NATIONAL ACADEMIES Sciences Engineering Medicine

ENVIRONMENTAL HEALTH MATTERS INITIATIVE

Communities, Climate Change, and Health Equity – Lessons Learned in Addressing Inequities in Heat-Related Climate Change Impacts

June 20th and June 21st, 2023 | 12:00PM – 4:00PM ET

The Environmental Health Matters Initiative (EHMI) of the National Academies invites you to register for the third workshop in series on Communities, Climate Change, and Health Equity. This workshop will focus on the Lessons Learned in Addressing Inequities in Heat-Related Climate Change Impacts. During this interactive hybrid workshop, the participants will identify key elements of "effective actions" to prevent and mitigate inequitable health risks from one of climate change's most pervasive, critical aspects–extreme heat.

This multiday hybrid workshop will convene people with lived experience, environmental health, economic, and racial justice experts, climate scientists, energy specialists, and individuals who work on sustainable planning and disaster relief. Together they will explore a diverse set of real-world challenges affecting different communities and the innovative actions being pursued to prevent, adapt to or mitigate the health consequences of extreme heat.

Your Voice Matters!
Your knowledge, insights, and experiences are important to this event! Respond to our pre-workshop questionnaire so we can add your voice to the shaping of this upcoming workshop, especially for the breakout rooms discussion – Your input will help pre-populate answers presented during the workshop.

How to access the workshop
Zoom Link: https://nasem.zoom.us/j/94983760396?pwd=eVBYK1hOL2NNeUtyYzBKRnFwTWg5Zz09
Meeting ID: 949 8376 0396
Passcode: 637470

Live Audience Participation
The public will have the opportunity to provide input and up-vote barriers and solutions. Please log in to Slido when prompted during the meeting.

AGENDA FOR DAY 1 - TUESDAY, JUNE 20, 2023

12:30pm ET

Welcome and Meeting Overview
Room #: 101

Review the goals and context of this workshop under the umbrella of the Environmental Health Matters Initiative.

Land acknowledgment

Anna C. Gunz, Co-chair, Western University and the Children's Environmental Health Clinic Ontario

Sabrina McCormick, Co-chair, Aclara Advanced Materials

12:40pm ET

Session 1: Current state of knowledge and gathering gaps in knowledge around extreme heat, health, communities, and policy. This will include keynote speakers to broadly set the stage around these issues.

Goal of the session: Set the stage broadly for our current state of knowledge around heat, health, communities, and policy.

Moderators: Anna C. Gunz, Western University and the Children's Environmental Health Clinic Ontario

Speaker Panelists:

- **David Hondula**, Arizona State University and Office of Heat Response and Mitigation, City of Phoenix
- **Rupa Basu**, California Environmental Protection Agency – Office of Environmental Health Hazard Assessment
- **Sonal Jessel**, WE ACT for Environmental Justice
- **Rev. Vernon Walker**, Tufts University and Communities Responding to Extreme Weather.

1:45pm ET

Session 2: Shared stories from participants who have aligned communities' needs while navigating policies

Shared experience through a set of stories in different geographic locations, where participants worked directly with affected populations, local communities, state governments, researchers, implementers, associations, etc. These participants will discuss their experience aligning communities' needs while navigating external expectations, policies, limiting resources, and tools with varying levels of proven efficacies.

Moderator: **Sabrina McCormick,** Co-chair, Aclara Advanced Materials

Story-tellers:

- **Cecilia Sorensen**, Committee Member, Columbia University
- **Zelalem Adefris**, Catalyst Miami
- **Jora Trang,** Worksafe, Inc.

2:45pm ET

Sessions 3: Interactive breakout rooms to identify barriers to implementation in developing solutions to extreme heat

Goals of the breakout session: Identify barriers hindering implementation, gaps in knowledge collection, or lapses in communication in effectively addressing extreme heat challenges.

Session Moderator: **Carlos Martín**, Committee Member, Harvard University Joint Center for Housing Studies

Participants will separate into breakout rooms, and, guided by specific questions, identify barriers to implementation, and start thinking about actions and actors related to the following topics:

Breakout 1: Natural and built environment, including nature-based solutions and indigenous knowledge, blue, green, and gray infrastructure, including other facilities like cooling centers, air conditioning, roads, jails, schools, shelters, transportation, and others.

Room #1 Facilitator: **Mikhail V. Chester**, Arizona State University
Room #: 101

Breakout 2: Workers and Economic Productivity, including the consequences of occupational heat exposure on indoor and outdoor workers and the impact on economic productivity.

Room #2 Facilitator: **Juanita M. Constible**, Committee Member, Natural Resources Defense Council
Room #: 103

Breakout 3: Health and Healthcare, including the mental and physical consequences of extreme heat, especially on vulnerable populations, chronic and emergency responses, and also the consequences on first responders.

Room #3 Facilitator: Anna C. Gunz, Co-chair, Western University and the Children's Environmental Health Clinic Ontario
Room #: 105

Breakout 4: Well-being/social cohesion, including the effect of extreme heat on leisure and recreational activities in addition to mental health and behavior and the sense of solidarity that leads to community resilience, social justice, and equity, through community-driven development.

Room #4 Facilitator: Alison Frazzini, Committee Member, County of Los Angeles
Room #: 106

3:25pm ET **Break – Chat Waterfall**

Chat waterfall - Audience drop in the Zoom chat ONE challenge or barrier they identify as important to consider when co-producing solutions

3:35pm ET **Session 4: Inspirational talk to remind us that identifying problems through different lenses is critical in finding innovative solutions.**

Moderator: **Mikhail V. Chester**, Committee Member, Arizona State University

Keynote Speaker: Vivek Shandas, Portland State University

3:55pm ET **Wrap-up and Adjourn**

END OF DAY 1

AGENDA FOR DAY 2 - WEDNESDAY, JUNE 21, 2023

12:30pm ET **Welcome and Meeting Overview**
Room #: 101

Review the goals of the day in the context of Day 1: Identifying Collaborative and Effective Actions

Anna C. Gunz, Western University and the Children's Environmental Health Clinic Ontario

Sabrina McCormick, Aclara Advanced Materials

12:40pm ET **Session 1: Success stories focused on cross-sector partnerships**

Goal: Though two success stories, understand what it takes to collaborate effectively to align needs and co-produce solutions that works for all, i.e., toward a common goal.

Moderator: **Daniel E. Horton**, Committee member, Northwestern University

Speakers:
- **Dana Habeeb**, Indiana University
- **Raed Mansour**, Chicago Department of Public Health

1:10pm ET **Session 2: Interactive Cross-Sectoral and Transdisciplinary Solution-building Panel Discussions with Public Participation**

Goal: Explore a pluralistic and integrated approach to arrive at a set of effective, innovative actions for addressing the identified problems and challenges related to extreme heat from Day 1.

Facilitated collaborative discussion where panelists from different sectors and participants work together to propose solutions, actors, and actions

Live interactive activity: The audience will be engaged in parallel to submit their ideas for solutions to an online platform called Slido

Moderator: **Cecilia Sorensen,** Committee Member, Columbia University

Panelists:
- **Hunter Jones**, NOAA, National Integrated Heat Health Information System
- **Vivek Shandas**, Portland State University
- **Jessica Tredinnick**, 3M
- **Rupa Basu**, California EPA – Office of Environmental Health Hazard Assessment
- **Jane Gilbert,** Miami-Dade County
- **Nikki Cooley,** Northern Arizona University, Institute for Tribal Environmental Professionals
- **Garry Harris**, Center for Sustainable Communities

2:30pm ET **Break –** Audience votes on solutions presented in the Slido platform.

2:40pm ET **Session 3: Circumventing unexpected obstacles through collaborative brainstorming**

How to promote a change of narrative?
What have we not thought about?
How can we account for uncertainties?

Moderator: **Nambi Ndugga,** Committee member, KFF Racial Equity and Health Policy Program

Room #1 Facilitator: Carlos Martín, Committee Member, Harvard University Joint Center for Housing Studies
Room #: 101

In breakout rooms, the facilitators and general audience will consider the proposed innovative and future-looking solutions that were up-voted in Slido and discussed **potential wildcards** or additional layers of obstacles that could hinder the implementation of such solutions.

The goal is to push the collective thinking toward a more resilient set of actions or implementation in the face of sudden challenges or uncertainties. Such wildcards can be a hurricane, a sudden social movement, a pandemic, a power outage, and others…

Room #2 Facilitator: **Juanita M. Constible**, Committee Member, Natural Resources Defense Council
Room #: **103**

Room #3 Facilitator: **Cecilia Sorensen**, Committee Member, Columbia University
Room #: **105**

Room #4 Facilitator: **Alison Frazzini**, Committee Member, County of Los Angeles
Room #: **106**

3:30pm ET **Break** – Chat Waterfall from the Audience. Provide actor and innovative actions.

3:35pm ET **Recap of Breakout Session 2**
Facilitators will provide key takeaways from the breakout session, including actors and actions identified during the session.

Moderators: Breakout Room Facilitators

3:55pm ET **Reflection and Closing**
The workshop co-chairs will provide their reflections on key takeaways and themes from the workshop and preview upcoming EHMI activities.

Moderators: **Anna C. Gunz and Sabrina McCormick**, Co-chairs

4:00pm ET **Adjourn**

END OF WORKSHOP

COMMITTEE BIOGRAPHIES

Anna C. Gunz is a paediatric critical care doctor at Children's Hospital, London Health Sciences Center and Associate Professor in the Department of Paediatrics, Schulich School of Medicine and Dentistry. Her primary research spans various areas of planetary health, including health monitoring of climate change and quality improvement projects in hospital sustainability, specifically nature-based solutions. She has spoken in many forums about the health effects of climate change and the necessity of healthcare facilities' to employ mitigation and adaptation strategies. Dr. Gunz is the incoming president of the Child Environmental Health Section of the Canadian Paediatric Society. Her medical degree and Post-Graduate training in Paediatrics were completed at McMaster University, with fellowships in paediatric critical care from the University of Ottawa with further training at the University of Toronto. Her undergraduate degree was in geography, focused on the ecological, social, economic, and political aspects of climate change at the University of Toronto.

Sabrina McCormick is the Founder of Resilience Entertainment. Previously, she was an Associate Professor at George Washington University Milken Institute of Public Health and a Visiting Scholar at Columbia University, Sabin Center for Climate Law, Health and Society Scholar at the University of Pennsylvania, and a Science and Technology Policy Fellow at the Environmental Protection Agency, amongst other positions. Dr. McCormick fuses sociology, public health, and filmmaking to investigate the social dynamics of environmental health with a particular focus on climate change, health, heat and inequity. She also works on climate communication, both producing/directing the creation of content and assessing its effects on audiences. She has been a member of the NASEM Climate Communication Initiative since its inception, has served as Lead Author for the Intergovernmental Panel on Climate Change, and producer on Emmy Award-winning climate documentary television. Dr. McCormick received her Ph.D. from Brown University in Sociology, and undergraduate degrees in sociology/psychology and studio arts from Wesleyan University.

Mikhail V. Chester is the Director of the Metis Center for Infrastructure and Sustainable Engineering at Arizona State University, where he runs a research program focused on preparing infrastructure and their institutions for the challenges of the coming century. He is a professor in Civil, Environmental, and Sustainable Engineering. His work spans climate adaptation, disruptive technologies, innovative financing, cybersecurity, and modernization of infrastructure management. He is broadly interested in how we need to change infrastructure governance, design, and education for the Anthropocene, an era marked by acceleration and uncertainty. He was a co-author of the U.S. 5th National Climate Assessment and contributing author to the U.N. IPCC's 6th Assessment Report. He won the American Society of Civil Engineers' early career Huber Research Prize (2017). He's an alumnus of NAE's Frontiers of Engineering (2018) and Frontiers of Engineering Education (2013) programs. He received a Ph.D. (2008) and M.S. (2005) from the University of California Berkeley, and an M.S. (2003) and B.S. (2002) from Carnegie Mellon University, in Civil and Environmental Engineering.

Juanita M. Constible is a senior climate and health advocate at the Natural Resources Defense Council with more than 15 years of professional experience in communicating about the impacts of climate change. As part of Constible's role at NRDC, she advocates for policies that support extreme heat adaptation and resilience. Her efforts are particularly focused on protecting worker health and safety from heat and integrating equitable heat preparedness into federal and state policies and programs. Constible is a member of the American Society of Adaptation Professionals. She holds bachelor's and master's degrees in biology from the University of Victoria in Canada.

Alison "Ali" Frazzini is a Policy Advisor in the Chief Sustainability Office for Los Angeles County, where she supports climate resilience and health equity by guiding policy research, advising policymaking, and coordinating cross-departmental initiatives. She previously served as Director of Take Care New York at the New York City Health Department, where she led stakeholder engagement and capacity-building for the city's health equity agenda. Across her career, she has worked with a wide range of community partners and populations that face climate risks and injustices, ranging from unhoused individuals in San Francisco, CA, to formerly-redlined black neighborhoods in Greensboro, NC, to immigrant communities in Somerville MA, New York City, and Los Angeles. Her concern for climate-related inequities traces back to her experience as a volunteer in the wake of Hurricane Katrina in 2006. She received her Masters degree in Public Health Nutrition from the University of North Carolina and her undergraduate degree from Yale University.

Daniel E. Horton is an assistant professor in the Department of Earth and Planetary Science at Northwestern University. He is a climate scientist with diverse research interests, including climate impacts, attribution of recent climatic events, air quality, and solution-focused co-beneficial initiatives. At Northwestern, he leads the Climate Change Research Group and the Buffett Institute for Global Affairs Defusing Disasters working group. Prior to Northwestern, Dr. Horton was a postdoctoral scholar in the School of Earth Sciences at Stanford University, earned his Ph.D. in geological sciences at the

University of Michigan, and obtained bachelor's degrees in atmospheric science and physics from Texas A&M and Tulane University. Between undergraduate and graduate stints, he served five years in the U.S. Air Force as a weather officer and operational meteorologist. Dr. Horton is the recipient of the NSF Faculty Early Career Development (CAREER) Award.

Carlos E. Martín is a Rubenstein Fellow at the Brookings Institution's Metropolitan Policy Program and Director of the Remodeling Futures Program at Harvard University's Joint Center for Housing Studies. Martín, a trained architect, construction engineer, and historian of technology, uses his technical training to connect on the physical quality of housing and communities—technology, workers, and environmental performance and exposures—to its social outcomes. His areas of expertise include green housing, disaster mitigation, climate adaptation, housing quality, and building codes. Current research includes studies of equity in energy-efficiency programs and climate adaptation in housing, and planning and governance for climate change. Previously, he was a senior fellow at the Urban Institute, assistant staff vice president for construction codes and standards at the National Association of Home Builders, SRP Professor for Energy and the Environment at Arizona State University's Del E. Webb School of Construction and School of Architecture, and coordinator for the U.S. Department of Housing and Urban Development's Partnership for Advancing Technology in Housing. Martín received his BSAD in architecture from MIT and his MEng and Ph.D. degrees in civil and environmental engineering from Stanford.

Nambi J. Ndugga is a Policy Analyst with KFF's Racial Equity and Health Policy Program. Prior to working at KFF she worked with the Partnered Evidence-based Policy Resource Center for the Department of Veteran Affairs (VA) at the VA Boston Healthcare System. She has significant experience working to improve health systems and health outcomes for marginalized populations both domestically and globally, with a strong focus on work in sub-Saharan Africa. In her current role she conducts research and analysis on projects that focus on the intersections of racism, discrimination, social and economic inequities, climate vulnerability, and health within the United States. Ndugga received an M.P.H. from Harvard T.H. Chan School of Public Health where she studied global health and population studies. In the Fall of 2023, she will continue her studies as a Dr.P.H. student at the Tulane School of Public Health and Tropical Medicine.

Cecilia Sorensen is the Director of the Global Consortium on Climate and Health Education at Columbia University, Associate Professor of Emergency Medicine at Columbia Irving Medical Center, and Associate Professor of Environmental Health Sciences at Mailman School of Public Health, Columbia University. Dr. Sorensen received her Doctor of Medicine from Drexel University College of Medicine and completed a four-year emergency medicine residency at Denver Health. Following residency training, she completed a 2-year fellowship in climate change and human health policy with the National Institute of Environmental Health Sciences (NIEHS). Her work focuses on the intersection of climate change and health and how policy solutions, clinical action, and education can build resilience in vulnerable communities. Recent work has spanned domestic as well as international emergent health issues related to climate change, including heat stress and worker health in Guatemala, wildfires and health care utilization in the United States, the emergence of Zika virus in Ecuador following the Earthquake of 2016, climate change and women's health in India and mortality following Hurricane Maria in Puerto Rico. She currently serves on the working group for the National Academy of Medicine's Climate and Human Health Initiative. She was an author of the U.S. Fourth National Climate Assessment and serves as a technical advisor for the Lancet Climate and Health U.S. Policy Brief. She is the co-editor of the textbook Climate Change and Human Health: From Science to Practice.