
Khoory, Najieb, 208
kickbacks, 35–36
kidnappings, 70, 72
Kirkuk, Iraq, 35
Klimaka, 236
ksars, 253
Kunwar, Padam, 133
Kuwait, 208

Lalitpur, Nepal, 126
land grabs
  future of in Jordan, 219–220
  as growing issue, 200–202
  oil supplies and, 202–205
  Sudan and, 195–200, 213–215
Lebanon, 120, 210–211
Lesvos, 237–238, 239–240
livestock thefts, 188–189. *See also* pastoralists
logging, 49–50
Louis Dreyfus, 217
Lukashenko, Viktor, 239
lynchings, 57

Madagascar, 200
Mafia, 234
Magar, Bina, 129
Magnason, Andri Snaer, 79
Make Sunsets, 252

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Makhoul Dam, 52
Mali, 148
Malm, Andreas, 235
Manassir people, 108
mangroves, 62–63. *See also* Sundarbans
Manohara slum (Nepal), 129
mass shootings, 233, 235
Mauritania, 164, 276
Mayes, Kris, 218
media, 106–108
mediation mechanisms, 271
megaprojectivitis, 142
Melamchi Water Supply Project, 132–135, 140–141
mental illness, 37–38
Merowe Dam, 108–110
Mesopotamian Water Forum, 48
Mexico, 234
migration. *See also* pastoralists
  Bangladesh and, 75–78
  Jordan and, 173–174, 186–187
  Kathmandu and, 119–120, 135–138, 141
  Sahaji and, 34
  West Africa and, 168–169
Mikabrab, al-, 109
military
  declining employment by in Jordan, 174–177
  future of in Jordan, 192–193
  impacts of declining employment by in Jordan, 179–186
  past role of in Jordan, 177–179
  responses of to climate disasters, 255–259
mining, 243–244, 254
Minsky moment, 241
misinformation, green energy and, 246–248
Mississippi River, 240
Mkhijian, Rustom, 266
Moghraby, Asim al-, 95
Mohammed, Ebbas, 41
Mohammed, Jemil, 38
Mohammed, Osman Abbas, 213
monsoons, 63–64
Morocco, 232, 253
Morsi, Mohammed, 89
Mosul, Iraq, 33–34
Mubarak, Hosni, 87, 105–106, 208
mud-brick housing, 165–166
Muhammed, Anu, 80
Muniruzzaman, Munir, 258
Mustafa, Daanish, 142

Nasser, Lake, 110–111
negative peace, 119
Nepal
  corruption and, 125–128, 130–131, 134–136
  current situation in, 119–121, 137–140, 261–263
  governance failures in, 128–130
  incompetence and, 121–123
  Melamchi Water Supply Project and, 132–135, 140–141
  tanker men and, 117–119, 120, 123–125, 140–142
Nepal, Jhamka, 263
Netherlands, 244–245, 256
New Zealand, 235
Newari people (Nepal), 138
Niger Delta, 59
Nigeria, 148

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Nile basin. *See also* Grand Ethiopian Renaissance Dam; *specific countries*
climate change and, 87
foreign investment in, 195–197, 216
historic impacts of flow on states of, 236
Nilometer, 101
nongovernmental organizations (NGOs), 163
Noor solar power plant (Morocco), 253
Northwest Passage, 256
Nour, Ayman, 89
Nour, Suleiman Mohammed, 102
Nubians, 110–111, 112
Nuer people, 111
Nugee, Richard, 259

oil industry
concerns over green energy and, 248–251
foreign land investment and, 202–205
green energy and, 247
torching of, 41
olive farms, 234

Padma River, 63
Palestine, 266–268
Palestine Liberation Organization (PLO), 178–179
Panama Canal, 227, 240
pastoral units, 270
pastoralists
climate unpredictability and, 150–153
conflict over, 145–148
fighting in Kangue and, 158–162
future of in Sahel region, 162–164, 269–271
governance and, 155–158
migration and, 168
overview of, 147
overview of challenges of, 148–150
terrorism and, 156–157
peacebuilding. *See* environmental peacebuilding
Persian Wildlife Heritage Foundation, 272
piracy. *See also* Mali, Rafikul
impacts of in Bangladesh, 71–75
migration and, 76
modern, 58–61
success of in Bangladesh, 66–71
plagues, 236
PLO. *See* Palestine Liberation Organization
poaching, 78–79
Poland, 237
pollution
in Iraqi water supplies, 30
Nile basin and, 96–97, 98
piracy and, 67
Sundarbans and, 64
polygamy, 164
population growth, 9
prawns, 64–65, 67
predation, governance vs., 120
Pritzker Prize, 166
Project Prosperity (EcoPeace), 268
Pyakurel, Nava Raj, 141

Qatar, 203
Qayyarah, Iraq, 41
Qena, Egypt, 107

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Rafale jets, 90
Rahma, Jordan, 171–173
Rajhi, 211
Ramadi, Iraq, 37
Rampal power station, 79
Rana, Sanjeev Bickram, 131
Rania (Queen of Jordan), 184
Rapid Support Forces (RSF), 218–219
Rashid, Mansour Abu, 268
recruitment strategies, ISIS and, 35–39
repression, Jordan and, 193
rice, 114
Roseires Dam, 109–110
RSF. *See* Rapid Support Forces
Russia, 99, 253, 256–257
Ruto, William, 254

Saboona, Nazar Youssef, 110
Sadat, Anwar, 99
Sadat, Anwar (nephew), 104
Saffar, Ali al-, 251
Sahaji, Iraq, 32–35
Sahel region. *See also specific countries*
  climate unpredictability and, 150–155
  fighting in Kangue and, 158–162
  future of pastoralists in, 162–166
  growing problems in, 166–169
  optimism for, 275–276
  overview of issues in, 148–150
  progress in, 269–271
Sai Island, 110, 112
Salih, Barham, 46–47, 51
sand mining, 64
sandstorms, 39–42
Saraya al-Salam, 21, 26, 39, 52
Saudi Arabia, 196, 204, 207–208, 217
Schwedler, Jillian, 184, 193
SDF. *See* Syrian Democratic Forces
Senegal, 151–158, 162–166, 217, 269–271
Senegal River, 158
Serbia, 243
sewage, 96–97
Shahristani, Hussain al-, 248
shrimp industry, 64–65, 67
Shyamnagar region (Bangladesh), 66–67
Sidr, Cyclone, 78
Sisi, Abdel Fattah el-, 89, 108, 114
Slovenia, 256
solar energy, 253
solar geoengineering, 252
Somalia, 4, 59
South Africa, 250
Sow, Amadou, 153
Storm Shadow cruise missiles, 90
Streetlight Effect, 10
Subah, Ali, 191
Sudan
  concerns over GERD in, 96–97
  current situation in, 218–219
  failed peacebuilding efforts in, 271
  food production and, 100
  foreign investment in, 195–197, 209–212
  future water needs of, 114
  Jonglei Canal and, 111
  land grabs in, 195–200, 213–215
  Merowe Dam and, 108–110
  Nile basin and, 92–95
  Osama Bin Laden and, 205–207
  reasons for land grab in, 197–200
  responses to loss of land in, 215–217
Suez Canal, 102, 177
suicides, 236

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

Sundarbans
emigration from, 75–78
future of, 70–81
modern piracy and, 58–61
overview of, 61–66
piracy and, 56
Suwaydiyah, Syria, 27
Sweden, 255
Switzerland, 255
Syria, 1–2, 24–27. *See also specific towns*
Syrian Democratic Forces (SDF), 26–27

Tabqa Dam, 43
Talozi, Samer, 191
Tamang, Banshalal, 263
tanker men
corruption and, 125–128, 130–131
current status of, 140–142
Greece and, 243
Jordan and, 180–181
Kathmandu and, 129–130
overview of in Nepal, 117–119, 120
rise of, 123–125
Tel Afar, Iraq, 25–26
Tell, Tariq, 177, 193
Thaer Abbas, Ahmed al-, 34
tigers, 56, 63, 73–74, 78–79
Tigris River Basin, 29–31, 42–45, 52
Tikrit, Iraq, 36–37
Toshka, 102
tourism hubs, 241–242
transhumance. *See* pastoralists
Trump, Donald, 89–90
Tshisekedi, Félix, 254
Tuchman, Barbara, 106
Tunisia, 239
Turk Alan, Iraq, 27
Turkey, 29–31, 239
Tvedt, Terje, 102

Ukraine, 217–218, 227, 232, 251
Ukraine war, 99
Um Seyhoun, Jordan, 183
UN Environment Programme (UNEP), 271
UN Peacebuilding Fund (UNPBF), 270
United Arab Emirates, 203, 204, 208, 217
United States
foreign investment in, 200–201, 218
impacts on military installations of, 228–229, 257
temperature and crime in, 232–233

violence
green energy movement and, 242–246, 249–250
impacts of climate on, 231–233
against migrants and refugees, 237–240
over GERD, 89–91
violent decarbonization, 245
Von Uexkull, Nina, 12

Wadi El Ku, 271
water brigands, 57. *See also* piracy
water scarcity. *See also* dams; Grand Ethiopian Renaissance Dam; Nepal
conflicts over, 86–87
domestic conflicts over, 108–112
as indicator of climate change, 14

For general queries, contact info@press.princeton.edu

© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher.

involvement in jihadi surge and, 21–24
Iraq and, 29–31, 49
ISIS and, 42–45
Jordan and, 8
Sahel region and, 148–150
water wars, dams and, 108–112
Weinthal, Erika, 265
weirs, 271
West Africa, 150–153, 155–158. *See also* Sahel region; *specific countries*
West Bank, 267
Western countries. *See also specific countries*
economic impacts in, 240–242
impacts of climate crises on, 226–231
increasing violence in, 231–233
insufficient actions of, 251–255
military and, 255–259
misinformation and, 246–248
potential dangers to, 234–236
resistance to green energy movement and, 242–246, 248–251
resistance to migrants and immigrants in, 237–240
wetlands, 234
white supremacists, 234
wildfires, 224–225, 230, 255–257
Williams, F. C., 90
wind turbines, 244
Woertz, Eckart, 204
Woolsey, James, 228, 256
Wright, Lawrence, 207

Xi Jinping, 220

Yazidi people, 45
Yellow Vest protest movement, 246
Yergin, Daniel, 203

Zadna, 218
Zayed al-Kheir, Sudan, 213, 216

For general queries, contact info@press.princeton.edu