

Scorched Earth

Environmental Dimensions of Postcrisis Recovery in Iraq & Yemen

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SUMMARY

Processes of environmental degradation can exacerbate, prolong, and even spark conflicts. In Iraq and Yemen, where water and cultivable land are becoming scarce, efforts toward rebuilding these countries will need to factor in a changing climate. Despite their importance, environmental issues are often neglected in post-conflict reconstruction processes. Some of the most sweeping risks—environmental and climate crises—are the most likely to be overlooked because they are “threats without enemies.”

In Iraq, rising temperatures, decreasing rainfall, and frequent drought will put more stress on rain-fed agriculture, while water sources and coastal regions in the south face rising salinity and sharply increased pollution. In Yemen, groundwater reserves are overextracted, as the cultivation of grains has been abandoned in favor of thirstier but more lucrative crops, such as fruit and the stimulant qat. Furthermore, economic and institutional fragility has undercut the country’s capacity to adapt to growing environmental stress that ranges from coastal vulnerability to land degradation.

The broader challenge is to ensure that aid and investments in recovery and development plans align with environmental concerns. Efforts to address these issues will face differing political, institutional, and security challenges. Nonetheless, it will be important for reconstruction efforts to take into consideration current and future climate risks when rebuilding systems or infrastructure, potentially turning a threat into an opportunity. ■

States have invested in Iraq’s and Yemen’s crises largely to confront enemies. Iran supports militias as a low-cost way to undermine Western encirclement and increase its regional weight. Gulf Cooperation Council (GCC) states—particularly Saudi Arabia and the United Arab Emirates (UAE)—assume more assertive regional postures to counter Iran’s influence. While U.S. tensions with Iran are rising under the Trump administration, the United States increasingly frames its engagement in Iraq and Yemen narrowly around defeating jihadi-salafi militants. As outsiders’ engagement concentrates on rolling back visible adversaries, attention to the political and socioeconomic drivers of tension has been uneven. Some of the most sweeping risks—environmental and climate crises—are the most likely to be overlooked because they are “threats without enemies.”¹

For Iraqis and Yemenis, these environmental threats are not a sideshow or a future problem. In Yemen, more people died in local conflicts over water and land in 2011 and 2012 than in the civil uprising to oust dictator Ali Abdullah Saleh.² Iraqis’ access to the Tigris and Euphrates rivers that have sustained the land’s population for millennia is growing increasingly tenuous while farmland dries into desert along some of the country’s most socioeconomically and politically vulnerable corridors. In both countries, environmental degradation is exacerbated by climate change, poor resource management, and conflict, representing a layer of vulnerability that reaches across many of the areas recognized as crucial to stability. In addition to water shortages, rising temperatures, land degradation, and greater climate volatility pose rising risks to livelihoods, health, and the viability of whole communities.

Yet despite these gathering threats, environmental issues are often neglected in reconstruction processes, deprioritized by Yemeni and Iraqi powerbrokers and outside powers alike. Should environmental challenges remain unaddressed in the post-conflict period, they threaten to amplify the vulnerabilities created by conflict and the risks that factor among the drivers of tension and fragility.

This need not be the case. Climate change and environmental crises, like post-conflict reconstruction, create opportunities as well as risks. Linkages between environmental issues and broader sustainable development goals offer a chance to complement each other in post-crisis contexts of heightened investment, international attention, and reevaluation of existing systems. Planning for post-conflict recovery represents a window of opportunity to restore momentum to the

implementation and further development of environmental strategies in Iraq and Yemen, particularly the climate change adaptation frameworks the two countries articulated as part of their accession to the Paris Agreement of the United Nations Framework Convention on Climate Change.

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To be effective in the long term, environmental strategies require strong local leadership. Yet, there is also an important role for outside support in the form of financing, capacity building, technical, and even diplomatic support. For international actors with an interest in long-term outcomes in Iraq and Yemen—a group that includes GCC states—environmental challenges and opportunities should be mainstreamed in assistance agendas in order to manage risks and seize opportunities. To ignore these challenges risks undermining the impact of other considerable investments being made.

GROWING FRAGILITY

Iraq and Yemen differ in their natural endowments, but for both countries, environmental resilience has been declining for decades. This is due, in part, to development policies that fail to account for natural resource management, as well as the exploitation of natural resources to further elite political and economic aims. As a result, Iraq and Yemen face the gathering specter of climate change and the environmental shocks of recent conflicts with increased fragility.

Iraq's depreciating environmental wealth

In 1960, Iraq had more than three times as many date palms as people, and the country was largely self-sufficient in agriculture.³ Fed mainly by the Tigris and the Euphrates rivers, the country's per capita water endowment remained higher than any of its neighbors throughout the twentieth century.⁴ However, population growth, unsustainable management, regional politics, and a series of conflicts have increasingly strained Iraq's resource base. Together, these sets of pressures have eroded Iraq's eco-

logical resilience to shocks such as the one it received with the rise of the Islamic State group in 2014.

Iraq's population grew rapidly through the twentieth century and into the twenty-first, more than doubling from 17.5 million in 1990 to 38 million in 2017.⁵ Meanwhile, outmoded and water-intensive agricultural methods, neglected and aging infrastructure, and a series of wars led to an over-extraction of water and a degradation of arable land.⁶ At times, the environment became a direct political casualty of Saddam Hussein's regime, which systematically drained over 90 percent of Iraq's once-extensive marshlands—a vital natural buffer to erosion and desertification—to target suspected dissidents after the 1991 Gulf War.⁷

Environmental degradation has left Iraq more vulnerable to the looming risks of climate change. Rising temperatures, decreasing rainfall, and more frequent drought will put more stress on rain-fed agriculture, on which nearly a third of Iraq's wheat crops and half of its barley crops rely.⁸ Droughts are also rising in intensity. In 2008, for example, Iraq suffered its worst drought since World War II, which withered wheat harvests by half.⁹ Meanwhile, water sources and coastal regions in the South face rising salinity and sharply increased pollution, with implications for human health, fisheries, and agriculture.¹⁰

Climate change will take a further toll on Iraq's two riparian lifelines. A 2013 UN estimate projected that water flows in the Tigris were expected to decline by over 25 percent by 2025, and in the Euphrates by 50 percent.¹¹ At the same time, Iraqis' access to sufficient water from the Tigris and Euphrates river systems is partly—even largely—a foreign policy issue. Most of Iraq's fresh water flows from Turkey, Syria, and Iran, and a lack of binding international regulations on cross-boundary water management has fueled concerns over Iraq's vulnerability to over-extraction by upstream users.¹²

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A combination of water stress, loss of green cover, and rising heat is driving desertification. By 2014, Iraq's central statistics agency found that over 90 percent of land was affected by desertification or degradation, including soil erosion and encroaching salination.¹³ One of the consequences of desiccation is an increase in the frequency and

severity of dust storms, which can have a paralyzing effect on economic life and grave implications for human health. The number of dust storms recorded each year in Iraq has risen in recent decades to over 120 and could double in the next ten years to 300.¹⁴

Yemen on the edge

Economic and institutional fragility has undercut Yemen's capacity to adapt to growing environmental stress, which in part has been created by political choices. Yemen's natural resource baseline is more constrained than that of Iraq: Yemen has one of the most limited per capita water endowments in the wider region.¹⁵ Only two percent of Yemen's land is suitable for agriculture, compared to over a quarter of Iraq's land.¹⁶ Despite constraints, Yemenis have sustained a millennia-long tradition of mostly subsistence agriculture adapted to the local climate. More recently, and against the backdrop of a rapidly growing population, the absence of effective land and water management strategies and the pursuit of short-term resource extraction by elites have resulted in sharper competition and increasingly unsustainable use.¹⁷

These trends are well illustrated in the trajectory of Yemen's agricultural sector, which consumes 90 percent of the country's water.¹⁸ A number of factors have driven agriculture from sustainable traditional methods to more extractive ones. Technological improvements that allow the tapping of deep aquifers, combined with an increasingly cash-driven economy, drew farmers away from cereals in favor of thirstier but more lucrative cash crops, such as fruits and the stimulant qat.¹⁹ State subsidies for water extraction and fuel also improved the profitability of irrigation. As a result, farmers have eagerly exploited aquifers that will take centuries to recharge.

Additional water availability has not added to Yemen's food security. In fact, Yemen's food imports have increased sharply without a large boost in national income. The separate republics of North and South Yemen collectively produced 80 percent of their food supply in the mid-1970s, but the situation had flipped by 2011 when Yemen imported between 80 and 90 percent of staple foods.²⁰ While the abandonment by farmers of their fields to work overseas during the oil boom accounts for some of the change, much of it is due to a shift in crop choices. Qat cultivation in particular rose sharply, with the land dedicated to growing the water-intensive plant expanding 13-fold between 1970 and 2000, according to government figures.²¹ Today, qat alone is believed to be responsible for 40 percent of Yemen's water consumption.²²

Overall, Yemen's groundwater extraction rates have reached double the rate of replenishment, and groundwa-

ter reserves are expected to dry up within a few decades.²³ Water use is decentralized and perhaps 99 percent of private wells are unlicensed.²⁴ Meanwhile, a 2012 technical assessment found that over 50 percent of Yemen's land was affected by desertification, with more at risk.²⁵

These shifts helped incubate a food security crisis, which poverty compounded. The combination helped shape the political crisis that erupted in 2014.

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Climate change is poised to deepen Yemen's chief environmental concerns of water, land degradation, and coastal vulnerability. As groundwater is depleted, rainfall is expected to be more variable: rising in some places, but falling in others, and evaporating more quickly in the rising heat. Flooding and cyclones are expected to batter Yemen with growing frequency and ferocity. A tropical cyclone displaced 700,000 in Hadramout and al-Mahra in 2008.²⁶ In 2015, Cyclone Chapala dumped five years' worth of rain on coastal communities in a span of 48 hours.²⁷ Yemen is also highly exposed to the threat of rising sea levels along its nearly 1,200 miles of coastline.²⁸

THE CONFLICT – ENVIRONMENTAL NEXUS

Recent conflicts in Iraq and Yemen have been highly damaging to their natural environments. The relationship is not unidirectional, as environmental issues directly and indirectly aggravate tensions and grievances among communities and between populations and governments.

Iraqi governmental assessments have called the environment "the most important victim of wars experienced by Iraq."²⁹ This is a trend that continued in the multi-year fight against the Islamic State group (ISG), during which the extremist group occupied as much as a third of Iraq's territory. While the ISG had an economic interest in maintaining agricultural production in farmland under its control, it pursued a strategy of systematic environmental destruction along its path of retreat. An initial assessment by Iraq's Ministry of Water estimated that the water infrastructure in areas recaptured by the ISG suffered \$600 million in direct damages alone.³⁰

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In Yemen, conflict has both underscored and exacerbated environmental vulnerability. A 2018 UN assessment found that the area of cultivated land and level of crop production had fallen by nearly 40 percent since 2015.³¹ According to the Yemen Data Project, farmland has been hit by 456 airstrikes between March 2015 and March 2018.³² Yemen’s reliance on food imports has placed food access squarely in the crosshairs of a strategic struggle to control imports. Meanwhile, Yemen now has a water crisis; 16 million Yemenis lack access to clean water, while purchasing power plummets and diesel fuel for water pumps becomes scarcer.³³

More broadly in both Iraq and Yemen, environmental stress acts as a “threat multiplier” that exacerbates economic, social, security, and governance-related challenges.³⁴ Resource scarcity, especially water, compounds grievances over the distribution of diminishing resources. Meanwhile, a precarious agricultural sector poses another threat: While agriculture contributes only modestly to each country’s GDP, it is vital to the labor sector. Agriculture employs nearly a third of Iraqis and half of Yemenis who work, often in areas where few other opportunities exist.³⁵

In Iraq, the loss of cultivable land in recent years led to what scholar Zaid Ali called a “new class of internally displaced persons” seeking prospects in cities or attempting nomadic subsistence farming.³⁶ A UN assessment found that in the ten years preceding the ISG’s takeover of Mosul, the city’s underserved neighborhoods received an influx of rural migrants from the hinterlands of Nineveh province. Struggling to survive on the margins of Mosul’s urban economy, young men in these communities found themselves targeted by ISG recruiters.³⁷ In Yemen, al Qaeda in the Arabian Peninsula has instrumentalized water distribution to build its legitimacy in areas of control.³⁸

In Yemen, where water usage is managed through communal and informal agreements, scarcity strains such arrangements and deepens frustration with the elites who seemingly benefit disproportionately from them. The in-

terior minister estimated that water-related conflicts kill 4,000 each year.³⁹

As extreme weather events—such as dust storms in Iraq and cyclones in Yemen—rise in frequency, their impact is often felt most severely by those with the lowest resilience. This includes swelling numbers of people living in informal or precarious settlements as a result of poverty, forced displacement, and rural-urban migration. According to UN figures, 60 percent of Yemen’s urban population lived in slums in 2014, as did 47 percent of Iraq’s urban population.⁴⁰

Relatedly, environmental strain can increase pressures on government services at a time when the performance of those services is a source of grievance.⁴¹ Unmanaged urban growth, for example, heightens the health risks of rising temperatures and lower access to clean water.⁴² In Iraq, scorching temperatures sharpened frustration with the spotty electricity supplies that became a rallying cry at protests over the state of services in the hottest months of 2015.⁴³

RECONSTRUCTION FRAMEWORKS

Despite the far-ranging implications of environmental stress in these countries, initial provisions for reconstruction and recovery suggest that climate and environmental issues remain on the margins for both host governments and donors.

Environmental resilience has not been a priority in Iraq’s appeals for assistance, much of which is expected to come in the form of investments rather than aid. Environmental issues received nominal attention in some policy documents, such as the ten-year framework for reconstruction and development that Iraq’s government issued in part to frame the donor conference hosted by Kuwait.⁴⁴ Yet, the requisite resources have never been mobilized, and responsibility for realizing targets has been diffused.⁴⁵ A list of over 150 priority investment projects that Iraq’s National Investment Commission published ahead of the donor conference largely focused on jump-starting production, exports, and commercial activity in traditional sectors.⁴⁶

As of mid-2018, Yemen’s reconstruction plans are nascent, but early indications suggest that the environment has been marginal to assessment and early recovery efforts. Background policy notes prepared by the World Bank in anticipation of future reconstruction efforts emphasize the need to address water scarcity and touch on solar energy as a tool that could be leveraged in service of energy access expansion, but these points are not grounded in a broader consideration of environmental or climate change resilience.⁴⁷

Some working groups of Yemen's National Dialogue referenced environmental issues, and the United Nations-led resolution mission aims to leverage their recommendations as a launching pad for conversations on reconstruction. Most importantly, the proposed 2015 Yemen constitution drawn from the National Dialogue includes a provision declaring water and other natural resources to be "ultimately owned by the people of Yemen" and calls for an integrated water management strategy.⁴⁸ Yet, it is unclear what influence the draft will ultimately have on a final resolution, and environmental matters represent a small number of 1,800 overall recommendations. It remains to be seen which issues from the long list will be prioritized and resourced.⁴⁹

Donors have not prioritized environmental issues. For GCC states, particularly Saudi Arabia and the UAE, the environment represents a gap as they devote increasingly consequential investments to shaping political and military outcomes. Since 2014, the UAE and Saudi Arabia have been among the top donors to Yemen as they simultaneously deepened their involvement in the country's conflict. Since 2015, Yemen has been by far the top destination of Saudi and Emirati aid tracked by UNOCHA, receiving 75 percent of Saudi Arabia's documented aid and 68 percent of the UAE's reported aid in 2017.⁵⁰ Yet, reconstruction efforts and funding by the GCC states have largely ignored the environment. In Yemen, reconstruction efforts undertaken by members of the Saudi and Emirati-led coalition have focused on physical infrastructure in areas of ongoing and tactical relevance. An overall framework for reconstruction is yet to emerge.⁵¹

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Meanwhile, after decades of cool relations between Iraq and most GCC neighbors, Saudi Arabia has mounted a strategy of renewed engagement in order to counter Iranian influence. The reenergized GCC involvement in Iraq could reinforce the UAE's longstanding economic interests

in the country, which was the UAE's seventh largest market for exports and fourth-largest for re-exports in 2016.⁵² With the exception of a one-time half-billion dollar donation by Saudi Arabia to Iraq relief efforts in 2014, Saudi Arabia and the UAE have both preferred to channel funds to Iraq in the form of investments and coordination bodies to facilitate commercial deals rather than aid.⁵³

MEETING THE CHALLENGE

Climate change, it has been noted, presents both risks and opportunities.⁵⁴ The same is true of post-conflict reconstruction, which typically brings resources and international attention along with a reconsideration of existing systems and processes. These two factors, development experts have observed, can make reconstruction "a prime opportunity to reduce climate vulnerabilities."⁵⁵ While unaddressed climate insecurity can undermine recovery, overlap between reconstruction and environmental needs might usefully be coordinated for a more resilient recovery.

In both countries, postcrisis planning offers an opportunity to pursue environmental strategies that have suffered from insufficient will or resources. These include Iraq's and Yemen's climate change adaptation strategies submitted as part of the Paris Agreement. These submissions pledge Iraq and Yemen to slash their greenhouse gas emissions by 14 percent by 2035 and 2030, respectively, and articulate each country's priorities to adapt to climate change.⁵⁶ Many projects and more detailed assessments have stalled in the wake of recent crises, and programs still in operation are often disconnected from post-conflict recovery and reconstruction frameworks.

GCC states—and the UAE and Saudi Arabia in particular—are positioned to help energize the environmental dimensions of post-conflict recovery in Yemen and Iraq. This is due in part to Saudi Arabia and the UAE's deepening commitments in the two countries and interests in their long-term trajectories. It is also due to the increasing weight they have given to renewable energy and climate adaptation solutions in both domestic and foreign policy.

Ultimately, effective climate adaptation will require local leadership and many of the conditions for effective development. Yet for both Iraq and Yemen, advancing adaptation and resilience will also require robust external support. Funding will be an important tool, and mechanisms for climate finance, or financial assistance for climate response strategies, could present channels to activate aspects of the strategies that overlap most strongly with postconflict needs. Capacity building and technology transfer are also critical to scaling and sustaining efforts.⁵⁷

To meet its mitigation and adaptation goals, Iraq is seeking climate financing, which it has attracted in only limited amounts compared to other Arab states.⁵⁸ Prior to the ISG crisis, Baghdad had also been planning to increase its own investments in renewable energy, setting a target in 2012 to generate four to five percent of its total energy capacity from renewable sources by 2030 and announcing its aim to invest as much as \$1.6 billion in solar and wind power generation in the coming years.⁵⁹

Yemen's adaptation plan was weakened by a lack of fully elaborated assessments due to the government crisis at the time of its preparation. It stressed a broader need for capacity building to design and monitor climate change responses.⁶⁰ Due to Yemen's categorization as a Least Developed Country under the UN climate framework, it is eligible for added support, including in accessing finance. Yemen received \$57 million in climate financing agreements between 2003 and 2016, but the ongoing conflict has discouraged new investments.⁶¹ Furthermore, these projects, along with other past environmental plans—such as its 2009 energy strategy seeking to generate 15 percent of its energy from renewable sources by 2025—have seen limited and uneven implementation.⁶²

GCC states may seem like unlikely sources of climate support. As states that remain highly dependent on hydrocarbon revenues, GCC states have been viewed as conserva-

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tive actors amid UN efforts to address climate change.⁶³ Their positions have evolved over time, in part due to the growing urgency of economic diversification strategies to which GCC states have tied their emission mitigation plans. And where GCC states' reservations have been most

closely tied to the mitigation side of climate action, they have been vocal on the need to help developing countries to adapt to the adverse effects of climate change.⁶⁴

GCC states have also shown a willingness to join innovative arrangements to stimulate green growth.

Furthermore, GCC states, particularly the UAE and Saudi Arabia, have been investing in developing and exporting renewable energy schemes, as well as integrating environmental projects into commercial and aid portfolios. The UAE has moved the furthest in this regard, cultivating its flagship sustainable development company Masdar and successfully lobbying to host the headquarters of the International Renewable Energy Agency (IRENA).⁶⁵ The UAE has worked through both institutions to integrate renewable energy into its foreign assistance. Through a joint venture with IRENA and the Abu Dhabi Fund for Development, the UAE finances renewable energy projects in developing countries.⁶⁶ The Emirates Red Crescent Authority has had an agreement with Masdar since 2013 to apply renewable energy solutions to humanitarian water and electricity projects, something it has done in so-far small-scale initiatives in Yemen.⁶⁷

For its part, Saudi Arabia has set renewable energy development as part of the government's Vision 2030 plan and has ambitions to become an exporter.⁶⁸ In early 2017, Saudi Minister of Energy, Industry and Mineral Resources Khaled al-Falih, announced a \$30-50 million renewable energy investment program to include investments in multiple countries, including Yemen.⁶⁹ Al-Falih also said in December 2017 that Saudi Arabia and Iraq were exploring renewable energy investments, among other power generation ventures.⁷⁰ Although it remains unclear how many of Riyadh's plans will come to fruition, the area continues to receive high-level support and investment. In recent years, Saudi Arabia's Islamic Development Bank has also increasingly contributed financing for renewable energy in the form of grants and loans in the Middle East and beyond.⁷¹

GCC states have also shown a willingness to join innovative arrangements to stimulate green growth. In July 2018, the UAE and Saudi sovereign wealth funds joined those of Kuwait and Qatar in a French-led initiative to facilitate

climate-sensitive investments by long-term investors.⁷² Qatar and Kuwait’s participation builds on their own steps toward engagement as environmental actors, primarily through renewable energy research and development in Qatar and through financing support for climate change adaptation mitigation or renewable energy by Kuwait in Iraq, Yemen, and elsewhere.⁷³ Although this could provide a foundation for further engagement, some development actors fear that the effectiveness of GCC countries as sources of support may be limited by their own financial strain and political splits within the group.⁷⁴

ALIGNING PRIORITIES

Within Iraq and Yemen, the broader challenge is to ensure that aid and investments in the environmental arena align with overall recovery needs and development plans. Efforts to address environmental issues will face differing political, institutional, and security challenges in the two countries. In Iraq, there is a clearer post-conflict environment, although many challenges remain. One challenge lies in the potential for disjointed approaches between Baghdad and the Kurdistan Regional Government (KRG), which maintains its own environmental authority.⁷⁵ As Iraq’s resource issues are not entirely domestic in nature, solving Iraq’s water crisis will necessarily involve elements of climate diplomacy.

In Yemen, a path to a cessation of hostilities, or unified governance, remains less clear. Beyond the security context, resources and capital to address challenges are more constrained in Yemen. While Yemen’s political fragmentation endures, local solutions may be the most viable, provided local buy-in and participation can be achieved.⁷⁶ This could involve scaling up from local initiatives, such as building on a private market for solar energy.⁷⁷ At the same time, directly engaging—and funding—local actors raises questions about building central government capacity.⁷⁸

In both countries, the degree to which climate interventions are “conflict-sensitive” will have a bearing on their stabilizing potential.⁷⁹ Interventions that involve changing resource access or incentives can be seen to advantage some and disadvantage others; some actors may “capture” or exploit these interventions. Climate interventions are not immune to the corruption risks of other capital-intensive projects, and post-conflict settings can be especially prone.⁸⁰

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More broadly, it will be important to “climate proof” reconstruction efforts by taking current and future climate risks into account when rebuilding systems or infrastructure.⁸¹ Zones projected to be subject to greater flooding should be noted when rebuilding housing, for example, and drought-resilient agricultural methods and tools should be part of efforts to strengthen agriculture. This can bring opportunities. For example, Yemen’s roads have been damaged by conflict, but they also increasingly suffer damage from flooding and natural disasters. Sustainable rebuilding could involve improving drainage and plotting; they could even, as technical studies have noted, include provisions for water harvesting to capture unleveraged sources and “turn a threat into an asset.”⁸²

Ultimately, giving environmental issues a meaningful space in recovery efforts is not merely an important consideration for risk reduction in a fragile period; it is also an opportunity to provide a stronger foundation for post-conflict development. For donor countries that are seeking to create durable reconstruction programs, ecologically sensitive approaches to post-conflict situations may be among the most important investments they can make. ■

ENDNOTES

1. The term “threats without enemies” was coined by Gwyn Prins in his book by the same title. See Gwyn Prins, ed., *Threats Without Enemies: Facing Environmental Insecurity* (London: Routledge, 2013).
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