

# Seeking Refuge in the Climate Emergency

*September 14–16 and 23, 2020*

## ABOUT PERRY WORLD HOUSE

Perry World House is a center for scholarly inquiry, teaching, research, international exchange, policy engagement, and public outreach on pressing global issues.

Perry World House's mission is to bring the academic knowledge of the University of Pennsylvania to bear on some of the world's most pressing global policy challenges and to foster international policy engagement within and beyond the Penn community.

Located in the heart of campus at 38th Street and Locust Walk, Perry World House draws on the expertise of Penn's 12 schools and numerous globally oriented research centers to educate the Penn community and prepare students to be well-informed, contributing global citizens. At the same time, Perry World House connects Penn with leading policy experts from around the world to develop and advance innovative policy proposals.

Through its rich programming, Perry World House facilitates critical conversations about global policy challenges and fosters interdisciplinary research on these topics. It presents workshops and colloquia, welcomes distinguished visitors, and produces content for global audiences and policy leaders, so that the knowledge developed at Penn can make an immediate impact around the world.

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## REPORT AUTHORS

**Christine Carpenter**

*J.D. Candidate, University of  
Pennsylvania Carey Law School*

**Ada Rustow**

*Master of City Planning Candidate,  
University of Pennsylvania  
Weitzman School of Design*

## EXECUTIVE SUMMARY & NEXT STEPS AUTHOR

**Jocelyn Perry**

*Global Shifts Program Manager,  
Perry World House*

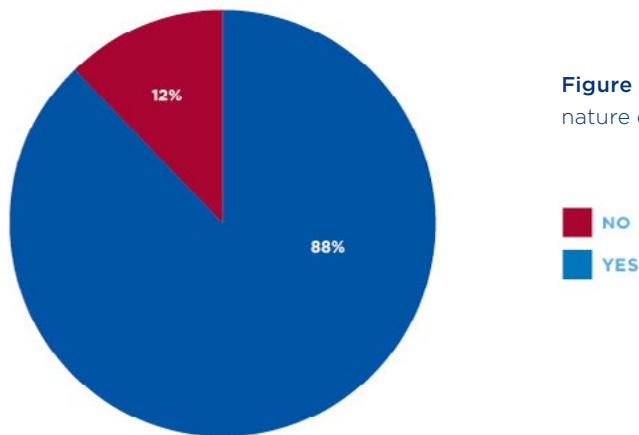
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## > EXECUTIVE SUMMARY



*Participants convened virtually with researchers and policymakers from around the world, including Geneva, Hong Kong, and Johannesburg.*

Amid the vast global disruption caused by the COVID-19 pandemic, Perry World House virtually convened a group of world leaders and academic experts to address another pressing disruption: human movement caused by the climate emergency. On September 14–16 and 23, 2020, the 2020 Global Shifts Colloquium, *Seeking Refuge in the Climate Emergency*, highlighted the complexities of climate-induced displacement and migration. Through workshop discussions, academics and policymakers shared research breakthroughs, posed open questions, and identified the primary challenges to progress in these areas, strengthening a burgeoning community of experts. Global leaders' public keynotes brought attention on Penn's campus and beyond to the actions required to address climate change's effects more effectively. Perry World House hopes these efforts will spur further policy engagement and progress among policymakers, faculty, students, and the greater community.



**Figure 1:** Will climate change fundamentally alter the nature of global human mobility?

### **SCHOLARLY PROGRAM** *September 14–16, 2020*

“Climate-induced displacement,” as the workshop’s scholarly program made clear, remains difficult to define and classify as distinct from other forms of migration. This ambiguity complicates planning efforts as well as articulation of the types of legal protection that might be needed. Nevertheless, climate change will have an enormous effect on human mobility, although the reasons for displacement are often complex and compounded by factors beyond climate. A preconference survey of the conference participants confirmed this. In Figure 1, 88 percent indicated they believe climate change will fundamentally alter the nature of global human mobility.<sup>1</sup>

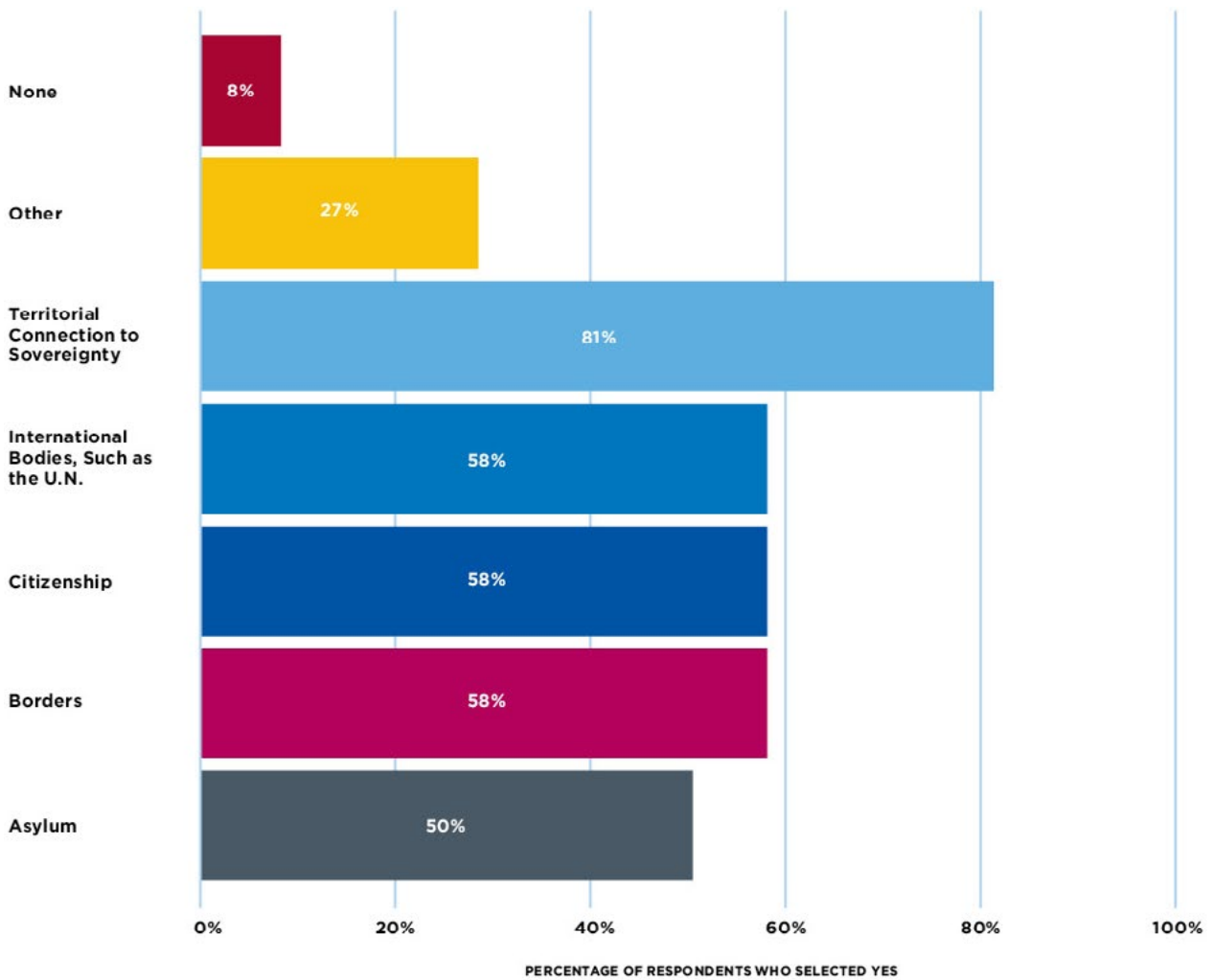
Panelists for the first session on “Data, Models, and Decision-Making” outlined innovative approaches and fundamentals for data practices to resolve some of these issues. Key takeaways included the need for more nuanced data on why and how individuals and communities decide to move, and for more effective ways to integrate existing data into policy processes and legislative frameworks. International law experts leading the session on “Legal Pathways and Regimes” suggested that existing legal frameworks are unprepared to deal with these challenges. They also suggested reforms at the national, regional, and international levels to clarify the ambiguous current legal atmosphere. If climate change proves to fundamentally reshape human mobility, panelists also proposed the reassessment of several core tenets of

<sup>1</sup> In advance of the 2020 Global Shifts Colloquium, Perry World House issued an online survey to participants in the colloquium’s three days of expert panel discussions to assess their views on climate change and global human mobility or displacement. This report summarizes the 26 responses received.

international relations—namely, national sovereignty and citizenship—as well as their connection to physical territory and border enforcement. Figure 2 shows that participants differed in their assessment of the likelihood of various changes to the international

system, but 81 percent agreed that territorial connection to sovereignty would be fundamentally altered by climate change and climate-induced displacement.<sup>2</sup>

**Figure 2:** The following concepts will be fundamentally reshaped by climate change and climate-induced displacement:



<sup>2</sup> 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency, preconference survey, (Philadelphia: University of Pennsylvania, Perry World House, 2020).

## **PUBLIC PROGRAM**

*September 14, 15, and 23, 2020*

Distinguished global leaders at the forefront of activism and policymaking on climate change delivered public remarks to underscore the importance of acting on climate change and human mobility within their work and to the wider world. Executive Secretary of the United Nations Framework Convention on Climate Change Patricia Espinosa stridently called for collective responsibility and planning for a resilient and just future, in conversation with Lisa Friedman of *The New York Times*. Espinosa argued that it is the responsibility of nations to “invest in the deep transformational and transparent changes needed to build a more sustainable future.” Former U.S. Senator and Secretary of Defense Chuck Hagel detailed the risks climate change poses to global peace and security as well as his proposals for reforming U.S. administrative and bureaucratic structures to address these challenges, in conversation with *CNN*'s Samantha Vinograd. Finally, former President Anote Tong of Kiribati highlighted climate change's existential threat to his country and its people, in conversation with Joshua Keating of *Slate*. Tong and Keating discussed the possibilities for adaptation and continued perseverance of small-island developing states and urged immediate action by global leaders to mitigate the worst impacts of climate change. These conversations emphasized the political complexities and critical importance of reforming many aspects of human behavior to address the destructive effects that climate change will cause to the world.

## **NEXT STEPS**

The in-depth conversations and thought pieces written for the convening yielded several key recommendations for future research and policymaking. These include:

- **Organizations, governments, and academic institutions should invest in more interdisciplinary research to incorporate creative new sources of information, qualitative data, and longitudinal studies to yield a richer holistic picture on reasons for displacement and changes in migration patterns over time.**
- **Activists and governments should work through regional bodies to develop more comprehensive regimes and greater cooperation around climate-induced displacement at the regional level.**
- **Governments should recommit to leveraging the expertise and influence of multilateral institutions, such as U.N. Climate Change, U.N. Environment Program, U.N. Refugee Agency, and the International Organization for Migration, and work at the local and national levels to better coordinate and mainstream climate and migration policy.**
- **Resolving such massive societal challenges requires widespread transformation of global political, economic, social, and other systems. Activists and world leaders alike must work to inspire and facilitate these changes among their communities, to proactively address the threats to the health, safety, and well-being of those most at risk from the effects of climate change.**



## > INTRODUCTION:

**Perry World House Director Michael Horowitz and Global Shifts Program Manager Jocelyn Perry opened the 2020 Global Shifts Colloquium by highlighting the importance of climate-induced displacement and adaptation to the Global Shifts theme, as well as the various definitional and public-communications challenges inherent to these complex issues.**

In a conscious effort to ground the virtual discussions in the physical world, Perry reminded participants that Philadelphia and Penn itself sit on Lenni Lenape land, and that the city has a long history of migration and forced displacement. Horowitz encouraged the speakers to be purposeful throughout the sessions and to acknowledge the broad scope of climate-induced displacement and the urgency of the work before them. While Espinosa and the other keynote speakers focused on the overarching policy landscape that propels and constrains action, the workshop discussions focused on the more discrete questions and debates that drive research agendas and the nuances of legislation. Through the descriptions of the keynote addresses and panel discussions that follow, Perry World House hopes readers will understand the scope of the challenges facing the world, the solutions that policymakers are proposing or implementing, and the research and work that must still be done.



*A series of four lively panels focused on the debates and areas for further research needed to understand and address climate-induced displacement and migration.*



## ➤ THE MAKINGS OF A GREEN RECOVERY



**Executive Secretary of the United Nations Framework Convention on Climate Change Patricia Espinosa (left) delivered a keynote address to an audience from Penn and around the world. In conversation with Lisa Friedman (right) of *The New York Times*, Espinosa explored the legacy of 2015’s landmark Paris Agreement and the collective responsibility to change the course of climate change.**

In the first conversation of the colloquium, Espinosa focused on what achieving a sustainable green recovery demands: both the resilience and sustained commitment. She also highlighted the importance of a green recovery as “essential for our health, our economies, and to conserve the nature which supports us all.” Such a recovery is predicated on countries’ commitments to more ambitious Nationally Determined Contributions, the domestic goals each country sets to reduce its carbon emissions and mitigate the effects of climate change under the Paris Agreement. Countries must also require private industry to align its goals with those linked to combating climate change. While this is an ambitious aim, Espinosa argued that resiliency implies transformation, and that is what society must do in order to harness the power of the Paris Agreement and effectively address the climate crisis.

Further, Espinosa posited that people everywhere must collectively plan for a more resilient and just future. To mitigate the effects of climate change as well as the economic damage of COVID-19, she urged investment in a deep transformation of all facets of daily life and in the relationship between humans and the natural world. Putting societal divisions aside and acknowledging the lessons of history are crucial to ensuring humanity evolves in an equitable manner. Specifically, Espinosa addressed the need to improve the lives of workers and ensure they have the skills necessary to work in emerging green industries. If countries can emphasize inclusive multilateralism, one that draws on the contributions of civil society, private industry, academia, and other sectors, they can craft a just transition and ensure all sectors of society are involved in building a new, green, and equitable future.

It is the responsibility of nations to “invest in the deep transformational and transparent changes needed to build a more sustainable future.”

— Patricia Espinosa,  
*Executive Secretary of the U.N. Framework Convention on Climate Change*

## > CLIMATE-INDUCED DISPLACEMENT: KEY DEBATES



As the international community begins to reckon with the manifold impacts of climate change, “climate-induced displacement” is an increasingly popular, if persistently unclear, term in public discourse and policy alike. Opening the colloquium, Elizabeth Ferris, a research professor with Georgetown University’s Institute for the Study of International Migration; Pablo Escribano, the regional thematic specialist in Migration, Environment and Climate Change, with the International Organization for Migration’s Regional Office for Central America, North America and Caribbean; and Koko Warner, the manager of the Vulnerability Subdivision of the U.N. Framework Convention on Climate Change (UNFCCC), framed the key debates surrounding climate-induced displacement to set the stage for the subsequent discussions.

*Three leading experts in the fields of climate change and migration policy opened the discussions by framing key issues for the participants to consider.*



## DEFINITIONAL CHALLENGES

“Climate refugee,” “environmental migrant,” “evacuee”—these and other similarly imprecise terms are increasingly in use by those in public discourse and academic research to discuss people displaced by the effects of climate change. The difficulty in settling on a singular term stems both from the nuanced meanings of the many distinct identifiers, and from the multicausal nature of migration and displacement. Migration has a dual meaning, as it may be used both as a synonym for displacement and to describe a more voluntary kind of movement. Further complicating the issue is how climate change intersects with other facets of migrants’ lives and rationales for moving, leading to differentiated risks and corresponding risk assessment. “We know that climate change will always interact with other factors—socioeconomic, demographic, and political factors—in shaping decisions to move,” Elizabeth Ferris wrote in her conference piece.<sup>3</sup> Consequently, the impetus for movement can rarely be attributed exclusively to climate change, complicating the identification and tracking of “climate-induced migration,” as such.

However, more nuanced terms can be equally complex. The International Organization for Migration (IOM), for example, uses a definition that is purposefully broad. “The IOM definition of climate migration is rooted on the Organization’s own approach to migration, which encompasses all types of movement of forced or voluntary natures... In opposition to the climate-refugee narrative, it recognizes the agency of mobile populations as well as the internal nature of most movements,” wrote Pablo

Escribano.<sup>4</sup> The lack of precision can create difficulties for agencies with specific mandates. As a result, Escribano posited that the term “human mobility” is increasingly seen as “a perceived compromise between different approaches to include all types of climate-induced movements and is also used to reflect different perspectives.”<sup>5</sup> Yet he cautioned that all these terms have normative implications and are coined from the perspective of those employing them. Further research and understanding are necessary to clearly delineate the relationship between human mobility and climate change, as well as the normative and policy implications of the terms used to describe the phenomena.<sup>6</sup>

For purposes of this report, Perry World House will use the terminology employed by colloquium speakers to reflect their perspectives and preferences. Alternatively, we will use “climate-induced displacement” if the speaker did not specify and to refer to the concept more generally.

## UNKNOWNNS

As panelists throughout the colloquium made clear, many of the open questions on climate-induced displacement stem from its multidimensional and multicausal nature. From the differing needs of those displaced to the varied effects of displacement on communities of origin and reception, there is no one-size-fits-all (or fits most) approach to defining and, more consequentially, responding to the challenges of climate-induced displacement. Panelists identified one

<sup>3</sup> Elizabeth Ferris, “Climate Change & Displacement: What We Know, What We Don’t Know, and What We Need to Figure Out,” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, September 2020).

<sup>4</sup> Pablo Escribano, “Definition Issues, Data Challenges and Policy Approaches to Challenge Migration,” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, September 2020). For full definition, see: International Organization for Migration, *International Migration Law—Glossary on Migration* (Geneva, 2019).

<sup>5</sup> Ibid.

<sup>6</sup> For an elaboration on this argument, see: Giovanni Bettini, Sarah Louise Nash, and Giovanna Gioli, “One Step Forward, Two Steps Back? The Fading Contours of (In)Justice in Competing Discourses on Climate Migration,” *The Geographic Journal*, 183, no. 4 (December 2017): 348–358 <https://doi.org/10.1111/geoj.12192>.

## WHAT IS THE PRINCIPAL MISCONCEPTION WITH REGARD TO CLIMATE-INDUCED DISPLACEMENT?

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### Complexity and the climate change distinction:

“That people will move because of climate change alone. It’s always more complicated than that.”

“That there is a distinct population of ‘climate migrants’, with unique protection needs, who could be the object of a specific legal regime.”

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### Borders, conflict, and securitization:

“That ‘hordes, swarms, or a flood’ of people are coming.”

“That it is conflict-inducing; most of the time and in most places, migration is a positive adaptive strategy for dealing with climate change, and thus the issue is in danger of being overly securitized.”

“That nation-states can manage climate-induced displacement by simply closing their borders and deporting people.”

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### Geographic:

“That movement flows primarily from the Global South to the Global North.”

“That it occurs across borders, where most is internal displacement and migration to cities.”

“That the people are displaced are the most vulnerable whereas...it may be the trapped populations.”

### Perception and time frame:

“Many people imagine climate-related migration will be look like a Hollywood horror film with lots of drama. Instead, it will appear as an intensification of familiar processes of environmental depletion and impoverishment.”

“People talk about climate-induced displacement as though it will occur overnight—millions of people all suddenly homeless—rather than as a long series of smaller-scale events spread out over decades or centuries.”

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### Action:

“It is not late to tackle it. The only failure is to give up.”

“That outcomes are pre-determined. Almost all of the important aspects of migration (the timing of migration, the location of destinations, the voluntariness of the decision to migrate) are determined by the policy choices we make (or fail to make).”



of the most fundamental unknowns as the number of people expected to be displaced as a result of climate change, as estimates vary wildly. The most common estimates are based on disaster displacement, situations in which a clear causal link between displacement and climate change can be reasonably drawn. Most climate-induced displacement, however, will likely be the result of slow-onset processes—for example, the gradual loss of arable land suitable for farming—that require more complex modeling as well as quantitative and contextual analysis. Even then, these models and analyses may not produce reliable results.<sup>7</sup> As Ferris noted: “Dire warnings of the potential for climate change to displace hundreds of millions of people have given way to a realization that the relationship between migration and climate change is a complex process influenced by factors that do not lend themselves well to estimates generated by statistical projections and models.”<sup>8</sup>

For similar reasons, identifying best, or even good, practices for developing policies to address climate-induced displacement is difficult. Acknowledging the impossibility of universal recommendations or solutions, participants suggested that a tool kit for governments might be useful. This would lay out policy options for not only national but also regional and municipal governments, communities, and other stakeholders in policy implementation.<sup>9</sup> The layers of complexity in these discussions and policymaking processes are still revealing themselves, not least as the COVID-19 pandemic further complicates questions of mobility, international cooperation, and the realm of policy possibilities.

### **GOVERNANCE AND LEADERSHIP: WHOSE RESPONSIBILITY AND WHAT SHOULD BE DONE?**

Responsibility for preparing for and responding to the consequences of climate change is complex, as it may imply financial and legal liability. Panelists made clear it is not simply an issue of responsibility for those displaced by climate change but a responsibility for climate change itself. To address one facet of the issue, climate activists and international legal scholars are

increasingly calling on international regulatory bodies to develop and articulate norms around the issue of climate-induced displacement. The UNFCCC’s Task Force on Displacement has proposed recommended actions for regions of both transit and destination for migrants. They suggest integrating climate change–related human mobility into national planning processes and facilitating orderly, safe, regular, and responsible migration, per the U.N. Global Compact on Migration.<sup>10</sup>

However, Escribano pointed to the dearth of mentions of human mobility in both National Adaptation Plans and Nationally Determined Contributions, the primary country-level modalities within the UNFCCC’s operating frameworks. When national legislation does mention human mobility, he stressed, it is usually in unclear or unactionable terms. Peru’s climate change law stands as the sole exception, as it requests specific types of interventions to address climate migration and encourages a multidisciplinary approach to the issue.<sup>11</sup> Panelists argued that national legislation must be more specific and actionable and include the funding required for such action to effectively prepare for and respond to climate-related human mobility.



### **QUESTIONS FOR FURTHER RESEARCH**

**What is the utility of a universal term for those displaced, in part, by the effects of climate change? How can terminology across disciplines and policy communities be reconciled?**

**Can better data collection or modeling help to determine more accurate estimates of potential displacement? How are policymakers using estimates to make decisions?**

**How can the international community fairly determine responsibility and allocate resources in a fair, just, and equitable manner given varying levels of culpability for climate change and capacity to respond?**

7 Pablo Escribano, “Definition Issues, Data Challenges and Policy Approaches to Challenge Migration,” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, September 2020).

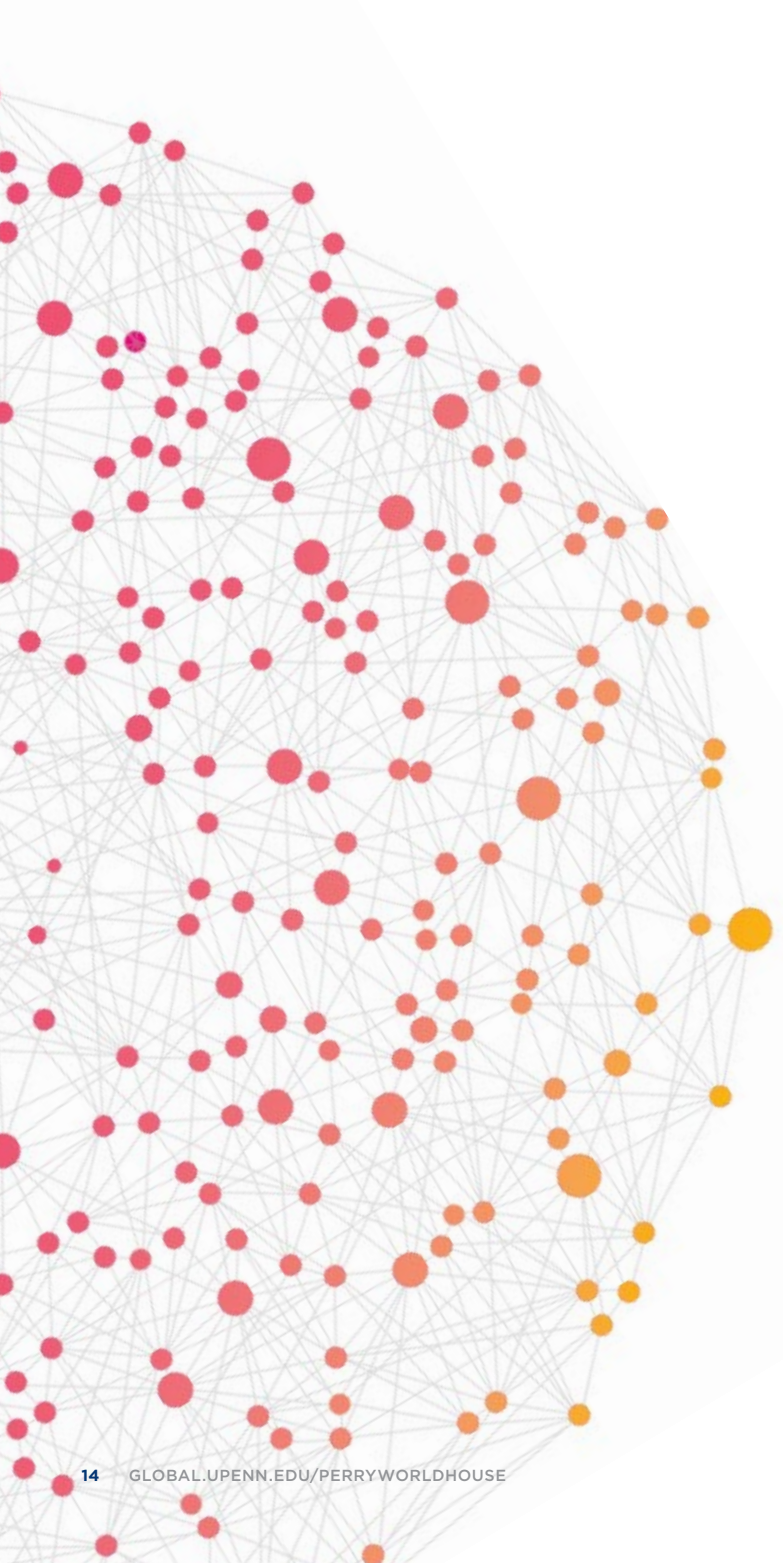
8 Elizabeth Ferris, “Climate Change & Displacement: What We Know, What We Don’t Know, and What We Need to Figure Out,” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, September 2020).

9 Ibid.

10 For the full list of recommendations, see: United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties on its Twenty-Fourth Session* (Katowice, March 19, 2019), <https://unfccc.int/documents/193360>.

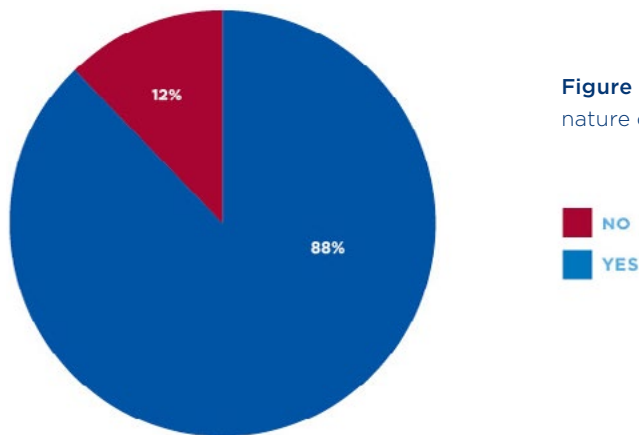
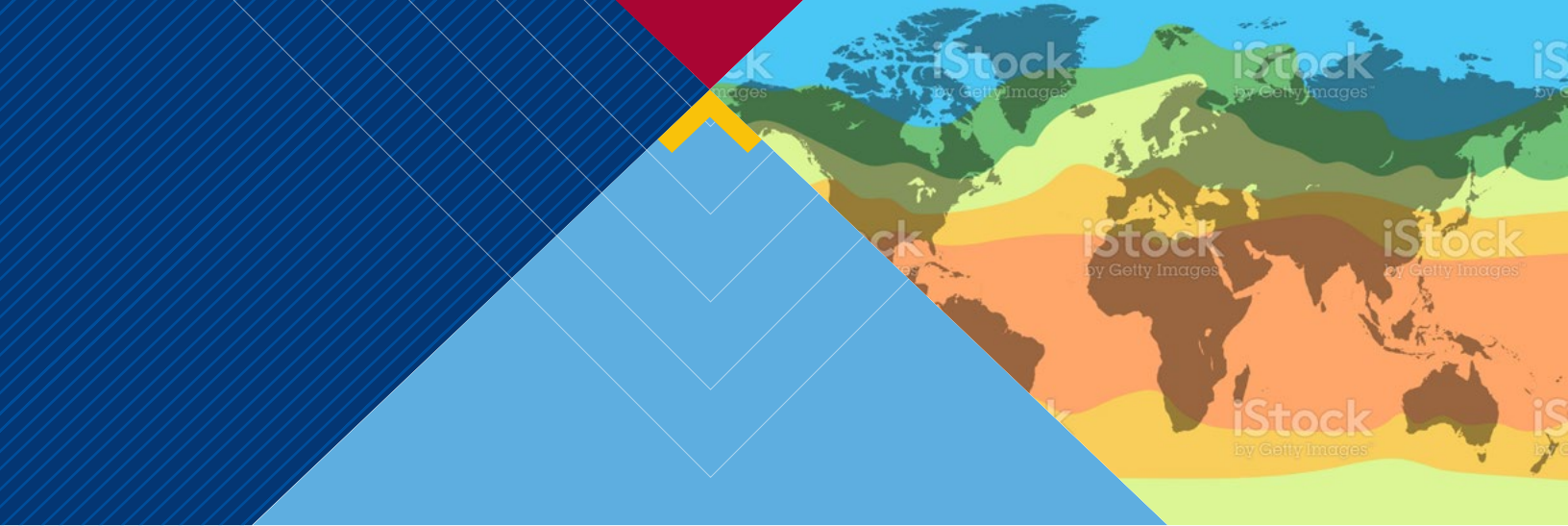
11 See: Peruvian Government, Framework Law no. 30745 on Climate Change, April 18, 2018.

## > DATA, MODELS & DECISION-MAKING



The second session of the colloquium focused on the role, accuracy, and precision of data and models developed by and used within research and policymaking around climate-induced displacement. Dana Tomlin, a professor of landscape architecture at the Weitzman School of Design, moderated a discussion among Alexander de Sherbinin, the associate director for science applications at Columbia University's Center for International Earth Science Information Network; David Wrathall, an assistant professor in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University; Elizabeth Fussell, an associate professor (research) of population studies and environment and society at Brown University; Bayes Ahmed, a lecturer in risk and disaster science at the Institute for Risk and Disaster Reduction, and faculty of mathematical and physical sciences at University College London; and Justin Ginnett, then-head of data and analysis for the Internal Displacement Monitoring Center.





**Figure 3:** Will climate change fundamentally alter the nature of global human mobility?

### ARE CLIMATE MIGRANTS REAL?

Beyond specific definitions, discussion went deeper into the fundamental changes that climate change might cause to current patterns of migration. As Figure 3 illustrates, 88 percent of conference participants believe climate change would fundamentally alter the nature of global human mobility.<sup>12</sup> One wrote: “Human mobility is driven by the need to manage risks and opportunities people face in their livelihoods and basic needs, physical safety, aspirations, and social connections. Climate change cuts across each of these dimensions in complex ways that will reshape human mobility in this century and those to come.”<sup>13</sup> This sentiment permeated this session’s discussions: Displacement, after all, is a product of the ways in which climate change exacerbates

preexisting socioeconomic and environmental vulnerabilities that might provide an impetus to move, especially as climate-induced displacement tends to follow existing patterns of migration. “[A] real risk lies in ‘blaming’ climate change for migration,” Alexander de Sherbinin argued, “insofar as it allows political and economic elites to dodge the issue of responsibility for the systems that generate underlying vulnerability.”<sup>14</sup>

Pointing to Bangladesh as a case study, Bayes Ahmed emphasized the compounding effects of poverty and the intensity of natural hazards.<sup>15</sup> The overlap between existing economic precarity and zones of high flood risk creates a fluidity between climate-induced displacement and economic migration: 67 percent of Bangladesh’s

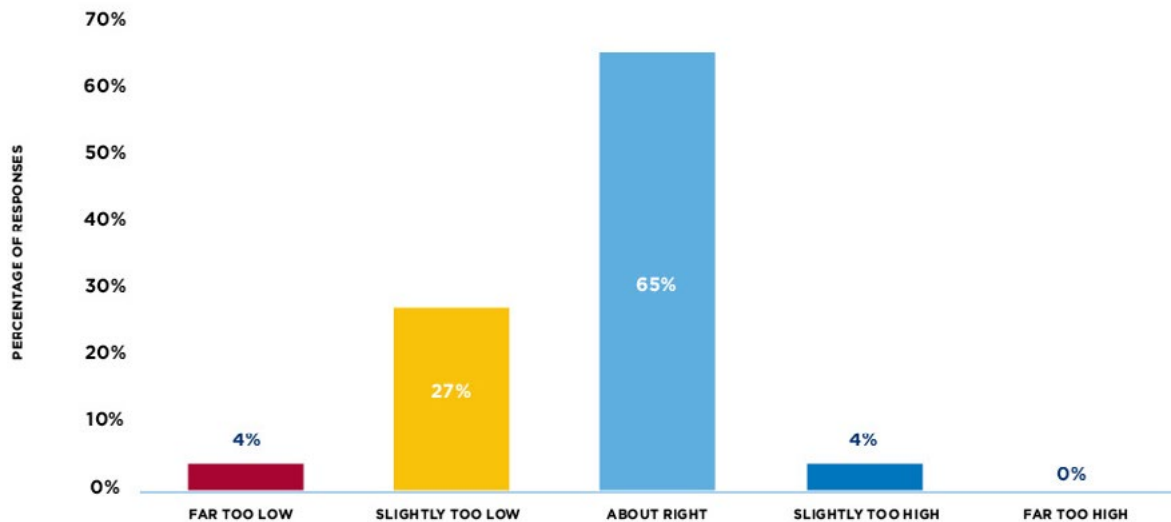
12 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency, preconference survey, (Philadelphia: University of Pennsylvania, Perry World House, 2020).

13 Ibid.

14 Alexander de Sherbinin, “Are ‘Climate Migrants’ Real?” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania Perry World House, 2020).

15 See: Somini Sengupta and Julfikar Ali Manik, “A Quarter of Bangladesh Is Flooded. Millions Have Lost Everything,” *The New York Times* (July 30, 2020), <https://www.nytimes.com/2020/07/30/climate/bangladesh-floods.html>.

**Figure 4:** The World Bank estimates that 143 million people in sub-Saharan Africa, South Asia, and Latin America will be internally displaced due primarily to climate change by 2050. Are these estimates:



districts at highest risk from climate change have poverty rates above the national average.<sup>16</sup> “It is important to consider those dimensions of social vulnerability and extreme climatic hot spots for slow onset and recurrent rapid-onset natural hazards while calculating climate migrants,” Ahmed wrote. “There is no universal rule for classifying them, but each country should develop its own mechanism based on the local context.”<sup>17</sup>

### LEARNING FROM HISTORY AND EMPIRICAL ANALOGUES

Finding new and accurate methods for making predictions about climate-induced displacement is a key challenge for researchers and policymakers. Figure 4 highlights that while 65 percent of experts surveyed felt that there was no historical precedent for predicted levels of future displacement due to climate change, several pointed to analogous processes that might be used to refine data collection and inform policy.<sup>18</sup> Respondents cited global urbanization as the closest parallel, as well as the partition of India (which resulted

in the displacement of up to 15 million people) and European migration to North America more generally as possible precedents for the migration to come.<sup>19</sup>

Elizabeth Fussell highlighted the lessons of migration history more broadly, as well as the specific example of Mexican migration to the United States in the 20th century and the early years of the 21st century.<sup>20</sup> The period of reactionary policies against migrants from Mexico and immigration more broadly after September 11, 2001, and later in the 2000s led to an increase in unauthorized migration as a result of the complications imposed on temporary migration patterns. Fussell pointed to instances of disaster-related displacement as evidence of unequal social vulnerability to the environmental drivers of migration. She also highlighted that, as policies to relocate residents after repeated disasters are typically “contentious and costly, ... a more effective strategy for managing climate hazards and increasing resiliency is to encourage environmentally sensitive residential relocation in non-crisis periods, when people make routine, planned moves.”<sup>21</sup>

<sup>16</sup> Bangladesh Planning Commission, *Bangladesh Delta Plan 2100: Bangladesh in the 21st Century* (abridged version), General Economics Division, Bangladesh Planning Commission (Dhaka, Bangladesh: Government of the People’s Republic of Bangladesh, 2018).

<sup>17</sup> Bayes Ahmed, “Climate Migrants in Bangladesh: A Journey Towards Uncertainty!” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, 2020).

<sup>18</sup> 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency, preconference survey, (Philadelphia: University of Pennsylvania, Perry World House, 2020).

<sup>19</sup> For analysis on these instances of displacement, see: William Dalrymple, “The Great Divide,” *The New Yorker* (June 22, 2015); and Donna R. Gabaccia, “Italian Diaspora,” *Encyclopedia of Diasporas*, ed. M. Ember, C. R. Ember, and I. Skoggard (Boston: Springer, 2005).

<sup>20</sup> Rogelio Sáenz, “A Transformation in Mexican Migration to the United States,” Carsey Research, National Issue Brief #86 (Durham, NH: University of New Hampshire, Carsey School of Public Policy, 2015), <https://scholars.unh.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1246&context=carsey>.

<sup>21</sup> Elizabeth Fussell, “Climate Change and Migration in the US: Mitigating Losses, Addressing Moral Hazards, and Incorporating Risk into Residential Mobility,” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, 2020).

## WHY MODEL? TYPOLOGIES OF DATA AND MODELING

The end point of modeling is not always evident, especially when it runs the risk of leading to the securitization of states and their borders as a result of dire predictions put forth by emerging models. The United Nations' Kamal Amakrane posited that bringing policymakers and political actors on board is crucial in creating data sets and models that are relevant to productive policy processes. As Justin Ginnetti wrote: "The role of data and models is to communicate this risk information transparently to help these communities weigh the trade-offs and make decisions using the best evidence as possible.... We will always need more data and better models, but much of the evidence has been in plain sight for decades. What we need even more are evidence-based, open, and often difficult conversations."<sup>22</sup>

Obtaining clear and concise data has emerged as a central obstacle to modeling climate-induced displacement. This is linked to the definitional and multicausal challenges detailed above and complicated by the paucity of data about many instances of displacement. While policy forums and others widely cite projections like those provided by the World Bank's *Groundswell* report, Escribano wrote that the data they rely on fail to fully cover the "complex drivers and outcomes of climate migration."<sup>23</sup> The IOM specifically cites the need for comprehensive data sets, longitudinal studies, and disaggregated data to overcome existing limitations in climate migration data.<sup>24</sup>

Panelists iterated common types of data utilized for migration modeling, ranging from census data to highly resolved spatial data from mobile phones. Fussell brought up the innovative use of social media and credit card data in tracking those displaced from Puerto Rico after Hurricane Maria. Ginnetti categorized climate-induced displacement as a "system of system behavior" and stressed how data must be contextualized within these systems. Ahmed echoed this sentiment, underscoring the importance of validating data and conducting context-specific scientific research to encompass local understandings of disaster risk, culture, and organizational operation.

Context-specific modeling implies a flexible model that can be applied to different scenarios in order to generate testable hypotheses. Several participants cited agent-based modeling as a manner of arriving at what David Wrathall referred to as "a possibility space," within which thresholds and tipping points for displacement might be identified and hypotheses tested. Wrathall et al. also suggest that a combination of top-down and bottom-up modeling may yield a more comprehensive analysis of the emergent human dynamics in response to climate impacts such as sea-level rise.<sup>25</sup> However, even within these models, distinguishing between singular displacements and those individuals who have moved many times will be crucial to creating models that appropriately demonstrate the scale of climate-induced displacement.



### QUESTIONS FOR FURTHER RESEARCH

**Can migration due to climate change, as the sole or primary factor, be distinguished from migration due to other factors?**

**How can attribution science from the study of the effects of climate change on extreme weather events be applied to migration data?**

**How can new forms of technology, like cell phone GPS, social media geotags, and credit card information, track movement? What ethical considerations and privacy standards should be employed in using and verifying this data?**

**How can researchers triangulate information from multiple sources, incorporate qualitative research, and establish longitudinal data sets over time to define a better holistic representation of the effects of climate change on existing and new migration patterns?**

22 Justin Ginnetti, "Displacement Risk in A Changing Climate," 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, 2020).

23 Pablo Escribano, "Definition Issues, Data Challenges and Policy Approaches to Challenge Migration," 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, September 2020). See: Kanta Kumari Rigaud, Alexander de Sherbinin, Bryan Jones, et al., *Groundswell: Preparing for Internal Climate Migration* (Washington, DC: World Bank, 2018), [https://openknowledge.worldbank.org/bitstream/handle/10986/29461/WBG\\_ClimateChange\\_Final.pdf](https://openknowledge.worldbank.org/bitstream/handle/10986/29461/WBG_ClimateChange_Final.pdf).

24 International Organization for Migration, Migration Data Portal, Environmental Migration (Berlin), <https://migrationdataportal.org/themes/environmental-migration>.

25 David Wrathall, V. Mueller, P.U. Clark, et al., "Meeting the Looming Policy Challenge of Sea-Level Change and Human Migration," *Nature Climate Change* (November 2019), DOI: [10.1038/s41558-019-0640-4](https://doi.org/10.1038/s41558-019-0640-4).

## > LEGAL PATHWAYS & REGIMES

Opening the second day of discussion, Beth Simmons, the Andrea Mitchell University Professor in Law, Political Science and Business Ethics at the University of Pennsylvania, moderated a discussion on the legal mechanisms for protecting climate migrants—both existing and imagined. Joining her were Benoît Mayer, an assistant professor in the faculty of law at Chinese University of Hong Kong; Ama R. Francis, a climate law fellow at Columbia Law School's Sabin Center for Climate Change Law;

Sarah Paoletti, a professor and the director of the Transnational Legal Clinic at the University of Pennsylvania Carey Law School; Romola Adeola, the Migration Rights Clinic coordinator at the Centre for Human Rights of the University of Pretoria; and Kamal Amakrane, the special adviser for strategic partnerships at the United Nations and an adjunct associate professor of international and public affairs at the Columbia School of International and Public Affairs.



On this panel, participants addressed legal pathways for migration resulting from climate change, including both relevant existing law as well as the potential and utility for change at the national and international levels. International law, and most countries' domestic law, lacks specific rights and protections for individuals seeking asylum from disruptions due to climate change. Individuals displaced by climate change remain ineligible for refugee status under the 1951 Refugee Convention and its 1967 Protocol—the primary instruments in global refugee protection.<sup>26</sup> Under the Convention, an individual must “be outside of his country of nationality” and “have a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion” to qualify for refugee status.<sup>27</sup> This leaves a legal lacuna for climate-displaced individuals seeking protection, both because most climate-related displacement is internal rather than cross-border and because most of those displaced fear harm that is generalized and non-persecutory.<sup>28</sup>

The U.N. Refugee Agency's Shahrzad Tadjbakhsh noted that while the U.N. Refugee Agency does not per se encourage the use of the term “climate refugees,” the international refugee protection framework—including the 1951 Convention but also regional refugee instruments—is relevant and may be applicable in providing protection to those displaced due to the

adverse effects of climate change and natural disasters who fall within the refugee definitions. As such, she advocated for focusing on the proper interpretation of existing definitions against the given facts rather than carving out a new definition or legal regime.

Although the international refugee regime does not recognize climate-induced displacement, the term “environmental refugee” has been in public discourse since 1985, when U.N. Environment Program expert Essam El-Hinnawi suggested the following definition:

*Environmental refugees are those people who have been forced to leave their traditional habitat, temporarily or permanently, because of marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected their quality of life.<sup>29</sup>*

A recent development indicates an impending paradigm shift in how the international community conceives of legal protection for climate-displaced individuals. The U.N. Human Rights Committee found it is “unlawful for governments to return people to countries where their lives might be threatened by the climate crisis.”<sup>30</sup> However, adding a new category of protection for “climate refugees” to the existing framework is often controversial. It has been lauded as necessary by supporters while also met with a multitude of valid criticisms.

26 United Nations High Commissioner for Refugees, Convention and Protocol Relating to the Status of Refugees (Geneva: UNHCR, 1951 and 1967), <https://www.unhcr.org/en-us/protection/basic/3b66c2aa10/convention-protocol-relating-status-refugees.html>. More specifically: Those fleeing natural disasters alone are ineligible for refugee status; climate-displaced individuals may meet other criteria for refugeehood.

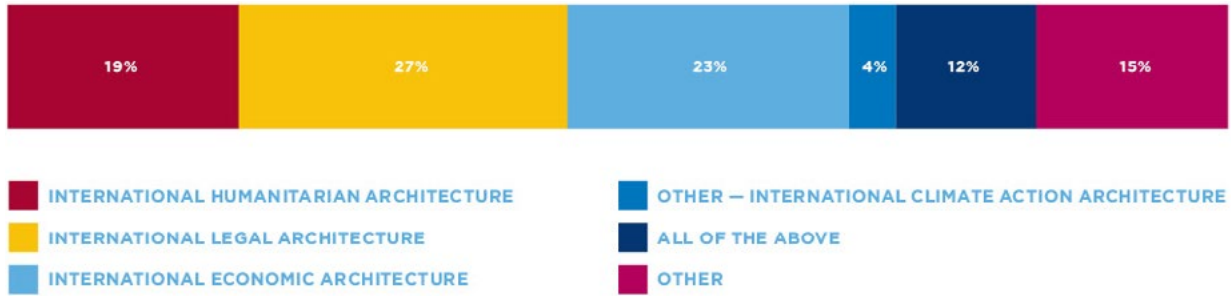
27 Ibid., p. 14

28 There are some exceptions to this: Where individuals from particular racial, religious, national, social, or political groups are particularly vulnerable to climate change-related harms as a result of targeted state negligence, the convention may apply.

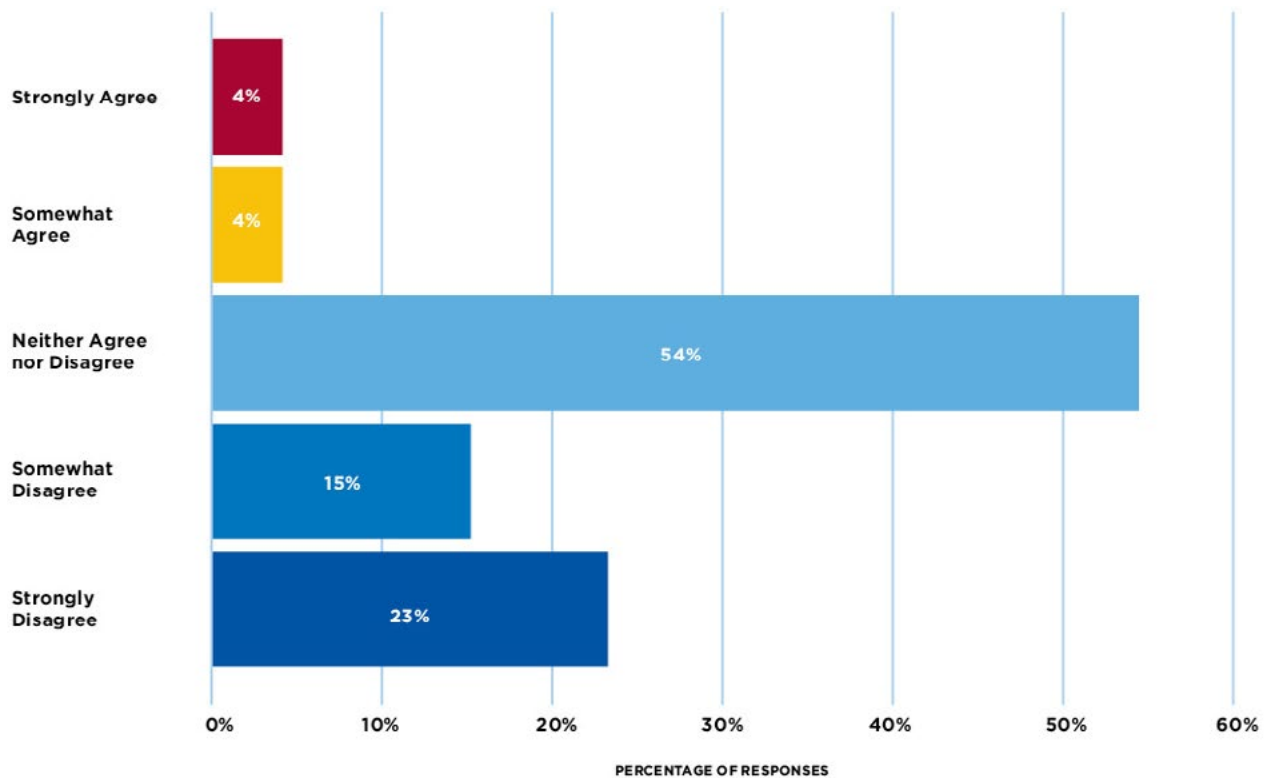
29 E. El-Hinnawi, *Environmental Refugees* (Nairobi, Kenya: United Nations Environmental Programme, 1985).

30 Kate Lyons, “Climate Refugees Can't Be Returned Home, Says Landmark UN Human Rights Ruling,” *The Guardian* (January 20, 2020), <https://www.theguardian.com/world/2020/jan/20/climate-refugees-cant-be-returned-home-says-landmark-un-human-rights-ruling>.

**Figure 5:** What is the most important international system to reform for the world to prepare for and respond to increasing climate-induced displacement?



**Figure 6:** Climate-induced migration is fundamentally different from other kinds of migration:





## CLIMATE MIGRANTS” OR “CLIMATE REFUGEES”?

The utility of a discrete legal class for “climate migrants” or “climate refugees” remains a significant debate among experts. In the broader literature, some scholars have advocated for the creation of a new international treaty specifically designed to protect and support climate refugees.<sup>31</sup> However, 27 percent of experts surveyed, as Figure 5 shows, view the international legal architecture as the most important international system to reform for the world to prepare for and respond to increasing climate-induced displacement.<sup>32</sup>

More saliently, only 8 percent viewed climate-induced migration as fundamentally different from other kinds of migration, as Figure 6 demonstrates.<sup>33</sup> However, one of those who saw it as different argued: “Climate change will render places uninhabitable and unreturnable to. War does that as well, but places can be rebuilt. With climate change, there could be permanent destruction and the inability to repair and restore.” While the staggering and unprecedented scale of climate-induced displacement may necessitate its own class of protections under international and domestic law, many participants highlighted the drawbacks of focusing on a discrete definition—both practical difficulties in identifying climate change as the exclusive or even primary driver of migration, and political and legal struggles that might arise in the process of drafting and ratifying new mechanisms or treaties.

As one of the few panelists to argue for discrete legal definitions to aid climate migrants, Sarah Paoletti called attention to the linguistic challenges of any definition—preexisting or otherwise—to encompass all of those displaced by climate change. She argued that the false dichotomy definitions create between those who are forcibly displaced and those who are migrants “leaves us trapped in a bifurcated approach,” which lacks full recognition of the fact that human rights attach to everyone. Paoletti explained that the creation of any category for certain migrants inherently also excludes others from protection. The adoption of a specific class for climate migrants would be an important step toward explicitly including them in a system that assigns special protections to uniquely vulnerable groups. The goal of this proposal is not the definition itself, but rather establishing the responsibility of the developed world, as

the major carbon emitters, to respond to the impact of climate change on the habitability of certain places.

Amakrane took a middle ground, noting definitions need to engage with the varying thresholds of vulnerability facing these groups to be useful. The current definition of “refugee” is temporary in nature, as it assumes displaced individuals aim to eventually return home. Many of those displaced by climate change may not have a territory to which they can return, while others might. Amakrane argued that the protections afforded these groups should reflect that variation in impact, whatever legal framework is adopted.<sup>34</sup>

### ZOOM CHAT:

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**Alex de Sherbinin:** @Benoît: your arguments resonate with me...but is it not true that developed governments routinely look at what is causing an individual migrant to depart from his/her home country? So the idea that governments might accept forced migrants irrespective of the drivers seems potentially naive.

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**Ama Francis:** Agreed. @Benoît can you talk about how we might distinguish between voluntary and involuntary movement which, like causality, is difficult to tease apart?

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**Benoît Mayer:** Thanks @A/lex. It is true under existing legal frameworks, because the 1951 Refugee Convention protects people fleeing persecution for reason of belonging to a group, and national law tends to extend that to other factors e.g. people fleeing a war etc. States are probably not ready to accept all forced migrants—especially, they do not seem ready to accept people forced out of their country by poverty. I do not see this can change easily. But I don't see how introducing the concept of “climate migrant” would overcome this political issue.

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**Benoît Mayer:** Thanks @Ama. I agree that the distinction is more of a continuum. In practice (as Alex pointed out) this tends to be implemented through proxy factor. If someone flees a country in which they are part of a community that is being persecuted, or a country that is at war, it will be easier for them to make the case that they are forced to migrate.

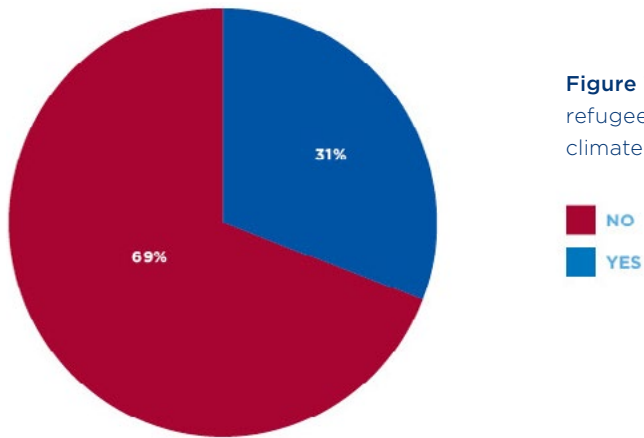
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31 Bonnie Docherty and Tyler Giannini, “Symposium: Confronting a Rising Tide: A Proposal for a Climate Refugee Treaty,” *Harvard Environmental Law Review*, 33 (2009): 372, 385. Their proposal would extend protection to those forced to migrate across borders either temporarily or permanently due to disruption consistent with climate change or environmental disruption where it is more than likely that there has been human contribution to the disruption.

32 Note, this was more votes than any of the other five options. See: 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency, preconference survey, (Philadelphia: University of Pennsylvania, Perry World House, 2020).

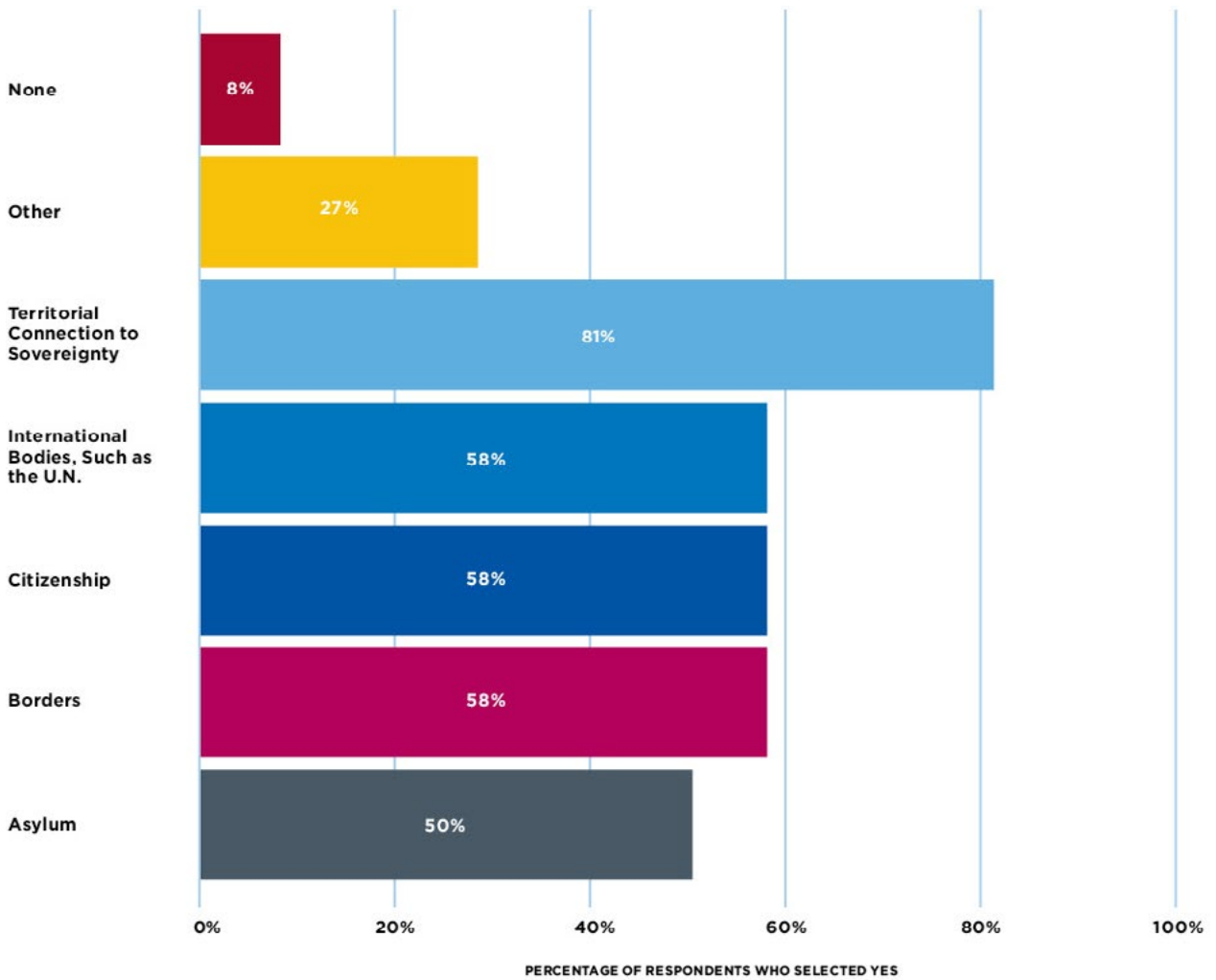
33 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency, preconference survey, (Philadelphia: University of Pennsylvania, Perry World House, 2020).

34 Jane McAdam, *Climate Change, Forced Migration and International Law* (Oxford: Oxford University Press, 2012); and ed., *Climate Change and Displacement* (Oxford and Portland, OR: Hart Publishing, 2010).



**Figure 7:** Should the 1951 Convention definition of refugee be reopened for consideration to capture climate-induced displacement?

**Figure 8:** The following concepts will be fundamentally reshaped by climate change and climate-induced displacement:



A central concern of those opposed to amending the existing legal regimes to include climate-related triggers had less to do with the merits of the proposal than with the risks in the current political climate. Reopening the “refugee” definition for debate could result in the adoption of even less robust protection than currently in effect.<sup>35</sup> This concern may indicate why 69 percent of surveyed panelists, as Figure 7 shows, opposed reopening the 1951 Convention’s definition of “refugee” to include those displaced by climate change.<sup>36</sup> Others questioned the practical utility and policy consequences of altering the language in legal mechanisms, highlighting that climate-related displacement is unlike displacement due to persecution in that it is frequently both slow-onset—and as such, something states and supporting actors can plan for—and internal, which is significant because existing protections for internally displaced persons are also woefully inadequate. These factors make climate-induced displacement categorically different from other triggers of refugee status, such as fear of political persecution or conflict; thus, they should result in their own calibrated degree of protection.

Those skeptical of the creation of a new international climate-displacement treaty tended to endorse local adaptation strategies and regional migration plans as viable alternatives, buttressed by a general international commitment to manage climate migration sufficiently. A regional system of protection may be more responsive and appropriate to local contexts of climate migration, better employ notions of subsidiarity, and more accurately reflect the reality of state behavior.<sup>37</sup>

## NATIONAL SOVEREIGNTY

With regard to state behavior, strict national sovereignty may inherently conflict with effectively addressing climate migration. Figure 8 demonstrates that 81 percent of experts surveyed agreed that climate change and climate-induced displacement will fundamentally reshape territorial connection to sovereignty. These new migration challenges may require the international community to revisit the principle that complete power to admit or exclude noncitizens must be maintained as an inherent part of state sovereignty.<sup>38</sup> While many states have responded to increased migration with stronger enforcement of their borders and immigration

## “OTHER” PROPOSED CONCEPTS INCLUDE:

- Human rights and international cooperation
- Patterns of conflict and violence
- National security
- Protection and non-refoulement
- The importance of social and culture rights and connection
- Entitlements
- Labor markets and labor protection
- Real estate markets, derivatives, and bonds
- Currency and flow of currency across the contemporary notion of borders (remittances)
- Digitalization and how it affects how and where people live and work

deterrence, these practices will result in inadequate protection for vulnerable populations and containment of communities in inhospitable environments over time. A human rights-informed response to climate-induced displacement may compel states to recognize that protection obligations limit the extent to which they are entitled to full authority over their borders.<sup>39</sup>

Consequently, greater displacement may also force the international community to reconsider existing understandings of and responses to statelessness, citizenship, and territorial rights. Namely, as sea-level rise threatens the entire territory of small island states, it creates a largely unprecedented potential for complete loss of a state’s territory due to environmental factors. Both Romola Adeola and Ama Francis noted the relationship between climate change’s threat to physical territory and the resulting challenge for conceptions of national sovereignty. They highlighted ways in which the traditional notion of territoriality’s connection to statehood inhibits the development of effective systems to aid climate migrants.

35 Martin Ruhs, *The Price of Rights: Regulating International Labor Migration* (Princeton, NJ: Princeton University Press, 2013).

36 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency, preconference survey, (Philadelphia: University of Pennsylvania, Perry World House, 2020).

37 For an example of such a proposal, see Walter Kälin and Nina Schrepfer, “Protecting People Crossing Borders in the Context of Climate Change: Normative Gaps and Possible Approaches,” UNHCR Legal and Protection Policy Research Series (Geneva: UNHCR, February 2012).

38 For an argument against this assumption, see: Joseph Carens, *The Ethics of Immigration* (Oxford: Oxford University Press, 2013): 225-254.

39 The idea that human rights protection can set boundaries on state sovereignty has already received some recognition in international circles (e.g., the responsibility to protect). See: U.N. General Assembly, Resolution 60/1, *2005 World Summit Outcome, A/RES/60/1* (Geneva: United Nations, September 16, 2005): paragraph 139.

As climate change impacts do not conform to national borders, Adeola echoed the need for states to rethink the issue of sovereignty in order to adequately respond to displacement arising from climate change.

Meanwhile, Francis focused on the impact of climate change on small island developing states (SIDS), agreeing that applying the Montevideo Convention's elements for the formation of a new state to determine when a state ceases to exist leaves a protection gap for those fleeing complete territory loss in SIDS. The strategies developed to respond may determine future responses to even larger challenges. A variety of proposals have been suggested: At-risk states might purchase or be given new territory over which they can exert sovereign control, or they might secure stable migration avenues with neighboring states to ensure gradual resettlement of their populations.

### CREATIVE REGIONAL SOLUTIONS

Panelists highlighted the potential for creative regional solutions to respond to climate-induced displacement. Some regional organizations and frameworks have already begun to incorporate broader conceptions of those considered refugees, which could extend protections to climate migrants. The Organization of African Unity Convention Governing the Specific Aspects of Refugee Problems in Africa extends full refugee status to those forced to flee “due to events seriously disturbing public order in either part or the whole of [their] country of origin or nationality.”<sup>40</sup> Similar, although nonbinding, protection exists in much of Central and South America via the Cartagena Declaration.<sup>41</sup> While many endorse regional solutions, these bodies are not always progressive actors in protecting or supporting displaced communities. For example, the European Parliament has explicitly acknowledged that no European Union legislation includes climate displacement within its protection regime. Most EU member states have not supported extensions of existing protection categories to climate refugees or the creation of new legal instruments.<sup>42</sup>

Beyond current regional mechanisms, panelists proposed several innovative solutions to the climate crisis and its impact on migration. In discussing how

rising sea levels may create de facto statelessness for citizens of SIDS,<sup>43</sup> speakers focused on how to protect their population, heritage, and cultural and social rights as a nation.

Panelists cited precedents for regional cooperation in the face of crises, such as the regional mobility and social protections observed following the Venezuela crisis, including expanded labor-market access, social-integration efforts, and the recognition of academic degrees and qualifications in host countries<sup>44</sup>—as well as the historic patterns of movement across the Sahel region of Africa. The latter was put forth as a model of governance that might be adapted to the present context in order to facilitate transboundary movement. The World Bank Group's Pepukaye Bardouille also discussed the possibility of a sub-regional body for Caribbean cooperation, especially in the wake of the COVID-19 pandemic and revived forms of regional mobility governance and restrictions.



### QUESTIONS FOR FURTHER RESEARCH

**Can the international refugee regime accommodate greater complexity in driving factors for migration and asylum seeking without risking greater restriction on categories of protection?**

**What role can regional bodies play in regulating migration within and beyond their jurisdictions?**

**How will changing relationships between national territory, citizenship, and governance affect practical and theoretical conceptions of state sovereignty in international relations and political theory?**

**How do local, national, regional, and international policies toward internally displaced persons affect their protection, support, and decision-making processes?**

40 Organisation of African Unity, *OAU Convention Governing the Specific Aspects of Refugee Problems in Africa* (Addis Ababa: OAU, September 10, 1969): Article 1.

41 Colloquium on the International Protection of Refugees in Central America, Mexico and Panama, *Cartagena Declaration on Refugees* (1984), conclusion III.3.

42 Joanna Apap, “The Concept of ‘Climate Refugee’: Towards a Possible Definition” (Brussels: European Parliament, January 29, 2019): 8-9, [https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS\\_BRI\(2018\)621893](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2018)621893).

43 In effect, a situation in which the international legal personality of the state continues in theory, but the physical territory of the state has ceased to exist.

44 Response for Venezuelans: Coordination Platform for Refugees and Migrants from Venezuela, “Refugee and Migrant Response Plan 2020 for Refugees and Migrants from Venezuela” (2020), <https://reliefweb.int/sites/reliefweb.int/files/resources/72254.pdf>.







# ➤ CHALLENGES OF CLIMATE CHANGE FOR NATIONAL SECURITY STRATEGIES



*Researchers and policymakers discussed the implications of climate change for both the national security and human security.*

The session on Climate Change and Security featured discussion of the permanence of security threats caused by climate change, the inadequacy of existing security tools and strategies in confronting these threats, and the introduction of a pandemic to an already-challenging problem. Scott Moore, the director of the Penn Global China Program, moderated a discussion among Shahrzad Tadjbakhsh, then-deputy director of international protection at the U.N. Refugee Agency; Ingrid Boas, an associate professor with the Environmental Policy Group at

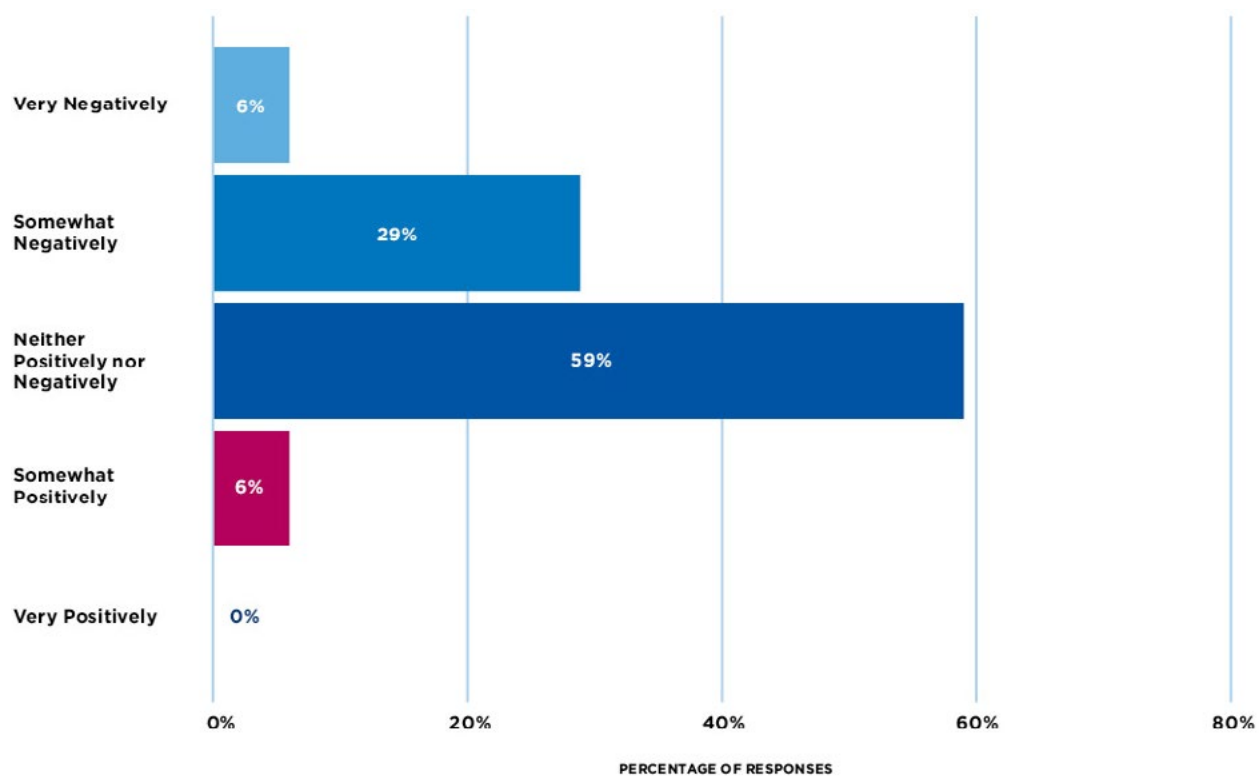
Wageningen University; Shiloh Fetzek, a senior fellow for international affairs in the Center for Climate and Security, Council on Strategic Risks; Cullen Hendrix, a professor at the Korbel School of International Studies at the University of Denver; and Russell Miles, the director of the Climate Resilience and Development Section, Sustainability and Climate Change Branch, at the Australian Department of Foreign Affairs and Trade, and the co-chair of the UNFCCC Task Force on Displacement.

While experts are fairly certain that climate change exacerbates many existing security threats, the harms created by climate change may interact with these existing issues in ways that are difficult to anticipate. This may amplify the impact of current threats, multiply their causes, or create wholly new security issues. An analytical challenge to isolating and addressing these new concerns is the reality that most security threats prompted by climate change are, by nature, interconnected and thus not easily isolated. Therefore, many existing security systems are inadequate to address rising, non-discrete threats and challenges. COVID-19 has demonstrated this point through its novel, multifaceted harms, which appear to both illuminate and augment preexisting societal stressors, vulnerabilities, and the related security threats they pose.





**Figure 9:** The COVID-19 pandemic will affect the global response to climate change:



**THE OTHER NOVEL SECURITY THREAT: COVID-19**

The COVID-19 pandemic was the underlying context of the colloquium and an important component of the security discussion. While 59 percent of experts

surveyed said COVID-19 will not affect the global response to climate change,<sup>45</sup> according to the results in Figure 9, they seemed to agree that the pandemic will exacerbate the same societal stressors aggravated by the effects of climate change. They also agreed that the pandemic has revealed a heightened role for local

<sup>45</sup> 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency, preconference survey, (Philadelphia: University of Pennsylvania, Perry World House, 2020).

governance at the municipal and state levels, which may provide useful lessons for effective policy responses to climate change.<sup>46</sup>

The pandemic has also highlighted the lack of protections for migrant workers and refugees, and the related vulnerabilities created or exacerbated by urbanization. Escribano noted that in Peru, 160,000 people left Lima to return to their places of origin in more rural parts of the country at the start of the COVID-19 lockdown. He argued that COVID-19 has revealed the extent to which migrants in urban areas lack access to sanitation facilities, health care, economic security, and other basic livelihood necessities. A lockdown to reduce the spread of COVID-19 in India exposed similar vulnerabilities and precarity among internal migrant workers in cities, with over 10 million traveling home to rural areas on crowded trains and buses and by foot at the start of the lockdown, which led to dangerous conditions and possibly greater spread of the virus.<sup>47</sup>

### NEW AND INDISTINGUISHABLE SECURITY THREATS

Climate change presents a novel risk landscape that security experts and government leaders are unfamiliar with navigating. Participants deemed the unique challenges climate change presents to establishing and sustaining peace in vulnerable regions to be of paramount importance for conflict resolution and peacebuilding, and they noted it warrants further attention. Many participants, including keynote speaker former U.S. Secretary of Defense Chuck Hagel, noted this concern specifically for regions where people's ability to meet their basic needs has been further inhibited by rising global temperatures. Shiloh Fetzek cited Afghanistan, Iraq, and Yemen as places where this risk is already manifest. The self-reinforcing, "compounding effects of climate change and instability risk" can increase vulnerability while eroding coping capacity, leaving governments and societies more exposed and less able to manage climate-related shocks and stressors. Because of the feedback mechanism of these self-escalating threats, it can be more difficult to stabilize conflict-affected societies in climate-vulnerable areas, and to promote climate resilience in situations of fragility. Rather than asking how to intervene, some participants focused on how to establish resilience. This, the dominant view maintained, better engaged with the novel risk landscape presented by climate change.

Panelists argued that confronting climate change through traditional security frameworks is challenging because these risks are difficult to isolate. Deeming this the "problem of attribution," Cullen Hendrix described how the effects of climate change on security and stability may be large in the aggregate, but climate change itself is not often the most important causal factor in any given conflict. This "stymies the development of mental models" that foreground climate change, preventing them from seeing climate change as a primary catalyst, as opposed to other more proximate or tangible triggers. Thus, even when aggregated evidence demonstrates that climatic factors increase the probability of conflicts, difficulties attributing particular conflicts to climate change stifle action by leaders.

However, the difficulty of attributing crises to climate change does not minimize its potential to escalate threats, aggravating existing tensions while also creating new restrictions on resources. Fetzek highlighted the danger in overemphasizing the role of climate change in disentangling the relationship between climate change and conflict onset, because it may "let governments off the hook by allowing them to blame shortcomings on the climate." She illustrated how climate change interacts with traditional risk landscapes through the example of nuclear risks, citing certain nuclear weapons states—like India and Pakistan—as likely to be hit hard by the effects of climate change, which may indirectly increase tensions, particularly over transboundary water resources. As climate change worsens water insecurity, lowers crop yields, and generates more harmful natural disasters (none of which conform to national borders), it creates an opportunity for local, regional, and global conflict—both in the generating of new tensions and in the reopening of existing ones.

### INADEQUACY OF EXISTING SECURITY MECHANISMS

Inherently connected to the multicausal and self-aggravating nature of climate threats is the concern that existing security strategies and frameworks often fall dangerously short of meeting these impending risks. Hendrix argued that, from a U.S. security perspective, the primary issue presented by climate change is that it does not fit neatly into conventional security paradigms of threat mitigation and neutralization, which the national security infrastructure has relied on to confront past security threats. Hendrix explained that U.S. national security strategy is designed to "identify

46 William Burke-White, "Cities and International Lawyers Need to Start Talking to One Another," *Diplomatic Courier* (November 22, 2019), <https://www.diplomaticcourier.com/posts/cities-and-international-lawyers-need-to-start-talking-to-one-another>.

47 Rajesh Roy and Vibhuti Agarwal, "Millions of Indians Are Fleeing Cities, Raising Fears of a Coronavirus 'Land Mine' in Villages," *The Wall Street Journal* (May 27, 2020), <https://www.wsj.com/articles/indias-migrants-head-home-as-lockdown-eases-prompting-fears-of-coronavirus-spread-11590579072>.

and deter harmful actors,” which hardly prompts decisive action against the fundamentally actorless threat that is climate change.

The effects of an average rising global temperature and resulting natural disasters are hardly “actors” in the traditional sense. Consequently, the U.S. security community finds its tried-and-tested approach to national security coming up short. Hendrix illustrated this by paraphrasing former U.S. Secretary of Defense Donald Rumsfeld: “We can’t effectively combat climate change because there aren’t ‘good’ targets. You can’t bomb a drought.” Thus, even though climate change may have critical effects on national security and economic well-being that rival more conventional threats, its lack of a discrete target renders traditional U.S. national security strategy inadequate. The COVID-19 pandemic has revealed similar weaknesses in confronting a threat that has killed hundreds of thousands of Americans and nearly 2 million people worldwide.

### **THE UTILITY OF THE SECURITY NARRATIVE**

While the relationship between national security strategies and public discourse may not be readily apparent as an important tool to combat climate change, it could be a crucial aid in generating the necessary funding and attention for combating this problem. Framing the national response to climate change through a security lens may inspire mobilization against climate change and draw attention to its potential harm to vulnerable populations. Russell Miles noted that presenting climate change as a security threat can be less polarizing and increase public engagement to drive effective national responses to climate change. He also emphasized the benefits of a multidisciplinary, interdepartmental approach to confronting climate change and climate migration. By highlighting the security, economic, infrastructure, and other challenges posed by climate migration, the logical result is collaboration between these government departments, research universities, and other institutions for more effective results.

Moving beyond national security, Tadjbakhsh advocated for an approach that views human mobility through the lens of human security, while Ingrid Boas argued for moving away from the language of securitization altogether and toward one of climate mobilities. She drew on past works grounding her critique of the media and research institutions’ warnings against mass climate migration and their tendency to portray migration as something extraordinary. In her view, migration is “diverse, local, and fragmented movement.” A climate-mobilities framing highlights this diversity and argues for more active involvement of those affected. This approach also invites research that is critical of conventional conceptions of borders and the portrayal of human movement as something extraordinary, that inspires fear of the “other” in receiving communities.



### **QUESTIONS FOR FURTHER RESEARCH**

**How does climate change interact with other conflict risk factors, and can its effects be isolated?**

**How can national security actors and processes adapt to less individual or distinct risks to respond to climate change, as well as similar and related types of threats like pandemics?**

**What is the impact of securitization framing or narratives on inspiring action to reduce emissions? What is their impact on border enforcement policies and immigration restrictions?**

**What lessons can be learned from the COVID-19 pandemic and response about proactively addressing vulnerabilities within populations and planning for displacement or mobility? How can intragovernmental, national, regional, and international cooperation be encouraged and improved?**

# ➤ CLIMATE CHANGE & THE U.S. DEFENSE PERSPECTIVE



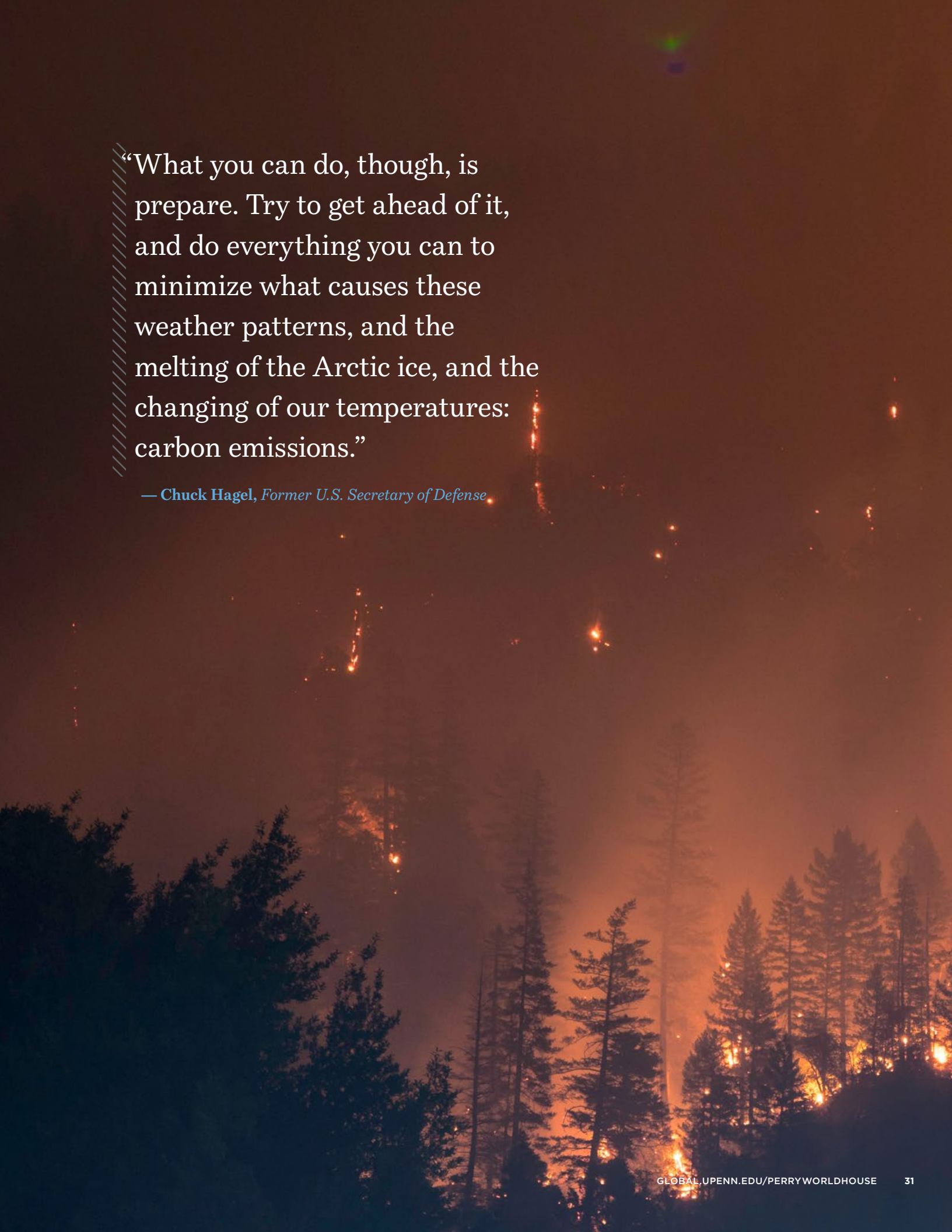
**Former U.S. Secretary of Defense Chuck Hagel discussed how climate change interacts with other issues of U.S. national security with CNN national security correspondent Samantha Vinograd in a public keynote conversation.**

Secretary Hagel emphasized the importance of addressing climate change from a defense perspective, as the consequences of climate change weaken global stability. Specifically, in relation to already fragile states, he said: “When you’ve got instability and chaos and people with no homes, nowhere to go, nothing to eat, medical issues overburdening your entire medical system, then that’s prescription for complete chaos. That’s a breakdown of a system, ...and for governments that are fragile now, it’s even more intense.” Hagel called for those in government to fortify institutions, to equip them with the tools and infrastructure necessary to look ahead at impending climate crises, and to allocate resources and finances according to the oncoming challenges.

In order to most effectively protect the nation from the threats posed by climate change, Hagel advocated for a multifaceted approach focused on prevention and mitigation. This could involve the creation of a new government agency, including specialists from numerous fields examining the effects of climate change. Conversely, governments could expand interdepartmental and cross-institutional collaboration, emphasizing information exchange and collaborative analysis. Either way, Hagel said: “What you can do, though, is prepare. Try to get ahead of it, and do everything you can to minimize what causes these weather patterns, and the melting of the Arctic ice, and the changing of our temperatures: carbon emissions.”







“What you can do, though, is prepare. Try to get ahead of it, and do everything you can to minimize what causes these weather patterns, and the melting of the Arctic ice, and the changing of our temperatures: carbon emissions.”

— **Chuck Hagel**, *Former U.S. Secretary of Defense*

# ➤ RESILIENT FRONTLINE COMMUNITIES

Simon Richter of the University of Pennsylvania moderated a discussion on the role and experiences of those communities most vulnerable to climate-induced displacement with A.R. Siders, an assistant professor at the University of Delaware Biden School of Public Policy and Administration; Mimi Sheller, the director of the Center for Mobilities Research and Policy and a professor of sociology at Drexel University; Pepukaye Bardouille, a senior operations officer with the World Bank Group's International Finance Corporation; Michelle Leighton, the chief of the Labor Migration Branch for the International Labor Organization; and Musonda Mumba, then-chief of the Terrestrial Ecosystems Unit for the United Nations Environment Program.

## EQUITY IN DISPLACEMENT

The disproportionate effects of climate change on certain locations suggest many questions about what “fair” means in the context of climate change displacement. This is complicated by the disparate vulnerability of individuals and communities and the varied costs of maintaining different populations in place, as well as the overwhelming responsibility of wealthier states for climate change. A mobility-justice framing, as proposed by Mimi Sheller, refocuses the debate; she said not to see climate change–induced migration as “a problem to be solved, but to look at the complex intersecting mobilities of the wealthy and the poor.” This analytic frame acknowledges that the highest consumers of fossil fuels are most culpable for climate change and owe a debt to those less responsible, indicating a moral responsibility for climate reparations.<sup>48</sup> This recognition changes the paradigm from climate migration as a humanitarian initiative or charity project to one rooted in a culpability and responsibility. Jesse Keenan discussed the appeal of a climate dividend within this framework, as it places the financial burden of pollution on the producer, but he questioned how reparations could be localized to tax moral hazards in a context of displacement like that of managed retreat.

Rather than theoretical, this is an immediate concern as resource strain caused or exacerbated by climate change is felt in vulnerable communities around the world. Based on her experience researching managed retreat in U.S. coastal areas, A.R. Siders questioned whether it is more pressing to move wealthy communities or poor ones, especially when considering the different volumes of resources used by and available to different communities. She raised the issue of “voluntary

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48 Mimi Sheller, “A Case for Climate Reparations,” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, 2020).





immobility,” or the choice made by certain populations to stay in areas at high risk of flooding or other climate change–related hazards.<sup>49</sup> In staying, wealthy populations may impose a financial burden on often already-strained municipalities. Siders gave the example of a Florida community in which the county’s entire transportation budget had been redirected toward maintaining a singular access point for a recently developed neighborhood that refuses to move. LaShawn Jefferson, Perry World House’s deputy director, expressed the importance of centralizing equity and justice within these discussions and of policies that reassert “a type of justice that didn’t actually exist before people were displaced,” while acknowledging the practical difficulty of implementing this type of change.

### **ADDRESSING THE INTERSECTING DIMENSIONS OF VULNERABILITY**

The varied experiences of displaced communities underscore the diversity of issues to be considered in the process of relocation and the ways in which intersecting aspects of vulnerability affect adaptation and recovery. These include access to safe and fairly compensated jobs, health care and mental health support, education opportunities and support for children, preservation of cultural heritage and traditions, and more. On employment, climate change causes extreme precarity for many workers: By 2030, it may cause an estimated 80 million jobs to be lost.<sup>50</sup> This loss is damaging not simply from an economic perspective, but as Michelle Leighton underscored, because “jobs give dignity and purpose.... Securing employment isn’t just about survival, it’s about giving hope and purpose to those that are displaced.” Employment and other societal factors,

including social networks, have a direct impact on mental health, which in turn supports an individual’s ability to “bounce back” and adapt to new surroundings.

Mental health is a crucial element in the well-being and resilience of frontline communities, but often overlooked or underfunded by policymakers. Musonda Mumba highlighted the importance of mental health as a key component of overall health, and the need to support both to promote overall communal resilience. She also stressed the need to reduce the silos between public health and climate change in policymaking in order to address them as intersecting issues.

Bardouille contextualized these ideas by discussing the Dominican government’s response to Hurricane Maria. She emphasized how important it is for legislators to address the many factors that contribute to the presence or absence of community resilience to climate change. In particular, she noted that there are many ways in which governments can improve how they meet the basic needs of citizens in an equitable and sustainable way during earlier, non-crisis periods, much less in the wake of a natural disaster. According to Fussell, this is especially damaging because non-crisis periods are the ideal time to support longer-term planning for climate adaptation, as individuals are better able to incorporate risk into their residential mobility decisions and make decisions that will lead to their increased security.

### **RESILIENCE REDEFINED**

The diversity of frontline communities and their needs underscored another central theme: “resilience” as a term and as a concept must be critically examined and

49 For more on “voluntary immobility,” see: Kevin Grecksh and Carola Klöck, “Access and Allocation in Climate Change Adaptation,” *International Environmental Agreements: Politics, Law and Economics*, 20 (2020): 271-286, <https://doi.org/10.1007/s10784-020-09477-5>.

50 UN General Assembly, “World ‘Nearing Critical Point of No Return’ on Climate Change, Delegate Warns, as Second Committee Debates Sustainable Development” (October 15, 2018). See also: International Labour Organization, “Increase in Heat Stress Predicted to Bring Productivity Loss Equivalent to 80 Million Jobs,” ILO News (Geneva: July 1, 2019), [https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS\\_711917/lang-en/index.htm](https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_711917/lang-en/index.htm).

redefined, or more precisely defined in specific and comprehensive, yet flexible, ways. It is a term used in an increasingly vague and conservative manner to describe adaptation strategies that may reinforce the status quo, as opposed to promoting radical but effective solutions that imply transformative change. Within the broad umbrella of resilience, Keenan highlighted multiple and competing epistemologies, which range on a spectrum from descriptive to normative. He urged that in employing the term “resilience,” speakers (particularly policymakers) must establish a clear intention and be critical of the trade-offs implied in its name. Siders also offered similar cautions for terms like “environmental justice” and “(in) voluntary retreat,” which different academic fields and policy communities use in distinct ways.

The range of resilience also speaks to the range of solutions required by crises with such varied impacts. Siders highlighted the intrinsic impossibility of “trying to find one policy that works for Tuvalu, and India, and the U.S.,” and the need to be specific and cognizant of context for proposed solutions. The desire for a one-size-fits-all solution presents myriad problems, in the legal regimes that seek to address these issues, in disaster response, in security assessments, and in the longer-term adaptation efforts to climate-induced displacement.



### QUESTIONS FOR FURTHER RESEARCH

How can culpability for climate damage be practically assigned and enforced? How do policymakers balance the effects of climate change caused globally but occurring locally?

What are the intersections between mental health, physical health, economic well-being, and overall resilience?

What interventions can be made before displacement becomes imminent or crises arise?

How can decisions on managed retreat or communal relocation prioritize participatory decision-making and inclusion as well as technical expertise, equity considerations, and long-term priorities?



*The Colloquium closed with an emphasis on frontline communities and how to build their resilience ahead of worsening effects of climate change.*

## ▶ PLANNING FOR CLIMATE CHANGE ON THE HOMEFRONT

**Anote Tong, the former president of Kiribati and an international climate action advocate, discussed his experiences planning for climate change as president of a small island state and advocating for action around the world, in a public discussion with Joshua Keating of *Slate*.**

The small island state of Kiribati in the Central Pacific may be among the first countries submerged as a result of climate change and rising seas, as the country has reported to the U.N. Framework Convention on Climate Change and other researchers and agencies have projected.<sup>51</sup> Kiribati's former President Anote Tong discussed the pressures of trying to govern a disappearing nation. Tong stressed that climate change is the greatest moral challenge ever to face humanity and described its pressures on the concepts of sovereignty and nationality, especially when the loss of a nation is in question. "Unless we can come up with some radical adaptation strategies," said Tong, "we will be faced with a situation where we have to relocate most, if not all of our people."

**"But I assure you, climate change will continue coming, whatever party is in government."**

— **Anote Tong**, *Former President of Kiribati*



Tong and his successors have considered a variety of solutions for protecting the country's inhabitants, ranging from raising the islands to creating new ones, and even relocating the people of Kiribati to neighboring Fiji. Though the strategies were geared toward finding practical solutions, each was also strategic, meant to signify to the international community that the issue of climate-induced displacement is real and urgent for SIDS. When asked if the people of Kiribati would relocate under the category of climate refugees, Tong was resolute: "No. I said, having lost their homes, I wouldn't want my people subjected to any further indignity," as refugee status might limit their right to work and move freely.

Without collective responsibility, Tong feared the return to a colonizing paradigm, in which residents of SIDS are left stateless and at the mercy of larger states. This risk is especially pressing as governments work to avoid any responsibility for climate change, using it as a "political football," in Tong's words. He noted that many view climate change claims through the lens of political gain, and not as a real risk posed to them and other communities. "I often say rather jokingly, but I don't think it's a joke, that politicians are not always the best leaders to lead on the climate issue, and the reason is because they think about the next election, but hardly ever about the next generation.... But I assure you, climate change will continue coming, whatever party is in government."

51 Intergovernmental Panel on Climate Change, Special Report on the Ocean and Cryosphere in a Changing Climate (Geneva: IPCC, 2019): Chapter 4, <https://www.ipcc.ch/srocc/chapter/chapter-4-sea-level-rise-and-implications-for-low-lying-islands-coasts-and-communities/>.

## ➤ NEXT STEPS

### ➤ POLICY & RESEARCH RECOMMENDATIONS

#### **SUPPORT CREATIVE, INTERDISCIPLINARY, AND QUALITATIVE RESEARCH**

Further research and understanding are necessary to clearly delineate the relationship between human mobility and climate change. To do so, researchers must collect data that represent the richness and complexity of information about drivers of displacement and migration, to determine the impact of climate change on those drivers. This data might include deep and contextually informed interviews of those displaced, and longitudinal studies of migration patterns. Data from social media geo-tagging, cell phone GPS, credit card use, and other new technologies could help to track movement indirectly, as long as researchers are mindful of ethical and privacy considerations. By triangulating information from several types of data collection and analysis, researchers can more accurately monitor migration patterns over time and how any changes might intersect with weather or agricultural changes, coastline erosion, or sea-level rise in places of origin.

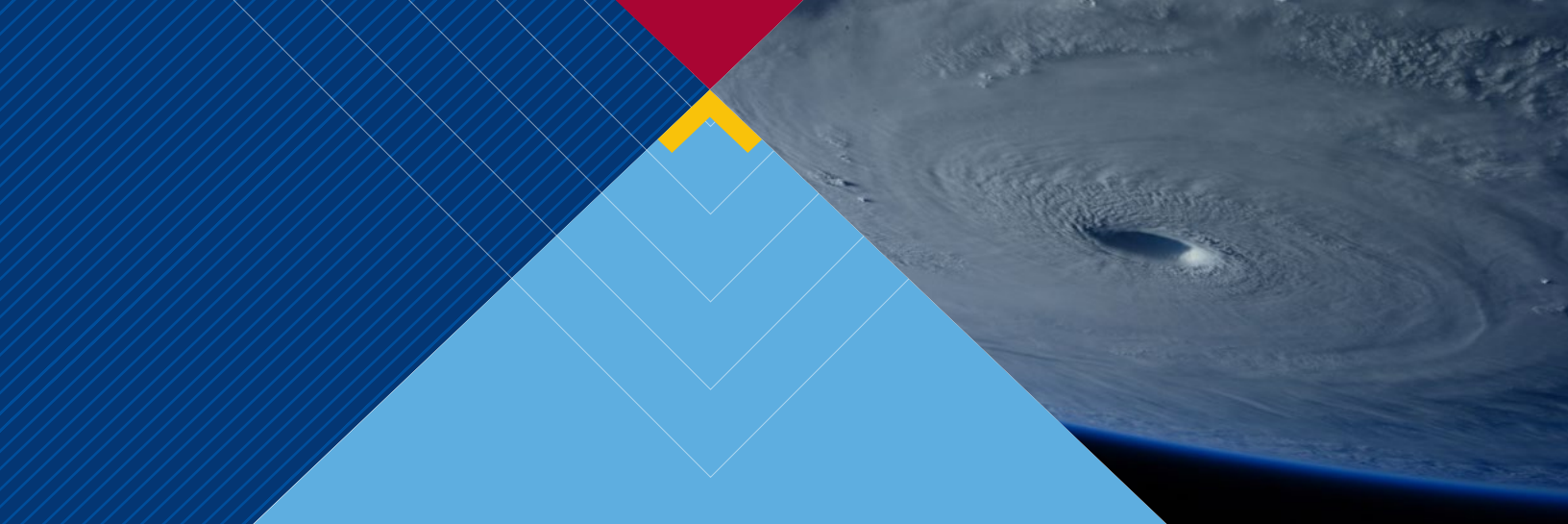
Interdisciplinary collaboration is key within policy and research communities to promote more accurate research and well-informed policy outcomes. Every discipline has something to contribute, from data and mapping expertise to contextual knowledge and historical information, to analysis of evidence-informed policy recommendations. As the field of “extreme weather attribution” has developed to gather greater data and develop more precise models to attribute worsening natural disasters and weather-related events to climate change, researchers working on climate-induced displacement, migration, and mobilities must similarly adapt and improve methods to show the effects of climate change, among other causes, on migration patterns and then work to address them with policymakers.

#### **PRIORITIZE AND PROMOTE REGIONAL ACTION**

To improve legal protections for those displaced by climate change, interventions at the regional level may provide one of the most promising pathways while still accounting for local contexts. Experts at the colloquium highlighted how such regional systems of protection could be more appropriate and responsive to local needs and contexts. They argued that these systems would be better placed to influence state behavior, given their relationships with regional bodies and the principle of subsidiarity (that issues should be handled by the most local or smallest competent authority rather than by a central authority when possible).

Activists, researchers, and policymakers should work to raise the profile of regional interventions and generate consensus among members of regional bodies such as the African Union, Association of South East Asian Nations, European Union, Organization of American States, and others. Coordination at this level can help countries to share resources and knowledge around climate adaptation and mobilities, given that neighboring countries are likely to face similar issues and will generally be first affected by displacement nearby. Regional documents, such as the Cartagena Declaration on Refugees or the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa, create both binding and nonbinding norms and laws used to inform responses and enforce responsibility when crises do occur. Similar work on climate change and climate-induced displacement would benefit regional bodies, national governments, and displaced populations by preparing for future crises before they occur to allow for quicker and more effective responses.





### **LEVERAGE MULTILATERAL INSTITUTIONS AND MAINSTREAM CLIMATE MIGRATION POLICY**

National policymakers should integrate specific, actionable, and funded initiatives into federal law. They can draw on expertise and political capital from commitments to multilateral institutions, such as the need to meet their Nationally Determined Contributions to reduce emissions as reported to the UNFCCC. Countries must also achieve their National Adaptation Plans to adapt to the effects of climate change, which the UNFCCC will support.

To better prepare for climate change's effects on migration patterns and climate-induced displacement, governments at every level should coordinate more closely between their climate change and environmental offices and their migration offices. This may involve mainstreaming climate policy and/or migration and refugee policy throughout government institutions, but it will be context dependent. Through proper planning and political pressure, countries can work together with one another to achieve the Global Compact for Migration and IOM goals of safe, orderly, regulated, and responsible migration.

### **INSPIRE SOCIETAL TRANSFORMATION FROM THE GROUND UP**

As Espinosa advocated, societies must collectively plan for a resilient and just future by investing in a deep transformation of all facets of daily life and humanity's relationship with the rest of the natural world. Actors from civil society, private industry, academia, and other sectors must work together toward transforming each sector of society—not just energy sources, but transportation, housing, education, and more—to build

a new, green, and equitable future. While this is a tremendous ask, Siders aptly notes that “no single buyout or relocation program can be tasked with undoing a national, centuries-old history of injustice in total, yet nor can any be allowed to overlook these injustices nor to fail to address them.” However, situating each choice and policy change within these broader conversations and holistic issues can help “to ensure that individual programmatic efforts add up to coherent wholes... to see not only the challenges and risks inherent in relocation but also the possibilities.”<sup>52</sup>

These changes will help to mitigate the worst effects of climate change and can be driven by activists, nongovernmental organizations, local governments, and communities themselves. Nevertheless, national governments and international agencies may need to reexamine fundamental concepts of borders, sovereignty, citizenship, and territory and proactively adapt to climate change's effects on the habitability of certain environments and prevent future crises for both trapped and forcibly displaced communities.

52 A.R. Siders, “Agenda for Climate Relocation Research and Practice,” 2020 Global Shifts Colloquium: Seeking Refuge in the Climate Emergency (Philadelphia: University of Pennsylvania, Perry World House, 2020).

## › CONCLUSION

Colloquium participants agreed on the urgency of addressing climate change to mitigate its most severe future effects, including widespread forced displacement. Yet, a comprehensive and specific definition for “climate-induced displacement” remains elusive based on the multicausal nature and varied forms of displacement, migration, and mobility around the world. While this definitional difficulty complicates collection and analyses of data, it does not absolve governments of their responsibility to prepare for and respond to both climate change and climate-induced displacement proactively and appropriately.

Participants were divided on the narrative framing of climate-induced migration. Some urged the securitization of climate displacement as a tactic to spur action on the larger issue of climate change. Others encouraged use of a mobilities framework to represent human movement as a natural, universal phenomenon throughout human history and as one strategy to adapt

effectively, efficiently, and fairly to the effects of climate change. Yet, while movement—even for environmental reasons—has been a perpetual part of human history, climate change caused by humans is a new phenomenon. This distinction may imply a new set of responsibilities on those who have caused it toward those most affected, including migrants.

To address these responsibilities, a cohesive global approach to climate-induced displacement requires both recognizing the realities of displacement in any specific context and responding accordingly, while also addressing the overall challenge of climate change at the local, regional, and global scales. This type of response must foreground justice and equity in policymaking responses, ensuring protection of frontline communities as they face worsening effects from climate change and supporting them with resources drawn from the communities, corporations, and countries most responsible for creating this climate emergency.

## › WHAT THE EXPERTS ARE READING

*Perry World House also asked participants to name one book or article that scholars and policymakers or interested students should read about the topic. Here’s what they recommended.*

### BOOKS

- Katrina Fischer Kuh and Michael B. Gerrard, *The Law of Adaptation to Climate Change: U.S. and International Aspects* (Online: ABA Book Publishing, 2013), <https://www.americanbar.org/products/inv/book/215094/>.
- Dina Ionesco, Daria Mokhnacheva, and François Gemenne, *The Atlas of Environmental Migration* (Geneva: International Organization for Migration, 2017).
- Simon Lewis and Mark Maslin, *The Human Planet: How We Created the Anthropocene* (New Haven: Yale University Press, 2018).
- Benoît Mayer and François Crépeau, *Research Handbook on Climate Change, Migration and the Law* (Cheltenham, UK: Edward Elgar, 2017).
- Jane McAdam, *Climate Change, Forced Migration and International Law* (Oxford: Oxford University Press, 2012); and ed., *Climate Change and Displacement* (Oxford and Portland, OR: Hart Publishing, 2010).
- Robert McLeman and François Gemenne, eds., *Routledge Handbook of Environmental Displacement and Migration* (Online: Routledge, 2018).
- Elizabeth Rush, *Rising: Dispatches from the New American Shore* (Minneapolis: Milkweed Editions, 2018).
- Greg White, *Climate Change and Migration: Security and Borders in a Warming World* (Oxford: Oxford University Press, 2011).

## ARTICLES AND REPORTS

- Jon Barnett and W. Neil Adger, “Mobile Worlds: Choice at the Intersection of Demographic and Environmental Change,” *Annual Review of Environment and Resources*, 43 (2018): 245-265, <https://doi.org/10.1146/annurev-environ-102016-060952>.
- R. Black, W. Neil Adger, Nigel W. Arnell, et al., “The Effect of Environmental Change on Human Migration,” *Global Environmental Change*, 21 (2011): S3-S11.
- Jonathan Blitzer, “How Climate Change Is Changing the U.S. Border Crisis,” *The New Yorker* (April 3, 2019).
- Michael Brzoska and Christiane Fröhlich, “Climate Change, Migration and Violent Conflict: Vulnerabilities, Pathways and Adaptation Strategies,” *Migration and Development*, 5, no. 2 (2016): 190-210.
- Benoît Mayer, “‘Environmental Migration’ as Advocacy: Is It Going to Work?” *Refuge: Canada’s Journal on Refugees*, 29, no. 2 (2014): 27-41, <https://refuge.journals.yorku.ca/index.php/refuge/article/view/38165>.
- Robert McLeman, “International Migration and Climate Adaptation in an Era of Hardening Borders,” *Nature Climate Change*, 9, no. 12 (2019): 911-918.
- Etienne Piguet, Antoine Pécoud, and Paul de Guchteneire, “Migration and Climate Change: An Overview,” *Refugee Survey Quarterly*, 30 (2011): 1-23, <https://doi.org/10.1093/rsq/hdr006>.
- Koko Warner, Charles Erhart, Alex de Sherbinin, et al., “In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement” (Bonn, Germany: United Nations University, CARE, and CIESIN-Columbia University, May 2009), <http://www.ciesin.columbia.edu/documents/ClimMigr-rpt-june09.pdf>.





**UNIVERSITY OF PENNSYLVANIA | PERRY WORLD HOUSE**  
3803 LOCUST WALK, PHILADELPHIA, PA 19104

215.573.5730

@PERRYWORLDHOUSE  
FACEBOOK.COM/PERRYWORLDHOUSE

**GLOBAL.UPENN.EDU/PERRYWORLDHOUSE**