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A Changing Climate, A Changing World

POLICY CHALLENGES AND OPPORTUNITIES
IN MIGRATION AND URBANIZATION

2019 Global Shifts Colloquium Report

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1   *The Intergovernmental Panel on Climate Change, which is a U.N. intergovernmental body dedicated to providing an objective, scientific view of climate change, believes countries will not be able to adapt to changes above a 1.5-degree change.* See: *U.N. Framework Convention on Climate Change, "The Paris Agreement," 2015; available at:* https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement. See also: *Intergovernmental Panel on Climate Change,* IPCC Special Report on Global Warming of 1.5°C, *World Meteorological Organization, 2018.*

2   *European Environment Agency, "Water Glossary," 2019. Available at:* https://www.eea.europa.eu/themes/water/glossary.

3   *Robert O. Keohane and David G. Victor, "The Regime Complex for Climate Change,"* Perspectives on Politics, *9(1): 7–23, 2011.*

› Executive Summary

Climate change is one of the most urgent, complex, and far-reaching challenges that the world faces today. Its effects cross borders and boundaries, with significant impacts on landscapes, livelihoods, and people. It occurs in urban as well as rural areas and without regard for nationality or other demarcations of the modern state system. Nevertheless, already vulnerable populations—including indigenous peoples and other under-resourced, lower-income, and marginalized communities, largely in the Global South—will acutely, disproportionately, and most immediately feel these effects.

The Paris Agreement—the 2016 document agreed to by all United Nations (U.N.) member states party to the U.N. Framework Convention on Climate Change—committed countries to keep "global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius."[1] In order to meet the 1.5-degree target, the Intergovernmental Panel on Climate Change estimates that global carbon-dioxide emissions must be reduced 45 percent from 2010 levels by 2030. Failure to do so could have dire implications; yet given current activities, the planet is almost certainly on track to exceed the 1.5-degree mark. When it does, experts predict 496 million people will be "water-stressed"—when water demand exceeds its availability or when poor water quality restricts its use.[2] This number is set to increase to 590 million people at 2 degrees of warming.

To address these critical and complex issues, Perry World House's 2019 Global Shifts Colloquium, "A Changing Climate, A Changing World: Policy Challenges and Opportunities in Migration and Urbanization," brought together academic researchers from a variety of disciplines and policymakers from various levels of governance. The colloquium's first day of discussions centered around the realities (and uncertainties) of climate change; the effects of climate change on human geography and migration, including climate-induced migration, changes to migration patterns, and urbanization; adaptation and mitigation strategies in urban areas; and the pivotal role of city leadership, particularly on sustainable development.

In addition to city leadership, effective climate action will demand coordination across levels of governance and among actors from various policymaking arenas. The colloquium's second day of discussions featured policymakers and practitioners from city, regional, national, and international levels of governance.[3] Key speakers included Mauricio Rodas, a Perry World House visiting fellow and then-mayor of Quito, Ecuador; Jeb Bush, the University of Pennsylvania Presidential Professor of Practice and the former governor of Florida; Gina McCarthy, the former administrator of the Environmental Protection Agency; Zeid Ra'ad Al Hussein, a Perry World House distinguished global leader-in-residence and the former U.N. high commissioner for human rights; and Ovais Sarmad, the deputy executive secretary of U.N. Climate Change.

Their insights revealed a series of recommendations for policymakers who are trying to develop and coordinate effective climate action policies at various levels of governance, as well as across a complex regime composed of many different international organizations. While Rodas argued for greater access to financing for sustainable infrastructure development in cities, Bush and McCarthy highlighted the need to reframe the debate around climate change to be less politically polarizing and more inclusive of ancillary issues, such as the effects on public health, in order to form a broader coalition of concerned and motivated voters. At the global level, Al Hussein and Sarmad emphasized the urgency of action, the reasons for optimism, and a way forward centered on ambition and acceleration.

This report expands on the aforementioned issues and insights from both days of discussions, then raises open questions for researchers and policymakers to continue to pursue in order to meet the complex challenges and policy demands of climate change.

The Realities of Climate Change:

How Will Climate Change Affect the World We Live in and How Can We Prepare?

MOVING FORWARD FROM PARIS

While the Paris Agreement pledged to limit global temperature rise to under 2 degrees Celsius, and to aim for under 1.5 degrees, current country commitments—represented through nationally determined contributions—are not enough to limit temperature rise to 2 degrees Celsius, which risks overshooting this critical limit. This degree of global heating will have catastrophic consequences, including a tenfold increase in the likelihood of ice-free summers in the Arctic, 99 percent destruction of coral reefs, and the exposure of 32 to 80 million more people to flooding annually. Current social and governmental systems are not designed to accommodate such losses, but is the transition to a 1.5-degree (or lower) world possible? According to Aromar Revi, the director of the Indian Institute for Human Settlements, and Irina Marinov, a Penn associate professor of earth and environmental science, limiting temperatures to a 1.5-degree rise would require dramatically upscaled ambition and a new paradigm for partnerships among disciplines and between policymakers and researchers, as well as a new paradigm for the public itself. They called on policymakers and political leaders to work with climate scientists to better inform their responses and identify critical knowledge gaps. Developing effective policy responses to climate change is not only difficult due to a lack of political will, but also due to a lack of knowledge about the climate system. Even the most advanced current models have trouble considering the sensitivities, feedbacks,

Opening the colloquium, Aromar Revi, the director of the Indian Institute for Human Settlements, and Irina Marinov, a Penn associate professor of earth and environmental science, outlined some of the most significant challenges that climate change poses to the world and explained their views on next steps after the Paris Agreement. They highlighted the role that cities must play at the forefront of such efforts and the importance of a sustainable development framework to mitigate the potential negative impacts of increasing urbanization and adaptation efforts. Revi contended that this sustainable approach to urbanization could transform the crises presented by climate change into opportunities for development, challenging conventional wisdom and turning ideas into action.

nonlinearities, and resilience of systems in making accurate climate predictions. Researchers and states alone cannot meet this challenge; it will require local action and social learning. This could be a transformational global adaptation—perhaps it is even within reach.

CITIES AS THE KEY

Reflecting the broad consensus of the colloquium's participants, Revi and Mauricio Rodas both argued that cities are places where climate transformation is possible. They are places of opportunity, enterprise, hope, and productivity, but also of deep inequality and contestation. Why is scaling climate change action in cities and regions important? Currently, 55 percent of the global population lives in urban areas or cities, with projections that this proportion will constitute more than two-thirds of the global population by 2050. Experts predict this urban population will increase by 2.5 to 3 billion by 2050, presenting a huge opportunity of scale.

Revi noted that the scale of impact of climate change on people will largely play out in cites, and thus, policymakers should bring cities to the forefront of the conversation. He highlighted urbanization and sustainable urban development as opportunities through which the world can address some of the most intractable problems posed by climate change. As cities confront the challenges of climate change, crucial system transitions must take place in energy, industry, land and ecosystems, and urban infrastructure. The key to successful transitions is their localization—both integrating local knowledge into the development process of sustainability initiatives from the outset and adapting best practices in technological advances to local needs and contexts. To accelerate system transitions, policymakers must put enabling conditions into place, including strengthening multilevel governance structures; building convergent and synergistic policies, as well as institutional capacity; expanding and redirecting funding; accelerating innovation and technology deployment; and initiating widespread behavioral change.

CITY POLICYMAKING FOR CLIMATE ADAPTATION AND MITIGATION

Mauricio Rodas, a Perry World House and Penn Institute for Urban Research visiting fellow and then-mayor of Quito, Ecuador, spoke with Claudia Vargas of The Philadelphia Inquirer *about his efforts to position Quito as a global leader in city-level sustainability efforts. Personal will and vision are two key elements, which, when combined with adequate resources, place cities at the vanguard of climate change responses. Cities have the opportunity to innovate creative and effective ways to meet the needs of their residents, improve their daily lives, and make an immediate difference in addressing the effects of climate change.*

TRANSVERSAL AXIS OF SUSTAINABLE DEVELOPMENT

Implementing sustainable development policies can be difficult for local politicians, whose constituents confront them with laundry lists of important and immediate issues to address. Further, constituencies and interest groups with different preferences, as well as electoral considerations, complicate matters. How can local leaders implement a sustainable development vision amid competing priorities and scarce resources? Rodas emphasized that leaders should conceptualize sustainable development as a "transversal axis," cutting across and connecting to every aspect of policymaking in a city. Considering all issue areas from a sustainable development perspective allows local leaders to implement this framework across different priorities and to build coalitions for integrated approaches. Rodas pointed to the example of Quito's new metro system to illustrate this approach. Faced with a public infrastructure problem and an environmental one, Rodas prioritized building a sustainable form of public transit to lower emissions, as well as to improve the daily commute for residents. Previously, 56 percent of the city's emissions came from transportation and 73 percent of residents already used public transit, making the metro a key intervention: one that would be both effective and likely to be used by residents. Leveraging international resources for its construction, the new metro reduced Quito's emissions and provided a more sustainable, efficient, and reliable way for residents to move around the city.

FINANCING FOR SUSTAINABLE INFRASTRUCTURE

In addition to political will and vision, financing sustainable development policies at the city level is a crucial challenge. While national governments have greater access to resources for major infrastructure projects, these officials may not always support subnational actors and their ideas. Rodas obtained financing from four multilateral banks to support Quito's metro system development, with these funders providing additional assistance to the project through technical oversight and support. This shift from national (government) to international (bank) oversight resulted in new standards and regulations that were ultimately stricter than what the government would have required. Rodas called for changes to the international financing infrastructure—including specific tools for subnational governments to access international funding—as essential to the success of future policy changes, such as Quito's metro-system.

> Cities have the opportunity to innovate creative and effective ways to meet the needs of their residents, improve their daily lives, and make an immediate difference in addressing the effects of climate change.

Complementing this discussion were remarks by Mauricio Rodas, a Perry World House visiting fellow and then-mayor of Quito, Ecuador, on city policymaking for climate adaptation and mitigation. In conversation with Claudia Vargas of The Philadelphia Inquirer, *he focused on access to financing for cities and how to mainstream climate action into all aspects of day-to-day city functions and policymaking.*

THE "DARK SIDE" OF URBANIZATION

While urbanization may yield great opportunities, Revi also noted that it may produce negative consequences. Urbanization can exacerbate poverty and inequality, particularly in vulnerable and migrant communities. Contemporary urbanization poses enormous challenges to the environment, particularly due to the current relationship between development and fossil fuel use. As urban, higher-income economies—with more cars, factories, and electricity-dependent residents—spread across the planet, the challenges increase in scale. Addressing the challenges of urban development through the framework of sustainable development—in particular, the U.N. Development Programme's Sustainable Development Goal 11, which draws international attention to "Sustainable Cities and Communities"—could provide a way forward that minimizes such negative externalities. Sustainable development emphasizes multiple scales, multiple sectors, and multiple stakeholders to respond to complex challenges.

QUESTIONS FOR FURTHER RESEARCH

- How can city, national, and international leaders prepare for the challenges that cities will face, and how can they better work with climate scientists to inform preparedness plans and responses?

- How can cities be more inclusive, resilient, and sustainable?

- How can policymakers balance economic productivity and sustainability?

- Can international responses to climate change incorporate localization, in particular, the challenges that cities face?

- What kinds of financial instruments and structures would best support local officials in developing and implementing policy responses to climate change?

- How can policymakers mainstream sustainable development policies into all aspects of urban planning and city operations? Which cities are leading in this space?

› Climate-Induced Changes to Human Geography and Migration

While migration has been a constant characteristic of human behavior, climate-induced migration is likely to modify current patterns and exacerbate the rate and magnitude of this movement on a possibly unprecedented scale. Beth Simmons, Penn's Andrea Mitchell University Professor of Law, Political Science and Business Ethics, moderated a panel of scholars and officials who addressed critical questions on confronting the challenges posed by climate migration, including how to coordinate efforts and implement programs, and how to scale up and down responses to increase impact but still account for specific contexts. The panel included Sumudu Atapattu of the University of Wisconsin; Maxine Burkett of the University of Hawai'i at Mānoa; François Gemenne of Sciences Po in Paris, University of Liège, and University of Versailles; Victoria Herrmann of American University; and Koko Warner from the U.N. Climate Change Secretariat.

NEED FOR A LEGAL FRAMEWORK

Does the world have the legal concepts and tools to address the new challenges presented by climate-induced migration? Is the existing legal framework sufficient? Atapattu argued for the need for a more comprehensive legal framework on climate migration and the importance of building such a framework as soon as possible. "No state will be able to insulate itself from the adverse consequences of climate change," Atapattu said. "By planning ahead, we will be able to address the protection gap before we are faced with a humanitarian catastrophe." Current international law does not explicitly consider individuals forced to move for climatic reasons as refugees, and thus these individuals lack adequate protections for cross-border movement. The global policymaking community must rethink the paradigms for the risks posed by climate change and climate-induced migration to different communities, particularly considering humanitarian and justice concerns. According to several of the panelists, climate-induced migration will test the resiliency of the international legal system. Before the consequences become too great, legal scholars and practitioners must strive to make sense of the challenge, align around the next best action, and adapt to the relevant time scale.

DETERMINANTS AND SOCIAL EFFECTS

The drivers and social implications of climate migration are multifaceted, ranging from concerns of cultural heritage to national identity to human dignity and justice. Burkett specifically examined the interaction of this trigger with underlying factors, noting that "gender, age, foreign-language skills, and risk-taking capacity influence an individual's decision to move in cases of voluntary migration." To understand the complex interactions of these drivers, social tipping points can provide a framework to assess the mechanisms by which climate change induces migration. Social tipping points also help to map the scale of climate effects to the scale of anticipated migrations and consequent social effects,

as well as the role of perceptions and critical thresholds in this process. Understanding the distribution of such factors across groups likely to migrate requires a consideration of dignity and identity for these populations, as they will differentially impact small island states and rural areas. Moreover, significant implications for the dignity and rights to cultural heritage of peoples with strong relationships to their territory, such as indigenous communities, arise when they are forced to migrate.

INSTITUTIONAL AND POLICY RESPONSES

The panel made clear that climate-induced migration will impact all aspects of potential migrants' lives, as well as the communities in which they seek to resettle. Thus, policy interventions must take place at every level of governance and consider all aspects of daily life. The economic impacts on labor forces and urban productivity are potentially hugely disruptive, in addition to other economic, health, and security threats. Herrmann raised the security challenges that climate migration will likely pose to U.S. cities. "In order to proactively plan for the homeland security challenges that slow and sudden onset disasters bring during a state of emergency," Herrmann said, "it is incumbent upon U.S. cities to include migration and a widened security perspective in their climate change plans."

In addition to considering these threats, cultural preservation should be part of climate migration considerations, including plans to preserve forms of cultural heritage during resettlement to strengthen community resilience. Plans should include both considerations for cultural heritage and actual financing to achieve these plans. At the international institutional level, U.N. Climate Change is leading multilateral efforts to coordinate country-level work and is highlighting the issue of climate change at the interstate level. International institutions have worked to supply states with research on the patterns of human mobility and climate stressors, as well as their interaction with complex situations. U.N. Climate Change's Task Force on Displacement has been particularly important in relation to climate-induced migration, providing recommendations for risk management and preparation around human mobility. In the United States, federal responses may be led by both government agents, such as the U.S. Army Corps of Engineers, as well as nongovernmental organizations, such as the American Red Cross. However, the United States is currently leaving many communities to address the often slow and then sudden crises of climate change on their own. While community-driven, context-specific preparedness and responses are key to preserving some degree of agency and cultural heritage, outside resources—both technical and financial—will be necessary for effective responses.

Koko Warner, manager of the "Impacts, Vulnerability, and Risks" Sub-program of the UNFCCC's Adaptation Program, speaks to the policy challenges in coordinating global responses to climate-induced displacement.

› GLOBAL POLICYMAKING FOR CLIMATE ADAPTATION AND MITIGATION

Ovais Sarmad, the deputy executive secretary of U.N. Climate Change, and Zeid Ra'ad Al Hussein, a Perry World House distinguished global leader-in-residence and former U.N. high commissioner for human rights, spoke with Perry World House's deputy director, LaShawn Jefferson. They discussed how global leaders should approach climate adaptation and mitigation, and how to facilitate state behavioral change in a voluntary environment.

AMBITION, ACCELERATION, AND ACTION

Sarmad opened with a sobering assessment: "Climate change presents a clear and present danger to the present and future." He explained that it is a threat multiplier, exacerbating existing challenges such as poverty, resource shortages, security, gender imbalance, and inequality. And despite these risks, not everyone feels the urgent need for change. However, he outlined a way forward through three elements that the global community will need to be successful: ambition, acceleration, and action. Ambition of spirit is the belief that change is possible, in ordexr to prevent apathy. Humanity has made great strides in agriculture and medicine, and it can do the same for climate change. But countries must accelerate the pace of change and take more robust action, including by boosting the nationally determined contributions outlined in the Paris Agreement and providing financing and technical support for countries at the forefront of climate change. Finally, the global community must act by supporting countries that are making contributions and by bringing together all sectors of society through practical, pragmatic partnerships.

HUMAN RIGHTS AND CLIMATE CHANGE

Al Hussein reminded the audience that climate change suffers from the same siloed approach that many other global initiatives do, including human rights. He emphasized that governments are hesitant to bring human rights into the conversation about climate change. Member states tend to bifurcate their attitudes by organizations; in other words, they believe the U.N.

Human Rights Council should discuss and address human rights, not U.N. Climate Change. However, Al Hussein advocated integrating the two: In the human rights space, the Human Rights Council wields the stick and pressures governments outwardly to maintain their human rights commitments. He believes the same should happen with climate change, because carrots alone will not bring change. To achieve efficient global climate action, there must be an integrated climate and human rights approach that brings together creative innovations from academic research, policymaking, and practice—participants outlined many such innovations at the colloquium—with tangible, significant, and swift actions.

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QUESTIONS FOR FURTHER RESEARCH

• Can existing legal frameworks accommodate the potential challenges of climate-induced migration?

• Are international conventions for protections of displaced persons and refugees relevant in this context, and are they flexible enough to confront the challenge?

• How can leaders develop international consensus around new legal instruments that keep utility for states and cities in mind?

• How do policymakers account for the distribution of risk and consider the vulnerable populations who may disproportionately bear the burdens of climate change?

• Given that climate change is a threat multiplier, what strategies address the acute vulnerabilities of women and girls?

• How can local, national, and international governments coordinate their responses to maximize their effectiveness while being responsive to local conditions?

A lighthearted moment during the question-and-answer session of the discussion on global policymaking for climate adaptation and mitigation with Ovais Sarmad, left, and Zeid Ra'ad Al Hussein.

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› Climate-Driven Urbanization and City Climate Adaptation

Eugénie Birch, Penn's Lawrence C. Nussdorf Chair of Urban Research and Education, moderated a discussion among Jesse Keenan of Harvard University; Deborah Balk of the CUNY Institute for Demographic Research; Cecilia Tacoli of the Human Settlements Group, International Institute for Environment and Development; Samer Saliba of the International Rescue Committee; and Marc Forni of the World Bank.

REIMAGINING THE URBAN

The panel made clear the limits of the current popular conceptions of "urban," which inhibit both an adequate understanding of the place and creative solutions to its specific challenges. Today's urbanization is different than that of the past in important ways: The fastest growing cities and towns around the world are not in the Global North, but in Asia, Africa, and Latin America. Much of this growth is due to internal, rather than international, migration. Perhaps most counterintuitively, the highest growth is taking place in the smaller cities and towns of the Global South rather than in the megacities that often make headlines.

While much information exists at the macro-level about global urban trends, less is known about the causes of this growth (demographic shifts, rural–urban migration, or administrative reclassification); its spatial dynamics (vertical, horizontal, on the edges); and the differential growth of subpopulations. As Balk noted: "Urban areas and their people are best expressed as a continuum, not a simply urban–rural dichotomy. Cities have many forms." Tacoli underscored that approximately 50 percent of the world's urban population lives in cities with fewer than 500,000 residents, of which 20 percent live in smaller towns of up to 50,000 inhabitants. This may not be the first image that comes to mind when one

thinks of "urban," hence the importance of reimaging strategies given this substantial population living in smaller cities. Currently "small towns [are] often ignored by institutions based in the larger cities," yet they are the beginning of the urban continuum, Tacoli cautioned. They do not have the technical capacity, financial autonomy, or support from the central government to sustainably and effectively manage the rural transformations that are affecting their populations. Focusing on these smaller urban spaces and supporting them is "increasingly necessary for truly transformative resilience to climate change," advocated Tacoli.

MEASUREMENT AND DATA COLLECTION

Policymaking suffers from a lack of data on various aspects of urbanization and climate change as well as a limited amount of the "right" data, according to the panel. "The data infrastructure of the 20th century, which is largely what still operates today, is not well-suited to understanding the urban world of the 21st century," said Balk. Policymakers could reboot this infrastructure by tailoring data collection to particular city populations rather than to national urban populations; focusing on marginalized populations that may not be captured by statistical record-keeping; and improving spatial data-collection use—both demographic and socioeconomic. While the data quality in major urban areas needs improvement, governments in smaller cities are not even collecting data in many cases. By ignoring these cities, researchers and scientists are not capturing or analyzing information about half of the world's urban population. Incorporating these areas into conversations about measurement will give policymakers and politicians a more informed picture of the challenges they, and a significant portion of the world's people, face.

APPROACHING CITIES AS PARTNERS

Rather than simply approaching cities as the site of the problem, policymakers and others must view cities as actors in their own right, partners with valuable inputs,

insights, and information. Saliba highlighted the fact that in the Global South, "the cities hosting the most displaced residents are urbanizing at a faster rate" and are "doing so with the fewest resources." In order to address this imbalance, national and international organizations need to work together to identify solutions. These partnerships should include cities themselves as well as companies, humanitarian organizations, and multinational donors. One of the key challenges cities face is the ability to finance climate-adaptation policies. According to the World Bank's Marc Forni, the Bank estimates that the "infrastructure gap in cities [is] over $1 trillion annually," presenting a massive financial undertaking. Climate-adaptive investments by multilateral institutions or private corporations are necessary to overcome this financial barrier. One way to do this is to focus on municipal finance reform, governance, and decentralization, as well as a range of land-based financing instruments that would "capture the increased values associated with climate-adaptive investments," said Forni. This latter recommendation is a relatively new approach but could be an innovative solution for cities to pilot.

Finally, while extreme climate events force many people around the world to relocate, a wider lens on climate migration includes those who electively move and the positive opportunities of migration as a form of adaptation. Jesse Keenan brought in the case of Duluth, Minnesota, as a "climigration" receiving site, which "may represent an opportunity to advance strategic, competitive economic development by and between American states, regions, and cities." Given the steep challenges ahead, innovative thinking across sectors—and hand in hand with cities—will be central to climate-adaptation success.

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QUESTIONS FOR FURTHER RESEARCH

- What is the most effective way to incorporate smaller cities into conversations about policies for climate adaptation?

- Whose knowledge and what data are governments using and talking about? Which places and populations are policymakers overlooking or excluding?

- As financing is such a critical component of adaptation and implementation, how can policymakers rapidly test and scale innovative financing models?

- Are there new or underutilized sources of funding to address these growing needs and challenges?

- How do governments make the business proposition and possibilities of addressing climate change clear and attractive?

The simultaneous trends of a changing climate and an increasingly urbanized world create complex challenges for sustainable development and successful adaptation. Cities are the victim, the culprit, and, potentially, the solution to climate change. This group of panelists tackled these issues and focused on reimagining the urban, measuring and collecting data, and approaching cities as partners. Marc Forni of the World Bank comments on the infrastructure financing gap in cities and what might be done to address it.

› Cities at the Vanguard

Community-Led Climate Action and Sustainable Development

While national governments debate and discuss how best to tackle climate change (or ignore it entirely), cities are confronting its immediate consequences. Christine Knapp, the director of Philadelphia's Office of Sustainability, moderated a discussion about how cities are responding on the ground through sustainable development strategies and turning rhetoric into action. The panel included: Andrea J. Nightingale of the University of Oslo; Steve Cohen of Columbia University; Mark Alan Hughes of the University of Pennsylvania; Tony Pipa of the Brookings Institution; and Mauricio Rodas, a Perry World House visiting fellow and then-mayor of Quito, Ecuador.

COMBATING CLIMATE CHANGE AS A DEVELOPMENT STRATEGY

Rather than approaching climate change as an environmental issue or a specific agenda of national or city governments, Rodas recommended that "every public policy should be seen as a climate change policy." According to him, cities can take the lead on community-led climate action, but this is not always easy. Cities can take on the entire U.N. sustainable development agenda, using the U.N.'s sustainable development goals as the basis for local development. While some cities may argue that they have more pressing priorities than climate change adaptation—public safety, sanitation, public transportation, clean-water provision—all of these issues also relate to climate change. To overcome the challenge of competing priorities, policymakers should mainstream climate change adaptation into all facets of local governance and approach it from an "improving services perspective," said Rodas. Moreover, cities have to make policy decisions and spend money regardless; they may as well do so in more sustainable ways.

Finally, cities often implement new ideas more efficiently and effectively than countries because they are better informed and nimbler than national governments. Cities must focus on vertical integration and develop broad and strong partnerships between the private sector, civil society, and universities. Another suggested framing was that of sustainable competition: cities already compete (with one another) for global investments, residents, and tourism, and those that are most sustainable—and best able to adapt to a changing climate—could, according to this panel, be the winners.

CHALLENGES TO CONVENTIONAL WISDOM

Existing solutions to combating climate change may be rhetorically pleasing, but cities and subnational governments face critical obstacles in practice that challenge some of the conventional wisdom. First, while many argue that cities are early adopters of best practices and that others can learn from them, their place attachment increases early vulnerability to unmanageable changes.

↑ Tony Pipa, a Senior Fellow in Global Economy and Development with The Brookings Institute, discusses the roles of cities at the vanguard of sustainable development.

In other words, some cities cannot adapt their way out of rising sea levels or other climate hazards and will have to relocate. Research should help determine exactly which cities must move and to where.

The second challenge is that cities are putting too much money into mitigation and should instead focus on adaptation. While it may not be too late for mitigation, climate adaptation should be the focus, given limited resources and given that mitigation is motivated by the idea of "local returns to global efforts," according to Hughes, and not all global efforts have been forthcoming. In addition, many experts often suggest that cities transmit their best practices through networks; however, the field is in danger of "network fatigue" with the proliferation of various city networks. Further, Hughes claimed the best network for a city to join is one that can help it face its urgent adaptation challenges and assist it in detaching from place. Finally, how policymakers and others define the problem affects the proposed solution. Leaders and experts must carefully consider the scale at which they define policymaking and who participates in those conversations. Governments should recognize and incorporate plural knowledge and understandings from different starting points at all levels of decisions and policymaking.

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QUESTIONS FOR FURTHER RESEARCH

• Can, and should, cities "detach from place" in practice? How? What are the financial costs of doing so sooner rather than later?

• How can cities anticipate and prepare for the challenges associated with climate change's inherent uncertainty?

• How can climate action become a politically successful message? How should different places frame or customize it? Is there a way to depoliticize the discourse and make it more inclusive?

• How can today's leaders develop sustainable climate policies that are resilient to changing political dynamics?

• How can cities and states marshal resources from national governments and/or the private sector to finance climate adaptation and sustainable development? How can cities and states better coordinate bottom-up and top-down policymaking?

STATE POLICYMAKING FOR CLIMATE ADAPTATION AND MITIGATION

Former Governor of Florida Jeb Bush, the Penn Presidential Professor of Practice, sat down with Deborah Amos, an international correspondent for National Public Radio, *to discuss why states are well-placed to address climate adaptation and mitigation, and why the best solutions come from outside of Washington.*

KNOW THE PROBLEM

According to Bush, the consequences of climate change are affecting states on a regular basis. Bush spoke of large tides creating floods that did not exist a decade ago, fiercer hurricanes because of warmer water temperatures, and large-scale domestic migration to areas in Florida where the environment is the most stressed. States face a challenge in managing a fragile ecosystem when the climate is changing, particularly in a state like Florida with 22 million residents and a climate with six months of rain and six months of drought. Florida's rapidly growing population exacerbates this problem; as more people move to the state, they strain its limited resources—which is then compounded by the lack of a state income tax to provide funding to address these residents' needs.

PRACTICAL SOLUTIONS

Bush acknowledged that "while climate change is something of great concern, people are more concerned about their livelihoods—economic security trumps everything else." He said, "economic development has to be a part of any climate change strategy." Despite these challenges, he highlighted the need for practical solutions developed at the state level. At both the state and local levels, significant activity is underway to respond to climate change using better planning tools, meeting long-term infrastructure needs, and modernizing the energy grid. Solar power is now economically viable, and thus distributive solar is a significant, feasible option that policymakers should scale up. In addition to longer-term commitments to the ecosystem, policymakers should modify their response processes—such as the flood insurance system—in order to change behavior.

U.S. BIPARTISAN CONSENSUS

Despite the mudslinging in Washington, D.C., climate action has historically had broad, bipartisan consensus at the state level. According to Bush, state politicians in Florida have overcome their national party positions to develop concrete responses to climate disasters. Bush acknowledged that it is not politically attractive to talk about building infrastructure to combat climate change and that selling these policies to constituents and other politicians can be difficult. Thus, he suggested that there should be funding sources available at the federal level to finance these projects, but that leaders at the state and local levels should develop the strategies from the bottom-up. "The bigger the idea, the more you need bipartisan consensus," Bush said. And the ideas for climate adaptation will need to be big.

> "While climate change is something of great concern, people are more concerned about their livelihoods— economic security trumps everything else." Bush said, "economic development has to be a part of any climate change strategy."

› NATIONAL POLICYMAKING, FOR CLIMATE ADAPTATION AND MITIGATION

CLIMATE CHANGE AS PUBLIC HEALTH

Climate change will have serious public health implications in both developed and developing countries, increasing climate-related morbidity and mortality through events such as heat waves, air pollution, degradation of water quality, and food scarcity. Unfortunately, but importantly, these effects will strike at the individual level. McCarthy noted that it is critical to mobilize individual self-interest in support of climate action. Furthermore, these effects will reverberate across societies and demographics, providing the potential to build a cross-cutting coalition and broaden the scope of involved, concerned parties. Conceptualizing climate change as a public health risk can reframe the discussion toward investment in health and in future generations, which provides a way forward from the politicized mires of the current debate.

BROADENING THE DISCUSSION

Developing public support for climate change policies is an important step in the political process, and policymakers need a new strategy for public engagement to develop a broad and motivated coalition. McCarthy exhorted broader engagement, through discussions on climate change in different contexts and in relation to various issues such as public health and clean energy transitions. The characterization of the issue as one of cost and sacrifice has not been an effective public-relations strategy, particularly when noting that the costs of renewable energy have been sharply decreasing, even in the absence of national policies to advance this. McCarthy noted that while there will likely be immediate costs of adaptation, leaders can reframe this conversation in terms of the significantly larger potential long-term costs of inaction and how such costs would be disproportionately borne by future generations.

> Conceptualizing climate change as a public health risk can reframe the discussion toward investment in health and in future generations.

△ *Gina McCarthy, the director of the Harvard Center for Climate Health and the Global Environment and the former administrator the U.S. Environmental Protection Agency, discussed her experiences with national responses to climate change with Robinson Meyer of* The Atlantic. *McCarthy detailed her efforts to implement climate policies at the Environmental Protection Agency during the Obama administration and the potential threat that the current administration poses to the longevity of these moves. She focused on the potential utility of a public health framing to generate public support and investment in climate change responsiveness.*

› Engagement Plan

TURNING IDEAS INTO ACTION

Turning ideas into action is key for Perry World House, and essential for effective, urgent climate responses. Politics presents a significant barrier to actionable change, with politicians not seeing electoral incentives for taking action. In some cases, policymakers see climate action as electorally disadvantageous. According to Rodas, "we need to market climate change" in a politically appealing way such that everyone understands and acknowledges the imperative to act. Right now, some local politicians see addressing climate change as a luxury; that narrative must change in order to address climate mitigation and adaptation. Framing climate change policies as improving people's lives will make it more politically palatable. Mayors are key to this; thus, raising their awareness about climate threats and demonstrating successful marketing strategies are essential to turning ideas into action at the city level.

To do this, cities need both technical and financial support. Technical support includes measurement and project preparation: What are the main sources of emissions in a particular region? How can technologists customize progress to each local community? How will the city plan, finance, and monitor success? Financing also remains a major challenge for cities. Policymakers must redesign the international financial architecture with funds dispersed to cities for specific climate initiatives. Revised regulatory frameworks may help with climate financing.

Finally, local communities are best-positioned to identify their problems and propose solutions, but their voices are not always heard. Communities are often skeptical of new government policies; many marginalized communities may mistrust local officials and, in some cases, the international community. Climate activists must build specific connections with these communities and establish consensus around issues that are most important to the local population.

Many important open questions and issues remain in the realm of climate change and action. Areas that require further investigation:

- What does a sustainable development approach to climate change look like?

- How can various disciplines—from earth and environmental sciences to economics to human geography to psychology—help to understand, communicate, and enact effective climate policy?

- What local, national, and/or international policies are necessary to address the challenges presented by climate-induced migration?

- What can policymakers do to ensure that such policies do not disproportionately affect the world's most vulnerable populations? What are the main roadblocks to implementing these policies?

- How can governments at all levels promote community resilience, especially in the wake of displacement?

- How does the academic community grapple with the vast uncertainty around potential climate change scenarios, particularly regarding developing and sustaining a research agenda with continued policy relevance?

The recent Intergovernmental Panel on Climate Change (IPCC) report provided devastating statistics that overwhelmed many around the world with regard to climate action. Given the IPCC's estimate that we must reduce global carbon-dioxide emissions 45 percent from 2010 levels by 2030, the world has only eleven years to make significant changes. We are already behind, and the actions needed to halt the trends are aggressive and unprecedented. Slowly, it seems more leaders around the world, along with their populations, are recognizing and accepting the problem. That is the first (albeit extremely late) step, but now the world must act.

Despite the discouraging data and the constant reporting of climate-change-induced extreme weather events around the world, there are reasons to be hopeful. Cities and local governments are stepping forward to lead mitigation, adaptation, and resiliency efforts. They are engaging in new forms of city diplomacy to connect horizontally, city to city, and vertically, among the local and the international levels. This multilevel governance and coordination across and among the local, state/provincial, regional, national, and international actors is producing optimistic results. Private actors and civil society are also creatively reimagining current structures, institutions, and regimes to help tackle these immense challenges.

Climate change respects no academic disciplines and knows no borders. Solutions require a coordinated and integrated exchange across diverse expertise from policymakers, scholars, politicians, the private sector, nongovernmental organizations, and local populations. Given the interdisciplinary nature of this challenge, the 2019 Perry World House Global Shifts Colloquium, "A Changing Climate, A Changing World: Policy Challenges and Opportunities in Migration and Urbanization," generated a wealth of ideas, boundless excitement, and clear actions to be pursued in academia, government, and other policymaking realms. Now, these communities must continue to take collective action to enact policy solutions to stop the harmful interactions of climate change, migration, and urbanization and move toward a better world.

As a global policy research center at the University of Pennsylvania, Perry World House (PWH) advances interdisciplinary, policy-relevant research on the world's most urgent global affairs challenges.

To learn more about the vision for Perry World House, please visit **global.upenn.edu/perryworldhouse**.