

D I A L O G U E

FEDERAL LEADERSHIP FOR RELOCATION OF COASTAL COMMUNITIES

SUMMARY

More severe storm surges and rising sea levels along the coast of the United States pose a threat to coastal communities, infrastructure, and ecosystems. The Biden Administration has proposed to develop a framework to support communities that express interest in relocating their homes and businesses to higher, safer ground. On July 26, 2023, the Environmental Law Institute hosted a panel of experts from academia, nonprofit organizations, and federal agencies that explored principles and policies the federal government may adopt as it develops a national framework for relocating coastal communities. Below, we present a transcript of that discussion, which has been edited for style, clarity, and space considerations.

Jeff Peterson (moderator) is a Visiting Scholar at the Environmental Law Institute and Co-Facilitator of the Coastal Flood Resilience Project.

Micah McMillan is a Senior Analyst in Natural Resources and Environment with the U.S. Government Accountability Office.

A.R. Siders is an Associate Professor of Public Policy and Geography at the University of Delaware.

Linda Shi is an Assistant Professor at Cornell University's Department of City and Regional Planning.

Gary Griggs is Professor of Earth and Planetary Sciences at UC Santa Cruz.

Jeff Peterson: Our goal today is to provide an overview of the challenges the federal government faces as it works to provide a framework for programs and policies to support relocation of coastal communities. This work is called for in the Joseph Biden Administration's new Ocean Climate Action Plan,¹ which addresses coastal resilience generally, but also includes several actions for federal agencies specifically addressing the topic of relocation.

I'll provide a short introduction to the problem of coastal flooding and rising seas. Each panelist will then give a short presentation describing his or her work on climate change and coastal management, including relocation. Then the panelists will respond to some general discussion questions. Finally, we'll take some questions from the audience.

Before I introduce our panel, I want to summarize the key points to keep in mind. The Atlantic Coast, Gulf of

Mexico, and the Pacific Coast are home to more than 100 million Americans. The population living right along the coast, at about 33 feet of elevation, is expected to double by 2060 to more than 44 million.

Climate change poses a significant risk to coastal communities through the combined impact of more severe storms bringing temporary flooding, and permanent inundation from rising seas. These storms and rising seas also threaten coastal ecosystems, beaches, and wetlands, as well as major critical infrastructure assets that provide essential services, such as transportation, energy, and water. Coastal storms are a major risk to life and property. They can deliver surges of more than 15 feet of high water. A warming climate is causing an increase in number of the strongest storms that bring more extensive coastal flooding, higher storm surges, and increased rainfall.

The National Oceanic and Atmospheric Administration (NOAA) recently issued new estimates of future sea-level rise, concluding that the rate along the coast is accelerating and likely to rise as much over the next 30 years as it has over the past 100. Sea-level rise averaging as high as 1.7 feet around the coastline is possible over this next period to 2050. That's in the high scenario and could reach as much as two feet in some places, such as the western Gulf of Mexico. By 2100, NOAA projects levels will rise about four feet, on average, in their intermediate scenario, with an average increase as high as seven feet being possible. Finally, the sea level will continue to rise for centuries, even after 2100.²

1. OCEAN POLICY COMMITTEE, OCEAN CLIMATE ACTION PLAN (2023), https://www.whitehouse.gov/wp-content/uploads/2023/03/Ocean-Climate-Action-Plan_Final.pdf.

2. WILLIAM V. SWEET ET AL., GLOBAL AND REGIONAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES (2022), <https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html>.

More severe storms and rising seas bring economic, environmental, and social disruption to coastal communities, and it will be at an unprecedented scale. All or parts of hundreds of coastal communities will face far more extensive flooding than they currently experience. The combination of more severe storms and rising seas is projected to result in potential losses of coastal property running into trillions of dollars. Many low-income and disadvantaged communities are among those in harm's way. These communities are disproportionately affected by climate change, including sea-level rise and extreme coastal weather events, and often lack the resources to respond to these risks.

Three strategies to address coastal storm flooding and rising seas are widely recognized: (1) structural protection—in other words, bulkheads and seawalls; (2) elevation—in other words, raising structures and supporting infrastructure above flood waters; and (3) relocation—in other words, moving people, structures, and supporting infrastructure to higher, safer ground. Structural protection and elevation strategies have been applied in many cases to protect homes and communities in response to temporary storm flooding.

Relocation involves movement of structures, and is generally considered more controversial but a better solution to the permanent inundation that comes with rising seas. The Intergovernmental Panel on Climate Change (IPCC), in its Sixth Assessment, concluded that “[o]nly avoidance and relocation can remove coastal risks for the coming decades, while other measures only delay impacts for a time, have increased residual risk or perpetuate risk and create ongoing legacy effects and *virtually certain* property and ecosystem losses”³

In the new Biden Ocean Climate Action Plan, which addresses coastal resilience generally, there's also some attention to this topic of relocation and several specific actions for federal agencies to undertake. The plan calls for federal agencies to support community-driven relocation demonstration projects; to develop an approach for sharing governmentwide resources and information to support community-driven relocation effectively; and to align policies across agencies to support socially cohesive community-driven relocation by developing programs that provide incentives and support communities interested in relocation.

The Ocean Climate Action Plan identifies federal agencies to lead this work and general time frames. The White House Council on Environmental Quality is directed to play a key role in coordinating the work of these agencies.

This discussion gives experts from diverse disciplines an opportunity to provide suggestions and other input that federal agencies and others might find useful as they begin implementing the relocation-related tasks identified in the Ocean Climate Action Plan. I'm delighted to be joined by an expert panel with deep knowledge of these challenges.

3. IPCC, CLIMATE CHANGE 2022: IMPACTS, ADAPTATION, AND VULNERABILITY. CONTRIBUTION OF WORKING GROUP II TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 478 (Hans-Otto Pörtner et al. eds., Cambridge Univ. Press 2022).

Micah McMillan is a senior analyst on the Natural Resources and Environmental Team at the U.S. Government Accountability Office (GAO), where he's worked since 2004. Micah's work focuses on climate change, water infrastructure, and the impacts of energy production on water quality. Recently, he has written reports on climate resilience and migration of communities.⁴

A.R. Siders is faculty in public policy and geography at the University of Delaware, a core member of the Disaster Research Center, and director of the Mangone Climate Change Science and Policy Hub. She studies climate adaptation ethics, creativity, and relocation as an adaptation response. She was a contributing author to the latest IPCC assessment report and to the National Climate Assessment.

Linda Shi is an assistant professor at the Cornell University Department of City and Regional Planning. She studies how urban land governance practices and policies shape climate vulnerability, and the equity impacts of climate adaptation responses. She chairs the Task Force on Climate Action for the Association of Collegiate Schools of Planning.

Gary Griggs is a distinguished professor of earth and planetary sciences at the University of California, Santa Cruz, where he has taught for 55 years. His research, teaching, and writing focus on natural hazards and coasts both in California and globally. In recent decades, his work has emphasized climate change and sea-level rise, how these are impacting coastal nations, cities, and populations around the planet, and responses to these challenges.

Micah McMillan: For those of you who are unfamiliar with GAO, we're an independent, nonpartisan legislative branch agency that provides information to the U.S. Congress and the general public on ways to improve the efficiency and effectiveness of the federal government and to help save taxpayer money.

I'm going to give a brief overview of GAO's work on climate change and disaster resilience. Every two years, GAO issues the High Risk List, which is a list of federal programs and activities that are high risk due to their vulnerabilities to fraud, waste, abuse, and mismanagement, or the need for information.⁵

Federal fiscal exposure to climate change was added to this list about a decade ago, and initiated much of our work reviewing the federal role in enhancing the nation's climate resilience. GAO's work on climate resilience examines the federal government's role as the leader of a strategic plan, as the owner and operator of the infrastructure, as the insurer

4. GAO, GAO-20-488, CLIMATE CHANGE: A CLIMATE MIGRATION PILOT PROGRAM COULD ENHANCE THE NATION'S RESILIENCE AND REDUCE FEDERAL FISCAL EXPOSURE (2020), <https://www.gao.gov/products/gao-20-488>; GAO, GAO-20-24, WATER INFRASTRUCTURE: TECHNICAL ASSISTANCE AND CLIMATE RESILIENCE PLANNING COULD HELP UTILITIES PREPARE FOR POTENTIAL CLIMATE CHANGE IMPACTS (2020), <https://www.gao.gov/products/gao-20-24>; GAO, GAO-23-104557, CLIMATE CHANGE: OPTIONS TO ENHANCE THE RESILIENCE OF AGRICULTURAL PRODUCERS AND REDUCE FEDERAL FISCAL EXPOSURE (2023), <https://www.gao.gov/products/gao-23-104557>.

5. See GAO, *High Risk List*, <https://www.gao.gov/high-risk-list> (last visited Sept. 13, 2023).

of property and crops, as a provider of technical assistance to decisionmakers, and as a provider of disaster aid and resilience assistance.

Our recommendations related to climate resilience generally fall under two categories: mainstreaming and creating new institutions. Mainstreaming is integrating climate changes through resilience in federal programs and operations. As far as creating new institutions, it's generally designed to address large-scale projects like climate migration that pose challenges larger than any one agency can handle.

In 2019, we also published the Disaster Resilience Framework to help federal agencies and policymakers identify actions that can facilitate disaster risk reduction and climate change resilience, and also analyze existing federal efforts to identify gaps or opportunities for improvement.⁶ The framework emphasizes three key principles: access to authoritative and understandable information that can help decisionmakers identify current and future risks and the impact of risk-reduction strategies; integrated analysis and planning that can help decisionmakers take coherent and coordinated resilience actions; and incentives to make long-term forward-looking risk-reduction investments more viable and attractive among competing priorities.

When we started our work in late 2018 on climate migration, we only identified a handful of communities that have actively considered climate migration as a resilient state strategy. From these communities, we selected Newtok, Alaska; Santa Rosa, California; Isle de Jean Charles, Louisiana; and Smith Island, Maryland, based on geographic and demographic diversity as well as the diversity of potential climate impacts.

At the time, only Isle de Jean Charles and Newtok had decided to move forward with relocation because their climate threats were considered imminent and existential. For example, Isle de Jean Charles has lost around 98% of its landmass since the 1950s due to sea-level rise, storm surge, unsustainable oil and gas production practices, and other factors.

And at the time of our report, the Denali Commission projected that Newtok would be uninhabitable within the next few years due to thawing, permafrost, and coastal erosion. By late 2022, storms had eroded roughly 40 additional feet of land between the Ningliq River and the community school. Our report found that federal programs provide limited support to climate migration efforts because they are generally designed to address other priorities.

Because no federal agency has the authority to lead federal assistance for climate migration support, efforts have been provided on an ad hoc basis. As a result, federal programs don't have the scope, scale, and level of continuity necessary to assist communities with migration efforts.

Also, little is known about how federal programs should be changed or if new programs should be created to assist

communities with migration. Based on GAO's previous work on project management, best practices, and recommendations from the National Mitigation Investment Strategy, pilot programs can be an effective tool to test new policies and assess lessons learned before scaling them up to the national level.

As a result, we recommended that Congress consider establishing a pilot program with clear federal leadership to identify and provide assistance to communities interested in relocation. Since the report was issued, the Biden Administration has also created a Community-Driven Relocation Subcommittee to examine the federal role in assisting with climate migration and relocation.

Our report also identified some key factors to consider for decisionmaking on climate migration. The first is community-led planning. Socioeconomic, cultural, and political connections to a geographic region may be strong, making it difficult to consider migration as a resilience strategy. Community-led groups that facilitate effective strategic planning can expedite progress and build public support for climate migration.

Also, moving the entire community requires technical expertise that many local communities do not have. The overall cost to these communities can be prohibitive. And communities will need to pool federal, state, and local funding from programs with differing requirements and selection criteria. In addition, funding decisions are often made by different agencies at the federal and state levels, often with differing priorities, while zoning and planning decisions are made at the local level. Whether a community decides to remain in place or relocate, there needs to be coordination and agreement across all levels of government.

One thing we noticed was the difficulty in providing services in both the prior community and the location where the community's being relocated to. Generally, it's caused by a loss of revenue, which can impact the community's ability to provide basic services as it migrates. It also impacts the receiving community's ability to develop the capacity to provide services to the migrating population. This was a particular concern in low-income areas similar to Newtok and Isle de Jean Charles. As communities relocate, they will need to be in a position to provide basic services in both the receiving and migrating communities.

As we start thinking about this on a more strategic level, we're going to need to consider how we can integrate climate migration with other climate-resilience policy needs, including governmentwide climate change strategic planning, development of a national climate information system, expanded use of climate change economics for decisionmaking, and a mechanism for prioritizing climate-resilience investments. GAO recently released a report, *Climate Change: Summary of GAO's Work on Federal Climate Resilience Projects*,⁷ that provides a good overview of this.

6. GAO, GAO-20-100SP, DISASTER RESILIENCE FRAMEWORK: PRINCIPLES FOR ANALYZING FEDERAL EFFORTS TO FACILITATE AND PROMOTE RESILIENCE TO NATURAL DISASTERS (2019), <https://www.gao.gov/products/gao-20-100sp>.

7. GAO, GAO-23-106362, CLIMATE CHANGE: SUMMARY OF GAO'S WORK ON FEDERAL CLIMATE RESILIENCE PROJECTS (2023), <https://www.gao.gov/assets/830/826889.pdf>.

Finally, we recently issued two reports examining the federal government's support to help Alaskan native villages address environmental threats and the distribution of financial aid for COVID through COVID-19 emergency release to tribes.⁸ We identified a number of barriers to accessing federal programs, including several barriers relevant to climate migration and disaster resilience.

The first one is that consolidating applications, deadlines, and reporting requirements, and waiving cost-sharing, helped improve tribal access to federal programs. Providing federal agencies with statutory authority to transfer funds to other agencies that had established relationships with the communities helped streamline delivery of federal support and assistance. Additional spending flexibility and longer spending time frames helped communities better address their specific needs, leading to more efficient use of limited federal funds. Sustained federal and interagency coordination that spans administrations is critical to effective long-term planning for climate resilience and migration. And expanded federal technical assistance is particularly important to help communities that lack technical and administrative capacity to navigate federal programs and requirements.

A.R. Siders: I want to start with two provocations. First, as we're addressing this question about relocation and the role the federal government should play, I think we should keep in mind why it is a federal responsibility.

I want to reflect on that because I think there are a lot of different types of relocation happening across the United States. We should be clear about the types and why different types would require different forms of government intervention and different structures. The relocation of entire tribal communities has a very different structure to it than the relocation of a neighborhood in New York City or a rural community away from a river. So, we need to think differently about how that is going to work.

I work a lot with rural communities who are thinking about moving away from a river. In most cases, residents are moving maybe not even five miles.⁹ They're moving within the state, within the same county, within the same school district. It's all about state roads, state schools, state land use policies. So the role for the federal government is going to look very different in this kind of relocation.

As a side note, when we think about the word "relocation," for example, it requires, in my mind, both moving from somewhere and to somewhere else. Most of what the United States does in reaction to giant risks is to help

people move away from a floodplain. But we don't help them decide where to move to or always provide support for that move. That's actually a big challenge with the way we are doing relocation or retreat in the United States. That's one of the reasons I say "retreat" rather than "relocation." We're spending a lot of time on the "from" and not as much time on the "to," with the exception of the tribal community relocations that Micah was just describing and that are ongoing.

So, the federal government could get involved if the people involved have sovereignty, as in the tribal context, or if the "from" and "to" sites cross state lines, or if the funding required is at a level that overwhelms state and local resources to support relocation. And yet, the point at which the federal government should engage and the way it should engage remains contentious. The Congressional Research Service puts this as: "[I]t is generally agreed that the government should help disaster victims in time of need, [but] it is debatable whether the fiscal responsibility resides primarily with the federal or the state government."¹⁰ Positions on this debate change over time, and it's an active debate occurring right now.

The second provocation is to think about how the climate relocation or climate-induced relocation, disaster-induced relocation we're discussing here is different from other types of relocation. Or whether it is different. What should we be learning from those other types of relocation? What is unique here and therefore needs a different set of governance tools?

The U.S. Department of Housing and Urban Development (HUD) has in the past run a Moving to Opportunity program to explore the consequences of moving from high-poverty to low-poverty neighborhoods.¹¹ It's running a Moving to Work program right now.¹² These programs have nothing to do with climate or floods, but what lessons still apply in a climate context? Other types of relocation have occurred without any government support, and we should be asking what lessons we can learn from that context too.

I recently took a trip in Pennsylvania to see towns that have been abandoned—where people relocated and moved—because the industry closed, a dam burst and flooded the town, or the government bought out the residents and repurposed the land. One of my favorite old examples from the United States, from the 1800s, is Niobrara, Nebraska. It billed itself as the "town too tough to stay put."¹³ Actually, it moved twice: once in the 1880s and again in the 1970s. So again, relocation is not new.

8. GAO, GAO-22-104241, ALASKA NATIVE ISSUES: FEDERAL AGENCIES COULD ENHANCE SUPPORT FOR NATIVE VILLAGE EFFORTS TO ADDRESS ENVIRONMENTAL THREATS (2022), <https://www.gao.gov/products/gao-22-104241>; GAO, GAO-23-105473, COVID-19 RELIEF FUNDS: LESSONS LEARNED COULD IMPROVE FUTURE DISTRIBUTION OF FEDERAL EMERGENCY RELIEF TO TRIBAL RECIPIENTS (2022), <https://www.gao.gov/products/gao-23-105473>.

9. Nationally, see James R. Elliott & Zheyang Wang, *Managed Retreat: A Nationwide Study of the Local, Racially Segmented Resettlement of Homeowners From Rising Flood Risks*, 18 ENV'T RSCH. LETTERS 064050 (2023), <https://iopscience.iop.org/article/10.1088/1748-9326/acd654/pdf>.

10. BRUCE R. LINDSAY, CONGRESSIONAL RESEARCH SERVICE, R42702, STAFFORD ACT DECLARATIONS 1953-2016: TRENDS, ANALYSES, AND IMPLICATIONS FOR CONGRESS 31 (2017), <https://crsreports.congress.gov/product/pdf/R/R42702/13>.

11. HUD Office of Policy Development and Research, *Moving to Opportunity*, <https://www.huduser.gov/portal/mto.html> (last visited Oct. 3, 2023).

12. HUD, *Moving to Work Demonstration Program*, <https://www.hud.gov/mtw> (last visited Oct. 3, 2023).

13. History Nebraska, *Niobrara: A Town Too Tough to Stay Put*, <https://history.nebraska.gov/niobrara-a-town-too-tough-to-stay-put/> (last visited Oct. 3, 2023).

The question then is, how can we do this better? That's why we should have conversations like this one today. Relocation has happened throughout history in many different ways, and we should keep in mind those lessons learned so that we can do better in the future than we have in the past. Better at supporting people, their agency and choice, their outcomes, and the justice of the whole process.

I'll note that the federal role in many past relocations was nothing or next to nothing. The federal role in the Niobrara example was to ignore a request to move the post office until five months after the relocation had happened. Relocations in Brighton Beach, New York, in the 1880s were privately funded, as was the relocation of homes on Long Point Cape Cod in Massachusetts—they floated their homes to the mainland.¹⁴ Relocation was primarily a state and local responsibility.

We see a shift in the early 1900s and in 1950, the Disaster Relief Act created the first permanent source of funds for disaster aid.¹⁵ In the 1970s through the 1990s, we see more federal engagement, with funding for relocations such as Valmeyer, Illinois; Pattonsburg, Missouri; Soldiers Grove, Wisconsin—towns that have relocated away from primarily rivers in the United States.¹⁶ (One reason we think about “climate” migration rather than “coastal” migration is because there's a lot of riverine flooding happening here.) Even then, the federal role was still fairly minimal. The mayor of Valmeyer, Illinois, talked about having to work with 25 different state and federal agencies to make that relocation happen.¹⁷ So there's definitely room for that coordination to happen better, and potentially for federal agencies to provide guidelines or lessons learned.

An example in the opposite direction is in Winslow, Nebraska, where residents want to relocate due to flooding, because people are moving on their own without any support in an unmanaged retreat. But the state of Nebraska does not authorize local governments to relocate. So, what role is there for the federal government to play? Should it intervene to support resident interests? Or respect state decisions?

And then we get buyouts, of course, which are retreat but not really relocation since they rarely involve both a “to” and a “from.” Still, I don't want to undersell them because they are a big program in the United States. Between the Federal Emergency Management Agency (FEMA) and HUD, they have funded buyouts in every single state in

the United States. The numbers work out to be almost one in three counties in the United States that have bought homes in a floodplain. So this is something that the United States has lots of experience with, but lots of experience that we are not talking about and that we are not learning from.¹⁸ And notably, although federal agencies provide funding, the actual buyout program is administered by the state or county or town.

I love that we're having this conversation about what federal agencies can do, but I don't want us to forget that the states also play a really big role and probably should play a larger role in future relocations. These days, everyone looks to the federal government. Disasters happen, and everyone looks to FEMA. But in many cases, disasters aren't federally declared disasters. They are supposed to be handled by the state or the local government, and if they are not being handled by the state or the local government, then maybe that means federal governments should handle an even broader range of disasters. On the other hand, maybe we should be pressuring state and local governments to handle disasters that do not rise to the level of a federally declared disaster.

Between 1960 and 1969, the United States had an average of 18 federally declared disasters a year. But in the 2000s, we had an average of 57 federally declared disasters a year.¹⁹ If those were spread out evenly throughout the year, we would have more than one major disaster declaration a week. According to the Congressional Research Service, those numbers are often much higher than 50 per year.²⁰ Climate change and development are driving that increase, but so is an increasing reliance on federal aid. Two local governments I recently interviewed told me that they have no funds or mechanism to help people after a disaster, so if the flood doesn't receive a federal declaration, the residents get no assistance whatsoever.

There is a figure from one of the GAO reports Micah was mentioning that really explains why we need more of this retreat conversation.²¹ It shows that between 2009 and 2018, FEMA money has helped about 43,000 households mitigate their repetitive flood loss—properties that are flooded over and over and over again. But over that same time period, there are 64,000 new repetitive flood loss properties, so the problem is getting worse over time. We are not doing enough, and we are not doing enough of the right things to handle this risk or to reverse that trend. This is one of the reasons we talk about retreat, because retreat is the major way that 83% of those 43,000 households have been helped, through relocation, through buyouts, or other acquisitions. We need to do something drastic to make those numbers come down.

14. Wikipedia, *Long Point (Cape Cod)*, [https://en.wikipedia.org/wiki/Long_Point_\(Cape_Cod\)](https://en.wikipedia.org/wiki/Long_Point_(Cape_Cod)) (last visited Oct. 3, 2023).

15. Institute for Building Technology and Safety, *Legislative History of the Role of the Federal Government in Disaster Assistance*, <https://ibtsonhand.org/resource/legislative-history-role-federal-government-disaster-assistance/> (last visited Oct. 3, 2023).

16. See Nicholas Pinter, *True Stories of Managed Retreat From Rising Waters*, ISSUES SCI. & TECH. (2021), <https://issues.org/true-stories-managed-retreat-rising-waters-pinter/>; see also Nicholas Pinter, *The Lost History of Management Retreat and Community Relocation in the United States*, 9 ELEMENTA: SCI. ANTHROPOCENE 00036 (2021), <https://online.ucpress.edu/elementa/article/9/1/00036/118392/The-lost-history-of-managed-retreat-and-community>.

17. Dennis M. Knobloch, *Moving a Community in the Aftermath of the Great 1993 Midwest Flood*, 130 J. CONTEMP. WATER RSCH. & EDUC. 41 (2005), <https://openuic.lib.siu.edu/cgi/viewcontent.cgi?article=1070&context=jcwr>.

18. Alex Greer & Sherri Brokopp Binder, *A Historical Assessment of Home Buyout Policy: Are We Learning or Just Failing?*, 27 HOUS. POL'Y DEBATE 372 (2017), <https://www.tandfonline.com/doi/abs/10.1080/10511482.2016.1245209>.

19. See LINDSAY, *supra* note 10.

20. *Id.*

21. GAO, GAO-20-509, NATIONAL FLOOD INSURANCE PROGRAM: FISCAL EXPOSURE PERSISTS DESPITE PROPERTY ACQUISITIONS 24 fig.6 (2020), <https://www.gao.gov/assets/gao-20-509.pdf>.

Today, because we are talking about what the federal government can do, I decided to go back to the basics. I went to Eugene Bardach and Eric Patashnik's *A Practical Guide for Policy Analysis* and their table of "what governments do." Governments manage taxes and regulations. They handle rights. They work on subsidies and grants. They provide services. They provide information and education. And frankly, the federal government could be taking action in all of the above categories. This is not a comprehensive list by any means. But there is a role for the federal government in every single one of these levels to think about relocation.

One big area to think about is how the government provides incentives for state and local action. There's no financial incentive for state and local governments to take action and to do something much more radical about mitigating risk in the long term, because right now there's far more emphasis on recovery than on mitigation. How can we remove the financial disincentives to encourage local and state action? Another question is how the federal government can streamline its processes to get out of the way of state and local governments so there aren't 25 agencies that have to be coordinated with, so there aren't duplicate papers being submitted to HUD and FEMA on the same program to provide the same process. How can we streamline those processes?

Then, there are other things in terms of building capacity. We often think about building capacity at the state and local levels, and that is absolutely needed. I argue it's particularly needed at the state level because of the role of the state government in providing technical assistance to local communities. I don't think it's feasible to ask FEMA or HUD or the U.S. Environmental Protection Agency to work with every single community in the United States. I think it makes far more sense for them to work with states, and then for states to work with their local governments and be able to tailor programs to them in that way.

But there's also a big need for federal agencies to build their own capacity. There have been a number of times that I've heard local governments or state governments complain that the person they're working with at a federal agency does not understand the Uniform Relocation Act or has applied it inappropriately, for example. And then they have to spend eight months of lawyers getting involved to find out that, yes, the federal person was wrong because they didn't understand the technical issues involved.

People get these things wrong all the time. It's a complex area. But building capacity can also mean that if someone is going to provide technical assistance or grant oversight at a federal level, they need to understand the laws and the technicalities that go into that, because otherwise they are a block to the process as well. Often, agencies presume that someone with expertise in one type of grant program can transfer that to another grant program, but relocations involve a number of specific regulations around housing and community that require more technical expertise. Building that expertise in federal agencies would help them provide better technical support and oversight to state and local governments.

Also important is sharing practices and lessons learned. There is a FEMA document from 2011 that contains 160 examples of towns that have relocated neighborhoods, towns that have done buyouts, towns that have done acquisitions and created green space.²² They're just one- or two-pagers on what they did and whether it worked or not. I wish there were much more of an evaluation there, and a lot more of those shared lessons learned. Because almost no one knows about or uses those examples or leverages them or learns from them, and I think that's a real shame. There's a huge effort that will be needed to learn from what 1,200 communities have done with buyouts,²³ or what they have done in terms of community relocation.²⁴ Right now, we are reinventing the wheel every single time, and that has to stop.

Finally, I would like to suggest that what we really need for a framework for federal support for community or state relocation is some wildly ambitious goals—putting-a-man-on-the-moon-level ambitious goals. Our ambition level can't be, how do we maintain the status quo that we have today and spend the least amount of money to deal with climate change? It has to be something very different. Currently, we are not addressing the scope of the challenge ahead of us. We are fiddling around in the margins, and we need to do something much bigger. That starts with what wildly ambitious adaptation or hazard mitigation would look like in the United States. Until we have an answer to that, I think we are never going to hit the mark of where we need to be. That is the first and biggest challenge: to have a wildly ambitious goal.

Linda Shi: If I put forward a wildly ambitious goal, at least from a governance perspective, I would say that the federal government really needs to issue a national climate adaptation strategy as part of that, a national spatial adaptation strategy. Can the federal government just make some of the land use changes? At the federal level, we don't have land use powers and controls. So, in this context of a very federated, deconcentrated government, it is very challenging to put forward some of these big, ambitious strategies because our land use is fragmented by states and then also by sectors.

There are some really tough questions that we are not yet asking because maybe we don't have the political will to ask them. Yet we have the climate science on the one hand and the realities of how we're governing on the other.

22. See FEMA, MITIGATION BEST PRACTICES: PUBLIC AND PRIVATE SECTOR BEST PRACTICE STORIES FOR ACQUISITION/BUYOUTS ACTIVITY/PROJECT TYPES IN ALL STATES AND TERRITORIES RELATING TO FLOODING HAZARDS (2011), <http://nhma.info/uploads/bestpractices/2011%20-%20Best%20Practices%20-%20Acquisitions%20Buyouts.pdf>. For more up-to-date examples, see FEMA, *Mitigation Best Practices*, <https://www.fema.gov/emergency-managers/risk/hazard-mitigation-planning/best-practices> (last updated Sept. 9, 2021).

23. Katharine J. Mach et al., *Managed Retreat Through Voluntary Buyouts of Flood-Prone Properties*, 5 SCI. ADVANCES aax8995 (2019), <https://www.sciencemag.org/doi/10.1126/sciadv.aax8995>.

24. See Pinter, *True Stories of Managed Retreat From Rising Waters*, *supra* note 16; see also Pinter, *The Lost History of Management Retreat and Community Relocation in the United States*, *supra* note 16.

Even though our National Climate Assessments tell us very difficult facts, we don't then act on the full implications of those facts.

When the National Climate Assessments tell us about sea-level rise in coastal communities or the increasing heat that we've seen this summer or the wildfire risk and the drought and their implications on food security, on water supplies, on human habitability—those have direct implications for where we can live and grow and sustain life and food systems in the future of this country. But that doesn't yet translate into what we can really do, so even that is a spatial question. Spatially, what can we do? What is the future of this country? And then also temporally, what does that mean for our country?

The Biden Administration has done more on this than any other administration. We have these sectoral plans. But all these plans in the end land in a specific place. We don't have any strategy that tells us where and how we as a country will grow. The U.S. Department of Energy, the Bureau of Land Management, FEMA, HUD, and the U.S. Department of Transportation are all saying something different. What happens when these policies all land in a specific place, a particular community? As a planner and as a professional that thinks about space, that's a really fundamental question that I would like us to consider.

There are moments in the past where there were major federal interventions, and while the federal government doesn't control land use per se, it shapes land use through infrastructure, such as the Interstate Highway System. The federal government has done the New Deal. It has done urban renewal. And urban renewal, for instance, was chiefly a policy that was a Cold War response. I think many of us have forgotten this now, but it was to deconcentrate our cities in case a nuclear bomb was dropped on one of these cities. So, the policy aimed to deconcentrate cities and create the Interstate Highway System and create suburbs so that we were not all in one place. The government had this incredible imagery, renderings of the day after a Hiroshima bomb is dropped on top of New York City, that depicted what the rubble would look like. How much would it be felt in different radial circles?

So, that was a plan. We have these moments in the past where the federal government has undertaken leadership and through its existing authorities implemented very large initiatives at a very rapid pace. But those initiatives have never really been in support of sustainability or equity. We can talk some more about some of these, like tribal relocation programs and how devastating those are. Yes, we have had relocation instances, but very often they are not equitable. The challenge now is, how do we do better? How do we actually achieve this scale of the challenge that builds in sustainability and equity and justice as the basis of that?

Our chief approach, as far as I can see in the Biden Administration and in the Ocean Climate Action Plan, is that we are saying it will be equitable if it is community-led and that's how we are going to achieve fairness and justice. I think that is such an important approach because so many big federal interventions in the past have been problematic. But it is far from the only thing that the fed-

eral government can do in order to achieve justice. I would argue that if we only enable local community-led efforts, we would actually not be helping communities achieve that goal because there are many other actions that influence community well-being and equity outcomes.

For instance, as Siders noted, it is impossible to talk about retreat without talking about where you want to advance toward. On that, the federal government and state governments have abdicated that particular land use role and vision. That means that private entities, the market, is very much filling that space. When you talk to insurers, lenders, bond rating agencies, and speculative developers, they are very much modeling where the safe and most resilient places would be that we can go.

That, as Jesse Keenan has written, is a complete black box.²⁵ We don't know what standards and metrics go into that or how trustable those standards are. But they fundamentally are going to shape the entire environment in which local governments can bond to make investments. The price of housing, how much your mortgage is going to be, whether you can obtain insurance and for how much—that is a national- and international-scale effort that if we do not address and intervene in is going to affect all communities, including disadvantaged communities.

Using the controls that the federal government has, how should it think about where it deploys infrastructure investments and subsidies of all sorts across all of these different sectors? Where do we want to grow in the long term? What is that going to look like if we want to sustain life in Arizona, Texas, and California? What is that going to entail? Can we do that if we build enough seawalls? If we don't build bigger seawalls or dams, what is going to happen? These are things that science can help us answer, but they are fundamentally going to be not only science-related questions, but political and policy-related questions.

In terms of infrastructure policy, we need to be thinking about where we want to grow and have a spatial perspective. Right now, our trillion dollars of federal investments are not necessarily spatially connected. If a local government applies with a very thoughtful application for a grant, it is eligible to get that, whether or not that investment means creating a bulkhead or other things that are not sustainable in the long term. Should the federal government care and have an opinion on this? That is part of where federal choices and policies are going to shape local planning and policy.

A lot of attention has been paid to individual household-level migration choices. Research published this year by Jim Elliott and Zheyang Wang showed that for those who have taken a buyout, on average they move eight miles.²⁶ That is a very localized outcome that's going to affect local land use.

But if we're talking about business relocation, then that is the main driver of where people choose to live for jobs.

25. Jesse M. Keenan, *A Climate Intelligence Arms Race in Financial Markets*, 365 *SCIENCE* 1240 (2019), <https://doi.org/10.1126/science.aay8442>.

26. Elliott & Wang, *supra* note 9.

At what point are there going to be businesses that say, I need sufficient water and a secure climate in order to maintain a supply chain and work force? Where are we planning the future of development growth? In the past, we have steered development in different ways—to the Sunbelt, to the West, to the South. That is also something where we are not currently thinking in spatial terms.

The chief thing around equity and justice is housing. Climate justice is about housing justice and access to affordable and safe housing. This is clearly an area where, at the federal level, we need to demonstrate greater integration between these agencies if we are expecting local and state governments to do the same, so HUD and FEMA, Fannie Mae, Freddie Mac, all of their policies. There is much more opportunity to understand just how much housing stock we are talking about potentially being impacted.

How much is climate change going to exacerbate existing affordability crises? What kinds of housing are we going to be losing, including naturally affordable housing or subsidized housing? How much more are we going to produce, in which types of places, in what forms? Should it be cooperative housing? Should it be mobile homes? Should it be community land trusts? How can we do that in ways that are actually equitable and just?

I'll close with three things that I think are essential for the federal government to achieve on these issues. One is to pay attention to the private sector and what it is doing, and then make sure that a public perspective or a justice-centered perspective is part of the conversation. We have so many people advocating for justice, and then we have completely separate conversations behind closed doors for the big FIRE industries—finance, insurance, and real estate sectors—that control basically how we do development in this country. They are not at all having the same conversation. So, how can the federal government actually bring those voices together in order to push and advocate for justice-centered and community-centered approaches to some of these fiscal, financial policies?

Second, some of the conversations we're having now about retreat are going to have a really devastating effect on local governments and communities if we simply withhold infrastructure funding. At a very basic level, at any metropolitan scale, there are municipal governments that are very land-constrained and tax-constrained. If we want them to make different choices, we need to be incentivizing their ability to make governance changes to the kinds of tax policies they have, such as town mergers. New Hampshire is the only state that has allowed town mergers and different kinds of consolidation due to coastal sea-level rise. Is that the kind of thing we want to incentivize and encourage creativity in as we roll forward a trillion dollars of money for infrastructure?

Finally, as Siders noted, there is a need for institution-building. Already it is very obvious, with a trillion dollars flowing out, that municipalities, local governments, and states are struggling to deal with so much additional funding. In order to do that in a way that is creative requires long-standing institutions that can develop relationships with each other and that can learn over time. Where we've

seen buyout programs, that have been standing programs rather than something that develops only after a federal disaster declaration, we see that they are able to implement much more thoughtful and effective policies.²⁷ Even then, they are still struggling in certain areas.

With the 2021 Building Resilient Infrastructure and Communities (BRIC) funding, 4% went toward capacity-building, and 87% went toward actual implementation.²⁸ If we want people to do better work, we need to actually invest in creating integrative, collaborative institutions at federal, state, and local levels in order to do that work.

Gary Griggs: First, sea-level rise is real. It's now and it's everywhere.

These problems go way beyond Miami, and we've got issues of sea-level rise in every city and county around the West Coast, the East Coast, the Gulf Coast, and globally. The Pacific Coast has some different issues than the Atlantic and Gulf Coasts in part because our coastline has a very different geologic history. We've got cliffs and bluffs that are eroding, but we also have low-lying areas. So, we have two different kinds of issues here.

Over the short term until probably at least mid-century, whether it's the East or the West Coast, we're going to have more problems with short-term extreme events. On the East Coast, it can be hurricanes. On the West Coast, it can be high tides, El Niño events, and high tides combined with large waves.

If we look at the options we have for sea-level rise, it's mitigation, adaptation, or suffering. We're already doing some of each. The more mitigation we do, like greenhouse gas emission reductions, the less adaptation and suffering will be required.

Jeff listed a few options in the beginning. I'm going to use a few different ones. One of them is to ignore or deny sea-level rise. This is a position that has been taken by some individuals and some states. Over time, this is not going to be very effective, to say the least. We now have really good records of sea-level rise over 150 years, and also know that it's accelerating.

Along the Atlantic Coast and the Gulf Coast, rarely on the West Coast, beach nourishment has been a primary way of dealing with shoreline retreat and sea-level rise. This is very expensive and very short-lived. If we look at the history, particularly the Atlantic Coast from New Jersey to Florida, we have put in well over 1.4 billion cubic yards of sand since the 1930s at a cost of \$11.5 billion. Florida in particular has had more than 500 nourishment projects totaling the equivalent of 33 million dump truckloads of sand. Fifteen different beaches have been nourished more than 15 times each, and Palm Beach has added sand 51

27. Linda Shi et al., *Equitable Buyouts? Learning From State, County, and Local Floodplain Management Programs*, 174 CLIMATIC CHANGE 29 (2022), <https://doi.org/10.1007/s10584-022-03453-5>.

28. FEMA, *Building Resilient Infrastructure and Communities FY 2021 Subapplication and Selection Status*, <https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities/after-apply/previous-subapplication-status/fy2021-status> (last updated May 19, 2023).

different times.²⁹ This may tell us that it's not working very well, but we keep doing it, and a strong recommendation here is to get the U.S. Army Corps of Engineers (the Corps) out of the business of nourishing and renourishing beaches. This is a short-term and very expensive solution.

The approach along much of the West Coast and areas along the Atlantic Coast is armor, whether it's seawalls, revetments, or bulkheads. This is also very expensive and has major shoreline impacts. Every seawall or revetment has its limits. We learned that in New Orleans with Hurricane Katrina. You can only build a wall so high, and with future sea-level rise, those heights are going to be exceeded. Every engineering structure has its lifetime or its end point.

Recently, the Corps proposed a number of major walls around coastal cities.³⁰ How it selected these cities, I do not know. How it selected these projects, I do not know. These are multibillion-dollar projects. I think this raises some really important questions. Why is the Corps the one deciding this? How did it decide which cities to protect and which sections of cities? How much protection will it provide over how long? Who's going to pay for it? Do people want to live behind these barriers? And what other options should we consider, and what other federal and state agencies should be involved in this process?

Those are the three options historically that we've used. In the long run, it's important to recognize that there's absolutely nothing we can do over the long term to hold back the Atlantic or the Pacific Ocean. Everything we've talked about so far is very temporary. In the long term, we have to adapt. We can mitigate, but we are going to have to adapt because we're not very quickly going to stop sea-level rise from occurring. Whatever we call that—managed retreat, managed realignment, community-led relocation—ultimately, we're going to have to move back from the shoreline. We cannot stop the oceans from rising anytime soon.

Cities have never had to deal with sea-level rise before. As human civilizations evolved, the coastline was a good place to build, and we went from villages to towns to cities to megacities. In the United States today, there's about 13 million people living within six feet of high tide. That's a level we could reach by 2100, and it's the same globally. Only there's far more people living very close to sea level, very close to high tide.

I believe responding or adapting to sea-level rise will be the greatest challenge human civilizations have ever had to deal with. And if we look at the amount of sea-level equivalent contained in the ice of the planet, there's about 216 feet. We do not need 216 feet, however, to create disasters along the shoreline, as visualized by Climate Central's *Surging Seas Risk Zone Map*.³¹

29. Western Carolina University, *Beach Nourishment Viewer*, <https://beachno.wcu.edu/> (last visited Oct. 3, 2023).

30. Gary Griggs, *For Flood-Prone Cities, Seawalls Raise as Many Questions as They Answer*, CONVERSATION (June 23, 2021), <https://theconversation.com/for-flood-prone-cities-seawalls-raise-as-many-questions-as-they-answer-162587>.

31. Climate Central, *Surging Seas Risk Zone Map*, <https://ss2.climatecentral.org/> (last visited Sept. 5, 2023). The map allows a user to enter a global coastal

place and then to visualize from one foot to 10 feet of sea-level rise above high tide.

For example, with five feet, which we could reach easily by 2100, San Francisco International Airport goes underwater. It actually starts to happen at about two feet. It is now considering a 10-mile-long seawall. Hopefully, that would provide protection until about 2070 or 2080. It's going to cost about \$550 million.

Most of our airports around the United States were built out in the water or over the water because that's where the land was available. We don't need all that ice to melt, but at the rate we're going, it's going to happen fairly quickly. This is a common concern for our coastal airports around the country.

It's one thing to move a village, to move a town, to move a few houses. But when we look at places like Miami or these airports around the country, how do we accommodate sea-level rise? How do we deal with three feet or five feet of sea-level rise when we look at places like Miami Beach?

As far as recommendations regarding these issues for the federal government, one is to completely restructure the National Flood Insurance Program (NFIP) to have premiums reflect actual risk. This has been something that's evaded every administration because of political pressures. This is still a highly subsidized program that goes into debt virtually every year. We have to end that. The private insurance companies have realized this, and are now no longer going to ensure properties in high-risk areas. We need to get the Corps out of the business of nourishing beaches at very high cost but very short life-spans.

And in terms of the walls that have been proposed around big cities, we need to get other federal agencies involved—like NOAA and the U.S. Geological Survey—to look at the science behind the wisdom of building these walls, and how long they'll last, and who's going to pay for them.

To the degree the federal government has a role beyond those that have already been discussed, rather than assisting neighborhoods to retreat or realign, the most appropriate priorities would be public infrastructure. These are high-cost situations that serve many people—airports, railways, highways, wastewater treatment, and so forth.

Buying out coastal homes, in my view, is going to involve astronomical costs, because in many cases these homes are owned by wealthier individuals and are often second homes. I'll give you an example of one community on the sand in California: Malibu. This is not where we should be spending federal tax money, so I think this is not a priority for the federal government.

Finally, we have to think about what's really involved in the short term and long term, which is mitigation. Understand that sea-level rise, climate change, and burning fossil fuels are intimately connected. The longer we wait to respond, the more difficult, the more damaging, and the more expensive it will be.

Jeff Peterson: We have a couple of questions we're going to share among the panelists to get their impressions and reactions. The question I'd like to start with is one that is raised in the IPCC report's quote on relocation, which mentions the notion of avoidance as a strategy, meaning avoiding further development in places subject to coastal flooding and sea-level rise. That would have the effect of helping to reduce the number of structures that ultimately need to be relocated at a future date when there's an inundation problem.

Do you all agree that avoidance should be part of all relocation discussions? And do you have suggestions for the federal government as to how it might help states and local governments to steer new development to places that are not at risk of flooding and rising seas?

Gary Griggs: I agree completely. While all the discussion has gone on about what the federal government's role has or has not been, I think by making the NFIP financially viable, this becomes a really important issue. We don't want to encourage more development in full flood-prone areas because we're just going to have to bail them out again and again.

Jeff Peterson: Let's take another question. The discussion so far has mostly been on communities, homes, and businesses. But, of course, the coast has critical ecosystems, beaches, wetland systems, and lots of major infrastructure that provide services that people rely on that's really at risk. Gary mentioned airports in particular. It's one good example of major critical infrastructure that's often found in low-lying places.

So far, we haven't seen a lot of coordination between thinking about how we manage retreat or relocation of homes and buildings on a community scale. And I wonder how this might be coordinated with the same sort of thinking about how we protect the beach or the wetland that's nearby. How do we protect the interstate highway, the airport, the water system, or other major infrastructure? Do you have thoughts about how the federal government could encourage a more coordinated look at how relocation would affect not just communities, but ecosystems and infrastructure?

Linda Shi: My colleagues and I just wrote a paper that looks at the way we think about that question with respect to buyouts.³² Buyouts are the chief policy, at least on the FEMA end. It's really to reduce fiscal risk and protect human health. It's to reduce the liabilities for the NFIP and to get people out of harm's way. There is nothing in there that says the program is actually trying to create resilient, healthy communities and landscapes.

I think a chief thing is that if that's what we want to get, then that needs to be what the policy goal is actually

stated to be and then have everything move toward that. A lot of BRIC funding still cannot be used for post-buyout restoration, and a lot of buyout funding cannot be used for restoration efforts. You have these programs that reduce property tax rules and then ask local governments with their reduced capacity to be in charge of restoring landscapes. That's just something that is unlikely to happen. As well with a lot of buyout programs, the implementation unit is often not one that is able to understand or is not familiar with restoration efforts.

There's a divide at the local level as well between those who are dealing with land use permitting, housing development, and the risk reduction of flooding, and then site restoration. And there is no requirement to do this work of coordination or support to build the capacity to do so. As I said, we need institutions that are all talking together and working together to make something that allows us to do that.

There's a lot of opportunity in changing the policy framework at the national level and institutions at the local level so that we actually do create that as a possibility. Because one could also imagine that we think of it as being people and land—they're just healthy separately. But actually when you look at any place that is doing well, people and their landscapes, their health and their cultures and their well-being, are really integrally tied. Whether it's Indigenous or non-Indigenous places, people have place attachment, people have ties to place.

If you were to create a program that says, we have a vision for what we want to restore toward, what we want to go toward, your sacrifice of leaving is going to make it something that is going to be more beautiful and healthier. And when you move, on average eight miles away, if you want to still be part of the stewardship and care of this place and maintain ties to it, you can. That could be something that encourages more people to participate in something that right now is very much about loss, sacrifice, and harm.

One instance of that is when Carri Hulet and colleagues did a lot of interviews with people who actually did move away, and almost everyone they interviewed came back to the places that they moved away from.³³ They care about what happened there, and even if not restoring a site wouldn't have changed their decision to take a buyout, it certainly helped them heal to see that this land was moving ahead in a good way. I think there's a lot of room for integration there.

Jeff Peterson: One topic that a number of you have touched on is the challenge of environmental justice. Relocation strategies, like other coastal flood-resilience strategies, can be poorly implemented and result in unfair treatment of disadvantaged communities or homeowners.

Are there steps the federal government can take to strengthen social justice aspects of relocation projects? You

32. Linda Shi et al., *Integrating Social and Ecological Considerations in Floodplain Relocation and Restoration Programs*, 5 SOCIO-ECOLOGICAL PRAC. RSCH. 239 (2023), <https://doi.org/10.1007/s42532-023-00152-y>.

33. Clmigration, *Innovations in Buyout Workshops*, <https://www.climigration.org/innovations-in-buyouts> (last visited Oct. 3, 2023).

often hear mentioned problems with cost-benefit analysis and the way it's applied sometimes in coastal projects. For example, should the focus be less on high-value property and more on people?

A.R. Siders: It's a huge effort that right now would require some congressional change in the language, because most federal agencies are required to think about cost-effectiveness in certain ways, but I think it's worth pursuing.

I'll say one alternative that Louisiana has been pursuing in its coastal master plan is moving from an estimated annual damage—dollars of damage that it's projecting out—toward an estimate of a number of structures and types of structures that will be damaged. So instead of saying, let's build a levee where there will be a billion dollars of damage, it's saying, let's build a levee where there will be a million people. That's at least slightly more equitable in terms of how we are thinking about that.

In some places, it doesn't matter because if you have a dense urban area, it probably fulfills both of those criteria. But in other places, you'll see a difference whether it's a dense population, like a residential neighborhood, or a business district. Having that difference, I think, is important. I offer that as one nice step moving ahead.

Then, of course, there are developments that have been happening in the cost-benefit analyses themselves, about environmental benefits, including equity and things like that. But I think there's a lot more to be done here in terms of thinking about it progressively. And I think moving away from property damage dollars is probably a good start, to the extent that agencies can, and then pushing Congress where they can't.

Micah McMillan: I want to add that the technical assistance piece is going to be critical here. It's not even developing stronger economic tools that build in climate change considerations and risks. It's getting away from this sort of pay-to-play with a lot of the federal programs and finding a way to create the capacity to make those accessible. Because right now, and this is more systematic across the entire government, not just in this space, it's very, very difficult for most of these communities to take advantage and to pool the resources they need to do these big projects. Until that changes, we're going to struggle. It's going to require some pretty massive statutory changes.

A.R. Siders: We did a project recently where we talked to 30-some buyout practitioners.³⁴ They're running relocation programs across different states and whatnot. I will say that every single one of them had a waitlist for people who wanted to be bought out and haven't been bought out, who actively want to be out.

We always talk about the people who don't want to leave and are being forced out, and we should be really concerned

about them. We should also be really concerned about the people who want out and are not able to get out because they are being forced to be exposed to floods over and over and over again or to face massive economic challenges.

All of these practitioners also told me about towns nearby where people wanted buyouts, but that they were unable to do so because they lacked the local capacity. They didn't have a planner who could handle the grants. They didn't have a local match to cover the cost. They didn't have whatever it took to get involved in that relocation. That's just for buyouts, which are the low-hanging fruit.

Community relocation requires so much more engagement, so much more effort. If you don't have the capacity to apply for an existing program to get funding for buying up one, two, 10 homes, you certainly aren't going to have capacity to deal with a whole community relocation.

And my sense from these practitioners is that the appetite for relocation—from residents and towns—is actually larger than we think in many places. We don't know exactly how much larger because we have no systematic way to gather that information. But what is clear is that we don't have the infrastructure to meet the appetite that we already have, much less what's coming.

Micah McMillan: You're exactly right. I think that's the whole thing. We're trying to pool resources from programs that are already spread thin. They can't meet the demand that's already there. I think about it in the water infrastructure space in particular. There are the Drinking Water and Clean Water State Revolving Funds. They have massive backlogs of projects to meet their missions under the Safe Drinking Water Act (SDWA)³⁵ and Clean Water Act (CWA).³⁶ In many cases, these backlogs don't include projects that address forward-looking climate change considerations, such as moving or hardening drinking water and wastewater infrastructure. We're talking about basic environmental goals set out in the CWA or the SDWA.

Jeff Peterson: Maybe a good segue from the discussion about technical support and capacity is the next audience question. On the coastal front, do any panelists have thoughts on what should be amended to the Coastal Zone Management Act (CZMA)³⁷ to address climate and equity issues raised today?

A.R. Siders: I think it's a really interesting prompt. I'm surprised often—I guess because I live in a state that's entirely coastal—how rarely we talk about the CZMA as a way to think about coastal planning or as a way to think about coastal resilience. We use it, primarily, for offshore wind or beach access or wildlife habitat. But I haven't been engaged in any conversations that are using it for resilience.

34. A.R. SIDERS & LOGAN GERBER-CHAVEZ, FLOODPLAIN BUYOUTS: CHALLENGES, PRACTICES, AND LESSONS LEARNED (2021), <https://udspace.udel.edu/handle/19716/30164>.

35. 42 U.S.C. §§300f to 300j-26, ELR STAT. SDWA §§1401-1465.

36. 33 U.S.C. §§1251-1387, ELR STAT. FWPCA §§101-607.

37. 16 U.S.C. §§1451-1466, ELR STAT. CZMA §§302-319.

Linda Shi: I think this is a great question, too. I don't know the CZMA well enough, but I've read Caitlin Dyckman's paper, which assessed all the coastal states.³⁸ There's such a variety. Even though all these states are participating in the CZMA, they adopt really a wide range. So, apparently the CZMA allows different states quite a great deal of latitude.

For instance in Florida, you can build anything. If you want to do beach renourishment or build a bulkhead, you can. In much of New England, a lot of that is not permitted. I think beach nourishment is one of the things that most states actually allow. So there's a great deal of variation.

Maybe not subsidizing or not investing in infrastructure and not providing federal funding can be hugely powerful. Siders often says before you retreat, stop advancing in the wrong direction. I think that that's a key act and inaction on the federal government's part.

Micah McMillan: Linda's right. I think that we have to get out of the business of being enablers. That starts with ensuring that the NFIP and Federal Crop Insurance Program are helping their clients become more resilient and not exacerbating existing climate vulnerabilities.

A.R. Siders: I agree on that. Yes, stop going in the wrong direction. But these actions (or decisions not to act) also raise really important equity considerations. Some of the questions today have considered deep, deep problems about equity that we are not, as a country, prepared to address.

For example, the relative merits of relocating a vulnerable group. On the one hand, you don't want to target vulnerable groups or organizations or relocate them or displace them. On the other hand, there are inequities involved in maintaining vulnerable populations in areas that are known to be vulnerable and known to be hazardous, where they're going to experience repetitive flooding and the long-term wealth inequity problems that come with that. We don't have a good systematic way to think about those issues, or to deal with them, or to engage or support communities who are making those decisions.

There's a lot of work to be done here on the explicit equity implications of divesting, not investing, or investing in different areas, all of it. And part of that is going to be making equity and justice really explicit parts of the conversation.

Jeff Peterson: There's a question following up on the equity question. There's a perverse thing going on when homes are damaged by, for example, a hurricane and people move away. Eventually, the property values go up. Developers build bigger and fancier homes at the same spot, driving up the property value. That should be prohibited. How can we deal with that?

Linda Shi: I think it first depends on which agency is funding the relocation or the buyout program. For FEMA buyouts, you cannot build on that again unless it's for minor recreational uses. But if it's a HUD buyout, then you can rebuild on it. The HUD one actually also requires that it take place in certain limited income, low-income areas, so that gentrification effect is particularly likely.

Sometimes, localities or states don't want to lose the tax dollars, such as New York City (NYC) putting forward the Build It Back Better program after Superstorm Sandy. The FEMA program was intended to relocate people permanently. Then, Mayor Michael Bloomberg said, New Yorkers don't retreat. So, the NYC program that he put forward did allow people to rebuild. It can be very confusing to have different policies on this front.

The Biden Administration's Justice40 program emphasizes putting 40% of some protective infrastructure funding in the 40% most socially and environmentally vulnerable communities. Unfortunately, that can also contribute to gentrification effects because now you're living in a place that is much more resilient, at least in the short term, and the property values will likely go up as well.

We haven't seen too many studies empirically proving this point. There are a few studies that try to measure the effects of that. We haven't seen it quite play out, but that's just the understood dynamic.

The question then is, what can we do to prevent that? The problem is (1) there is not enough affordable housing, (2) that wages are too low so that people can't afford any housing that is out there, and (3) the ways in which we own land, which is single individuals, does not allow disadvantaged communities to have the powers of scale and collective response to withstand market pressures.

Evidence is clear that community land trusts and cooperative housing are very effective in countering gentrification. But those kinds of housing systems are not well supported in any of our legal, institutional, or financial lending policies and insurance policies.

For instance, the Stafford Act explicitly says that it cannot be used to support the collectively owned parts of co-ops and condos. So, you can fix the inside units of your building. But in terms of your elevator, your basement, your parking, your exterior, the Stafford Act would not support that.

These are basic things that I think the federal government could certainly change. Past legislative efforts that have tried to change that have failed.

Jeff Peterson: There's a question on the recent FEMA proposal for identifying disaster zones. Any thoughts or perspectives on how the new FEMA program for community disaster resilience zones may affect community relocation and retreat? Anyone have thoughts on how the disaster zones might affect retreat?

A.R. Siders: I don't know. On the one hand, identifying any places particularly at risk could contribute to relocation or retreat, because it could further depress housing prices, because it could inform people about their risk

38. Caitlin S. Dyckman et al., *Realizing Managed Retreat and Innovation in State-Level Coastal Management Planning*, 102 OCEAN & COASTAL MGMT. 212 (2014), <https://doi.org/10.1016/j.ocecoaman.2014.09.010>.

level. On the other hand, this is going to be based on the National Risk Index from FEMA, which already exists. So, in theory, that risk identification has already taken place.

The designation seems to be areas that will get priority access to funding. But it's unclear to me whether that means funding for relocation or funding for anything: for elevations, for nature-based strategies, for armoring. So, I don't know yet, because I don't have a good enough sense about what funding sources they will get access to.

Jeff Peterson: I think we all look forward to seeing how FEMA chooses to respond to all the comments and where it goes with its guidance for implementing the risk zone idea.

A.R. Siders: One thought on that. I think sometimes there's a hesitancy to identify places as being particularly at risk because there can be pushback that it will depress property values, or that it might lead people to want to move away or not live there. I think that might be true.

On the other hand, I want us to think carefully about what that means. Because the more we tell people about the risk, the more we are being honest with them so they can choose what level of risk they want to accept or can accept. The alternative is that we purposely conceal information that we think would be critical to their housing choices in order to artificially increase property values.

I want to be really clear about that. When we choose not to disclose risk because we're concerned about property values, we are, in effect, lying to people in order to maintain property values. That should be a real concern.

Micah McMillan: Long-term viability of certain communities needs to be a consideration moving forward. If a community is no longer going to be viable 25 or 50 years down the road, then we need to start having hard discussions about how federal and state funding is used in those locations. Some may see it as callous, but it's also callous not to help communities plan for the harsh realities of climate migration before it's too late.