NATIONAL ACADEMIES Sciences Engineering Medicine

China-U.S. Scientific Engagement on Sustainability: A Workshop Series
Workshop II: Sustainability and Planetary Health—Key Issues and Possible Solutions

June 20-21, 2023
All times are US Pacific Daylight Time

In Person
Huntington Room
Arnold and Mabel Beckman Center of the National Academies
100 Academy Dr. Irvine, California

Virtual
ZoomGov Meeting

AGENDA

Workshop Objectives:

- Promote scientific coordination, cooperation, and collaboration between China and the United States on issues relating to sustainability and planetary health;[1]
- Examine the state of planetary health and sustainability research and practices and identify priority areas for scientific collaboration on specific sustainability challenges; and
- Discuss opportunities for advancing policy actions to promote planetary health in China and the United States, including a solution-focused approach.

Tuesday, June 20, 2023

9:00 am PDT **Welcome from the National Academy of Sciences**
Marcia McNutt (NAS), U.S. National Academy of Sciences

9:05 am **Welcome from the Chinese Academy of Sciences**
Jianguo Hou (CAS), Chinese Academy of Sciences
Zhenyu Wang, Bureau of International Cooperation, Chinese Academy of Sciences

9:10 am **Introductions and Goals of the Workshop Series**
Karen Seto (NAS), Yale University, U.S. Committee Chair
Yongguan Zhu (CAS), Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Chinese Committee Chair

[1] Planetary health is defined as "the achievement of the highest attainable standard of health, wellbeing, and equity worldwide through judicious attention to the human systems—political, economic, and social—that shape the future of humanity and the Earth's natural systems that define the safe environmental limits within which humanity can flourish. Put simply, planetary health is the health of human civilization and the state of the natural systems on which it depends" (Horton et al., 2014; Horton and Lo, 2015; Whitmee et al., 2015). Lerner and Berg (2017) discuss similarities and differences among the three key concepts, One Health, Planetary Health, and EcoHealth.

9:20 am **Framing Remarks: The State of Planetary Health and Sustainability**
Each speaker will review the emerging field of planetary health and sustainability in their home country, including key challenges and opportunities.

- **Howard Frumkin (NAM)**, University of Washington School of Public Health
  The State of Planetary Health in the United States
- **George Fu Gao (NAS/NAM/CAS)**, Institute of Microbiology, Chinese Academy of Sciences
  One Health Setting in China and Green Development

10:05 am **Q&A and Discussion**
All Participants

10:25 am BREAK

10:45 am **Panel I: Ecosystems and Planetary Health**
This panel will address ecosystems and planetary health, including the One Health framework of human, animal, and environmental health. The panel will discuss emerging infectious diseases and zoonotic diseases in relation to planetary health, the role of ecosystems in addressing vector-borne diseases, the importance of ecosystem health and ecological design, and how natural environment affects mental health.

Moderators:
- **Jianguo "Jack" Liu**, Michigan State University
- **Keping Ma**, Institute of Botany, Chinese Academy of Sciences

Panelists:
- **John Drake**, University of Georgia
  Disease Emergence: An Ecosystems Ecology Perspective
- **Christine Petersen (NAM)**, University of Iowa
  Using Ecosystems to Intervening Infectious Diseases
- **Yonglong Lu**, Xiamen University
  Spatial Variation in Biodiversity Loss and Ecosystem Health under Multiple Stressors
- **Hua Zheng**, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences
  Ecosystem and Human Health: An Ecosystem Service Perspective

11:45 am **Q&A and Discussion**
All Participants

12:15 pm LUNCH

1:15 pm **Panel II: Air Pollution and Planetary Health**

This panel will address the intersection of air pollution and planetary health, including how an integrated approach to solving the air pollution problem would immensely benefit climate solutions. The panel will also discuss the dynamics between global supply chains and air pollution, the nexus of air pollution science and environmental justice, and the association between air pollutants and birth outcomes.

Moderators:

- **Ashok Gadgil (NAE)**, University of California, Berkeley
- **Zimeng Wang**, Fudan University

Panelists:

- **Veerabhadran Ramanathan (NAS)**, University of California, San Diego
  Air Pollution, Climate Change and Climate Resilience: Interconnections
- **Cesunica Ivey**, University of California, Berkeley
  The Role of Consumerism and International Trade in Air Quality, Climate, and Sustainability Challenges
- **Hongliang Zhang**, Fudan University
  Natural Originated Emissions Threaten Future Air Quality Goals
- **Tong Zhu (CAS)**, Peking University
  Coordinate Air Pollution Control and Climate Change Mitigation Policies to Maximize the Health Benefits

2:15 pm **Q&A and Discussion**
All Participants

2:45 pm BREAK

3:00 pm **Panel III: Urbanization and Circular Systems towards Planetary Health**

This panel will emphasize positive cases relating to urbanization and circular economy strategies to address sustainability and planetary health, including collaborative industrial ecology, circular food and water systems, nutrient circular systems from urban-rural perspectives, and the global impact of antimicrobial resistance.

Moderators:

- **Steward Pickett (NAS)**, Cary Institute of Ecosystem Studies
- **Weiqiang Chen**, Institute of Urban Environment, Chinese Academy of Sciences

Panelists:

- **Marian Chertow**, Yale University
  China-US: Collaborative Industrial Ecology since 2004
- **Xiaobo Xue Romeiko**, University at Albany, State University of New York
  Circular food and water systems for environmental sustainability and public health
- **Tao Lin**, Institute of Urban Environment, Chinese Academy of Sciences
  Nutrient Circular System Construction Couple Urban and Rural Systems: A Perspective from Food Sourced Nitrogen
- **Jianqiang Su**, Institute of Urban Environment, Chinese Academy of Sciences
  Anthropogenic Impacts on the Antimicrobial Resistance in the Environments

4:00 pm **Q&A and Discussion**
All Participants

4:30 pm **Summary Discussion**
Karen Seto (NAS) and **Yongguan Zhu (CAS)** with All Participants

4:45 pm **Adjourn**

Wednesday, June 21, 2023

9:00 am PDT **Welcome and Re-Cap from Previous Day**
Karen Seto (NAS), Yale University, U.S. Committee Chair
Yongguan Zhu (CAS), Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Chinese Committee Chair

9:10 am **Panel IV: Planetary Health, Health Emergencies, and Climate Change**
This panel will discuss climate change and health emergencies, including the pandemics, earthquakes, volcanic eruptions, and extreme weather events such as heat stress and floods through the lens of planetary health and sustainability. The panel will discuss the importance of building climate resilient and sustainable low carbon health systems, addressing health co-benefits of climate change adaptation, and promoting interdisciplinary research and collaboration to improve both human health and the health of the natural systems on which it depends.

Moderators:
- **Judith Wasserheit (NAM)**, University of Washington
- **Yi Shi**, Institute of Microbiology, Chinese Academy of Sciences

Panelists:
- **Andrew Haines (NAM)**, London School of Hygiene and Tropical Medicine
  Climate Change and Health—from Impacts to Action
- **James K. Boyce**, University of Massachusetts Amherst
  Adaptation for All
- **Yongqin Liu**, Institute of Tibetan Plateau Research, Chinese Academy of Sciences
  Microbe of the Crysphere Under Climate Change
- **Jue Liu**, Peking University
  Climate Change, Pandemic, and Sustainability

10:10 am **Q&A and Discussion**
All Participants

10:40 am BREAK

11:00 am **Panel V: Key Priorities and International Cooperation for Planetary Health**
This final panel will focus on synergies, knowledge gaps, and key research priorities for China and the United States science communities to collaborate on planetary health and sustainability. The panel will discuss a range of topics including the One Water concept from urban-rural perspectives, collaboration and cooperation on education and workforce development, synergies among biodiversity conservation, planetary health, and sustainability, and global and local urbanization and socioeconomic global changes.

Moderators:
- **Karen Seto (NAS)**, Yale University, U.S. Committee Chair
- **Weiqi Zhou**, Chinese Academy of Sciences

Panelists:
- **Joan Rose (NAE)**, Michigan State University
  One Water Approach: Crucial for United Nations SDG6 and Planetary Health
- **Maureen Lichtveld (NAM)**, University of Pittsburgh
  Who will do the work in Planetary Health?
- **Binbin Li**, Duke Kunshan University
  Creating Synergy between Biodiversity Conservation and Other International Agenda to ensure Real Sustainability
- **Xiaoling Zhang**, City University of Hong Kong
  Addressing the Sustainability Science Trilemma: Goals, Pathways and Opportunities

12:00 pm **Q&A and Discussion**
All Participants

12:30 pm LUNCH

1:30 pm **A Path Forward: Future Needs and Opportunities**
Participants will discuss opportunities for scientific collaboration relating to planetary health and sustainability.
Karen Seto (NAS) and **Yongguan Zhu (CAS)** with All Participants

2:15 pm **Summary Remarks**
Karen Seto (NAS), Yale University, U.S. Committee Chair
Yongguan Zhu (CAS), Chinese Academy of Sciences, Chinese Committee Chair

2:30 pm **Workshop Conclusion**

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Biographies of Speakers and Moderators

Welcome from the National Academy of Sciences

MARCIA MCNUTT (NAS) is a geophysicist and the 22nd president of the National Academy of Sciences. From 2013 to 2016, she was the Editor-in-Chief of Science journals. Dr. McNutt was the Director of the U.S. Geological Survey (USGS) from 2009 to 2013, during which time USGS responded to a number of major disasters, including the Deepwater Horizon oil spill. For her work to help contain that spill, Dr. McNutt was awarded the U.S. Coast Guard's Meritorious Service Medal. She is a Fellow of the American Geophysical Union (AGU), the Geological Society of America, the American Association for the Advancement of Science, and the International Association of Geodesy. Dr. McNutt is a member of the U.S. National Academy of Engineering, the American Philosophical Society, and the American Academy of Arts & Sciences and a Foreign Member of the United Kingdom Royal Society, the Russian Academy of Sciences, and the Chinese Academy of Sciences. In 1998, Dr. McNutt was awarded AGU's Macelwane Medal for research accomplishments by a young scientist. She received the Maurice Ewing Medal in 2007 for her contributions to deep-sea exploration. Dr. McNutt received a B.A. in physics from Colorado College and a Ph.D. in Earth sciences from the Scripps Institution of Oceanography.

Welcome from the Chinese Academy of Sciences

JIANGUO HOU (CAS) is President and Executive President of the Presidium of Academic Divisions of the Chinese Academy of Sciences (CAS). A prominent physical chemist and nanomaterial expert, Dr. Hou has made significant contributions in synthesis and characterization of nanomaterial and nanostructures, physical and chemical properties of single molecules and their assemblies, and scanning tunnel microscopy. He studied physics at the University of Science and Technology of China (USTC) from 1978, completing his Bachelor degree in 1983 and then received his M.Sc. and Ph.D. degrees in 1986 and 1989, respectively. From 2008 to 2015, Dr. Hou held the position as President of USTC until he became Vice Minister of the Ministry of Science and Technology of China (MOST). Afterwards, he worked successively in Guangxi Zhuang Autonomous Region and General Administration of Quality Supervision, Inspection and Quarantine from 2016 to 2017. In 2018 He was appointed as Vice President (full ministerial level) of CAS. He was elected CAS Member in 2003 and Fellow of the World Academy of Sciences for the advancement of science in developing countries (TWAS) in 2004. He is also Fellow of the Royal Society of Chemistry of United Kingdom. Dr. Hou holds a series of awards and honors, among which the most prestigious are the National Natural Science Award (second-class) of China, the Holeung Ho Lee Advancement Prize, the TAN KAH KEE Science Award (Chemistry), and the Distinguished Award of CAS.

ZHENYU WANG is Deputy Director-General of the Bureau of International Cooperation, Chinese Academy of Sciences. Mr. Wang started to work in the Bureau of International Cooperation, CAS, as program officer and deputy and division director in charge of the cooperative programs with Europe and International organizations since his graduation from Beijing Foreign Studies University with Diploma in International Politics and Relations in 1995. From 1998 to 2000, Mr. Wang worked in University of London as Assistant Researcher. He was appointed as the Deputy Director-general of the Bureau of International Cooperation, CAS in 2019.

Introductions and Goals of the Workshop Series

KAREN SETO (NAS) (U.S. Committee Chair) is the Frederick C. Hixon Professor of Geography and Urbanization Science at Yale University. An urban and land change scientist, she is one of the world's leading experts on contemporary urbanization and global change. She uses satellite remote sensing, field interviews, and modeling methods to understand how urbanization will affect the planet, including land change, food systems, biodiversity, and climate change. She has pioneered methods to reconstruct urban land use with satellite imagery and has developed novel methods to forecast urban expansion. She has conducted urbanization research in China for twenty years and in India for more than ten. She has extensive fieldwork experience in Asia, especially China and India, where she has conducted research for over 20 and 10 years, respectively. Dr. Seto has served on numerous national and international scientific bodies. She was a coordinating lead author for the 2022 IPCC 6th Assessment Report and the 2014 IPCC 5th Assessment Report. She is a former co-editor-in-chief of the journal, *Global Environmental Change*. From 2000 to 2008, she was faculty at Stanford, where she held joint appointments in the Woods Institute for the Environment and the School of Earth Sciences. She has received many awards for her scientific contributions, including the Outstanding Contributions to Remote Sensing Research Award from the American Association of Geographers. Dr. Seto is an elected member of the U.S. National Academy of Sciences, the Connecticut Academy of Science and Engineering, the American Academy of Arts and Sciences, and the American Association for the Advancement of Science. She received a Ph.D. in Geography from Boston University.

YONGGUAN ZHU (CAS) (Chinese Committee Chair), Professor of Biogeochemistry and Environmental Biology, is the Academic Director of the Institute of Urban Environment, Chinese Academy of Sciences (CAS). He has been working on environmental pollution, food system and urban health for over three decades. Before returning to China in 2002, he worked as a research fellow (Supported by the Royal Society London), the Queen's University of Belfast, UK (1994-1995); and a postdoctoral fellow in The University of Adelaide (1998-2002), Australia. He obtained his B.S.c. from Zhejiang Agricultural University in 1989, and M.S.c. from CAS in 1992, and then a Ph.D. in environmental biology from Imperial College, London in 1998. He is a scientific committee member for the ISC program on Human Health and Wellbeing in Changing Urban Environment, and served for nine years as a member of Standing Advisory Group for Nuclear Application, International Atomic Energy Agency (2004-2012). Dr. Zhu is the recipient of many international and Chinese merit awards, among them including TWAS Science Award 2013, National Natural Science Award 2009 and International Union of Soil Science Von Liebig Award (2022). He was selected as a Web of Science Highly Cited Researcher (2016-2022), an Academician of CAS, an elected Fellow of the American Associate for the Advancement of Science, elected fellow of The World Academy of Science.

Framing Remarks: The State of Planetary Health and Sustainability

HOWARD FRUMKIN (NAM) is Senior Vice President with the Trust for Public Land and Professor Emeritus of Environmental and Occupational Health Sciences at the University of Washington School of Public Health, where he served as Dean from 2010-2016. After serving as Dean, he led the "Our Planet, Our Health" initiative at the Wellcome Trust in London from 2018-2019. Previously, he directed the National Center for Environmental Health and Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) and served as Special Assistant to the Centers for Disease Control and Prevention (CDC) Director for Climate Change and Health, from 2005-2010. Dr. Frumkin was Professor and Chair of Environmental and Occupational Health at Emory University's Rollins School of Public Health and Professor of Medicine at Emory Medical School from 1990-2005. Dr. Frumkin is an internist, environmental and occupational medicine specialist and epidemiologist. His research interests include public health aspects of the built environment, climate change, energy policy and nature contact. Dr.

Frumkin received his A.B. from Brown University, his M.D. from the University of Pennsylvania, his M.P. H. and Dr.P.H. from Harvard University, his Internal Medicine training at the Hospital of the University of Pennsylvania and Cambridge Hospital, and his Environmental and Occupational Medicine training at Harvard University.

GEORGE FU GAO is a member (academician) of Chinese Academy of Sciences (CAS), an international member of the U.S. National Academy of Sciences (NAS), a foreign member of the U.K. Royal Society (RS), and a member of the German National Academy of Sciences Leopoldina. He is a professor of Institute of Microbiology, CAS, a member of the Science and Technology Expert Group, and a member of One Health High-Level Expert Panel. Dr. Gao has pioneered and made numerous significant original breakthroughs on the pathogenesis mechanisms and pathogen-host interaction of emerging infectious pathogens. His interests also include global public health and health strategy and is an advocate of international collaboration in global public health. Dr. Gao pioneers the COVID-19 research and control with virus discovery, vaccine and therapeutic monoclonal antibody development etc.

Panel I: Ecosystems and Planetary Health

JIANGUO "JACK" LIU (U.S. Committee Member and Moderator) holds the Rachel Carson Chair in Sustainability, is University Distinguished Professor at Michigan State University and serves as director of the Center for Systems Integration and Sustainability. A human-environment scientist and sustainability scholar, Dr. Liu takes a holistic approach to addressing complex human-environmental challenges through systems integration, such as the integration of ecology with social sciences, policy and advanced technologies. He is particularly keen to connect seemingly unconnected issues, for example, telecoupling (human-nature interactions over distances), divorce and environmental sustainability. His work has been published in journals such as *Nature* and *Science* and has been widely covered by the international news media. Dr. Liu has served on various international and national committees and panels, editorial boards of international journals such as *Science*, and Commission on Sustainable Agriculture Intensification. Also, Dr. Liu was a coordinating lead author of the global assessment of biodiversity and ecosystem services organized by the Intergovernmental Platform on Biodiversity and Ecosystem Services. In recognition of his efforts and achievements in research, teaching, and service, Liu has received many awards and honors, such as being elected to the American Academy of Arts and Sciences, the American Philosophical Society and named a fellow of the American Association for the Advancement of Science (AAAS). Dr. Liu completed his postdoctoral study at Harvard University. He was also a visiting scholar at Stanford, Harvard and Princeton.

KEPING MA (Chinese Committee Member and Moderator) is a professor of Plant Ecology, in Institute of Botany, Chinese Academy of Sciences and University of Chinese Academy of Sciences, a councilor for IUCN and Chair for Asia Regional Members Committee of IUCN. His research is mainly focused on biodiversity and its conservation and has made important achievements in forest community assembly, biodiversity and ecosystem functioning and conservation biogeography. He has published more than 400 peer reviewed papers including over 240 papers in SCI journals such as Science, Science Advances, Nature Ecology and Evolution and PNAS. Being one of the Chinese scientists who carried out biodiversity research in China since early 1990s, he initiated the establishment of Chinese Forest Biodiversity Monitoring Network, Chinese Biodiversity Monitoring and Research Network (Sino BON) and National Specimen Information Infrastructure of China (NSII). He attended most of the meetings of conference of parties (COP) to Convention on Biological Diversity and its related extro-COPs and SBSTTA meetings as a scientific advisor to Chinese delegation since 1994 the first COP.

JOHN DRAKE is Professor of Ecology at the University of Georgia. His research seeks to understand the dynamics of biological populations and epidemics, focusing on how to bring experimental and

observational data together with mathematical theory. Biological phenomena of interest include extinction, fluctuations in variable environments, the spatial distribution of populations (niche theory), Allee effects, demographic stochasticity, spatial spread, and near-critical dynamics. Practical applications of this work include decision support for managing invasive species, mapping the spread of infectious diseases, and forecasting disease emergence. Current projects concern the dynamics of Ebola virus in West Africa, spread of White-nose Syndrome in bats, and the development of a new theory for early warning systems of emerging infectious diseases. Dr. Drake has an interest in history and philosophy of modern (twentieth century) biology. Dr. Drake received his Ph.D. from the University of Notre Dame in 2004 and was a Postdoctoral Fellow at the National Center for Ecological Analysis and Synthesis in Santa Barbara, California from 2004 to 2006. Dr. Drake has been at the University of Georgia since 2006. He was Leverhulme Visiting Professor in the Department of Zoology at Oxford University in 2012.

CHRISTINE PETERSEN (NAM) is the Director of the Center for Emerging Infectious Diseases (CEID) at the University of Iowa housed within the Department of Epidemiology. Dr. Petersen coordinates One Health activities focused on understanding, detecting and preventing emerging zoonotic disease globally. Dr. Petersen is also a Professor at University of Iowa, College of Public Health, Department of Epidemiology. She teaches the One Health diapora coursework related to the diagnosis, treatment, and prevention of infectious and particularly zoonotic diseases within all populations. Dr. Petersen's scholarly work has focused on the recognition and prevention of zoonotic diseases, primarily the epidemiology and immunobiology of vector-borne and parasitic diseases and like almost everyone in these fields in 2020, also now SARS coronavirus 2. Dr. Petersen is the scientific program chair for the American Society of Tropical Medicine and Hygiene. Dr. Petersen is the U.S. non-vector borne disease region representative to the international veterinary group that provides recommendations regarding treatment and prevention of infection with the zoonotic protozoan parasite, Leishmania infantum; Leishvet. Dr. Petersen's collaborative group works in Brazil, India and Ethiopia via NIH/Fogarty International Center and NIAID-funded focused on understanding transmission routes and host species immune susceptibility for vector borne zoonoses including tick borne and sand fly borne diseases. Dr. Petersen received her Ph.D. in Immunology and Infectious Diseases from Harvard University.

YONGLONG LU is a Chair Professor of Xiamen University, Dean of College of the Environment and Ecology, and Director of International Institute for Sustainability Science. He is also a distinguished professor of the Chinese Academy of Science. He is an elected Fellow of TWAS (The World Academy of Sciences); a foreign member of Academia Europaea (AE); an elected fellow of International Science Council; a member of UN Secretary General's 10-member Group for SDGs (sustainable development goals); past President of Scientific Committee on Problems of the Environment (SCOPE); President of Pacific Science Association (PSA); Member of International Resource Panel, United Nations Environment Program (UNEP/IRP); and Vice President of Ecological Society of China. He is the founding Editor-in-Chief of Ecosystem Health and Sustainability- a Science partner journal, an Associate Editor of Science Advances, and the founder and Associate Editor of Environmental Development. His research interests include sustainability ecology, environmental geography, and environmental ecology. He has published 360 papers in peer reviewed journals such as Science, Nature, Science Advances, PNAS, Nature Sust. and Nature Comm. He is a highly cited international scientist. He has obtained various awards and honors, including the 2nd Prize of National Award for Advancement of Science and Technology, 1st Prize in Science and Technology for Promoting Development by the Chinese Academy of Sciences, 2nd Prize and 3rd Prize for Advancement of Science and Technology by the Chinese Academy of Sciences, Green Design International Contribution Award, SCOPE Distinguished Achievement Award, and Scientific Chinese 2019 Outstanding Contribution Award.

HUA ZHENG is currently a professor and the Deputy Director of the State Key Laboratory of Urban and Regional Ecology at the Research Center for Eco-Environmental Sciences (RCEES) of the Chinese Academy of Sciences. He received his Ph.D. from RCEES in 2004. He has worked in RCEES since then

and attained his current position in 2013. Dr. Zheng's research focuses on: (i) ecological restoration and ecosystem services; (ii) ecological processes and ecosystem services; (iii) ecosystem service assessment and policy application. He has explored how forest ecosystem structure and processes impact ecosystem services through long-term ecological research, developed methods to assess ecosystem services at different scales (including watershed, regional, and national scales), and conducted ecological restoration experiments to illuminate how biodiversity impacts forest ecosystem services. Dr. Zheng has used a social-ecological systems framework to link ecosystem services research with policy-making. He developed methods to evaluate payment for ecosystem services (PES) policies by integrating assessments of ecosystem services with those of sustainable livelihoods. Dr. Zheng has also been deeply involved in China's national ecosystem assessment, the results of which have been used in the design and implementation of new ecological conservation policies, including ecological protection redlining, ecosystem service zoning, and sustainable land-use management. He has also participated in the development of Gross Ecosystem Production (GEP), a new metric for evaluating the progress of nature's contribution to people. Dr. Zheng currently serves as an associate editor of the Journal of Environmental Management and is an editorial board member of Frontiers in Ecology and the Environment, Engineering, and Geography and Sustainability. He has published over 100 peer-reviewed articles in international journals and co-authored six books.

Panel II: Air Pollution and Planetary Health

ASHOK GADGIL (NAE) (U.S. Committee Member and Moderator) holds concurrent appointment on the University of California (UC) Berkeley Campus as Professor of Civil and Environmental Engineering, and at the Lawrence Berkeley National Laboratory (LBNL) as Faculty Senior Scientist. At UC Berkeley, Dr. Gadgil is a Distinguished Chair Professor of Safe Water and Sanitation in Civil and Environmental Engineering. He is the Principal Investigator and Faculty Director of Development Impact Lab (DIL.berkeley.edu) and of the Clean Energy Research Center for Water Energy Technologies (CERC-WET.berkeley.edu). At LBNL Dr. Gadgil is a Senior Faculty Scientist in the Energy Technologies Area. He has a Ph.D. in physics from University of California, Berkeley. His expertise ranges from computational fluid dynamics of indoor air and pollutant flows, simulation of entry and transport of indoor radon, building energy efficiency, and methods to treat drinking water to make it potable. Dr. Gadgil has more than 140 refereed archival journal papers, 150 conference papers, and several patents.

ZIMENG WANG (Moderator) is a full professor and Cyrus Tang Fellow in the Department of Environmental Science and Engineering at Fudan University, Shanghai, China. Dr. Wang graduated with a B.S. degree (with honor) in 2009, subsequently earning his Ph.D. from Washington University in St. Louis in 2013. He worked as a Postdoctoral Fellow at Stanford University and then as an Assistant Professor at Louisiana State University until 2018. Presently, he directs the research cluster focusing on water-soil interfacial processes at Fudan University. Employing a combination of aquatic chemistry, analytical techniques, and microbiology, Dr. Wang's research endeavors to uncover novel and significant biogeochemical processes occurring at water-soil interfaces. His work places particular emphasis on the implications these processes have on climate change, urbanization, agricultural sustainability, and public health. Recently, his research interests have expanded to include redox-active metastable phases, methanogenic processes in water and sediments, and biogeochemical processes in permafrost soils. Dr. Wang has been honored with the James J. Morgan Award and the Ebelmen Award, two prestigious early-career recognitions in the fields of environmental chemistry and geochemistry respectively. Dr. Wang's research has been featured in leading scientific journals, such as Science Advances, Environmental Science & Technology, and Geochimica et Cosmochimica Acta. He also serves as the Editor-in-Chief of Applied Geochemistry, an Elsevier journal affiliated with the International Association of GeoChemistry (IAGC). In 2021, he penned a widely recognized perspective in Environmental Science & Technology

recounting the growth and development of the aquatic chemistry discipline in China. This publication is highly esteemed as an exemplary effort in promoting international academic cultural exchange.

VEERABHADRAN RAMANATHAN (NAS) is Edward A. Frieman Endowed Presidential Chair and Emeritus in Climate Sustainability at University of California, San Diego. He has been conducting original research in climate and atmospheric science since the 1970s. Dr. Ramanathan discovered the super greenhouse effect of halo carbons in 1975 and used observations to quantify the large global warming effect of black carbon. He led international field campaigns, developed unmanned aircraft platforms for tracking brown cloud pollution worldwide (Dimming Movie). His findings on super pollutants (Methane, HFCs, Ozone and black carbon) have led to several successful climate mitigation actions worldwide, including the formation of Climate and Clean Air Coalition by the United Nations to mitigate these pollutants. He was the founding chair of University of California's *Bending the Curve: Climate solutions education protocol*, taught at many campuses around the world. He received many global honors including the 2021 Blue Planet Prize for his work on Short Lived Climate Pollutants. His focus now is on climate resilience and in 2023, coedited and coauthored a book on *Resilience Of People and Ecosystems Under Climate stress*. Please visit for detailed bio: https://ramanathan.ucsd.edu.

CESUNICA IVEY is an assistant professor in the Civil and Environmental Engineering Department at the University of California, Berkeley and the principal investigator of the Air Quality Modeling and Exposure Lab. She earned her Ph.D. in environmental engineering from the Georgia Institute of Technology in 2016. She was a postdoctoral researcher in the Department of Physics at the University of Nevada Reno through 2017 and was also a visiting scientist at NOAA's Geophysical Fluid Dynamics Laboratory in the spring of 2018. She is an emerging leader in the areas of regional air quality modeling and its applications and community-scale air pollution exposure assessment. Her research interests lie at the nexus of air pollution science and engineering and environmental justice. She works in partnership with community organizations across California to prevent over-industrialization of already overburdened neighborhoods. She recently served on a panel at a public hearing for the congressional Environmental Justice for All Act, sponsored by the U.S. Democratic Natural Resources Committee to support the regulation of cumulative burdens in impacted communities. In recognition of her advocacy for frontline communities of the e-commerce supply chain expansion in inland Southern California, she was selected as a member of the American Chemical Society Chemical and Engineering News' Talented 12 2021 class and a 2022 Women in Science Incentive Prize winner by The Story Exchange.

HONGLIANG ZHANG is currently a professor in the Department of Environmental Science and Engineering at Fudan University. He received his bachelor's degree and master's degree from Tsinghua University in 2006 and 2008, respectively. He received his Ph.D. degree from Texas A&M University in May 2012. Before joining Fudan University in 2019, he worked as a postdoc in University of California, Davis for two years and an assistant professor in the Department of Civil and Environmental Engineering, Louisiana State University for 5 years. His research interests include source apportionment of air pollutants with an emphasis on the size and composition of atmospheric particles and gas-to-particle conversion processes, a better understanding of the interactions between aerosols and climate, and the effects of climate change on future air quality. He has authored more than 130 peer-reviewed publications with Google Scholar citation of more than 8900. He also serves as Section Editor for Current Pollution Reports, and Editorial Member of Chemosphere, Frontiers of Environmental Science and Engineering, and Engineering.

TONG ZHU (CAS) holds a professor position at Peking University since 1999 and became the Dean (2012-) of the College of Environmental Sciences and Engineering, Peking University. He obtained a bachelor's and a master's degree of science at Peking University in 1983 and 1986, a doctorate degree at Wuppertal University, Germany in 1991. He was a postdoc at the Center for Atmospheric Chemistry of York University, Canada (1991-1992), a postdoctoral fellow and contract research scientist at the Soil and

Biological Resources Research Centre of Agriculture Canada (1993-1999). He is a member of Chinses Academy of Sciences and Chinese Academy of Medical Sciences, a Counsellor of the State Council of People's Republic of China, and a Fellow of American Geophysical Union. He was a Co-Chair of the Scientific Steering Committee of the International Global Atmospheric Chemistry (IGAC) (2009-2012), a Global Scholar of Princeton University (2012-2015). He is currently the chair of the advisory group of the NSFC major program "Fundamental researches on the formation and response mechanism of air pollution complex in China," and the chair of the Scientific Steering Committee of Monsoon Asia Integrated Research for Sustainable Development (MAIRS). His research focuses on Atmospheric Chemistry and Environmental Health, and has published more than 400 papers in Science, PNAS, JAMA and other journals. In particular, he initiated and organized an international collaborative research project CAREBeijing (Campaigns of Air Quality Research in Beijing and Surrounding Region) with more than 200 scientist and students participated in it. He led a PKU team to formulate air pollution controlling measures to improve air quality for 2008 Olympics, which was adapted by the Chinese central government and successfully implemented. In 2007 he established the Center for Environment and Health at Peking University and has been promoting environmental health program among Chinese universities.

Panel III: Urbanization and Circular Systems towards Planetary Health

STEWARD PICKETT (NAS) (U.S. Committee Member and Moderator) is a Distinguished Senior Scientist at the Cary Institute of Ecosystem Studies. He is an expert in the ecology of plants, landscapes, and urban ecosystems. Recipient of the Ecological Society of America's 2021 Eminent Ecologist Award, a member of the National Academy of Sciences, and the founding director of the Baltimore Ecosystem Study (1997-2016), Dr. Pickett also co-directed the Urban Sustainability Research Coordination Network. This project established lasting, interdisciplinary connections between urban designers, policymakers, and managers; the National Science Foundation deemed the project a model for research coordination networks. Dr. Pickett's research focuses on the ecological structure of urban areas and vegetation dynamics, with national and global applications. Among his research sites: vacant lots in urban Baltimore, primary forests in western Pennsylvania, post-agricultural fields in New Jersey, China's rapidly urbanizing Yanqi Valley, and riparian woodlands and savannas in Kruger National Park, South Africa. By applying ecological theory to urban planning, architecture, and landscape architecture, Dr. Pickett strives to convert cities and suburbs from ecological liabilities into ecological assets. He forges partnerships between ecologists and people who design and manage cities to protect and promote ecosystem services in urban environments. Patterns in ecologically-important factors like water retention, vegetation growth, and wildlife habitat availability change when humans develop natural areas. Using satellite data, Dr. Pickett studies urban landscape composition as it evolves and links this information to social and demographic influences. He has a Ph.D. from the University of Illinois.

WEIQIANG CHEN (Chinese Committee Member and Moderator) is a professor of Resources and Urban Sustainability at the Institute of Urban Environment, Chinese Academy of Sciences (CAS). He graduated from the School of Environment at Tsinghua University, Beijing, and worked at the Yale Center for Industrial Ecology during 2010-2015. His research focuses on (1) urban metabolism and urban mining, and (2) anthropogenic cycles and sustainable management of materials. His studies have been published in PNAS, Nature Communications, Environmental science and Technology, and other first-level journals. He is now associate editor for two journals Resources, Conservation, and Recycling and Journal of Industrial Ecology.

MARIAN CHERTOW is Professor of Industrial Environmental Management and the Director of the Center for Industrial Ecology and at the Yale School of the Environment. She is also appointed at the Yale School of Management and the National University of Singapore. Her research and teaching focus on industrial ecology, business/environment issues, circular economy and waste management. Her research

has championed the study of industrial symbiosis involving geographically based exchanges of materials, energy, water and wastes within networks of businesses globally. In 2019 she received the highest recognition of the International Society for Industrial Ecology, its Society Prize, for her "outstanding contributions to the field." Prior to Yale, Professor Chertow spent ten years in environmental business and state and local government including service as president of a bonding authority that built a billion dollars worth of waste infrastructure. She is a frequent international lecturer and became a Member of the Council of Canadian Academies (CCA) Expert Panel on Circular Economy in Canada in 2020. She also serves as an Advisor to the Center for Energy Efficiency and Sustainability at Trane Technologies, Inc, is on the Board of Terracycle US Inc, and the Steering Committee of the Alliance for Research in Corporate Sustainability.

XIAOBO XUE ROMEIKO is an associate professor at the Department of Environmental Health Sciences at the University at Albany, State University of New York (SUNY Albany). Before joining SUNY Albany's faculty, Dr. Romeiko was an Oak Ridge Institute for Science and Education (ORISE) Research Fellow at the Environmental Protection Agency. Dr. Romeiko received her Ph.D. from the Department of Civil and Environmental Engineering at the University of Pittsburgh. Addressing food, water and energy security while protecting environmental quality and improving public health is a grand challenge. Dr. Romeiko's research interests center on sustainable solutions capable of simultaneously conserving natural resources and minimizing negative environmental health damages. Her team develops innovative life cycle and risk assessment models to evaluate resource consumption and climate resiliency of water and waste infrastructure, to analyze environmental health impacts of food and energy supply chains, and to advance quantitative environmental sustainability analyses approaches.

TAO LIN is a Professor of Institute of Urban Environment, CAS, and engages in sustainable urbanization, urban environment management and planning, and urban ecology research for a long time. His recent research interests focused on sustainable region system, smart urban environmental management, and urban ecological planning and management by using GIS, remote sensing and Big data. He makes systematic study on city and relative regions as a human and environmental coupled ecosystem: (1) at large scale, monitor and simulate the urban spatial expansion and its interaction with natural, social and economic factors; (2) at small scale, explore the evolution of urban form and its impact on human living environment; (3) develop system solutions for the sustainable urbanization and regional human and environment coupled system. He has published more than 130 peer-reviewed journal articles, and selected as leading author for the Global environment outlook 7th report of UNEP. He worked in Long Time Ecological Research in Central Arizona—Phoenix of USA as visiting scholar during 2010-2011 and set up China Chapter of Society for Urban Ecology as a standing director since 2016.

JIANQIANG SU is a professor in microbial ecology at Institute of Urban Environment, Chinese Academy of Sciences. He obtained Ph.D. degree in Department of Biology from Xiamen University. His research is focused on environmental microbiology and molecular microbial ecology, including environmental dimension of antimicrobial resistance; microbial-mediated bio-geochemical cycling; soil viral ecology. He has published a series of papers, including those in Nature Microbiology, Nature Communications, Microbiome. He was supported by NSFC through the Excellent Young Scientist programme in 2017.

Panel IV: Planetary Health, Health Emergencies, and Climate Change

JUDITH N. WASSERHEIT (NAM) (U.S. Committee Member and Moderator) is Professor of Global Health, Medicine and Epidemiology, and Co-Director of the Alliance for Pandemic Preparedness at the University of Washington. Dr. Wasserheit has worked extensively at the interface of sexually transmitted infections (STI) and HIV clinical-epidemiological research, programs and policy in the U.S.

and globally. Research to evaluate approaches that improve both environmental sustainability and human health, and pandemic disease preparedness are more recent areas of focus. Previously, she was the Founding Chief of the U.S. National Institutes of Health's STD Research Branch; Director of the U.S. Centers for Disease Control and Prevention's STD/HIV Prevention Program, Director of the HIV Vaccine Trials Network, and Chair of the University of Washington Department of Global Health. She was the founding Board Chair of the Consortium of Universities for Global Health and assisted in the development of the Chinese Consortium of Universities for Global Health. She has worked in Bangladesh, Colombia, Egypt, Indonesia, Kenya, Thailand and Zambia. Her development of the concept of epidemiological synergy between HIV infection and other sexually transmitted infections has had a major influence on HIV prevention policy and programs worldwide. Dr. Wasserheit has broad experience working with agencies, governments, and colleagues on STD and HIV research, policy and programmatic issues. She is a member of National Academy of Medicine, the American Epidemiological Society, the Johns Hopkins Society of Scholars, and was a London School of Hygiene & Tropical Medicine's Heath Clark Endowed Lecturer. Dr. Wasserheit earned her M.D. from Harvard University, her M.P.H. from Johns Hopkins University, and her B.A. from Princeton University.

YI SHI (Chinese Committee Member and Moderator) works as a researcher in the Institute of Microbiology, Chinese Academy of Sciences (CAS). As the Executive Director of CAS-TWAS Center of Excellence for Emerging Infectious Disease (CEEID), Chinese Academy of Sciences, he has co-organized several academic and cooperative activities with scientists from UK, USA, Australia, Russia, Brazil, and other countries. He is also the secretary-general of the Biological and Medical Sciences Committee of the Chinese Association of Young Scientists and Technologists, committee member of the Chinese Society of Immunology. His research mainly focuses on the molecular mechanism of pathogen infection and regulation by the host, and the interaction between receptors and ligands during immune response. He has made remarkable progress on the infection mechanism of a range of important human pathogens including influenza virus, Ebola virus, ZIKV, arenaviruses, and coronaviruses. He has published more than 100 refereed papers in the international academic journals including Cell, Nature and Science.

ANDREW HAINES (NAM) is Professor of Environmental Change and Public Health, Centre on Climate Change and Planetary Health and co-director of the WHO Collaborating Centre on Climate Change, Health and Sustainable Development at London School of Hygiene & Tropical Medicine. Dr. Haines was formerly a family doctor and Professor of Primary Health Care at UCL. 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 and 3rd assessment exercises and review editor for the health chapter in the 5th assessment. He was Director (formerly Dean) of the London School of Hygiene & Tropical Medicine from 2001- October 2010. He chaired the Scientific Advisory Panel for the 2013 WHO World Health Report, the Rockefeller /Lancet Commission on Planetary Health (2014-15), the European Academies Science Advisory Council working group on climate change and health (2018-19) and co-chaired the InterAcademy Partnership (140 science academies worldwide) working group on climate change and health. He is a member of the NAM Climate Grand Challenge Steering Committee and co-chairs the NAM Roadmap for Systems Transformation working group and the Lancet Pathfinder Commission on health in the zero-carbon economy. Dr. Haines earned his MBBS in medicine and M.D. in epidemiology from the University of London. He is a Foreign Associate Member of the National Academy of Medicine. He has published many papers on topics such as the effects of environmental change on health and the health co-benefits of low carbon policies. He was awarded the Tyler Prize for Environmental Achievement in 2022.

JAMES K. BOYCE is a professor emeritus of economics and senior fellow at the Political Economy Research Institute at the University of Massachusetts Amherst. Dr. Boyce received his B.A. at Yale University and doctorate from Oxford University. His latest book is *On the Trail of Capital Flight from Africa: The Takers and the Enablers* (co-edited with Léonce Ndikumana, Oxford University Press 2022).

He is the author of *Economics for People and the Planet: Inequality in the Era of Climate Change* (Anthem 2019), *The Case for Carbon Dividends* (Polity 2019), and *Economics, the Environment and our Common Wealth* (Edward Elgar 2013). Dr. Boyce's current work focuses on environmental ethics and climate change. He has written for *Harper's*, *Scientific American*, *Politico*, *The New York Times*, *The Los Angeles Times*, and numerous scholarly journals, including *Proceedings of the National Academy of Sciences*, *Ecological Economics*, *Environmental Research Letters*, and *Climatic Change*. He is the recipient of the 2017 Leontief Prize for Advancing the Frontiers of Economic Thought and the 2011 Fair Sharing of the Common Heritage Award from Project Censored and the Media Freedom Foundation.

YONGQIN LIU is a professor of Institute of Tibetan Plateau Research, Chinese Academy of Sciences. His research fields include glacial microbe and their response to global change, aquatic microbial ecosystem ecology and biogeochemical cycle. In recent 5 years, he built the genomic catalog of glacial microbiomes, explored the glacial bacterial function and their relationship to climate and environment, and revealed the evolution and survival strategies of psychrophilic glacial bacteria and the response of bacteria in ice cores to climatic and environmental change. He is a member of the Professional Committee of the Chinese Society of Microbiology and Geological Microbiology Society and a member of the Freshwater Ecology Professional Committee of the Chinese Ecological Society since 2017. He serves as an editorial board member of Journal of Glaciology and Geocryology since 2020 and became a supervisor of the Beijing Academy of Science and Technology Innovation for Teenagers since 2014.

JUE LIU is an assistant professor, senior research fellow and doctoral supervisor at the School of Public Health, Institute for Global Health and Development, Peking University, and senior visiting scientist at the Harvard T.H. Chan School of Public Health. She is the deputy director of Peking University Health Science Center-Weifang Joint Research Center for Maternal and Child Health. Her research interests are mainly in Epidemiology of infectious disease; Prevention, control and management on major infectious disease; Maternal and child health; Big data research and application in health. She is the founder of the Global Big Data Platform for Major Infectious Disease Prevention, Control, and Management (BIG-MID). She acted as Principal Investigator of more than 20 national projects funded by the National Natural Science Foundation, the Ministry of Science and Technology, the National Health Commission, etc. She has published more than 100 papers as first or corresponding author, including *Lancet, BMJ, Bulletin of the World Health Organization*, etc. She is the member of the National Expert Panel of COVID-19 in the National Health Commission of China, Deputy Secretary General of the Professional Committee on Public Health Safety of the Society for Public Safety Science and Technology, and Executive Director and Deputy Secretary General of the Risk Management Branch of the China Association for Optimal Selection and Economic Mathematics. She has awarded Peking University Academic Innovation Award, Wang Xuan Young Scholar Award, and Boya Young Scholar of Peking University, the first prize of the Science and Technology Award of the Chinese Preventive Medicine Association, the first prize of National Maternal and Child Health Science and Technology Award.

Panel V: Key Priorities and International Cooperation for Planetary Health

KAREN SETO (NAS) (U.S. Committee Chair and Moderator) is the Frederick C. Hixon Professor of Geography and Urbanization Science at Yale University. An urban and land change scientist, she is one of the world's leading experts on contemporary urbanization and global change. She uses satellite remote sensing, field interviews, and modeling methods to understand how urbanization will affect the planet, including land change, food systems, biodiversity, and climate change. She has pioneered methods to reconstruct urban land use with satellite imagery and has developed novel methods to forecast urban expansion. She has conducted urbanization research in China for twenty years and in India for more than ten. She has extensive fieldwork experience in Asia, especially China and India, where she has conducted research for over 20 and 10 years, respectively. Dr. Seto has served on numerous national and

international scientific bodies. She was a coordinating lead author for the 2022 IPCC 6th Assessment Report and the 2014 IPCC 5th Assessment Report. She is a former co-editor-in-chief of the journal, *Global Environmental Change*. From 2000 to 2008, she was faculty at Stanford, where she held joint appointments in the Woods Institute for the Environment and the School of Earth Sciences. She has received many awards for her scientific contributions, including the Outstanding Contributions to Remote Sensing Research Award from the American Association of Geographers. Dr. Seto is an elected member of the U.S. National Academy of Sciences, the Connecticut Academy of Science and Engineering, the American Academy of Arts and Sciences, and the American Association for the Advancement of Science. She received a Ph.D. in Geography from Boston University.

WEIQI ZHOU (Moderator) is a professor of urban ecology, and Deputy Director of the State Key Laboratory of Urban and Regional Ecology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences. He is also the Director of the Beijing Urban Ecosystem Research Station. Dr. Zhou is interested in spatial heterogeneity of the landscape. He integrates field observations, remote sensing and modeling to understand the structure of urban socio-ecological systems, and its link to ecological function. He works across many disciplines including landscape ecology, urban ecology, remote sensing, and GIS, and interact with various collaborators from different fields through his involvement with various collaborative projects. The interdisciplinarity of his work has allowed him to develop innovative approaches and tools to better understanding the structure of urban socio-ecological systems, and its link to ecological function, and to interact with practitioners and policy makers to help cities like Beijing and Shenzhen accomplish sustainable urban transformations. Dr. Zhou serves as the associate editor for Landscape and Urban Planning, and editorial members for the journals such as Landscape Ecology and Journal of Urban Ecology. He is a co-leader of the Urban Ecosystem Group of the IUCN Commission on Ecosystem Management. He has published more than 100 peer-reviewed papers and three books.

JOAN ROSE (NAE) is a professor at Michigan State University and holds the Homer Nowlin Chair in Water Research. She serves as the Co-Director of the Center for Advancing Microbial Risk Assessment, which addresses evidence-based risk assessments for management of waterborne pathogens. Dr. Rose is an international expert in water microbiology, water quality, and public health safety and has published more than 300 manuscripts. For more than 20 years, she has been involved in drinking water investigations of waterborne outbreaks and is well known for her work on the waterborne outbreak of Cryptosporidium in Milwaukee. She is a pioneer in the emerging science of viral metagenomics—sequencing virus DNA in water sources, discharges, and shipping ballast using next-generation high-throughput technology. Her global activity includes investigation of waterborne disease outbreaks and the study of water supplies, treatment, and reclamation. Her applied research interests include study of microbial pathogens in recreational waters and climatic factors impacting water quality. Dr. Rose recently won the Stockholm Water Prize and is a member of the National Academy of Engineering. She is a member of the Great Lakes Science Advisory Board for the EPA. She has served on numerous boards and committees of the National Academies and is currently a member of the Board on Environmental Studies and Toxicology. Dr. Rose earned her B.Sc. from the University of Arizona, her M.S. from the University of Wyoming, and her Ph.D. from the University of Arizona, all in microbiology.

MAUREEN LICHTVELD (NAM) is the Dean of the School of Public Health, the Jonas Salk Chair in Population Health, and Professor of Environmental and Occupational Health at the University of Pittsburgh. She studies environmental public health, focusing on environmentally induced disease, health disparities, environmental health policy, disaster preparedness, public health systems, and community resilience. Her research examines the cumulative impact of chemical and non-chemical stressors on communities facing environmental health threats, disasters, and health disparities. Previously, Dr. Lichtveld chaired Tulane University's Department of Environmental Health Sciences and also directed Tulane's Center for Gulf Coast Environmental Health Research, Leadership, and Strategic Initiatives. Earlier in her career, she worked at the U.S. Centers for Disease Control and the U.S. Department of

Health and Human Services Agency for Toxic Substances and Disease Registry. She is a member of the board of the Consortium of Universities for Global Health. Dr. Lichtveld is an elected member of the U.S. National Academy of Medicine and is a member of the National Academies' Board on Global Health. Dr. Lichtveld earned an MD degree from the University of Suriname and an MPH in Environmental Health Sciences from Johns Hopkins University.

BINBIN LI is the Assistant Professor of Environmental Sciences of the Environmental Research Center at Duke Kunshan University. She holds a secondary appointment with the Nicholas School of the Environment at Duke University. She focuses on the synergy between biodiversity conservation and sustainable development. Her research covers conservation planning under climate change and the One Health framework, endangered and endemic species conservation in China such as giant pandas, priority setting and management of protected areas, and sustainable infrastructure building in the Belt and Road Initiative. She promotes to use innovative technology, market tools and policies to solve conservation problems and assist sustainable local community development. Dr. Li has been awarded EC50 by Explorers Club, one of the world's most inspiring explorers. She is the IUCN Species Survival Commission expert, associate editor of Frontiers of Ecology and Evolution and Integrative Conservation, and serves on the editorial board of Conservation Biology, Global Ecology and Conservation and Biodiversity Science. Dr. Li is engaged in science communication and nature education. She is a signed nature photographer at Swild in China and directed the documentary "Secret Worlds of Min Mountains-Wanglang". From 2013-2015, she was on the advisory board for the Disney nature documentary "Born in China". She is also one of the founders of SilverLining Conservation Center, which aims to increase the capacity of storytelling for conservation practitioners and change behaviors using media instruments.

XIAOLING ZHANG is a Professor at the Department of Public & International Affairs and an affiliated professor at the School of Energy and Environment at City University of Hong Kong. Along with being the Associate Editor of npj Urban Sustainability (Nature partner series) and Co-Editor in Chief of Land Use Policy, she has also received the Clarivate Highly Cited Researchers Award in 2022 (Cross-field). With a passion for sustainability science, energy economics, urbanization and environmental management, she has dedicated to advancing the theoretical development of sustainability science by developing integrated and quantitative models that synthesize environmental science, economics, engineering, and satellite remote sensing analysis using multidisciplinary approaches such as machine learning, complex network, input-output, and LCA analyses. Her main focus is to identify, monitor, assess, and simulate the interdependencies, trade-offs, and interactions among energy, environment, economic, and social-ecological systems in shifting towards dynamics of anthropogenic sustainability and resilience. Her recent research focuses on decarbonization pathways through the investigation and implementation of sustainable development practices such as renewable energy systems, in countries of the global South. She explores this through a technical, managerial, economic, and behavioral perspective. Her most recent project, funded by the Research Grant Council (HK), is "Making it Real: Nudging Individuals' Risk Perception of Climate Change to Engage in Pro-environmental Behavior." She is also member of UNESCO Inclusive Policy Lab.