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A Climate Equity Agenda Informed by Community Brilliance

With every heat wave and flood, the failure to translate climate science into insight and action puts the health and well-being of people in vulnerable communities at risk. Intentional partnerships between residents, scientists, government, industry, and philanthropy can fix this disconnect.

In the summer of 2009, Ms. Jones was living in a small apartment on the 18th floor in one of the few high-rises in the city of Detroit. Although it was difficult to maneuver her walker and her portable oxygen tank into the residential elevator, she was able accomplish the feat—and get outside—daily. Her apartment was cooled by one inefficient window air conditioning unit. On really hot days, it seemed like turning on that unit made her apartment even warmer, making it hot and hard to breathe. On those days Ms. Jones worried that the high temperatures and poor infrastructure would lead to an electrical blackout. When she lost electricity, Ms. Jones had no way to cool her medications and the elevator stopped running. Then, struggling to breathe, she would be forced to descend the stairs on foot, lugging her oxygen tank.

In 2019, in another Detroit neighborhood, an elderly couple decided to downsize by moving to a modest home that was near a canal connected to the Detroit River. Just in front of their new home stood one of the Regional Water Authority's massive pumping stations, taking up the length of a city block. After a few months of residence, an intense rain—the severity of which city officials attributed to climate change—caused the waters of the canal to rise, travel across the street behind their home, and fill their basement. That was the first flood. The city denied accountability, even though the neighbors agreed that the temporary flood protection system erected by the city had failed. After that came a second flood. When the third flood arrived, it was not only rain but sewage that backed up into their basement. The couple waded through the water both times, not realizing it was hazardous, which led to health complications. In December 2020, the fourth flood came from a fresh water main break. And then in June 2021, the fifth flood occurred, this time completely filling the basement to the ceiling with water. The elderly couple is my parents.

There was nothing unpredictable about the way the devastating impacts of climate change piled on top of failing infrastructure, poor planning, and structural racism to threaten the health of Ms. Jones and my parents, more than 10 years apart. Extreme heat remains responsible for more severe weather-related

deaths in the United States in an average year than any other hazard, with flash flood fatalities following closely, according to the National Oceanic and Atmospheric Administration (NOAA). Yet even with decades of data, state-of-the-art tools and prediction technologies, and clear signals that the impacts of climate change pose a threat to public health, there is still a major disconnect that is allowing these very solvable issues to disrupt the health and well-being of low-income communities and people of color across the United States.

This disconnect has been exacerbated by decades of structural racism, which has been cultivated by policies of redlining and planning that have excluded the expertise of those who live in the area. With every weather disaster, failure to translate climate science to insight and action puts many people at risk—but the most significant damage is done to communities whose needs and knowledge are perpetually ignored or given insignificant weight by scientists and policymakers. To fix the disconnect, intentional partnerships between communities, scientists, government, industry, and philanthropy will be essential.

I first saw the potential of connecting science to action clearly during the summer of 2009, when I spent many days with Ms. Jones for my research on extreme heat in Detroit as a hazard for the older Americans who spend a large percentage of their time at home. Ms. Jones and I frequently talked about heat stress and how she had fought with the landlord of her subsidized senior housing building to get an apartment on the first floor to accommodate her multiple medical conditions and challenges. Unfortunately, Ms. Jones's words were not enough to change the landlord's mind and heart. By using the indoor temperature data that we collected from her 18th-floor apartment that summer, the two of us were able to articulate the connection between heat and health to her landlord—and ultimately, Ms. Jones was able to move.

For me, observing Ms. Jones's successful move was better than getting published in any peer-reviewed publication, and the experience represented the value of climate science beyond the numbers and models. Together we demonstrated how climate science (including indoor temperature readings, ambient readings from satellites, historical temperature data, and death records), coupled with partnership and advocacy, could enable us to transform policy and practice.

To center human health and well-being as climate change affects vulnerable communities will require overcoming the many disconnects that now block change. Currently, people who hold the power to influence decisions, lead research investigations, and direct financial resources must engage more deliberately with the most impacted communities in order to develop an informed understanding of the priorities within these communities. Private industry, government, philanthropy, and academia need to align and synchronize their agendas to take intentional actions to fill the gaps and create changes that lift people and communities out of harm's way.

My parents' case provides an illustration of how a lack of coordination of resources harms a community. It was well-known that flooding was a likelihood near the pumping station, but beyond the temporary flood prevention system that failed after the first flood my parents experienced, no other preparations or preventative measures for that event or the subsequent floods were taken. A systemwide lack of investment and deferred maintenance of the existing water infrastructure (both fresh water delivery and sewer) caused the floods, but the disruption and injustice did not end there. The lack of public health intervention during and after the crisis caused the double exposure of flood victims to sewage water and to the resulting mold that flourished in basements after the floods. And, as is common after many climate disaster-related crises, displaced flood victims were not guaranteed temporary shelter. They were, however, subjected to a complex compensation process at local, state, and federal agencies.

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This problem of resources, data, and evidence being available but not aligning with or translating to addressing vulnerable communities' needs is not unique to my parents' neighborhood in Detroit. I've repeatedly seen this pattern in my work across sectors: as a chemical engineer in private industry, as a public health engineer for a state's department of the environment, as a researcher in academia, and as the director of federal policy for WE ACT for Environmental Justice. These gaps need to be addressed through strong cross-sector

Table 1. **PROPOSED MULTI-SECTOR ROLES TO ADDRESS CLIMATE AND ENVIRONMENTAL JUSTICE GAPS**

	INDUSTRY	GOVERNMENT	ACADEMIA	PHILANTHROPY
PLANNING	Provide financial support to local governments to develop appropriate modeling for climate planning.	Use the screening tools developed by academics to prioritize and focus resource distribution.	Provide the granular data to educate industry partners on impacts and give information to government to create more comprehensive plans.	Develop grantmaking strategies & social investment strategies that fill existing gaps in the field.
DATA CAPTURE & USE	Work with academia to gather data that quantifies the layers of vulnerability in communities.	Use traditional and non-traditional data to shape policy.	Deploy students and resources to collect information to support response during a crisis.	Provide general operating support for community science.
ENGAGEMENT	Create the opportunity to hear and support action around community-generated solutions.	Convene cross-sector stakeholders, including public health practitioners.	Collect and elevate stories and voices from impacted communities to inform industry and government actions and policies.	Bring diverse leaders together to address challenges together.
SCOPING	Invest time and resources to fully understand each community's unique context.	Acknowledge existing problems and work to decrease injustice through deliberate actions.	Balance scientific climate research agendas between discovery and building relationships in the communities where they work.	Go outside the comfort zone of academic experts to gather diverse perspectives to shape funding priorities.
PEOPLE	**Inform and shape the agenda. Demand accountability. Centered in policy solutions.**			

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partnerships to drive climate adaptation and fortify the systems and infrastructure that continue to fail our most vulnerable residents.

What could an equity-driven cross-sector partnership look like? In my parents' flooded neighborhood, it would revolve around four actions. First, ensuring that the community has an updated watershed plan that is adjusted for the unique characteristics of their historic neighborhood, current residents, and existing infrastructure. Second, integrating both quantitative and qualitative data (e.g., stories from flood survivors and observers) into the plan to accurately incorporate residents' lived experiences and knowledge. Third, convening traditional and nontraditional stakeholders to cocreate a process that allows for direct feedback, continuous communication, and accountability from partners representing the public and private sector, communities, and local public health organizations. And finally, ensuring that the set of solutions is informed by the many dimensions of environmental injustices in the community so that solving for one problem does not create or exacerbate others. With collaborative and partnership-driven intentional planning, data capture and use, engagement, and scoping, stakeholders across sectors can get everyone closer to developing intersectional solutions that address the multifaceted climate injustices faced by low-income communities and communities of color.

The table above shows how those four actions can form the foundation of a cross-sector framework for coordination, alignment, and partnership between industry, government, academia, and philanthropy. For

each action, there is an activity that can be taken on by each sector. Importantly, in each column and row, the actions build on one another and, in many ways, work to eliminate the gaps that prevail today.

As these groups begin to work with each other, they should move away from the crisis mode of merely reacting to disasters. Instead they should focus on working with communities to do planning that anticipates and prevents disasters like floods and heat stress before they happen. These partnerships must strive to make climate resilience and preparedness the norm, rather than the exception.

To do such planning, actors across sectors will need to capture data from traditional and nontraditional sources, which may have different perspectives on climate threats. To make plans, engagement at the community level will be essential to forming connections with affected community leaders involved in shaping and informing decisions and crafting policy. Finally, scoping should happen continuously, so that future actions are constantly informed by the present.

bottom bar, the people. Any climate and health agenda will fail if it is not focused on the people who are made to be vulnerable to climate change and other environmental insults because of the failure of not just physical infrastructure, but social and institutional infrastructure as well. The combination of lived experience and community brilliance should shape the agenda. Communities are also excellent at standing up a robust system of accountability. Ultimately, engaging communities can lead to the creation of long-lasting policy solutions that can provide residents security and equity.

Bringing communities' lived experience to inform and shape research and policy agendas requires a deeper commitment than this framework or a few Zoom calls. Instead, diverse groups of people from across the power structure must form relationships. Relationships are characterized by trust, a deep understanding of similarities and differences, and—most importantly—they take time. Now is the time to build solid relationships that can lead to authentic

People who hold the power to influence decisions, lead research investigations, and direct financial resources must engage more deliberately with the most impacted communities.

In this way, each actor can reinforce and amplify each other's actions to support the community in question. No single industry, actor, or community can solve the climate challenge independently, and the care of the people and communities most vulnerable to climate change's impacts must likewise be a shared responsibility.

To find better solutions to climate change, more resilient infrastructure, appropriate disaster preparedness and response, and better health outcomes for Americans, it is also essential that industry, government, philanthropy, and academics assess—from an equity perspective—all actions, ideas, and solutions they propose to take. This equity analysis means bringing everyone to the table and using data and experience to determine both how to cause the least harm to communities now and how to take actions to preserve the health and well-being of generations to come. Creating the space, time, and infrastructure across multiple sectors to have these conversations is necessary—particularly to enable actors to voice concerns and take deliberate action when people get left behind.

The most important part of this figure is the

partnerships for the future, when surely more rains and heatwaves will come.

When each sector takes the time—especially at the local and state level—to define its role, to identify opportunities to fill gaps and fortify failed systems and infrastructure, and to work toward authentic partnerships, people will be able to live, work, play, and pray in an environment where everyone can prosper. And most importantly, the health and well-being of people such as Ms. Jones, my parents, and many others who have been on the receiving end of climate injustice will no longer be expendable.

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