

**Committee for Utilizing Advanced Environmental Health and
Geospatial Data and Technologies to Inform Community Investment:
Meeting 1 (Virtual) – February 13th, 23rd & 24th
Contents of Briefing Material for Public Use**

Contents of Briefing Materials for Public Use

Meeting 1

1. Agenda
2. Speaker Biographies
3. Committee Roster
4. Committee Members Biographies
5. Statement of Task

Committee for Utilizing Advanced Environmental Health and
Geospatial Data and Technologies to Inform Community Investment:
Meeting 1 (Virtual) – February 13th, 23rd & 24th
Agenda for Public Open Sessions

Meeting 1 Agenda (all times listed in EST)

Day 1: Monday, February 13th, 2023

1 pm – 2 pm **Closed Session**

2 pm – 4:30 pm **Open Session – [Public Zoom link](#) –**

Note to presenters: you will receive your own panelist link

2:00 pm Welcomes and Introduction

2:05 pm Introduction to Climate and Economic Justice Screening Tool (CEJST)
Natasha DeJarnett, *Deputy Director of Environmental Justice Data and Evaluation*

2:35 pm Clarifying Questions from Committee for CEQ

2:45 pm Break

3:00 pm Orientation from Sponsor
Cecilia Martinez, *Principal Advisor, Bezos Earth Fund*

3:25 pm Clarifying Questions from Committee for Sponsor

3:35 pm General Discussion Between Committee and Sponsor

4:00 pm Opportunity for Public Comment (*Advance Registration Required*)

- Email Oshane Orr for advanced registration at oorr@nas.edu
- Public comment registration closes at 11 am EST, February 13th
- Members of the public will be called on in the order that they registered and have 2 minutes to provide their comments. At the end of 2 minutes, the next commentor will be called.

4:30 pm End of Open Session

4:30 pm – 5 pm **Closed Session**

End of Day 1

Day 2: Thursday, February 23rd, 2023

| | |
|-----------------------|--|
| 11 am – 1 pm | <i>Closed Session</i> |
| 12:45 pm | Panelists (committee and speakers) log into Zoom for tech check |
| 1 pm – 3:45 pm | <i>Open Session – Public Zoom link</i> Written public comment can be submitted through Alchemer during the meeting – link to be provided in session |
| 1:00 pm | Welcomes and Introduction |
| 1:10 pm | CDC’s Environmental Justice Index (EJI) Explorer Benjamin McKenzie , <i>Epidemiologist, CDC</i> Sharunda Buchanan , <i>Director, Office of Priority Projects, Innovation and Environmental Justice, CDC</i> |
| 1:30pm | Clarifying Questions from Committee for CDC |
| 1:35 pm | EPA’s EJScreen: Environmental Justice Screening and Mapping Tool Tai Lung , <i>Environmental Protection Specialist, US EPA</i> Matthew Lee , <i>Environmental Protection Specialist, US EPA</i> |
| 1:55 pm | Clarifying Questions from Committee for US EPA |
| 2:00 pm | Break |
| 2:20 pm | Panel Discussion Benjamin McKenzie , <i>Epidemiologist, CDC</i> Sharunda Buchanan , <i>Director, CDC</i> Tai Lung , <i>Environmental Protection Specialist, US EPA</i> Matthew Lee , <i>Environmental Protection Specialist, US EPA</i> Lucas Brown , <i>Senior Advisor for Justice40 at CEQ</i> |
| 4:00 pm | End of Open Session |
| 4 pm – 5 pm | <i>Closed Session</i> End of Day 2 |

Day 3: Friday, February 24th, 2023

| | |
|------------------------|---|
| 10:45 am – 5 pm | <i>Closed Session</i> Meeting Adjourns |
|------------------------|---|

Committee for Utilizing Advanced Environmental Health and Geospatial Data and Technologies to Inform Community Investment

Meeting 1 Speaker Information

February 13th, 2023

Dr. Natasha DeJarnett serves as Deputy Director of Environmental Justice Data and Evaluation at the Council for Environmental Quality (CEQ). Additionally, Natasha is an Assistant Professor in the Division of Environmental Medicine at University of Louisville and a Professorial Lecturer in the Environmental and Occupational Health Department at George Washington University.

Dr. Cecilia Martinez is the Principal Advisor for Resilience and Communities at Bezos Earth Fund. Cecilia joined the Earth Fund after serving as the Senior Director for Environmental Justice at the White House Council on Environmental Quality in the Biden Administration. In this role, she helped to establish a whole of government approach to equitable climate and environmental policy.

February 23rd, 2023

Benjamin McKenzie is a Geospatial Epidemiologist and Coordinator of the Environmental Justice Index at CDC/ATSDR.

Dr. Sharunda Buchanan is the Interim Director for the Environmental Justice at the Department of Health and Human Services. Prior to her work with HHS, Sharunda provided leadership and oversight of CDC/ATSDR's work in environmental justice, health equity innovation, and various other large-scale, priority environmental health initiatives.

Tai Lung is an Environmental Protection Specialist at the US EPA's Office of Environmental Justice. Tai is project lead for EJScreen, EPA's environmental justice mapping and screening tool.

Matthew Lee is an Environmental Protection Specialist in the Office of Environmental Justice at the US EPA, working on the EJScreen.

Lucas Brown is Senior Advisor for Justice40 at the White House Council on Environmental Quality (CEQ). Lucas previously served at the US Digital Service in the White House as the Chief Technology Officer (CTO) of the Quality Payment Program at Medicare.

NATIONAL ACADEMIES

*Sciences
Engineering
Medicine*

Utilizing Advanced Environmental Health and Geospatial Data and Technologies to Inform Community Investment

2023 MEMBERSHIP

Harvey J. Miller, Co-Chair

Reuche Chair in Geographic Information Science
Department of Geography
The Ohio State University

Eric Tate, Co-Chair

Associate Professor
Director of Graduate Studies
Geographical and Sustainability Sciences Dept.
The University of Iowa

Susan Anenberg

Associate Professor of Environmental and
Occupational Health and of Global Health
Milken Institute School of Public Health
The George Washington University

Lauren Bennett

Group Product Engineering Lead
ESRI, Inc.
Spatial Analysis and Data Science

Jayajit Chakraborty

Professor, Director
Department of Sociology and Anthropology
Socio-Environmental and Geospatial Analysis
Laboratory

Ibraheem Karaye

Assistant Professor of Population Health
Department of Population Health
Hofstra University

Marcos Luna

Professor, Coordinator
Geography and Sustainability Department
Geo-Information Science graduate program
Salem State College

Bhramar Mukherjee, NAM

John D Kalbfleisch Collegiate Professor and Chair
Department of Biostatistics
Professor, Department of Epidemiology
Professor, Global Public Health
University of Michigan

Kathleen Segerson, NAS

Board of Trustees Distinguished Professor
Department of Economics
University of Connecticut

Monica E. Unseld

Founder and Executive Director
Until Justice Data Partners

Walker Wieland

Research Scientist
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

Staff

Sammantha Magsino, Senior Program Officer
Anthony DePinto, Associate Program Officer
Oshane Orr, Program Assistant

Committee for Utilizing Advanced Environmental Health and Geospatial Data and Technologies to Inform Community Investment: Committee Member Biographies

Committee Member Biographies

Harvey J. Miller (Co-Chair) is the Bob and Mary Reusche Chair in Geographic Information Science, Professor of Geography, Courtesy Professor of City and Regional Planning, Director of the Center for Urban and Regional Analysis at The Ohio State University. His research interests include geospatial data analytics, transportation, urban science, sustainable mobility, equitable and resilient communities, and the relationships between human mobility and health. Awards include the Edward L. Ullman Award from the Association of American Geographers (AAG), the Research Award from the University Consortium for Geographic Information Science (UCGIS), and the Community Engaged Scholar Award from The Ohio State University, and he is an elected Fellow of the AAG and the American Association for the Advancement of Science. He has a PhD in Geography from The Ohio State University. Dr. Miller co-chairs the NASEM Geographical and Geospatial Sciences Committee and is a member of the NASEM Board on Earth Sciences and Resources. He serves on the Regional Data Advisory Committee of the Mid-Ohio Regional Planning Commission in Columbus, Ohio and is the president elect of the UCGIS, a non-profit organization that creates and supports communities of practice for GIScience research, education, and policy endeavors in higher education and with allied institutions.

Eric Tate (Co-Chair) is an associate professor in the Department of Geographical and Sustainability Sciences at the University of Iowa. His research examines connections among natural hazards and society, through spatial modeling of social vulnerability and risk. His primary focus is vulnerability to floods, including (a) assessing social equity in disaster mitigation and recovery spending, (b) validating vulnerability indicators, and (c) analyzing uncertainty and sensitivity of geospatial models.

He received a B.S. in environmental engineering from Rice University, an M.S. in water resources engineering from the University of Texas, and a Ph.D. in geography from the University of South Carolina. Dr. Tate currently serves on the Board of Directors for the Anthropocene Alliance—an organization of experts providing organizational, scientific, and technical guidance to communities that have been impacted by climate change. He has served on multiple National Academies of Sciences, Engineering, and Medicine committee, and serves as the co-chair of the NASEM Resilient America Roundtable.

Bhramar Mukherjee (NAM) is the University of Michigan (UM) John D. Kalbfleisch Collegiate Professor and Chair, Department of Biostatistics; Professor, Department of Epidemiology, Professor, Global Public Health, UM School of Public Health; Research Professor and Core Faculty Member, Michigan Institute of Data Science; and founding director of the UM Summer Institute on Big Data. She is also the Associate Director for Quantitative Data Sciences, UM Rogel Cancer Center, and the Associate Workgroup Director for Cohort Development for UM Precision Health. Her research interests include statistical methods for analysis of electronic health records, studies of gene-environment interaction, and analysis of multiple pollutants and she collaborates in research related to cancer, cardiovascular diseases, reproductive health, exposure science and environmental epidemiology. Dr. Mukherjee

is a fellow of the American Statistical Association and the American Association for the Advancement of Science and is the recipient of many awards for scholarship, service, and teaching. Dr. Mukherjee has a M.S. in applied statistics and data analysis from the Indian Statistical Institute, an M.S. in mathematical statistics from Purdue University, and a Ph.D. in statistics from Purdue University. She serves on the NASEM Committee on Applied and Theoretical Statistics and has served on NASEM committees on the Reassessment of the Department of Veterans Affairs Airborne Hazards and Open Burn Pit Registry and on the Rising Midlife Mortality Rates and Socioeconomic Disparities.

Susan Anenberg is an Associate Professor of Environmental and Occupational Health and of Global Health at the George Washington University (GW) Milken Institute School of Public Health. She is also the Director of the GW Climate and Health Institute. Dr. Anenberg's research focuses on the health implications of air pollution and climate change, from local to global scales. Previously, Dr. Anenberg was a Co-Founder at Environmental Health Analytics, LLC, the Deputy Managing Director for Recommendations at the U.S. Chemical Safety Board, an environmental scientist at the U.S. Environmental Protection Agency (EPA), and a senior advisor for clean cookstove initiatives at the U.S. State Department. She received her PhD in Environmental Science & Engineering, Environmental Policy from the University of North Carolina. Dr. Anenberg currently serves pro bono on the U.S. Environmental Protection Agency's Science Advisory Board and Clean Air Act Advisory Committee, the World Health Organization's Global Air Pollution and Health Technical Advisory Group, and as President of the GeoHealth section of the American Geophysical Union. She has written public comments to EPA on the importance of including environmental justice analysis in regulatory impact analyses, and has chaired an EPA Science Advisory Board committee providing advice to EPA on including distributional analyses in air quality regulations. Dr. Anenberg currently serves on the NASEM Committee to Advise the U.S. Global Change Research Program.

Lauren Bennett is the Group Product Engineering Lead and Program Manager of Spatial Analysis and Science at Esri. In her 15 years at Esri has also worked as a solution engineer for the Federal Sciences team, as well as a lead product engineer on the Spatial Statistics software development team. Dr. Bennett's research has focused on spatial statistics and spatiotemporal analysis, especially their application to human geography problems including public health, social equity, and urban planning. Dr. Bennett received a BA in Geography from McGill University, an MS in Geographic and Cartographic Science from George Mason University, and her PhD in Information Systems and Technology from Claremont Graduate University.

Jayajit Chakraborty is a Professor in the Department of Sociology and Anthropology and the Founding Director of the Socio-Environmental and Geospatial Analysis Laboratory at the University of Texas at El Paso. He currently serves as a member of the U.S. Environmental Protection Agency (EPA) Science Advisory Board and the first EPA Environmental Justice Science Committee. Dr. Chakraborty's research activities encompass a wide range of environmental health and environmental justice issues, with an emphasis on social vulnerability to hazards, risks, and disasters. He is particularly interested in applying geospatial tools and spatial statistical techniques for analyzing environmental and social injustices. Dr. Chakraborty has published more than 100 articles/chapters and 4 books and is currently coauthoring a chapter for the US Government's Fifth National Climate Assessment (NCA5). He has been a principal/co-principal investigator for over 30 sponsored projects, which include grants from the EPA, National Science Foundation, US Department of Transportation, US Department of

Treasury, Florida Department of Transportation, Australian Research Council, and many other agencies. Dr. Chakraborty has a MS in Urban and Regional Planning and PhD in Geography, both from the University of Iowa. He recently contributed to reviewing and advancing EJScreen—EPA’s environmental justice mapping and screening tool.

Ibraheem Karaye is Assistant Professor of Population Health and Director of the Health Science Program at Hofstra University. His research broadly examines the physical, mental, and environmental health impacts of disasters and mass trauma on socially vulnerable populations, including racial and ethnic minorities and older adults. His work also examines health disparities and the distribution of health outcomes globally and in the United States. Dr. Karaye’s approach has been to study social variables using large secondary data sets and novel statistical and spatial analytic methods. His publication, ‘The impact of social vulnerability on COVID-19 in the US: an analysis of spatially varying relationships’ was recognized by the American Journal of Preventive Medicine as a finalist for 2020 Article of the Year. Dr. Karaye currently serves as Academic Editor for the journal, PLOS ONE. Dr. Karaye attended medical school at Bayero University Kano, Nigeria. He holds a Master of Public Health degree (epidemiology) and a doctorate in public health (epidemiology and environmental health) from Texas A&M University.

Marcos Luna is a Professor of Geography and Sustainability and Coordinator of the graduate Geo-Information Science program at Salem State University in Salem, Massachusetts, USA. His research focus is on environmental justice and applications of geospatial analytic techniques to social and environmental inequities, particularly around energy and climate change. He has published research on the inequity of natural gas leaks, urban noise, transit efficiency and equity, energy, air pollution, and environmental policy. Dr. Luna holds a MA in Geography from the California State University, Los Angeles and PhD in Urban Affairs and Public Policy from the University of Delaware. In addition to academic research, he works with community organizations and policy makers on issues including residential housing and segregation, transportation equity, voter mapping and outreach, and climate change adaptation. He is a member of the Board of Directors for GreenRoots, Inc., an environmental justice organization based in Chelsea, Massachusetts, and he is a governor-appointed member of the Massachusetts Environmental Justice Advisory Council, which is charged with (re)assessing the appropriateness of the state’s definition of “environmental justice communities”.

Kathleen Segerson (NAS) is a Board of Trustees Distinguished Professor of Economics at the University of Connecticut. Her research focuses on the incentive effects of alternative environmental policy instruments, including applications in the following areas: groundwater contamination, hazardous waste management, land use regulation, climate change and nonpoint pollution from agriculture. In addition, she has worked on valuing ecosystem services and the protection of marine species. Dr. Segerson is a member of the National Academy of Sciences, and a fellow of the Association of Environmental and Resource Economists (AERE) and of the American Agricultural Economics Association (AAEA). Dr. Segerson holds a PhD from Cornell University and a BA from Dartmouth College. She has or is currently serving on a number of advisory boards, including the U.S. Environmental Protection Agency’s Science Advisory Board (SAB) and the Committee on Valuing the Protection of Ecological Systems and Services (CVPESS), the National Academy of Science Advisory Committee for the U.S. Global Change Research Program (USGCRP) and Review Panel on the National Climate Assessment, the NASEM Board on Agriculture and Natural Resources (BANR), the U.S. National Member

Organization of the International Institute of Applied Systems Analysis (IIASA), and the Advisory Board of the Beijer Institute of Ecological Economics in Stockholm.

Monica E. Unseld is the founder and Executive Director of the nonprofit Until Justice Data Partner, utilizing her experience as a subject matter expert in environmental and public health and believes that science should be accessible to all. The organization partners with marginalized communities nationwide and internationally to apply research methods to environmental and social justice issues, through her specializations in endocrine disruption, environmental signaling and public health. Prior to her nonprofit work, she was an Assistant Professor and worked at a data think tank in Louisville, KY. She has almost 15 years of volunteer environmental justice work experience as subject matter expert in science and general research methodology, working with predominantly Black- and Brown-led groups and coalitions to help normalize the use of research and data. In December 2022, she was named a Union of Concerned Science, Science Defender for her efforts to democratize data. She obtained her doctorate in biology in 2008 from the University of Louisville and her Master's in Public Health in 2018 from Benedictine University.

Walker Wieland is a Research Scientist with the Office of Environmental Health Hazard Assessment (OEHHA), at the California Environmental Protection Agency. Mr. Wieland is also the Office Environmental Justice Liaison to the Agency. Mr. Wieland has 12 years of experience in planning and conducting research studies to characterize the distribution of environmental pollutants or sources of pollution to support the development of screening cumulative impact analysis. He is co-author of each version of CalEnviroScreen, California's pioneering environmental justice screening tool. He has held multiple leadership positions throughout state government in geographic information systems (GIS) and open data and has formerly received certification as a GIS professional. Mr. Wieland is an award-winning public speaker and routinely provides training to agencies on considering cumulative impacts and environmental justice mapping in their policies and programs. He also has consulted with agencies across the United States and internationally in implementing their own environmental health screening tools. Mr. Wieland received his Bachelor of Arts in Environmental Studies from California State University, Sacramento, and his Associate of Science in Geographic Information Systems from American River College.

Utilizing Advanced Environmental Health and Geospatial Data and Technologies to Inform Community Investment

Board on Earth Sciences and Resources
Mapping Science Committee
Board on Environmental Studies and Toxicology
Division on Earth and Life Studies
National Academies of Sciences, Engineering, and Medicine

July 12, 2022

STATEMENT OF TASK

A committee of the National Academies of Sciences, Engineering, and Medicine will analyze how environmental health and geospatial data and environmental screening tools can inform CEQ's Climate and Economic Justice Screening Tool by conducting a data assessment to assist CEQ in considering the disparities it has prioritized. The committee's assessment will build on the following tasks:

1. Scan of existing screening tools for types of data and approaches used to identify disadvantaged communities and their potential to benefit from investment (e.g., CEQ-funded Climate and Economic Justice Screening Tool, Environmental Protection Agency Environmental Justice Screen, tools and approaches reviewed in [Luskin, 2021](#))
2. Identification of the types of data (e.g., environmental, socioeconomic, energy, transportation) needed for CEQ's screening tool(s)
3. Evaluation of current data availability, quality, and spatial and temporal resolutions, as well as key data gaps
4. Discussion of approaches to process, integrate, and analyze these data (e.g., weighting, consideration of additive effects)

The committee will provide recommendations to be incorporated in an overall data strategy for CEQ's tool(s).

CONTEXT

President Biden's Executive Order 14008 (Tackling the Climate Crisis at Home and Abroad) established the Justice40 initiative and directed the Council on Environmental Quality (CEQ) to develop a whole-of-government approach to environmental justice. Justice40 is intended to implement equitable federal investments in critical sectors, specifically around the implementation of the Justice40 initiative and addressing service gaps in critical sectors (energy, housing, health and resilient communities and infrastructure, economic and workforce development, transportation, and water). Justice40 sets a goal that disadvantaged communities reap 40 percent of federal investment benefits in those sectors, and Executive Order 12898

charged CEQ with creating a geospatial Climate and Economic Justice Screening Tool (CEJST) that will be used to identify the communities across the U.S. and its territories that will be eligible for Justice40 investment benefits.

The CEJST is a historic screening tool. It is the first time a tool of this kind has been developed at the federal level to identify the most vulnerable communities in terms of climate, energy, sustainable housing, employment, and pollution burden for the purpose of federal investment. This tool will be invaluable not only for the federal government, but also for state and local governments and for the private sector. However, as with any novel initiative, the CEJST is breaking new ground in terms of research methodologies and data use. It requires data of sufficient granularity and scientific validity to be able to compare communities across states and regions, and in terms of their rural and urban context. For example, urban communities may face a different set of exposures or vulnerabilities than rural communities, and tribal nations and U.S. territories may not have had historical access to resources that other communities have had.

Recent advances in geospatial screening tools that help analyze the effects of environmental hazards, pollution, and environmental change and other health risks are expected to provide valuable information. However, a review of the data needed to populate these tools is important to ensure that the tools yield information that is scientifically valid, useful to the government across areas and scales, informed by communities, transparent, and equity-driven.

The National Academies of Sciences, Engineering, and Medicine will establish a multidisciplinary committee composed of 12-15 experts that will assess the current suite of screening tools, identify types of data needed for CEQ's tool, evaluate data availability and quality, and discuss approaches to analyze and integrate these data. The committee will deliver a workshop proceedings-in-brief as an interim deliverable, as well a consensus report that provides guidance to CEQ on its overall data strategy. This guidance will also be relevant for other federal agencies and for non-governmental organizations that are seeking to assist communities with the resources to be allocated from Justice40.