THE "HOW" OF SYSTEMS TRANSFORMATION:

Strategies and Levers for Health-Centered Climate Action

VIRTUAL WORKSHOP

PART 1- JULY 25, 2025

NATIONAL ACADEMY of MEDICINE

Participant Briefing Book

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The "How" of Systems Transformation: Strategies and Levers for Health-Centered Climate Action – Part 1

Friday, July 25, 2025, 9:00 AM – 2:30 PM EDT / 3:00 – 8:30 PM CEST | VIRTUAL

Join the U.S. National Academy of Medicine's (NAM) global expert Commission for Part 1 of its virtual public workshop on the "how" of systems tranformation for health-centered climate action. Across three parts and days, invited presentations and discussions will aim to:

- Identify the structural levers most critical to accelerating health-centered climate action and understand how these levers interact to drive systems transformation.
- Examine the enabling conditions that shape the feasibility and impact of these levers across diverse country and sectoral contexts.
- Distill real-world strategies and actions that have successfully mobilized these levers, highlighting what made them effective, who played critical roles, and under what conditions they gained traction.
- Surface critical barriers, trade-offs, synergies, and tipping points that shape the path to systems transformation, and distill actionable, cross-sector strategies that enable decision-makers to navigate complexity, align interests, and drive scalable impact.

Register and stream the live event here.

Note, Parts 2-3 are scheduled for August 5-6, 2025, 9:00 AM – 12:30 PM EDT / 3:00 – 6:30 PM CEST; join us here.

9:00 – 9:10 AM EDT **3:00 – 3:10 PM CEST**	**Welcome and Opening Remarks** Michele Toplitz, *National Academy of Medicine* Judith Rodin, *University of Pennsylvania* | NAM Commission Co-Chair
9:10 – 10:25 AM EDT **3:10 – 4:25 PM CEST**	**SESSION 1** **Framing the Levers of Transformation** **Objective:** Establish a shared mental model for how systems transformation unfolds—from vision to implementation—and frame the core structural levers that will anchor the Commission's strategic approach. **Moderator:** Andy Haines, *London School of Hygiene & Tropical Medicine* | NAM Commission Co-Chair **Invited Speakers:** • Agnes Binagwaho, *University of Global Health Equity* • Arunabha Ghosh, *Council on Energy, Environment and Water*

- Elizabeth Sawin, *Multisolving Institute*

10:25 – 10:40 AM EDT **4:25 – 4:40 PM CEST**	**BREAK**

10:40 AM – 12:10 PM EDT **4:40 – 6:10 PM CEST**	**SESSION 2** **Metrics That Move Systems**

Objective: Explore how actionable metrics can both signal and drive system-level shifts, informing investments, governance, and policy choices, and advancing the Commission's goal of turning health-positive climate ambition into accountable, scalable progress.

Moderator: Catherine E. Woteki, *Iowa State University* | NAM Commissioner and workshop planning committee member

Invited Speakers:

- Lorna Benton, *London School of Hygiene & Tropical Medicine*
- Kristie Ebi, *University of Washington*
- Cassie Flynn, *United Nations Development Programme*
- Marina Romanello, *The Lancet Countdown on Health and Climate Change*

12:10 – 12:30 PM EDT **6:10 – 6:30 PM CEST**	**BREAK**

12:30 – 2:15 PM EDT **6:30 – 8:15 PM CEST**	**SESSION 3.** **Shifting Systems Through Culture, Narrative & Behavior**

Objective: Explore how shifts in culture, narrative, and behavior have enabled large-scale systems change—and identify strategies, actors, and leverage points that can inform the Commission's approach to accelerating people-centered climate-health transformation.

Moderator: Mindy Hernandez, *World Resources Institute* | Workshop planning committee member

Invited Speakers:

- Catherine Abreu, *International Climate Politics Hub*
- Joanna Cohen, *Johns Hopkins University*
- Saugato Datta, *Venn Advisors* | Workshop planning committee member
- Edward Maibach, *George Mason University* | NAM Commissioner
- Kumi Naidoo, *Fossil Fuel Non-Proliferation Treaty Initiative*

2:15 – 2:30 PM EDT **8:15 – 8:30 PM CEST**	**PART 1 Wrap-Up & Adjourn**

Lorraine Whitmarsh, *University of Bath* | NAM Commissioner and workshop planning committee member

Michele Toplitz, *National Academy of Medicine*

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WORKSHOP PARTICIPANT GUIDELINES

The following provides information to help support participants' engagement in the workshop.

How to Watch

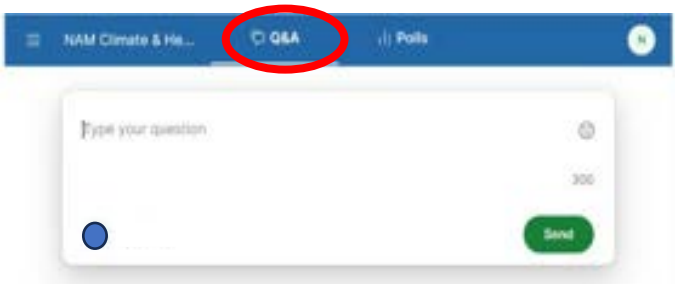
This workshop will be livestreamed on the workshop event page here, and a recording of the event will be uploaded and available publicly available on this page at the conclusion of the event.

How to Participate

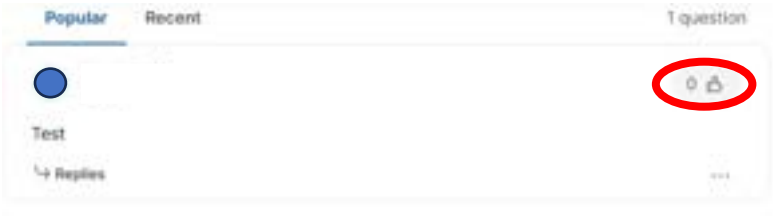
Throughout the workshop, we will be using an audience engagement platform for Q&A and live polls called "Slido," which is directly embedded on the event page itself.

When you join, please enter your name, check "agree", and then select "join Slido":

Each session will include an Audience Q&A segment. To submit a question to the panelists, please navigate to the Q&A section at the top left of the Slido screen:



Attendees also have the ability to “like” or “upvote” questions asked by other participants by selecting the “thumbs-up” icon to the right of the question:



In addition to Q&A, we may solicit additional input from attendees through live polls. These will appear to the right of the Q&A section during the event.

Participant Conduct

Please note that all participants of activities conducted by the National Academies of Sciences, Engineering, and Medicine (NASEM) are required to adhere to NASEM’s guidelines for preventing discrimination, harassment, and bullying. Please review and reference the full policy here.

Troubleshooting

Should you encounter any difficulties in accessing our platform throughout the event, please reach out to NAM staff at NAMXClimateHealth@nas.edu.

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SPEAKER BIOGRAPHICAL SKETCHES

Catherine Abreu is an internationally recognized, award-winning campaigner whose work centers on building powerful coalitions to advance action on climate change. One of the world's 100 most influential people in climate policy as named by Apolitical, she has over 20 years of experience campaigning on environmental issues including 15 years in the heart of the global climate movement. Catherine is honored to have been named 2023's National Hero by Canada's Walk of Fame.

Catherine is currently the Director of the International Climate Politics Hub, a global network of highly effective organizations and individuals working in the diplomatic arena to accelerate climate action and respond to climate impacts.

Catherine is one of 14 Advisors appointed to Canada's Net-Zero Advisory Body, the legally mandated, arms-length expert body tasked with providing advice to government on pathways to meet its climate commitments. She also serves as an advisor to the Canadian Climate Institute and sits on the Boards and steering committees of several organizations, including Climate Action Network Canada, Canada's Affordability Action Council and the Energy Mix.

From 2021 to 2024, Catherine was the Executive Director of Destination Zero, a non-profit that she founded to build momentum for a future free of fossil fuels. She joined the global climate think tank E3G as a Senior Associate from 2021 to 2023. Catherine served as the Executive Director of Canada's largest climate organization Climate Action Network – Réseau action climate (CAN-Rac) from 2016 to 2021. Prior to joining CAN-Rac, Catherine spent five years spearheading the energy and climate programs at the Ecology Action Centre, one of Atlantic Canada's largest and longest-running environmental organizations.

In 2020 Catherine was awarded the Jack Layton Progress Prize for her international leadership on climate policy and action and her transformative work as Executive Director of CAN-Rac. She was inducted into Canada's Clean50 in 2018.

Agnes Binagwaho is a Rwandan pediatrician and the co-founder and the retired Vice Chancellor and of the University of Global Health Equity (2017-2022) in Rwanda. In 1996, she returned to Rwanda where she provided clinical care in the public sector as well as held many positions including the position of Permanent Secretary for the Ministry of Health of Rwanda from October 2008 until May 2011 and Minister of Health from May 2011 until July 2016. She has been a Professor of Global Health Delivery

Practice since 2016 and a Professor of Pediatrics since 2017 at the University of Global Health Equity. She resides in Kigali.

Lorna Benton is a Research Fellow in Planetary Health at the London School of Hygiene and Tropical Medicine, where she is working on the Pathfinder Initiative. The Pathfinder initiative is designed to inform and accelerate actions that mitigate climate change and bring about health co-benefits, through evidence synthesis, capacity building and evidence generation. More information and case studies can be found here.

With a background in Biological Sciences (BA, University of Oxford), Lorna brings academic and programmatic experience from the field of global health (PhD, University College London), SDG implementation and monitoring and evaluation for the Fleming Fund on AMR. She now leads a package of work for the Pathfinder Initiative, designed to enable evidence generation from implemented climate and health actions in cities, working with partner networks: C40, SDSN, OECD, Hot or Cool and CDP.

Lorna and the Pathfinder team recently published a checklist for the design and evaluation of complex interventions in climate and health, together with colleagues from the University of Victoria, Canada. This can be considered the first step towards the development of more robust and interdisciplinary guidance on the evaluation of climate actions, with co-benefits and/or trade-offs for health, available here:

Joanna Cohen is the Bloomberg Professor of Disease Prevention, Director of the Institute for Global Tobacco Control and Chair of the Department of Health, Behavior and Society at the Johns Hopkins Bloomberg School of Public Health in Baltimore, USA. She has been involved in tobacco policy research for 30 years. Trained in epidemiology and health policy, her research focuses on factors that affect the adoption and implementation of public health policies and on evaluating their beneficial effects and unintended consequences. She served as a senior editor of the journal Tobacco Control for 20 years, recently completed a 3-year term as a Board member for the Society for Research on Nicotine and Tobacco and has been a voting member of the FDA's Tobacco Products Scientific Advisory Committee.

Saugato Datta is an applied economist with 15 years of experience in international development and applied behavioral economics. He holds a PhD in Economics from the Massachusetts Institute of Technology, an MPhil in Economics from Cambridge University, and bachelor's degrees from Cambridge and the University of Delhi, India.

Dr. Datta specializes in the nuanced application of behavioral insights to program and policy design in low- and middle-income countries in Asia and Africa, as well as the evaluation of these and other interventions using randomized control trials and other experimental and quasi-experimental methods. He works with multilateral

institutions, governments, and NGOs to identify and analyze challenges limiting the impact of development programs, and subsequently to design and test solutions to them. Over the past decade, he has led the international development portfolio at ideas42, a leading applied behavioral science firm, where he has overseen over 50 projects applying behavioral insights to issues in global health, social protection, sustainability, governance, labor market programs, and education, including over 20 randomized control trials in over 15 countries in Africa, Asia and Latin America.

His research has been published in leading academic and policy journals, including the Journal of Development Economics, Review of Income and Wealth, Journal of Economic Behavior and Organization, and the World Bank Economic Review, as well as several public health journals including Frontiers in Public Health and the Journal of Interpersonal Violence. He has also contributed chapters to several books on behavioral economics, as well as the forthcoming "Handbook of Economics of Discrimination and Affirmative Action". He has also written extensively on international development and the application of behavioral economics to policy problems in development in the popular press and is regularly invited to speak on these topics at policy fora and panels at the World Bank, the United Nations, and other bilateral and multilateral institutions. He has been an invited reviewer at the Journal of Development Economics, World Development, and Economic Development and Cultural Change.

Prior to his career at ideas42, Dr Datta was the Economics Correspondent at the Economist in London, leading that publication's coverage of global trade, applied microeconomics, economic development, and academic economics. He has also worked as an economist at the World Bank. His research has been featured in the Guardian, the New York Times, and other leading media outlets.

Kristie L. Ebi is a Professor in the Center for Health and the Global Environment (CHanGE) in the School of Public Health, University of Washington. She has been conducting research on the health risks of and adaptation to climate variability and change for more than 30 years. Her research focuses on estimating current and future health risks of climate change; designing adaptation policies and measures to reduce the risks of climate change in multi-stressor environments; and quantifying the health co-benefits of mitigation policies. She co-chairs the International Committee on New Integrated Climate change assessment Scenarios (ICONICS). She has worked with multiple countries in Africa, Central America, Europe, Asia, and the Pacific in assessing their vulnerability and implementing adaptation measures. She was a lead author for the Intergovernmental Panel on Climate Change (IPCC) 6th assessment cycle, including the special report on warming of 1.5°C and the human health chapter for Working Group II. She is a member of Future Earth and the Earth League. Her scientific training includes an M.S. in toxicology and a Ph.D. and a Master of Public Health in epidemiology, and two years of postgraduate research at the London School of Hygiene and Tropical Medicine. She edited four books on aspects of climate change and has more than 300 peer-reviewed publications.

Cassie Flynn is the Global Director of Climate Change at the United Nations Development Programme (UNDP) and oversees a climate portfolio spanning more than 150 countries, among the world's largest.

At the United Nations, Cassie has been on the forefront of climate action for the last 15 years. She advises prime ministers, presidents, heads of state, global leaders, and high-level coalitions on the climate crisis and was a key player in the historic Paris Agreement negotiations.

At UNDP, she led the Climate Promise that supported over 85% of developing countries to create and deliver their pledges under the Paris Agreement. By 2021, every country in the portfolio had an energy pledge, over 90% increased mitigation ambition and over 94% enhanced adaptation and resilience. The Climate Promise has been credited as a key initiative that advanced multilateral cooperation on climate change.

Cassie is a sought-after speaker for major conferences and events, including TED and SxSW. She is also a trusted expert for international and national media outlets, such as the BBC, Wall Street Journal, and New York Times. She was named to the World Economic Forum's Council on Just Transition and is the author of "Blending Climate Finance Through National Climate Funds."

Cassie holds a master's degree from Yale University and bachelor's degrees from Bowdoin College.

Arunabha Ghosh is an internationally recognized public policy expert, author, columnist, and institution builder. He is the founder-CEO of the Council on Energy, Environment and Water (CEEW), and has led CEEW to the top ranks as one of Asia's leading policy research institutions and among the world's 20 best climate think-tanks. He played a formative role in creating the International Solar Alliance, and was a founding board member of the Clean Energy Access Network. Co-author/editor of four books and with more than two decades of experience across 54 countries, he previously worked at Princeton, Oxford, UNDP (New York), and WTO (Geneva). The Asia Society honored him with the 2022 Asia Game Changer Award, for his and CEEW's "incredible work, which is making a real difference for India and for the planet."

Arunabha advises governments, industry, civil society, and international organizations around the world. In October 2024, the Government of India appointed him to the Commission for Air Quality Management. In May 2025, the Government of Brazil appointed him as a Special Envoy for COP30 climate negotiations. He currently co-chairs the World Economic Forum's Global Future Council on the Energy Nexus (and previously co-chaired the GFC on Clean Air). He served on Government of India's G20 Finance Track Advisory Group and advised the Sherpa Track for India's G20 Presidency in 2022-23. In 2022, the UN Secretary-General appointed him to the High-level Expert Group on the Credibility and Accountability of Net-Zero Announcements by Non-State Actors. In 2020, the Government

of India appointed him Co-Chair of the energy, environment and climate change track for India's Science, Technology and Innovation Policy (STIP2020).

Dr. Ghosh has been a member of the UN Committee for Development Policy since 2019 (nominated by the UN Secretary-General; Vice-Chair 2023-25). He co-convened the Our Common Air Commission. He has been a member of several international expert advisory groups: Global Commission on the Economics of Water; High-Level Group of Economists, constituted by the French president for the One Planet Lab; Senior Consultative Group for the Energy Transition Accelerator; High-Level Panel on the Environment of Peace. He sits on the Oversight Committee of the Exploring Climate Cooling Options program of the UK's Advanced Research and Invention Agency.

He writes monthly columns across various platforms. A frequent speaker, he has hosted or featured in several documentaries, and his 2019 TED Talk on air quality (Mission 80-80-80) has crossed 280,000 views. He was a World Economic Forum Young Global Leader, an Asia Society Asia 21 Young Leader, and fellow of the Aspen Global Leadership Network. He holds a D.Phil. from the University of Oxford.

Andy Haines was Director (formerly Dean) of the London School of Hygiene & Tropical Medicine from 2001- October 2010, having been trained in family practice and epidemiology. He developed an interest in climate change and health in the 1990's and was a member of the Intergovernmental Panel on Climate Change for the 2nd, 3rd and 5th assessment exercises. He chaired the Rockefeller/*Lancet* Commission on Planetary Health (2014-15) and the InterAcademy Partnership (140 science academies worldwide) working group on climate change and health. He is currently co-chairing the *Lancet* Pathfinder Commission on health in the zero-carbon economy. He was awarded the Tyler Prize for Environmental Achievement in 2022.

Mindy Hernandez is the Director of the Living Lab for Equitable Climate Action at WRI and an expert in applied behavioral science with a focus on inclusive social science and prosocial and pro-climate behaviors.

Previously, Mindy advised governments, companies, donors, and NGOs around the world on applying behavioral science to measurably improve programs and policies, including working as a liaison to the White House's Social and Behavioral Science Team for the U.S. Agency for International Development, as a Fellow for the Federal Office of Evaluation Sciences and as a Senior Researcher with ideas42.

Mindy holds a Master's in Public Policy from Princeton University.

Ed Maibach is a George Mason University Distinguished University Professor and Director of Mason's Center for Climate Change Communication—a "think-and-do tank" focused on illuminating public engagement in climate change and strategies for enhancing it. Dr. Maibach is a Member of the National Academy of Medicine, a Fellow of the American Academy for the Advancement of Science, and he serves on the Board of Directors of the Global Climate and Health Alliance. In 2020, Ed was honored by Climate One with the Stephen H. Schneider Award for Outstanding Climate Science Communication, and in 2024 he and his center were honored by the National Center for Science Education with a Friend of the Planet Award. Previously, he served as the Associate Director of the National Cancer Institute and Worldwide Director of Social Marketing at Porter Novelli.

Kumi Naidoo is a South African human rights and environmental justice activist, who currently is the President of the Fossil Fuel Non-Proliferation Treaty. He is the former Secretary-General of Amnesty International (2018-2020) and also the first person from the Global South to lead Greenpeace International (2009-2015). He is an advisor for the Community Arts Network. He serves as a global ambassador for Africans Rising for Justice, Peace and Dignity. His family has started the Riky Rick Foundation for the Promotion of Artivism to build on the positive legacies left by popular South African rapper Rikhado "Riky Rick" Makhado through his music and life's work. Kumi is the author of award-winning Letters To My Mother: The Makings of a Troublemaker. Kumi is also the host of the podcast Power, People and Planet.

Judith Rodin is a pioneer, innovator, change-maker and global thought-leader. For over two decades Rodin led and transformed two global institutions: The Rockefeller Foundation and the University of Pennsylvania. A ground-breaking executive throughout her career, Dr. Rodin was the first woman named to lead an Ivy League Institution and was the first woman to serve as The Rockefeller Foundation's president. A research psychologist by training, she was one of the pioneers of the behavioral medicine and health psychology movements. Dr. Rodin's leadership ushered The Rockefeller Foundation into a new era of strategic philanthropy that emphasized partnerships with business, government, and the philanthropic community to address and solve for the complex challenges of the 21st century. Rodin championed two whole new fields that are now pervasive: resilience and impact investing. At Penn, Dr. Rodin presided over an unprecedented decade of growth and progress that transformed the institution, its campus, and the community, taking the university from sixteenth to fourth in U.S. News and World Report national rankings. The University also engineered a comprehensive, internationally acclaimed neighborhood revitalization program in West Philadelphia. Rodin has served as a member of the board for several leading corporations and many non-profits. She has authored more than 250 academic

articles and chapters, and has written or co-written 15 books, including The Power of Impact Investing: Putting Markets to Work for Profit and Global Good and The Resilience Dividend: Being Strong in a World Where Things Go Wrong. Her most recent book, published by Wharton School Press, is entitled Making Money Moral: How a New Wave of Visionaries is Linking Purpose and Profit.

Marina Romanello is the Executive Director of the *Lancet Countdown: Tracking Progress on Health and Climate Change*, an independent and multi-disciplinary research collaboration between almost 100 academic centers around the world, and headquartered at University College London's Institute for Global Health. She is also a member of the UK's Climate Change Adaptation Committee, and is one of the seven global experts selected to refine the Global Goal on Adaptation indicators for health under the Paris Agreement. Marina trained as a clinical biochemist in the University of Buenos Aires, Argentina, holds a PhD in biomedical sciences from the University of Cambridge, and is a honorary member of the UK Faculty of Public Health. Her research background spans from toxicology through to environmental health and climate change, and before joining the Lancet Countdown she carried out her research in the Instituto Tecnologico de Buenos Aires, the University of Cambridge, and the Francis Crick Institute in London, UK.

Elizabeth Sawin is the Director of Multisolving Institute. Beth is an expert on multisolving, actions that address equity, climate change, health, well-being, and economic vitality as integrated issues. She developed the concept after studying bright spots around the world where people created systems change by building connections across silos. In 2021, Beth founded Multisolving Institute to share this research and to develop tools tailored for multisolving.

Beth has dedicated her career to the theory and practice of creating change in complex systems. She trained in system dynamics computer simulation with Donella Meadows at Sustainability Institute. At the Institute, she also supported sustainability leaders from around the world as they used system approaches to conserve land, enact climate policy, restore rivers, promote healthy communities, and more.

Prior to founding Multisolving Institute, Beth co-founded the think tank Climate Interactive to develop tools for grappling with the complexity of the climate system. She led Climate Interactive's efforts to integrate measures of equity, health, and well-being into decision-support computer simulations.

Beth writes and speaks about multisolving and leadership in complex systems for both national and international audiences. Her writing has been published in Non-Profit Quarterly, The Stanford Social Innovation Review, U. S. News, The Daily Climate, and System Dynamics Review. Her work has been widely covered including in the New York

Times and the Washington Post. Her book *Multisolving: Creating Systems Change in a Fractured World* was published by Island Press in November 2024.

She has two adult daughters and lives in rural Vermont where she and her husband grow as much of their food as they can manage.

Lorraine Whitmarsh is an environmental psychologist, specializing in perceptions and behavior in relation to climate change, based in the Department of Psychology, University of Bath. She is Director of the ESRC-funded UK Centre for Climate Change and Social Transformations (CAST).

She regularly advises governmental and other organizations on low-carbon behavior change and climate change communication, was one of the expert leads for Climate Assembly UK, and Lead Author for IPCC's Working Group II Sixth Assessment Report. Her research projects have included studies of meat consumption, energy efficiency behaviors, waste reduction and carrier bag reuse, perceptions of smart technologies and electric vehicles, low-carbon lifestyles, and responses to climate change.

Catherine Woteki is Professor Emeritus of Food Science and Human Nutrition at Iowa State University and a Distinguished Fellow of the University of Virginia's Biocomplexity Institute. She recently served as a member of President Biden's Council of Advisors on Science and Technology and as chair of the Division of Earth and Life Studies of the National Research Council of the National Academies of Science, Engineering and Medicine. She was Chief Scientist and Under Secretary for USDA's Research, Education, and Economics (REE) mission area from 2010 to 2016. In that role, she developed the Office of the Chief Scientist, established the USDA Science Council, instituted the Department's first scientific integrity and open data policies, and was a founding member of the Meeting of Agricultural Chief Scientists held under the auspices of the G-20. Dr. Woteki is an advocate for building the platforms needed to enhance domestic and international food security and agricultural research.

Prior to joining USDA, Dr. Woteki served as Global Director of Scientific and Regulatory Affairs for Mars, Incorporated, where she managed the company's scientific policy on matters of health, nutrition, and food safety. From 2002 to 2005, she was Dean of Agriculture and also head of the Agricultural Experiment Station at Iowa State University. Dr. Woteki served as the first Under Secretary for Food Safety at the U.S. Department of Agriculture (USDA) from 1997 to 2001, where she oversaw the safety of meat, poultry and egg products. Dr. Woteki served in the White House Office of Science and Technology Policy (OSTP) as Deputy Associate Director for Science from 1994 to1996. During that time, she co-authored the Clinton Administration's policy statement, "Science in the National Interest."

Background Reading & Reference Materials

The "What" of Systems Transformation: Anchoring Health in Climate Action

TUESDAY – WEDNESDAY, APRIL 29 – 30, 2025 | VIRTUAL

Key Themes and Takeaways

This workshop marked the launch of the Commission's collective inquiry into how to advance health-centered climate action at the systems level. Through expert presentations, thematic discussions, and cross-sector exchange, ***5 central themes*** *emerged. These takeaways are offered not as conclusions, but as inputs to support an evolving dialogue and deeper deliberation among the Commission.*

All workshop materials—including the recording and speakers' slides—are available on the NAM website.

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1. **Systems Change**
   Across the sessions, participants emphasized that today's challenges—intersecting climate, health, and equity crises—cannot be addressed through incremental or siloed approaches. Existing systems are designed around short-term, GDP-driven growth and often perpetuate harm. Systems thinking offers a lens to recognize interdependencies, disrupt path dependencies, and create space for new models grounded in human and planetary well-being.

   Key Takeaways for the Commission's Deliberation:

   - **Create the conditions for new systems to emerge.** Existing systems are constrained by path dependency and short-termism. Building toward healthier futures requires the creations of new feedback loops and incentive structures that reinforce climate-health co-benefits and make transformational shifts "stick" over time (S1, Levin; S3, Dixson-Declève).
   - **Apply systems thinking to policy design.** Policy- and decision-makers must consider how interventions cascade across domains—health, environment, equity, economy. A systems-oriented lens can expand both the problem definitions and the solution space (S3, Dixson-Declève).
   - **Redefine health to reflect integrated social and ecological well-being.** Prevailing biomedical definitions often fail to reflect how health is shaped by social and ecological systems. Alternative paradigms—such as care societies and well-being economies—embed health more fully into social, economic, and environmental systems (S4, Chandra & Kelleher).

2. **Narrative & Strategic Frames**

Narratives shape what societies value, what policy options are seen as legitimate, and who holds power. Throughout the workshop, speakers highlighted the need to reframe climate-health action in ways that resonate with different audiences, challenge dominant economic paradigms, and promote hope, justice, and shared prosperity.

Key Takeaways for the Commission's Deliberation:

- **Tailor entry points to fit audience context.** While powerful in many contexts, health may not always be the most motivating or relevant frame. Other narratives—centered on opportunity, rights, productivity, or resilience—may be more effective for engaging different sectors or political audiences (S2, Adler; S3, Dixson-Declève; S4, Chandra).
- **Use values-based framing to broaden coalitions.** Pairing rights-based arguments (e.g., the right to a healthy environment) with co-benefits-oriented narratives can help overcome resistance, mobilize broader coalitions, and sustain momentum (S1, Campbell-Lendrum; S2, Replogle; S3, Rabie)
- **Reframe progress beyond short-term GDP growth.** Moving beyond GDP as a sole measure of success is essential to aligning economic systems with health and climate goals. Framing well-being, equity, and sustainability as drivers of progress can legitimize alternative models of development (S3, Dixson-Declève; S4, Chandra).

3. **Metrics & Incentives**

The systems we build and sustain are deeply influenced by what we measure and reward. Speakers emphasized that prevailing metrics often obscure health-climate connections, while many incentives continue to entrench harmful practices and investments.

Key Takeaways for the Commission's Deliberation:

- **Illuminate the health impacts of climate (in)action.** Strengthening the attribution of health outcomes to climate-related exposures—such as through improved mortality records or co-morbidity tracking—can clarify risk, strengthen accountability, and support integrated policymaking (S2, Nemukula).
- **Redirect incentives toward desired climate-health outcomes.** Redirecting public and private incentives—from fossil fuel subsidies to regulatory frameworks—can unlock new forms of value creation, investment, and innovation aligned with climate-health outcomes (S2, Adib).
- **Measure what matters for long-term, equitable outcomes.** Shifting from narrow economic indicators to metrics that reflect equity, well-being, and ecological and social resilience is essential to guiding long-term, systems-aligned decision-making toward health for all at net-zero.

4. **Cross-Sector & Multilevel Collaboration**

Discussion affirmed that systems transformation cannot occur in isolation. Achieving alignment across health, environment, energy, agriculture, finance, and other sectors—and across governance levels—requires intentional coordination. Institutional siloes, mismatched mandates, and fragmented data systems pose challenges, but shared goals and targeted governance reforms offer promising pathways.

Key Takeaways for the Commission's Deliberation:

- **Identify and act on points of convergence.** Identifying shared outcomes of interest, overlapping mandates, and opportunities for resource pooling can reduce friction, strengthen coherence, and multiply impact (S3, Kumar).
- **Empower local actors as drivers of change.** Sub-national actors and community-based organizations often have the clearest view of lived realities and the agility to tailor interventions. Empowering them with tools, authority, and resources is key to achieving and sustaining systems transformation (S3, Kumar; S4, Murabit; S4, Chandra).
- **Institutionalize coordination through governance structures.** Institutional alignment cannot be left to chance. Formal governance mechanisms, shared metrics, and cross-sector platforms are needed to enable collaboration across scales and sectors, particularly between public and private sector actors (S3 Discussion; S4, Chandra).

5. Implementation Pathways

The gap between vision and execution remains a central challenge. Participants repeatedly cited barriers such as limited financing, institutional inertia, and weak accountability. Addressing these barriers requires not only resource mobilization but also design for delivery—ensuring the systems that support implementation are as robust as the strategies themselves.

Key Takeaways for the Commission's Deliberation:

- **Make the cost of inaction visible.** Articulating the long-term human and economic consequences of climate inaction— including the hidden externalities often excluded from traditional cost-benefit analyses—can help reframe climate-health investment as a necessity rather than a trade-off (S3, Nemukula; S3, Saberi; S4, Chandra).
- **Leverage public-private and community partnerships.** The private sector can pilot innovations that governments scale, while community organizations can ensure solutions are grounded in lived realities. Together, these actors expand reach, enhance relevance, and enable more adaptive implementation (S4, Murabit & Chandra).
- **Design systems that support service delivery.** Ambitious goals must be matched with implementation mechanisms (i.e., financial pathways, institutional capabilities, accountability frameworks) that can translate intent into sustained action.

CLIMATE GRAND CHALLENGE

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CORE CONCEPTS & WORKING DEFINITIONS

Below we introduce a set of core concepts and working definitions that are guiding the Commission's efforts to catalyze systems change at the climate-health nexus. While these definitions are intended to evolve with new insights and perspectives, they offer a shared language to support coherence across the workshop discussions.

Co-Benefits: The positive effects that arise when a policy or action designed to achieve one objective—such as reducing greenhouse gas emissions—simultaneously advances other goals, such as improving health, equity, or economic resilience. Recognizing and maximizing co-benefits is central to designing integrated strategies that align climate and health priorities.

Equity: A systemic approach to fairness that acknowledges how institutions, policies, and economic models have produced unequal health and climate outcomes. Equity in this context requires transforming these systems to redistribute power, mitigate harm, and ensure that no group bears an unfair share of risk or is excluded from the benefits of a healthier, more sustainable future.

Health: A state of physical, mental, and social well-being that depends on equitable access to the resources and conditions people need to thrive: clean air and water, nutritious food, safe housing, a stable climate, dignified work, and supportive communities. In this context, health is both a core outcome and a strategic driver of systems change—a clear signal of whether energy, food, urban, financial, and governance systems are delivering sustainable, resilient, and just benefits for people and planet.

Health-Centered Climate Action: An approach to climate mitigation and adaptation that explicitly prioritizes human health, well-being, and equity as core outcomes—and as drivers—of systems change across sectors and systems. By placing health at the center, this approach can unlock broader political, economic, and social support for transformative action.

Levers: Strategic points of influence within or across systems that can be used to drive meaningful, large-scale change. In this context, levers include structural mechanisms such as policy, finance, governance, and culture that shape decisions and behaviors across multiple sectors and systems.

Sectors: Distinct domains of economic and social activity—such as energy, transportation, food and agriculture, finance, and urban planning—that significantly

influence both emissions and health outcomes. Because most health-shaping decisions are made in these sectors rather than in the health system itself, cross-sectoral engagement and alignment are critical to enabling effective and scalable interventions.

Systems: Interconnected sets of actors, institutions, infrastructure, behaviors, and rules that produce outcomes over time. In the climate–health context, systems include the food system, energy system, transportation system, health system, and economic system. These systems are dynamic and complex, shaped by feedback loops and underlying power structures. Lasting change requires shifting how these systems operate—not just what they produce.

Systems Transformation: A fundamental reconfiguration of how interconnected systems—such as energy, food, finance, health, and governance—are structured, governed, and resourced, as well as how they interact. Systems transformation aims to produce more equitable, sustainable, and resilient outcomes over time by shifting not only outputs, but also the deeper rules, norms, and power dynamics that drive them.

CLIMATE GRAND CHALLENGE

NATIONAL ACADEMY OF MEDICINE

Initiative on Transforming Systems for Climate & Health

SUBMITTED MATERIALS

The following materials have been submitted to the Commission for their review and consideration ahead of, The "How" of Systems Transformation: Strategies and Levers for Health-Centered Climate Action – Part 1.

PDFs are available to view and download here.

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1. Benton L, et al. 2025. Need for planetary health perspective in guidance for complex interventions for climate and health. *BMJ*; 389:e083337 doi:10.1136/bmj-2024-083337

2. Ebi KL, et al. 2020. Using Detection And Attribution To Quantify How Climate Change Is Affecting Health. *Health Aff;* 39(12):2168–2174. doi:10.1377/hlthaff.2020.01004

3. Hernandez M. The Most Impactful Things You Can Do for the Climate Aren't What You've Been Told. April 9, 2025. https://www.wri.org/insights/climate-impact-behavior-shifts

4. Romanello M, et al. 2024. The 2024 report of the Lancet Countdown on health and climate change: facing record-breaking threats from delayed action. *Lancet; 404*(10465): 1847–1896. doi:10.1016/S0140-6736(24)01822-1