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Joshua Busby, *States and Nature: The Effects of Climate Change on Security*. New York: Cambridge University Press, 2022. ISBN: 9781108832465

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Introduction by Sara Mitchell, University of Iowa

Scholars and pundits have long been interested in understanding how climate change could generate negative security outcomes, such as protests, civil wars, and interstate conflicts. Yet the contentious debate over whether drought in Syria contributed to the outbreak of civil war in 2011 demonstrates the complexities involved in making causal connections between climate change and conflict. Joshua Busby's impressive book, *States and Nature: The Effects of Climate Change on Security*, helps us disentangle this relationship more fully by identifying three factors that condition the relationship between climate change and negative security outcomes: weak state capacity, political exclusion, and blocked or unevenly distributed international aid.

Using paired case studies, quantitative data, and process tracing of climate change events in Somalia versus Ethiopia, Syria versus Lebanon, and Myanmar versus Bangladesh and India, Busby shows how these three conditions help us understand the prevalence of famine (Somalia), civil wars (Syria), and post-disaster deaths (Myanmar) in these cases relative to the paired comparison countries. In addition to showing how weak state capacity and politically exclusionary regimes create conditions for negative security outcomes, the book also shows that aid blockage is detrimental and can be driven by both internal and external events. For example, Somalia saw a significant reduction in international assistance following the 2011 drought for two reasons: the insurgent group Al-Shabaab blocked aid in areas of Somalia that it controlled, and the United States pulled aid out of the country because some of the actors in Somalia had been labeled as terrorists according to the 2001 Patriot Act.

Busby also provides detailed tips for future analyses and policy recommendations on these topics, while taking into consideration the lack of stationarity in terms of how things might evolve in the future. In other words, what we have learned from past cases of climate change and conflict may not neatly apply to future climate wars. Theoretically, Busby also makes a case for considering climate change as a structural parameter in international relations that is on par with anarchy. All countries will be affected by climate change in terms of humanitarian disasters, changes in water supplies and water transit routes, disruptions in agricultural production and supply chains, and forced migration that will generate greater security risks. He calls upon scholars to integrate climate change into mainstream security models. This comprehensive study identifies the factors that are most likely to produce climate change security risks and provides readers with a useful set of tools for implementing this knowledge in future policy agendas and research.

Three well-known scholars in this field, Cullen Hendrix, Emily Meierding, and Erin Sikorsky, agree that *States and Nature* makes a significant contribution to the climate and security field. Hendrix praises the paired and intertemporal case-comparison approaches and the development of a theoretical typology that considers how state capacity, political exclusion, and international assistance interact to influence security outcomes. Meierding praises Busby's parsimonious theory that helps identify states' opportunities (capacity) and willingness (political exclusion) to respond to climate shocks and the multi-method approach of the paired case studies. Sikorsky notes the utility of a broad definition of security and the multiple ways in which Busby's cases challenge many "assumptions that underlie US security and foreign policy."

The reviewers also offer some critiques of the work and point to useful paths for future research. Hendrix, as a scholar who has examined the dimensions of state capacity carefully in his own research,¹ raises important questions about Busby's conceptualization of the concept. Busby emphasizes things like bureaucratic quality and government effectiveness, which helps us understand how states have the capacity to respond to climate events, but Hendrix remarks that disaster response frequently "requires whole-of-government approaches, often including the military." Hendrix also points to issues with the use of the Ethnic Power Relations dataset to capture political inclusion, and argues that such measures may be best suited to "advanced, more ethnically

¹ Cullen S. Hendrix, 2010. "Measuring State Capacity: Theoretical and Empirical Implications for the Study of Civil Conflict." *Journal of Peace Research* 47:3 (2010): 273–285.

heterogeneous economies.” While he praises the intertemporal comparisons in some of the case studies, he also notes that this raises a puzzle about why some countries show improvements in disaster response (e.g., Somalia), while others do not. Examining more carefully how state capacity, political exclusion, and international assistance help to explain this variance offers a fruitful path for future research.

Meierding raises several questions about the generalizability of the theoretical arguments in *States and Nature*. First, she points out that the theory seems to have a scope condition that may limit its generalizability, namely countries’ dependence on agriculture as a source of income and employment. Given that many of the case studies involve countries with reasonably high levels of agricultural dependence, she wonders how the analyses would play out in other contexts. Second, Meierding recognizes that Busby focuses his case studies on several large climate events, although she wonders about the cases that were not examined, such as large droughts or cyclones that happened before or after the event in question. While it is difficult to examine government response to all climate events, showing that the theory helps to account for variance within a country over time would strengthen the overall findings. Finally, Meierding questions Busby’s advice about treating climate change as a structural variable in international relations theory. The weaker results for the most severe security outcome, civil wars, leads her to question the utility of expanding the framework to other security issues. She also recommends a comparison to environmental issues beyond climate change.

Sikorsky praises Busby’s approach for broadening the concept of security beyond armed conflict: “Given the broader conversations in security policy circles about gray-zone warfare, weaponized interdependence, and actorless threats, hot conflict is just one of many types of security risks that states care about in the twenty-first century.” Yet she notes that conceptual stretching also makes analysis murkier, and that *States and Nature* would benefit from an examination of human security issues. Sikorsky argues that many climate-related interventions focus on rebuilding infrastructure, although the book’s findings suggest that good governance is extremely important in terms of the success of such efforts. She also wonders how climate change will alter the three key concepts in Busby’s theory. Will state capacity weaken in response to more frequent and deadly climate events? Will governments use more exclusionary tactics if they are unable to provide public goods to address climate disruptions? Will international organizations and NGOs be pushed to their funding limits as climate change creates larger and deadlier weather shocks? Sikorsky raises excellent questions about the potential negative feedbacks that may alter the relationship between climate and security in the future.

Busby provides a detailed response to these criticisms. He asserts that while his book focuses on climate events as triggers for negative security outcomes, “it is imperative for scholars to develop better ways to account for climate change as a structural trend.” Structural theories in international relations are about more than conflict and include things like development and disaster studies, making the incorporation of climate change as a structural parameter feasible. Busby argues that the IR discipline seeks to explain past events (a forensics approach) while it is ill equipped to understand future events. He recommends the use of “historical analysis, scenarios, and expert judgment” to improve scholars’ ability to analyze future events, such as large-scale climate change. He agrees with Sikorsky on the importance of feedback loops. He points out that while Hendrix is correct about the military often being involved in climate event responses, how they engage is often not tailored to the response environment:

While there are specific military tools to deter conflict, those are less applicable when it comes to climate security risks, for which resilient and adaptive societies are key. Helping countries prepare for those security risks often involves investments in forecasting, early warning, disaster risk reduction, infrastructure, and alternative livelihoods. Militaries may have a role to play in some of these areas, but civilian instruments are often better suited to address these specific problems.

Busby's experience in the academic and policy spaces will be useful for finding creative solutions to the future security risks posed by climate change. Anyone seeking to learn more about the security risks of climate change would benefit from a close reading of *States and Nature: The Effects of Climate Change on Security*.

Participants:

Joshua Busby is a Professor at the LBJ School of Public Affairs at the University of Texas at Austin.

Sara McLaughlin Mitchell is the F. Wendell Miller Professor of Political Science at the University of Iowa. She is the author of seven books and more than sixty journal articles and chapters. She has received over 1.5 million dollars in grants. Her areas of expertise include international conflict, political methodology, and gender issues in academia. Professor Mitchell is co-founder of the Journeys in World Politics workshop, a mentoring workshop for junior IR women. She received the ISA Quincy Wright Distinguished Scholar Award, the ISA Foreign Policy Analysis Distinguished Scholar Award, the Regents Award for Faculty Excellence, a distinguished alumni award from Iowa State University, and she served as President of the Peace Science Society.

Cullen Hendrix is a Senior Fellow at the Peterson Institute for International Economics, Professor at the Korb School of International Studies, University of Denver, and Nonresident Senior Research Fellow at the Center for Climate & Security. He was a contributing author to the 2022 IPCC report, for which he assessed the implications of climate change for threats to peace and human mobility.

Emily Meierding is an Associate Professor in the Department of National Security Affairs at the Naval Postgraduate School in Monterey, California. She is the author of *The Oil Wars Myth: Petroleum and the Causes of International Conflict* (Cornell, 2020). Her work has also appeared in *Security Studies*, *Comparative Politics*, the *International Studies Review*, and *Energy Research & Social Science*. The views expressed here are her own and do not reflect the official policy or position of the US Navy, Department of Defense, or US Government.

Erin Sikorsky is the Director of the Center for Climate and Security and a former US intelligence officer responsible for leading climate and environment analysis across the US intelligence community. She recently published a research report for the Center, *China's Climate Security Vulnerabilities*, and is a regular contributor to a range of outlets including *Foreign Policy*, *Survival*, *War on the Rocks*, *Lawfare* and *Just Security*.

Review by Cullen Hendrix, Peterson Institute for International Economics

“Widening and Deepening the Eye of the Storm: Joshua Busby’s *States and Nature*”

Joshua Busby’s *States and Nature* provides scholars and policymakers with an incredibly useful framework for thinking about the security implications of climate change in developing and middle-income countries. In the past decade, climate security has moved from perennial “issue-of-the-future” status to mainstream security issue, taken up at length by successive Intergovernmental Panel on Climate Change (IPCC) reports and investigated via a deluge of quantitative analyses of the roles of climate, usually proxied by temperature and precipitation extremes or discrete natural disasters, like floods, droughts, and cyclonic storms, in patterns of armed conflict.¹

While this literature has certainly refined our understanding of the varied scales (spatial and temporal) and mechanisms via which climate-related phenomena affected various forms of armed conflict, it had two critical weaknesses: first, it had an overly narrow aperture regarding security outcomes (i.e., what ‘counts’), and second, it had not developed a coherent framework for understanding why climate stressors produced bad outcomes in some places (Syria, Myanmar) but not others (Jordan, Bangladesh).

Regarding the former, the past several years of pandemic have laid bare the fact that threats need not come in the form of armed actors to be matters of life and death or create massive challenges, responses to which themselves may give rise to contentious politics (anti-lockdown, and vaccine mandate-related protests). Regarding the latter, the absence of clear conceptual and theoretical models has hampered the development of clear strategies for building resilience among the most affected societies, and understanding where climate threats to human security might transform into more conventional ‘hard’ security threats, like civil wars or violent transnational actors (of which Boko Haram and al-Shabaab, two Islamist groups active in the African Sahel whose insurgencies have been affected by climate extremes,² are just two examples).

Busby’s *States and Nature* addresses both of these shortcomings. Busby’s past work on the effects of and response to the AIDS epidemic in the developing world³ seems to have informed his adopting of a broader approach to thinking about security outcomes and expanding the outcome of interest to encompass not just climate-related “hard” threats like the Syrian civil war, but also widespread loss of life due to famines, and the direct and indirect impacts of natural disasters like cyclones. This choice proves wise. Climate change is producing (or at least amplifying) conventional security threats, but many of the gravest challenges posed by climate change will not take the shape of armed actors against which security responses predicated in deterrence, compellence, and threat neutralization can be applied. You cannot deter a flood or threaten a hurricane. These fundamentally actorless threats pose challenges that conventional security thinking is not capable of addressing.⁴

¹ For recent reviews, see Nina von Uexkull and Halvard Buhaug, “Security Implications of Climate Change: A Decade of Scientific Progress,” *Journal of Peace Research*, 58:1 (2021): 3-17; Vally Koubi, “Climate Change and Conflict,” *Annual Review of Political Science* 22 (2019): 343-360.

² Jeremiah O. Asaka, “Climate Change-Terrorism Nexus? A Preliminary Review/Analysis of the Literature,” *Perspectives on Terrorism* 15:1 (2021): 81-92.

³ Ethan B. Kapstein and Joshua W. Busby, *AIDS Drugs for All: Social Movements and Market Transformations* (Cambridge University Press, 2013).

⁴ Morgan Bazilian and Cullen S. Hendrix, “An Age of Actorless Threats: Rethinking National Security in Light of COVID and Climate,” *Just Security*, October 23, 2020. <https://www.justsecurity.org/72939/an-age-of-actorless-threats-re-thinking-national-security-in-light-of-covid-and-climate/>. Accessed January 17, 2023.

For a non-political economy-focused book, Busby's setup harkens to classics like Peter Gourevitch's *Politics in Hard Times*⁵: in the face of a common (or very similar) climate-related shock like a cyclone, why are outcomes so different in different places and at different times? In 2008, Cyclone Nargis devastated Myanmar, resulting in at least 138,000 deaths. But just a year earlier, a storm of similar magnitude (Sidr) ravaged Bangladesh, but resulted in many fewer deaths (4,275). The drought that preceded the Syrian Civil War was certainly intense, but the same drought gripped neighboring Jordan and Lebanon without similar bloodshed—indeed, both countries have been able to avoid domestic unrest while hosting massive refugee populations during the Syrian conflict.

Busby's answer revolves around three factors, each of which is addressed in depth: state capacity, political inclusion, and the breadth and depth of (but also willingness to accept—more on that later) international assistance in the face of climate-related disasters. State capacity matters insofar as responding effectively to disasters requires states to mobilize their resources to anticipate challenges and provide disaster relief in the aftermath; more capable states will be better equipped to address climate-related challenges. Political inclusion speaks to whether the state is motivated to address climate risk and post-disaster relief in ways that either provide broad benefits across social groups (inclusive), or whether disaster response is reserved only for political supporters, leaving large segments of the population to fend for themselves. Finally, whether international assistance is broad-based or either absent or narrowly targeted determines whether the international community is able to either reinforce domestic sources of resilience or may in fact simply reinforce existing asymmetries of access to government benefits and relief.

Busby then dichotomizes the concepts into high/low (state capacity), inclusive/exclusive (political institutions), and broad-based/absent or one-sided (international assistance), to yield a 2x2x2 ideal-type typology of configurations of these factors, each with its own expectations regarding the extent of human suffering and/or death and whether the climate-related disaster will lead to large-scale conflict. However, he argues that at low levels of state capacity the issue of political inclusivity essentially falls out of the equation. Absent some basic level of state capacity, the only factor that matters for outcomes is how the international community responds.

The theory has clear antecedents in the environmental security literature. For example, Colin Kahl's *States, Scarcity, and Civil Strife in the Developing World* highlights the importance of both political inclusion (what Kahl terms "institutional inclusivity") and state capacity.⁶ However, state capacity in Kahl's framework is important less for conditioning responses to environmental challenges than for determining the shape of resulting conflict: "state failure," in which the central authority is weak and the rule of law is replaced by the "rule of the jungle,"⁷ or "state exploitation," in which the state capitalizes on the frictions created by environmental stress to redistribute resources toward favored groups, thus generating grievances in out-groups and catalyzing conflict. Busby's treatment of state capacity refines the concept to focus more narrowly on whether states were able to anticipate natural disasters (early warning capability) and whether resources (food, water, emergency supplies) had been stockpiled in advance to cushion the blow. Put simply, state capacity determines whether there are resources on hand to address the disaster; political inclusion determines who gets (and who doesn't) access to those resources.

Busby then tests his theory via a series of paired case studies revolving around different types of climate-related disasters and their effects for human security: droughts and famine (Somalia and Ethiopia), droughts and civil strife (Syria and Lebanon), and cyclones and widespread loss of life (Myanmar, Bangladesh, and India). The book's case-study chapters feature lovely full-color maps that, along with the accompanying text, go a long way to establishing similarities in physical exposure to natural disasters across the cases, which is of

⁵ Peter Gourevitch, *Politics in Hard Times: Comparative Responses to International Economic Crises* (Cornell University Press, 1986).

⁶ Colin H. Kahl, *States, Scarcity, and Civil Strife in the Developing World*, (Princeton University Press, 2006), 41.

⁷ Kahl, *States, Scarcity, and Civil Strife*, 56.

course key to attributing differences in outcomes to Busby's theorized intervening variables. Busby is not a meteorologist or climatologist, but his treatment of the disasters themselves is very thorough.

Busby leverages not just contemporaneous comparisons (or roughly so, as in the case of cyclones Nargis in 2008 and Sidr in 2007), but also intertemporal within-case comparisons, such as the differences in disaster preparedness in Bangladesh in 1970 and in 2007: in the intervening four decades, Bangladesh was able to reduce the numbers lost to a similarly powerful cyclone from 300,000 to fewer than 5,000. Busby explains this as a function of political inclusion—in 1970 Bangladesh was a marginalized part of Pakistan, while in 2007 it had become an independent, more inclusive polity—and increased state capacity.

With specific respect to climate change, the use of paired case studies is novel. If the aperture is widened to include environmental security issues more broadly, encompassing challenges like demographic stress, environmental degradation, and natural disasters, then the approach has clear antecedents. Jared Diamond's comparison of Haiti and the Dominican Republic⁸ and Kahl's exploration of the roles of demographic-environmental stress, social structure, and institutional inclusiveness in catalyzing (or not) civil strife in Kenya and the Philippines are the most obvious. Still, their use here is both welcome and helpful. Others, like Alejandro Quiroz Flores and Alastair Smith,⁹ have probed the ways political inclusion (or at least political incentives) affect the lethality of natural disasters. But Busby's case-based approach shows how concepts like inclusion and exclusion drive specific policy choices that either attenuate or amplify losses due to natural disasters. For example, the comparison of Syria and Lebanon in chapter 5 focuses on agricultural subsidy policies and the role of producer safety nets in cushioning the effects of drought in Lebanon, while subsidy removal amplified the effects of drought in Syria.

Having worked on climate security issues in the Department of Defense, Busby concludes the book with a chapter that discusses both the outstanding challenges facing climate security researchers and how these findings can help improve attempts by both the US government and multilateral institutions like the United Nations and the World Bank to build resilience. Having demonstrated the importance of international assistance, Busby still notes that the international community knows surprisingly little about—and can do even less to bring about—the creation of capable, inclusive polities, which emerge as the most important (and reliable) sources of resilience in the face of climate-related disasters. He laments that while many of his policy recommendations focus on prevention and developing and employing early warning systems, the question of whether these systems are heeded ultimately reduces to one of political will, which is one thing international assistance does not appear to be able to generate (at least at scale).

Having found a lot to like in the book, there are some outstanding issues to ponder. Focusing on the purely domestic aspects of Busby's argument, state capacity and political inclusion are the two factors that matter for outcomes. Both concepts merit interrogation. Busby references Andrew Price-Smith and Jonathan Hanson and Rachel Sigman¹⁰ in defining the concept, seeming to land on “the ability of state institutions to effectively implement official goals” as a “pithy” (39) but still fit-for-purpose definition. Of course, this definition is agnostic with respect to the content of those goals, allowing that different states may want different things. But when it comes to enumerating proxies for state capacity, Busby's approach hinges upon survey measures of factors like bureaucratic quality and fiscal capacity. Whether these *measures*—and the expert opinions underlying them—are similarly agnostic with respect to goals is questionable. Though I believe fiscal capacity is an important aspect of state capacity, absent information about desired outcomes (i.e., a minimal vs. highly

⁸ Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (Penguin Press, 2011), 329-357.

⁹ Alejandro Quiroz Flores, and Alastair Smith, “Leader Survival and Natural Disasters,” *British Journal of Political Science* 43, no. 4 (2013): 821-843.

¹⁰ Andrew Price-Smith, *The Health of Nations* (MIT Press, 2001); Jonathan K. Hanson and Rachel Sigman, “Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Politics Research,” *Journal of Politics* 83: 4: 1495-1510.

elaborated social safety net), it is hard to determine whether a given level of revenue is commensurate (or not) with goals.

Busby recognizes the limitations of the various off-the-shelf approaches to measuring state capacity and ends his discussion with a focus on five questions intended to capture the relevant features for dealing with natural disasters, including whether the government has natural hazard monitoring and early warning capability, the levels of staffing for relevant bureaucracies, etc. (46). These are of course relevant questions, but large-scale disaster response requires whole-of-government approaches, often including the military.¹¹ I simply note a tension between amorphous definitions that probably encompass more relevant features of state capacity (as used throughout the book) and the emphasis on the disaster preparedness-specific capacity referenced in the theory chapter, which seems to be an unavoidable outcome of having done battle with the various definitions and proposed measures and having found them all wanting but also potentially relevant.

The concept of political inclusion should give us some purchase on what governments want, and Busby adopts a theoretical orientation premised in selectorate theory that allows him to generate expectations about whether disaster relief/preparedness will be inclusive or targeted to narrower, more favored constituencies.¹² But that discussion similarly finds existing approaches to measurement wanting, even though later in the book he brings out various imperfect indicators to substantiate his categorizations of specific states and particular times as either more or less inclusive. The specifics of the various cases—middle-income and poorer multiethnic/multi-religious societies—allow Busby to generally use the Ethnic Power Relations data sources to proxy inclusion and exclusion.¹³ Of course, inclusion and exclusion are not the exclusive domain of multiethnic states. Conceptually, Busby's model probably travels well to advanced, more ethnically heterogeneous economies, but doing so would require adopting different approaches to measurement.

Empirically, I found the cases reasonably convincing. My biggest criticism of the case work relates to the use of intertemporal comparisons. Of all the within-case comparisons, Somalia appears to be the only one in which things do not seem to have gotten better over time, with two famines (1992, 2011-12) bookending a period of intermittent drought where widespread death from hunger was avoided due to international assistance. In every other case (Ethiopia, Bangladesh, India), horrific outcomes were followed by much less loss of life in subsequent disasters. This could be due to shifts in state capacity and governance in the interim, but it could also be due to learning (a concept that is linked to but conceptually different from state capacity), and improvements in technology and resource availability. It is useful to reflect on changes in infant mortality: despite continuing to score at or near the bottom in terms of state capacity continuously since the early 1990s, Somalia has nevertheless seen its infant mortality rates halve in the subsequent decades.¹⁴ Things may be getting better simply because things are getting better *generally*, not with specific respect to the states in question. The Somalia case provides some evidence to suggest that my alternate interpretation is not correct, but one could reasonably argue that Somalia's experience is not broadly generalizable.

These criticisms notwithstanding, Joshua Busby's *States and Nature* is a very important work, and perhaps the best single distillation of the sources of societal resilience to climate-related threats the literature has produced

¹¹ Graham Heaslip and Elizabeth Barber, "Using the Military in Disaster Relief: Systemising Challenges and Opportunities," *Journal of Humanitarian Logistics and Supply Chain* 4:1 (2014): 60-81.

¹² Bruce Bueno de Mesquita, Alastair Smith, Randolph M. Siverson, and James D. Morrow, *The Logic of Political Survival* (Cambridge: MIT Press, 2005).

¹³ Manuel Vogt, Nils-Christian Bormann, Seraina Rügger, Lars-Erik Cederman, Philipp Hunziker, and Luc Girardin. "Integrating Data on Ethnicity, Geography, and Conflict: The Ethnic Power Relations Data Set Family," *Journal of Conflict Resolution* 59:7 (2015): 1327-1342.

¹⁴ World Bank, "Infant Mortality," *World Development Indicators*. <https://data.worldbank.org/indicator/SP.DYN.IMRT.IN?locations=SO>. Accessed January 17, 2023.

to date. Those teaching courses or working on climate or environmental security-related issues would do well to read it closely and incorporate its insights.

 Review by Emily Meierding, Naval Postgraduate School, Monterey, California

Analyses of climate change-related security issues have been going strong since at least 2007, when the Intergovernmental Panel on Climate Change (IPCC) released its fourth assessment report; the Military Advisory Board of the Center for Naval Analysis published its landmark study, *National Security and the Threat of Climate Change*; and then-UN Secretary General Ban Ki-Moon asserted that global warming and climate change could become “driver[s] of war and conflict.”¹ And yet, as Joshua Busby notes in the opening chapter of *States and Nature: The Effects of Climate Change on Security*, we still have limited understanding of the causal mechanisms that could lead from climate change to negative security outcomes. Additionally, scholars have rarely applied some fairly basic social scientific methods, like paired case comparisons, to the topic. As a result, as Busby observes, there is abundant space in the field for a “unifying theoretical framework on causal pathways” (28–29, 36). This review begins by examining the book’s theory and methods, finding much to admire, but also some points of critique. It then explores two questions arising from Busby’s proposals in chapter 8, about how the fields of climate security and international relations (IR) should evolve.

Busby’s theoretical framework is compelling. He argues that climate hazards are more likely to lead to negative security outcomes in countries with low state capacity and high levels of political exclusion. Echoing Benjamin Most and Harvey Starr’s “opportunity” and “willingness” framework,² he observes that the first factor shapes whether states *can* respond effectively to climate hazards, while the second shapes whether (and how) they *will* respond to these events. Busby also includes a third factor in his model—foreign assistance—which serves two functions. It can substitute for state capacity, enabling weak states to respond effectively to climate hazards, and it can multiply or moderate the effects of political exclusion, if assistance is distributed either one-sidedly or to the entire population affected by the hazard (chapters 1 and 3).

The framework is admirably parsimonious and Busby draws on existing literature to persuasively argue that these three factors are leading contributors to negative security outcomes. However, his framework omits one key scope condition: countries’ dependence on agriculture as a source of income and employment. Busby mentions several studies that emphasize agriculture’s importance.³ He also considers this factor in his case selection, aiming to examine countries with similar levels of agricultural dependence.⁴ This practice aligns with his “most similar cases” approach, and is therefore suitable for evaluating the effects of his model’s three core factors. However, if Busby’s goal is to create a generalizable theoretical framework, this practice is problematic. Minimizing variation in countries’ agricultural dependence obscures this variable’s importance in shaping whether climate hazards lead to negative security outcomes. It should be a component of Busby’s model or a scope condition for his theory.

Turning more fully to the book’s methodology, I appreciate that its emphasis on causal mechanisms extends to *testing* them: a practice that has been even less common in the field than theorizing about them. Busby’s use of a comparative case study methodology, paired with process tracing, is well suited to the task. The rigor he employs in his case selection and analysis, grounding both in extensive engagement with leading disciplinary

¹ Michelle Nichols, “Climate Change as Dangerous as War: U.N. Chief Ban,” *Reuters* (March 1, 2007), <https://www.reuters.com/article/us-climate-un-ban/climate-change-as-dangerous-as-war-u-n-chief-ban-idUSN0135435720070301>.

² Benjamin A. Most and Harvey Starr, *Inquiry, Logic, and International Politics* (Columbia, SC: University of South Carolina Press, 1989).

³ Emily Meierding, “Climate Change and Conflict: Avoiding Small Talk About the Weather,” *International Studies Review* 15:2 (2013): 185–203; Nina von Uexkull, Mihai Croicu, Hanne Fjelde, and Halvard Buhaug, “Civil Conflict Sensitivity to Growing Season Drought,” *Proceedings of the National Academy of Sciences* 113: 44 (2016): 12391–96.

⁴ This practice is less successful in the Syria/Lebanon comparison (128, 171), a point I return to later in the review.

data sets, is also admirable and will hopefully encourage this heavily quantitative field to welcome more qualitative contributions.

My one critique of the book's methodology is that chapters 4–6 could be more transparent about the cases that were *not* selected. Did the seven countries Busby examines experience other, equally severe climate hazards that the book does not assess? It appears that they did: in chapter 5, Busby alludes to a Syrian drought lasting from 1982–87, and Table 4.1 identifies five additional droughts in Somalia and three in Ethiopia between 1984 and 2015 (77, 134). It also seems likely that Bangladesh, India, and Myanmar experienced other Category 3–5 storms between 1970 and 2019. Did the security outcomes following these climate hazards conform to his theory's expectations? Obviously, the book's methodological approach prevents an exploration of each of these additional cases. Moreover, Busby's theory seems to be probabilistic (although not explicitly so); therefore, we would expect some cases to deviate from the theory's predicted outcomes. However, it would be helpful for *States and Nature* to more directly acknowledge and grapple with the issue of omitted cases, especially since it aims to be useful to policymakers who need to selectively target their limited intervention resources.

Turning to the object of Busby's assessments, negative security outcomes, I initially embraced the book's effort to broaden the climate security field's analytic lens beyond armed conflict. Busby's rationale for doing so—that other outcomes can entail equivalent losses of life—is compelling. However, after reading the book, I was less certain that one framework can effectively explain the full range of outcomes examined by *States and Nature*. At a minimum, I suspect that the importance of two of its causal factors, state capacity and political exclusion, varies, depending on whether the outcome of interest is armed conflict (chapter 5) rather than famine or loss of life (chapters 4 and 6). On page 54, Busby claims that state capacity is more important than political exclusion, seemingly across the board. This assertion is persuasive when the outcome is famine or loss of life; as Busby credibly argues, when a state is weak, the entire population affected by a climate hazard suffers, whereas, when a state is politically exclusive, only part of the affected population suffers. However, when the outcome of interest is armed conflict, I would expect political exclusion to be more important than state capacity. At various points in the book, Busby questions efforts to weight variables in qualitative causal analyses (117, 121, 123–26). Yet, if one of the book's goals is to generate knowledge that can facilitate effective policy interventions, relative weight matters.

The rest of this review engages with two of the proposals that Busby presents in chapter 8, regarding how the fields of climate security/IR should evolve. The first is his proposition that climate change should “be elevated alongside anarchy as a structural parameter all countries must face” (17, 261–64). This is a major ask, and I am not convinced that the rest of the book's content justifies it. *States and Nature* effectively supports its argument that, if IR scholars want to understand when climate hazards lead to negative security outcomes, they should focus on state capacity, political exclusion, and foreign assistance (as well as agricultural dependence). But what if we are interested in the causes of negative security outcomes, more broadly? Should we be devoting much attention to climate hazards? I'm somewhat skeptical, for two reasons.

First, in his discussion of the Syrian case, Busby observes that “the comparative method employed here highlights the importance of governance factors” and “the drought accentuated contradictions that were already in Syrian society” (173, 175). These statements suggest that state capacity and political exclusion are more important than climate hazards for explaining variation in security outcomes. Governance factors may also exert a different type of causality than structural factors like state capacity and political exclusion; they are “trends” instead of “triggers,” to use Cullen Hendrix and Sarah Glaser's language.⁵ An alternative way of conceptualizing climate hazards is as permissive conditions; they are opportunities for governments to

⁵ Cullen Hendrix and Sarah M. Glaser, “Trends and Triggers: Climate Change and Civil Conflict in Sub-Saharan Africa,” *Political Geography* 26: 6 (2007): 695–715. Busby references this work on 124–25.

perform well or poorly, rather than “causes,” per se. Both of these framings suggest that focusing on factors other than climate hazards will give us greater traction for explaining negative security outcomes.

Second, climate hazards’ causal importance is most ambiguous when the security outcome of interest is armed conflict, the dependent variable most strongly associated with IR. As Busby concludes in chapter 5, the argument that drought contributed to Syria’s civil war only survived a “hoop” test: that is, the hypothesis remained plausible, but was not definitively supported (60, 171). Busby also acknowledges numerous alternative explanations for Syria and Lebanon’s diverging security outcomes, including differences between the two states and reasons that are specific to Syria (171–74). One is left wondering how much climate change really mattered in this case.

Given the limited contribution of climate hazards to negative security outcomes, relative to other factors, and their ambiguous impact on armed conflict, I am uncertain whether this topic merits extensive further engagement in the field of IR. Perhaps we should leave it to the development and disaster relief communities, which have historically been far more engaged with the security outcomes that *States and Nature* finds are more strongly linked to climate hazards: famines and loss of life. Meanwhile, IR can focus on political exclusion and state capacity, recognizing that climate hazards are merely one arena in which the effects of these factors play out. Even if we do not go that far, Busby’s proposal to foundationally change IR to incorporate climate change is unwarranted.

Turning to my second question, if IR and climate security scholars continue to engage fairly extensively with this topic—as I expect they will—can the fields shift their focus to what makes climate change distinct from other types of environmental insecurity? Busby encourages this transition in chapter 8 (253–57). However, the rest of *States and Nature* reiterates (and, in doing so, reinforces) the fields’ standard conceptualization of climate change as “extreme weather events that are of relatively short duration” (39–40, 89). As a result, while the book makes a very strong contribution to second-generation environmental security scholarship, it does not push the field beyond its traditional roots.

This is true even in chapter 8, which offers little discussion of what, in the words of David Wallace-Wells, whom Busby quotes in the book’s opening pages, “the end of normal; never normal again” (19) will look like: how these new dynamics will affect security outcomes, or how IR can effectively study them. For example, could IR incorporate more behavioral economics or psychology to examine how people react to conditions of extreme uncertainty? Or study other types of “game-changers” like breakthrough technologies to see how they diffuse through societies, who wins and who loses, and what forms of resistance emerge in response to these developments? It is uncertain whether new approaches will elevate climate change’s relevance, as a driver of negative security outcomes. But at least the fields will be breaking new ground.

Review by Erin Sikorsky, The Center for Climate and Security, an Institute of the Council on Strategic Risks

In the past few years, the US government has pushed climate change to the forefront of its security agenda. The Biden administration's October 2022 National Security Strategy mentions the term climate change more than 60 times. President Joe Biden and Secretary of Defense Lloyd Austin have labeled climate change an “existential threat,” while Director of National Intelligence Avril Haines has said climate must be “at the center” of foreign and security policies.¹ A range of regional US foreign policy strategies now include robust climate change sections. For example, the “Strategy Toward Sub-Saharan Africa” document, which the White House released in August 2022, says, “we will work with African security partners to build capacity in measuring climate risk exposure, implementing early warning systems, and improving resilience planning.”² Meanwhile, the State Department's “Joint Regional Strategy for the Middle East and North Africa” identifies the importance of “mitigating climate-related conflict” and pledges to address how “climate related stressors further compound these [security and political] shocks.”³

Of course it is one thing to assert these linkages, and it is quite another to develop, implement, and sustain successful policies to address them. States are not equally vulnerable to climate hazards, and a range of non-climate factors shape such vulnerability. To achieve the lofty goals set out in its strategy documents, the United States and other governments are in need of concrete frameworks that they can apply in their efforts to manage climate security risks.

Fortunately, in his book, *States and Nature*, Joshua Busby develops such a framework, helpfully deepening the conversation on climate change and security, in a manner particularly useful for policymakers and practitioners. His analysis, which is rooted in paired case studies, provides a model that can be applied to a range of geographies over time as climate hazards intensify. Two especially useful elements of Busby's book are its broad definition of security and its development of a framework for evaluating potential climate security risk. Perhaps the most useful—and groundbreaking—achievement in the book, however, is that it forces the reader to grapple with the fact that climate change is undermining many assumptions that underlie US security and foreign policy. To that end, in his final chapters Busby raises a range of useful questions about the practice of climate security and the role of academic research in shaping such practice going forward. Getting the answers to these questions right will be critical in successfully achieving the high-level climate security goals outlined in the aforementioned US strategy documents. This review will discuss these strengths of the book in turn.

Importantly, Busby takes a broad approach to the definition of security, noting in the first chapter that the book's viewpoint will be a “somewhat expansive understanding of security threats: They include but are not limited to violent conflict. Humanitarian emergencies that pose a risk to large-scale loss of life are also included” (2). This is a useful step forward for climate security literature, much of which has focused more

¹ David Vergun, “Defense Secretary Calls Climate Change an Existential Threat,” *DOD News* 22 April 2021, <https://www.defense.gov/News/News-Stories/Article/Article/2582051/defense-secretary-calls-climate-change-an-existential-threat/>; Coral Davenport, Lisa Friedman, and Zolan Kanno-Young, “Biden Announces Plan to Deal with Climate ‘Emergency,’” *The New York Times* 20 July 2022, <https://www.nytimes.com/2022/07/20/us/politics/biden-climate-emergency.html>; Mychael Schnell, “Intelligence director Haines says climate change ‘at the center’ of national security,” *The Hill*, 22 April 2021, <https://thehill.com/policy/energy-environment/overnights/549873-intelligence-director-haines-says-climate-change-at-the/>.

² “US Strategy Toward Sub-Saharan Africa,” The White House, August 2022, <https://www.whitehouse.gov/wp-content/uploads/2022/08/US-Strategy-Toward-Sub-Saharan-Africa-FINAL.pdf>.

³ “Joint Regional Strategy: Middle East and North Africa,” US Department of State, February 2022, https://www.state.gov/wp-content/uploads/2022/02/NEA-ME_JRS_FINAL_Formatted_Public-Version-1.pdf.

narrowly on the role of climate in contributing to violent conflict.⁴ While there are important academic questions to be addressed in that debate, it relies on an increasingly outdated, narrow conception of national security and climate security practice. Given the broader conversations in security policy circles about gray-zone warfare, weaponized interdependence⁵, and actorless threats,⁶ hot conflict is just one of many types of security risks that states care about in the twenty-first century.

Busby identifies some of the risks that are associated with too broad a definition of security. If it means everything, it means nothing. He points to the 2014 Intergovernmental Panel on Climate Change (IPCC) report's focus on 'human security,' defined "as a condition that exists when the vital core of human lives is protected," noting that this, "may stretch the concept of security too far" (21-22). He goes on to argue, however, that, "the attention to individual well-being has some salutary properties, emphasizing the safety and well-being of individuals and not just the territorial integrity of states" (22). Indeed, as the COVID-19 pandemic has suggested, national security and territorial integrity are not worth a whole lot without human security. In other words, what good is the security of the state if a large portion of the human population within that state is insecure? Perhaps more relevant, the two are not completely separate—as Busby points out, humanitarian emergencies can threaten a regime's stability as well as long-term economic growth, thereby potentially threatening national security (24).

Related to this definitional debate is a perennial critique of some climate security commentary, particularly in the media: simplistically blaming climate change for conflict can let governments off the hook. Looking at the Middle East, for example, Marwa Daoudy has argued that, "despite claims to the contrary... climate change [is not] the main driving force in the region's conflicts. In the Middle East, as elsewhere, climate change is primarily a problem of earthly institutions."⁷ Daoudy is of course correct that thus far, it has rarely been climate change alone that has driven security threats; instead it is the intersection of climate hazards with other factors. The question is, how exactly does this intersection happen, and what are the key factors one should examine? This is the second major strength of Busby's approach. Using paired case studies, he aims to isolate and identify the diagnostic factors that determine whether and when a climate hazard becomes a negative national security concern. Namely, through his case studies he argues that the key causal mechanisms are state capacity, institutional inclusion, and international assistance (37). Since this argument builds on previous analytic work of Busby and Ashley Moran and other colleagues for the US Agency for International Development in 2019,⁸ it is perhaps not surprising that he provides such an accessible framework for a policymaker and practitioner audience. Busby's explanation of the diagnostic role of each factor is crystal clear. He notes, "Where state capacity reflects a government's ability to help groups in times of need, inclusive political institutions capture their willingness to do so. International assistance can partially compensate for weak state capacity" (38).

Of these three, Busby argues that international assistance is the most underexplored factor in climate security literature. However, for the climate policy community, it could be argued that the standout factor is political

⁴ See for examples: Halvard Buhaug, "Climate–conflict research: some reflections on the way forward," *WIREs Climate Change*, 6 (2015): 269-275. DOI: <https://doi.org/10.1002/wcc.336>; Werrell, Caitlin E., Francesco Femia, and Troy Sternberg. "Did We See It Coming?: State Fragility, Climate Vulnerability, and the Uprisings in Syria and Egypt." *SAIS Review of International Affairs* 35, no. 1 (2015): 29-46. doi:10.1353/sais.2015.0002; Hendrix, C.S., Koubi, V., Selby, J. et al. Climate change and conflict. *Nat Rev Earth Environ* (2023). <https://doi.org/10.1038/s43017-022-00382-w>

⁵ Henry Farrell and Abraham L. Newman, "Weaponized Interdependence: How Global Economic Networks Shape State Coercion," *International Security* 44:1 (2019): 42–79. DOI: https://doi.org/10.1162/isec_a_00351

⁶ Morgan Bazalin and Cullen Hendrix, "An Age of Actorless Threats: Rethinking National Security in Light of COVID and Climate," *Just Security* 23 October 2020, <https://www.justsecurity.org/72939/an-age-of-actorless-threats-re-thinking-national-security-in-light-of-covid-and-climate/>

⁷ Marwa Daoudy, "Scorched Earth: Climate and Conflict in the Middle East," *Foreign Affairs* March/April 2022, <https://www.foreignaffairs.com/articles/middle-east/2022-02-22/scorched-earth>

⁸ Ashley Moran and Joshua Busby, "Taking Action on Compound Climate Fragility Risks," *Center for Climate and Security (blog)*, 16 May 2019, <https://climateandsecurity.org/2019/05/taking-action-on-compound-climate-fragility-risks/>

inclusion, which underscores the importance of good governance. While, as Busby points out, an emphasis on governance is *de rigueur* in climate security and conflict prevention analysis, it is often under-examined in climate adaptation policies and practices. Instead, climate adaptation largely focuses on physical and technical interventions such as sea walls, resilient infrastructure, or technical resource management. As Busby demonstrates, however, such capacity building is not enough, and a focus only on capacity will underestimate a state's vulnerabilities. For a policy audience, then, a key takeaway from Busby's book is the need for more interdisciplinary, interagency efforts that bring together actors across the climate, conflict, governance, and humanitarian spaces to address climate security risks.

One important area Busby only briefly touches on is the role climate hazards will play in undermining capacity, political inclusion, and international assistance over time. While he acknowledges this possibility, he notes that such developments are more long-term and he instead focuses on how climate hazards and state capacity "intersect at moments in time in the wake of episodic exposure to extreme weather events that are of relatively short duration" (39). However, as temperatures warm, more states will more frequently experience repeated climate hazards over a relatively short period of time, or experience multiple, different types of climate hazards simultaneously. Examples include the back-to-back hurricanes, Iota and Eta, which hit Central America in November 2020, as well Pakistan's March 2022 heatwave followed in the fall by unprecedented flooding that encompassed one-third of the country.

The increase in the frequency and intensity of climate hazards may also affect political inclusion, as reduced capacity forces governments into harder trade-offs—which region or group to help first when multiple hazards hit at once? Or, as was seen in 2021 when the Turkish government blamed the Kurds for wildfires,⁹ a lack of capacity to manage climate hazards could lead some governments to lean into political exclusion. It is also likely that as climate hazards pile up, international assistance will become even less available than it is today. Already in 2022, the United Nations faced its largest ever humanitarian funding gap, with its appeals only 50 percent funded by the end of the year.¹⁰

All of these questions relate to an observation Busby addresses at the end of the book—that the explanatory factors identified in *States and Nature* are not fixed. Instead, they can and do shift over time. Of the paired cases he looks at, he notes that some countries, "that did not suffer from negative security outcomes in the wake of climate shocks have since experienced them, or come dangerously close to doing so" (270). He names Ethiopia and Lebanon as examples and notes the potential relevance of climate-related conditions in the diminishment of state capacity and political inclusion in each locale. This finding connects to one of the most important sections of Busby's book, titled "The Future is Not like the Past: The End of Stationarity." As Busby explains, the historical record of flooding, drought and other extreme weather events will be of little use in planning for a future at 1.5 or 2 degrees Celsius of warming above pre-industrial temperatures (249-250). Policymakers and practitioners must be attuned to the fact that managing the climate hazards of the future will require different levels of capacity, political inclusion, and international assistance than the hazards of the past.

A key implication of what Busby refers to as the 'end of stationarity' is that climate change will increasingly challenge US foreign and security policy assumptions, including existing assumptions about where and when to expect conflict and instability. While Peter Fever and Hal Brands do not mention the word climate in their

⁹ Olafimihan Oshin, "Wildfires in Turkey Prompt Tourists, Villagers to Flee Beach Destinations," *The Hill* 1 August 2021, <https://thehill.com/policy/international/europe/565857-wildfires-in-turkey-prompt-tourists-villagers-to-flee-beach/>

¹⁰ Farnaz Fassihi, "U.N. Faces Record Humanitarian Aid Shortfall — but Not for Ukrainians," *The New York Times* 22 August 2022, <https://www.nytimes.com/2022/08/22/world/middleeast/humanitarian-aid-gap-un.html>; <https://fts.unocha.org/appeals/overview/2022>.

“stress test” of the assumptions underpinning US grand strategy in 2016,¹¹ their approach provides a model for an effort to get at the structural nature of the challenge posed by climate change to security policy. Citing Cullen Hendrix, Busby asks, “As the climate changes in the future, what conditions should we use as the normal reference baseline?” (254). Certainly, it is a challenging question to answer, but one that policymakers must grapple with sooner rather than later if they are to prepare for the massive systemic shocks climate change is likely to bring in the coming decades. Luckily, *States and Nature* provides some guideposts as to where to begin, and helps move the climate security conversation forward for policymakers, practitioners, and academics alike.

¹¹ Hal Brands and Peter Feaver, “Stress-Testing American Grand Strategy,” *Survival*, 58:6 (2016) 93-120, DOI: [10.1080/00396338.2016.1257199](https://doi.org/10.1080/00396338.2016.1257199)

Response by Joshua Busby, LBJ School of Public Affairs, University of Texas-Austin

I am gratified by the three thoughtful reviews from colleagues—Cullen Hendrix, Emily Meierding, and Erin Sikorsky—whose work has so influenced my thinking and writing in the climate-security space. I also thank Sara Mitchell for her introduction to this exchange, and Jeff Colgan for organizing this forum. It is an honor to have them engage my work with such insight and care. I am pleased that they all see the book as an important contribution, but I also appreciate that they raise areas of disagreement which I hope to respond to here to the best of my ability.

I have organized my response around each reviewer, focusing on slightly different themes.

In Cullen Hendrix's review, he identifies several issues related to how I define the moving parts of my argument, and the limits of available off-the-shelf indicators. In terms of state capacity, he notes that I draw from Andrew Price-Smith and others the idea that state capacity reflects the ability of states to implement official goals. He notes that this definition is agnostic about goals states wish to pursue. But, when we look to rough proxies for state capacity, the available indicators I first use are from survey-based measures by investors of bureaucratic quality and government effectiveness. Hendrix remarks, "Whether these *measures*—and the expert opinions underlying them—are similarly agnostic with respect to goals is questionable."

This is entirely fair, since the international investors who are surveyed for these assessments likely define government effectiveness in terms of policies that are friendly or benign to foreign investment. It is for this reason I posit that Syria's government effectiveness rating ticked up in the lead-up to the Syrian civil war, as the Bashar al-Assad regime embarked on market liberalization policies that ultimately proved disastrous for state stability. As Hendrix notes, I elaborate the state capacity argument by looking for evidence of state capacity that is more specific to addressing climate hazards, such as forecasting and early warning capacity. He suggests a tension between the broad view of state capacity and disaster-specific capabilities, since large-scale disasters will often require whole-of-government responses that also involve the military.

Hendrix picks up on an ambiguity in the manuscript. I focus on infrastructural power of states to deliver services, rather than coercive capacity to repress or respond to violence. A country might have coercive power, but not infrastructural power. Ethiopia in the 1980s is a case in point, as is Assad's regime in the lead-up to its civil war. While focusing on indicators of infrastructural power works on some level, there is a tension, since states often rely on militaries for emergency service delivery in the midst of disasters. As Hendrix himself has written on the challenges of measurement of state capacity,¹ I found myself nodding in agreement with his comment that my approach reflects "an unavoidable outcome of having done battle with the various definitions and proposed measures and having found them all wanting but also potentially relevant."

Similarly, Hendrix also notes similar challenges in how I try to operationalize political exclusion. The Ethnic Power Relations dataset works reasonably well for "middle-income and poorer multiethnic/multi-religious societies." As he notes, exclusion/inclusion is not limited to multiethnic states. As I discuss in the book, there is a common Somali ethnic identity, but different clan affiliations, some of which are excluded from political representation and power. For this case, the Ethnic Power Relations dataset cannot capture that clan-level heterogeneity of representation. Like state capacity, here, too, the field would benefit from developing other metrics of political exclusion.

Finally, Hendrix notes that he is less convinced of inter-temporal comparisons, since progress in some of the cases—say Ethiopia and Bangladesh—could be a function of learning from past hazard exposure. In my

¹ Cullen S. Hendrix, "Measuring State Capacity: Theoretical and Empirical Implications for the Study of Civil Conflict," *Journal of Peace Research* 47:3 (2010): 273–85.

discussion of Myanmar, I note that learning is a plausible counter-argument, and that Bangladesh learned from bad experience to build state capacity to address cyclones, whereas Myanmar's horrible outcomes in 2008 could be attributed to having never suffered such an extreme storm. I think there is some validity to that argument, but note that Myanmar had some warning before the 2008 cyclone and not only failed to act, but also did not respond to citizen suffering in the wake of the storm, and rejected international aid after the storm, choices that amplified the damage and provide support for my argument. I also wonder how much Myanmar has learned, since it has arguably regressed to become as, if not more, exclusive of late, in light of the genocide and expulsion of the Rohingya.

Emily Meierding's review provides some additional points for reflection and discussion. She starts by noting that agricultural dependence should plausibly be added as another scope condition. The cases in the book largely involve agriculturally dependent societies where populations were particularly susceptible to climate-related disruptions to livelihoods and food for survival. This is a fair critique. Meierding's research on this topic made a compelling argument for focusing on agricultural in climate security research, and is one that I regularly teach.² Indeed, in a 2018 piece in *Foreign Affairs*, Nina von Uexkull and I use high dependence on agriculture, a recent history of violence, and political exclusion as the three scope conditions for an identification of chronic sources of risk to water anomalies.³

Meierding asks a question about case selection and whether there are other severe climatic events that I do not discuss. Did other events that are not discussed conform to the argument in the book? This is a fair question. She mentions a few other episodes that I allude to but that do not receive lengthy treatment. Space constraints limited my ability to explore the entire universe of cases in the country cases. There were two severe droughts between early 1990s and 2010s in Somalia that did not end in famine. My sense is that the indicators of state capacity and inclusion did not vary much throughout this time period, but that the ability to bring in international assistance did. In the other drought episodes, local aid groups and international humanitarian organizations were able to bring in sufficient food aid to prevent famine. While I did not have space to explore those cases in detail, Meierding's point is well taken.

Meierding also raises a question about relative causal weight and the seeming assertion that state capacity appears to matter more than political exclusion. She questions whether this is true for both humanitarian outcomes and armed conflict. She also notes that there is some ambiguity in the book about the ability to assess relative causal weight through qualitative methods. Again, this flags an area of ambivalence in my own thinking. Unless a state has some infrastructural capacity, it may only be marginally capable of biasing services even to its own supporters. As state capacity increases, skewed service delivery becomes even more important in leading to inequitable outcomes, grievances, and state depredations on vulnerable populations. That said, I have always been taught that case study methods cannot provide that much purchase on relative causal weight, meaning that what gets privileged in different arguments may be more of a function of taste. Arguments are necessarily simplifications of more complex realities, and while some arguments are better than others, people can plausibly interpret the same events through different lenses.

While Meierding suggests that relative causal weight determinations are likely important for shaping entry points for policy, I worry that seeking answers to relative causal weight at least through qualitative case studies will largely prove inconclusive. Here, which entry points are important for policy action will be shaped as much by what levers policy actors have some influence over. As I note, external actors have limited capacity to influence political inclusion, but are better equipped to shape state capacity.

² Emily Meierding, "Climate Change and Conflict: Avoiding Small Talk about the Weather," *International Studies Review* 15: 2 (June 1, 2013): 185–203, <https://doi.org/10.1111/misr.12030>.

³ Joshua Busby and Nina von Uexkull, "Climate Shocks and Humanitarian Crises," *Foreign Affairs*, November 29, 2018, <https://www.foreignaffairs.com/articles/world/2018-11-29/climate-shocks-and-humanitarian-crises>.

Meierding's third concern is the most trenchant. I argue that climate change should be elevated alongside anarchy as a structural parameter that will condition state behavior going forward. Meierding's argument is that because the physical driver of climate change has been deemed by the academic community to have limited or ambiguous causal weight as a driver of conflict, climate does not merit that much attention or significance in international relations: "Given the limited contribution of climate hazards to negative security outcomes, relative to other factors, and their ambiguous impact on armed conflict, I am uncertain whether this topic merits extensive further engagement in the field of IR." She is not convinced that climate will be foundationally as important for international relations and that it may be more substantively important in disaster and development studies.

Here, I would first reference the paper in *Science* by Katharine J. Mach et al., which elicited the views of key climate and conflict scholars (including Hendrix) on the relative causal weight of different factors in the cause of conflict. While it is true that the scholars rated the causal importance of climate today to be limited relative to other factors, they judged its future causal importance to be the most uncertain.⁴ Climate change very well may increase in causal importance as its effects worsen.

Moreover, I don't think scholars are evaluating the relative causal importance of anarchy as a driver of conflict, but nonetheless regard it as an important structural parameter shaping the context in which states operate. The same is increasingly true of climate change. This gets back to a distinction made early on in the field by Hendrix and Sarah Glaser, between climate change as a *trigger* for specific events versus a *trend* over time that shapes security outcomes.⁵ In my book, I mostly use short-run climatic events as *triggers* for security outcomes, but as we think of climate change as contributing to permanent and worsening environmental conditions, it is imperative for scholars to develop better ways to account for climate change as a structural trend.

This recalls Meierding's earlier point about climate change mostly affecting agriculturally dependent countries. Urbanized, advanced industrialized countries have reduced their exposure to the vicissitudes of nature, since a smaller proportion of their populace have their lives and livelihoods dependent on agriculture. However, climate change potentially changes that equation as urban areas themselves are increasingly in harm's way, as is their critical infrastructure and other important economic assets and services. This suggests that bringing nature back in to the study of politics will be increasingly important, not simply for agriculturally dependent societies. The challenge is whether one can surface the structural constraints posed by climate change without embracing Malthusian doomism that has repeatedly been found wanting.

I would add that international relations is not limited to the study of armed conflict. Development and disaster studies have a place in the field. Moreover, climate change is spurring a clean-energy transition, and policies that will elevate its geopolitical importance. While these policies transcend the physical impacts of climate change, they are motivated at least in part by countries seeking to deal with the structural phenomenon that confronts humanity. While countries will be unequally affected by climate change, all will have to deal with both the physical effects of climate as well as the policy responses these physical impacts inspire. It is this structural impact of climate change that is leading to what Jeff Colgan, Jessica Green, and

⁴ Katharine J. Mach, Caroline M. Kraan, W. Neil Adger, Halvard Buhaug, Marshall Burke, James D. Fearon, Christopher B. Field, Cullen S. Hendrix, Jean-François Maystadt, John O'Loughlin, Philip Roessler, Jürgen Scheffran, Kenneth A. Schultz, and Nina von Uexkull, "Climate as a Risk Factor for Armed Conflict," *Nature* 571: 7764 (July 2019): 193–97, <https://doi.org/10.1038/s41586-019-1300-6>.

⁵ Cullen S. Hendrix and Sarah M. Glaser, "Trends and Triggers: Climate Change and Civil Conflict in Sub-Saharan Africa," *Political Geography* 26: 6 (2007): 695–715.

Thomas Hale describe as a potential for massive asset revaluation in order to penalize “climate-forcing” asset holders and politically reward climate vulnerable asset holders with more political power.⁶

Meierding also notes that the book’s emphasis on relatively short-run extreme weather events does not deal with the fact that climate change will lead to permanent changes with uncertain impacts on security outcomes. Here, I agree that the book and the field have the farthest to go. In a forthcoming piece in *PS*,⁷ I suggest that the discipline is rooted in explanation of past events—what Francesco Femia and Caitlin Werrell call “forensic analysis”⁸—and that it largely lacks methodologically robust ways to talk about the future. I discuss some approaches, such as historical analysis, scenarios, and expert judgment, but the discipline is some ways away from having methodologically defensible ways to write about the significance of long-lasting changes in mean temperature and precipitation as well as the shift in the tails of weather extremes. Again, this is related to the need for the discipline to develop better methods for assessing the climate security implications of climate change as a long-run trend, rather than a trigger of specific events.

For its part, Erin Sikorsky’s review echoes this theme about the long-run impacts of a changing climate, noting that the book only “only briefly touches on is the role climate hazards will play in undermining capacity, political inclusion, and international assistance over time.” She points to examples of countries experiencing repeat extreme weather events in succession which may make it challenging for states to recover, undermine their political inclusion, or lead to declines in international assistance as states struggle to keep pace with the pace and scope of demands for support.

Since most severe impacts of climate change have yet to be experienced, what evidence can we use to anticipate the likely security impact of a changing climate? A temptation is to look at the catastrophic social impacts pre-modern societies experienced when faced with comparable changes hundreds or thousands of years ago.⁹ The challenge is that such analogies or comparisons may be poor fits for our modern interdependent world, which enjoys more possibilities for adaptation, and sourcing of resources, finance, and technology.¹⁰

This capacity for repeated exposure to climatic events to degrade state capacity, and erode political inclusion over time, is important. On some level, this suggests that the relatively simple causal chains depicted in my book of short-run phenomena need to be made more complex to depict the kinds of feedback loops that Thomas Homer-Dixon and colleagues captured in their original diagrams in the first generation of environmental security research.¹¹

⁶ Jeff Colgan, Jessica F. Green, and Thomas Hale, “Asset Revaluation and the Existential Politics of Climate Change,” *International Organization*, 2020, <https://www.cambridge.org/core/journals/international-organization/article/abs/asset-revaluation-and-the-existential-politics-of-climate-change/0963988860A37F6988E73738EA93E0A1>.

⁷ Joshua Busby, “Climate Security - How To Write About The Future Without Lapsing Into Prophecy,” *PS: Political Science & Politics*, Forthcoming.

⁸ Caitlin E. Werrell and Francesco Femia, “The Responsibility to Prepare and Prevent: A Climate Security Governance Framework for the 21st Century,” The Center for Climate & Security, October 31, 2019, <https://climateandsecurity.org/the-responsibility-to-prepare-and-prevent-a-climate-security-governance-framework-for-the-21st-century/>.

⁹ Jared Diamond, *Collapse: How Societies Choose to Succeed or Fail* (New York: Viking, 2004).

¹⁰ Amit Tubi et al., “Can We Learn from the Past? Towards Better Analogies and Historical Inference in Society-Environmental Change Research,” *Global Environmental Change* 76 (September 1, 2022): 102570, <https://doi.org/10.1016/j.gloenvcha.2022.102570>.

¹¹ Thomas F. Homer-Dixon, *Environment, Scarcity, and Violence* (Princeton, N.J.: Princeton University Press, 1999).

With storms like Hurricanes Harvey, Irma, and Maria happening in succession in the same year, we are starting to have multiple examples of countries experiencing several hazards in succession. We may be able to estimate with more precision whether these repeat events are undermining growth, which is itself understood to be a major conflict driver. Economists haven't yet coalesced on a common position or finding on whether disasters slow economic growth.

There are precedents in the social sciences in the study of how physical phenomena can shape long-run political and economic outcomes. Daron Acemoglu and James Robinson use differences in settler mortality to diseases to show how they contributed to long-run differences in political institutions and the kinds of economies that grew up alongside.¹² Indeed, Hendrix and Glaser's study on trends and triggers started to get at that in terms of the climate security space, though more work is surely needed.

Sikorsky writes approvingly of my efforts to slightly broaden the definition of security beyond violent conflict. She writes, "Given the broader conversations in security policy circles about gray-zone warfare, weaponized interdependence, and actorless threats, hot conflict is just one of many types of security risks that states care about in the twenty-first century."

I agree with this observation and appreciate efforts by Sikorsky,¹³ Hendrix¹⁴ and others to vigorously promote this expanded definition of security. While I don't fully embrace human security as an animating lens for understanding security, I do think an emphasis on the security of people, rather than the security of the state, helps us orient to what is ultimately important: protecting populations from mass harm, whether it be from violence, pandemics, extreme weather. What distinguishes security threats in my mind is not the agency of an attacker seeking to do violence against others, but the severity of the threat. Problems that have the potential to cause large-scale loss of life—which include, but are not limited to, violence—rise to the level of security threats because of their severity.

That framing of climate as a security threat has become more widely accepted both in the United States and internationally. What policymakers do with that framing, however, continues to be a challenge. Evoking climate change as a security problem in the US context raises expectations that conventional national security institutions like the Department of Defense have a role to play in addressing the security consequences of climate. The Department has long accepted some of the premises of climate change as a security problem, primarily recognizing that climate change poses operational issues for the US military and its installations. More recently, the Department has, through documents such as the DOD Climate Risk Analysis and the National Defense Strategy, recognized the broader strategic challenge posed by climate change to US national defense.¹⁵

¹² I thank Cullen Hendrix for raising this point. Daron Acemoglu, Simon Johnson, and James A. Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91, no. 5 (December 2001): 1369–1401, <https://doi.org/10.1257/aer.91.5.1369>.

¹³ Erin Sikorsky, "A Central Role for Climate Change in the New U.S. National Security Strategy," *Lanfare* (blog), November 1, 2022, <https://www.lanfareblog.com/central-role-climate-change-new-us-national-security-strategy>.

¹⁴ Morgan Bazilian and Cullen S. Hendrix, "An Age of Actorless Threats: Rethinking National Security in Light of Covid and Climate," *Just Security* (blog), October 23, 2020, <https://www.justsecurity.org/72939/an-age-of-actorless-threats-re-thinking-national-security-in-light-of-covid-and-climate/>.

¹⁵ U.S. Department of Defense, "Secretary of Defense Lloyd J. Austin III's Statement on the DoD Climate Risk Analysis," U.S. Department of Defense, October 21, 2021, <https://www.defense.gov/News/Releases/Release/Article/2817727/secretary-of-defense-lloyd-j-austin-iiis-statement-on-the-dod-climate-risk-anal/><https://www.defense.gov/News/Releases/Release/Article/2817727/secretary-of-defense-lloyd-j-austin-iiis-statement-on-the-dod-climate-risk-anal/>; U.S. Department of Defense, "National Defense Strategy," October 2022, <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL->

Those strategic challenges include risks posed to US allies and partners, whose own installations and critical infrastructure, both military and civilian, are also exposed to climate risks. As my book argues, some countries are better equipped than others to deal with the security consequences of climate change.

The challenge for policymakers is to get ahead of these problems: what the military calls ‘getting left of boom.’ While there are specific military tools to deter conflict, those are less applicable when it comes to climate security risks, for which resilient and adaptive societies are key. Helping countries prepare for those security risks often involves investments in forecasting, early warning, disaster risk reduction, infrastructure, and alternative livelihoods. Militaries may have a role to play in some of these areas, but civilian instruments are often better suited to address these specific problems.

While scholars continue to debate whether and when climate change will contribute to security outcomes, policymakers will struggle with these seam issues between different agencies over who does what in preparing for these risks. As the practice of climate security and environmental peacebuilding matures, I hope some academics turn their attention to that question, as well as to what works and what does not.

In conclusion, I am deeply honored to have the exchange on my book in this outlet, and I am grateful for the reviewers’ willingness to spend as much time with the manuscript as they did. I hope others find it a good read and a useful discussion.

DEFENSE-STRATEGY-NPR-MDR.PDF. I contributed to both documents while serving as a Senior Climate Advisor at the Department in 2021-2023.