

中国地方应对气候变化政策

哈佛气候协议项目研讨会

Subnational Climate Change Policy in China

A Research Workshop of the Harvard Project on Climate Agreements

主办方：清华大学能源环境经济研究所

协办方：哈佛全球研究所

In Collaboration with and hosted by the
Institute of Energy, Environment, and Economy, Tsinghua University
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Participant Biographies

CHAI Qimin is the Director and Associate Professor in the International Cooperation Department at the National Center for Climate Change Strategy and International Cooperation, Ministry of Ecology and Environment; Deputy Director of the Research Center for Green Finance and Sustainable Development at the University of International Business and Economics; and guest Professor of Research at the Center for Contemporary Management at Tsinghua University and Guizhou Institute of Technology. He has academic degrees in engineering, management, and finance, and his professional activities and publications focus on global climate governance, new energy policy, green finance and investment, Belt and Road Initiative, Ecological Civilization theory, climate change economics, and integrated assessment. He has worked at Tsinghua University since 2005, primarily in charge of modeling development for the Integrated Assessment Model for Global Change (IAMC). He was formerly an Assistant Professor of Management Science and Engineering at the Institute of Energy, Environment and Economy, and the Co-Director of the Tsinghua-MIT Program on Energy and Climate Change Modeling, and a fellow at the Institute of Nuclear and New Energy Technology, China Automotive Energy Research Center, and the Laboratory of Low Carbon Energy, Tsinghua University. He was also a Visiting Professor in the College of Engineering (Energy Modeling Forum) at Stanford University, and the Joint Global Change Research Institute of

Pacific Northwest National Laboratory and the University of Maryland under the U.S. Department of Energy from 2008 to 2009. He came to NCSC as Deputy Director of the Strategy and Planning Department when it was founded in 2012. He was once the Deputy Mayor of a western city in China, and also the Deputy Director of the Development and Reform Commission in local governments from 2013 to 2014. He currently serves as Delegate for the Chinese Government Delegation for UN Climate Negotiations, and advisor of local governments for the Low Carbon City and Emission Trading Scheme Pilots. He is a columnist for *China Daily* and *Caixin Finance*.

Michael DAVIDSON is a post-doctoral research fellow in the Harvard Kennedy School's Belfer Center for Science and International Affairs. Michael studies the engineering implications and institutional conflicts inherent in deploying low-carbon energy at scale, focusing on China and India. His research has looked at renewable energy integration barriers, electricity market design, and the implications of transitioning coal sectors under decarbonization pathways. He holds a Ph.D. in engineering systems from the MIT Institute for Data, Systems, and Society, an M.S. in technology and policy from MIT, and a B.S. in mathematics and physics and B.A. in Japanese studies from Case Western Reserve University.

HE Jiankun, is a Professor at Tsinghua University (THU). He has worked at THU since 1970 after graduating from the Department of Engineering and Physics, THU. He is now Director of the Academic Committee of the Institute of Climate Change and Sustainable Development, THU. From 1994 to 2007, he served as the Vice President and Executive Vice President of THU, and the Dean of the School of Economics and Management, THU. From 2008 to 2016, he served as the Director of the Institute of Low Carbon Economy, THU. He serves as the Vice Chairman of China's National Experts Panel on Climate Change, the Director of Beijing Experts Panel on Climate Change, and the Deputy Director of China Industrial Energy Conservation and Clean Production Association. Prof. He's research focuses on energy system engineering and strategies to combat climate change, and has received more than 10 national or provincial/ministerial Scientific and Technology Progress Awards for the research programs he presides over. He has published more than 200 academic papers.

Gørild HEGGELUND, Ph.D., is a Senior Research Fellow at the Fridtjof Nansen Institute (FNI), and was FNI China representative from 2014-2017. She has carried out research on China's environmental, energy, and climate change policy for three decades, including the Arctic. From 2009-2014 she was Senior Climate Change Advisor at UNDP China. Heggelund was Country Director, China & Head of Energy and Climate Policy, INTASAVE Asia-Pacific (2014-2016). Heggelund has experience from evaluation projects in China and is currently China Programme Focal Point for the meta evaluation commissioned by Children's Investment Fund Foundation (CIFF) for the China Renewables Programme as part of China's Energy System Revolution. She was Senior Evaluator in an international evaluation team to provide evaluation services of energy related coal cap strategies in China (2017-18) commissioned by CIFF, Hewlett Foundation, and ClimateWorks Foundation. Heggelund is international advisor to the ongoing Special Policy Study (SPS) on "Global Climate Governance and China's Role" under the China Council for International Cooperation on Environment and Development (CCICED); she was international expert in the CCICED SPS on Good City Models under the Concept of Ecological Civilization. Prior to this, she took part as international expert and international coordinator in the Task Force on Environmental Protection and Social Development in 2013 as well as in the Task Force for China Environment and Development Outlook. Heggelund has lived and worked in China for more than 16 years and is fluent in Chinese, having studied at Peking University.

JIANG Zhao Li is Deputy Director General of the Department of Climate Change and the National Development and Reform Commission of China. He received his bachelor's degree in science and art from Southwest University, his master's in science and art from Lanzhou University and a Ph.D. from the Chinese Academy of Social Science.

Valerie J. KARPLUS is Assistant Professor of Global Economics and Management at the MIT Sloan School of Management. Karplus studies resource and environmental management in firms operating in diverse national and industry contexts, with a focus on the role of institutions and management practices in explaining performance. She is an expert on China's energy system, including technology and business model innovation, energy system governance, and the management of air pollution and climate change. She studies the determinants of clean energy transitions in emerging markets, with projects in China, India, and Sub-Saharan Africa. From 2011 to 2015, she directed the MIT-Tsinghua China Energy and Climate Project, a five-year research

effort focused on analyzing the design of energy and climate change policy in China, and its domestic and global impacts. She holds a BS in biochemistry and political science from Yale University and a Ph.D. in engineering systems from MIT.

Nathaniel KEOHANE is an economist, advocate, and expert on climate, environment, and energy issues in the United States and globally. Dr. Keohane is Senior Vice President for Climate at Environmental Defense Fund, a leading nonprofit advocacy organization based in New York. In 2011-2012, he served in the Obama Administration as Special Assistant to the President for Energy and Environment in the National Economic Council and Domestic Policy Council, where he helped to develop and coordinate administration policy on a wide range of energy and environmental issues. Prior to joining the administration, Dr. Keohane was Director of Economic Policy and Analysis and then Chief Economist at EDF, playing a lead role in efforts to enact comprehensive cap-and-trade legislation in Congress. Dr. Keohane is an Adjunct Professor of Law at New York University, and a past Senior Fellow and Lecturer in Global Affairs at Yale University's Jackson Institute. Before joining EDF in 2007, Dr. Keohane was an Associate Professor of Economics at the Yale School of Management. His research in environmental economics has been published in prominent academic journals, and he is co-author of *Markets and the Environment* (2nd ed., Island Press, 2015), and co-editor of *Economics of Environmental Law* (Edward Elgar, 2009). He received his Ph.D. from Harvard University in 2001, and his B.A. from Yale College in 1993.

Radhika KHOSLA is the Research Director of the Oxford India Centre for Sustainable Development at Somerville College, and a Senior Researcher at the Smith School of Enterprise and Environment, School of Geography and the Environment, at the University of Oxford. She works on examining the productive tensions between urban transitions, energy services consumption, and climate change, with a focus on developing country cities. Her broader interdisciplinary research examines how cities in transition manage the tensions of meeting growing energy needs for development while protecting the local and global environment. Radhika's other academic affiliations are at the Massachusetts Institute of Technology (USA), University of Pennsylvania (USA), and the Centre for Policy Research (India). Her previous roles include Fellow at the Centre for Policy Research in New Delhi, where she worked on the analytic and strategic dimensions of India's energy and climate policies, with a focus on the technological, institutional, and behavioural aspects of energy use and its lock-in to rapidly growing urban environments. She was also Staff

Scientist at the Natural Resources Defense Council in New York where she helped set up the organization's work on clean energy and climate change in India and led research and implementation on building energy policies in Indian states. She serves on government policy committees, and boards of journals and book presses. She holds a Ph.D. in the Geophysical Sciences from the University of Chicago and an undergraduate and master's degrees in physics from the University of Oxford.

QI Shaozhou is a Professor and Doctoral Supervisor in the Economics and Management School, Wuhan University. He currently serves as Dean of the Low Carbon Economics School of Hubei University of Economics and Director of the Climate Change and Energy Economics Study Center (CCEE) and the Center for European Studies, Wuhan University. He was awarded the New Century Excellent Researcher by the Education Ministry of China and Jean-Monnet Chair Professor by the European Union. His research interests include carbon market (ETS), climate change and energy economics. He has published more than sixty research papers in international and domestic journals as well as several books in related fields. Professor Qi has presided over major research projects in philosophy and social sciences for the Education Ministry of China, 973 Science -Technology Programs, the "11th Five-Year plan," the Science-Technology Support Program for the "12th Five-Year plan," and the Science and Technology Ministry of China, as well as a number of national-level major projects related to carbon markets, climate change, energy economics and policies. He has submitted more than 20 advisory reports and policy plans for The Development and Reform Commission, The Science and Technology Ministry, The Ministry of Commerce, the government of Hubei province, and Wuhan city. He is a Reviewer of IPCC AR5 and the major author of the China Evaluation Report on Climate Change in the "13th Five-Year plan."

QI Ye is a leading expert on China's environmental policy and is a senior fellow and Director of the Brookings-Tsinghua Center for Public Policy (BTC) in Beijing. His research focuses on China's policies on climate change, environment, energy, natural resources, and urbanization. His recent work examines low carbon development in China, including an annual report analyzing how China is balancing its economic growth and environmental challenges. Qi also headed up the design of China's first low carbon development plan, for the city of Baoding in Hebei Province. Along with his duties as BTC director, Qi serves as the Cheung Kong Professor of Environmental Policy and Management at Tsinghua University's School of Public Policy and Management. From 1996 through

2003, he taught ecosystem management and climate change science at the University of California, Berkeley's Department of Environmental Science, Policy and Management. Prior to joining the BTC, he was Director for the Climate Policy Initiative in Beijing and Director of the Climate Policy Institute at Tsinghua University. Qi received his doctorate in environmental science in 1994 from State University of New York College of Environmental Science and Forestry and from Syracuse University in New York. Qi also received the NOAA Postdoctoral Fellowship Award (1994) and National Science Foundation Fellowship (1995). Qi studied agriculture, ecology, and economics at Hebei Agricultural University, the Chinese Academy of Agricultural Sciences, and the Chinese Academy of Sciences. Qi publishes extensively on and serves as a reviewer for a number of international journals including *Science*, *Nature* and *Proceedings of National Academy of Sciences*, has published *Environmental Governance in China* in 2008, and co-authored the book, *The Governance of Climate Relations between Europe and Asia* (2013). He is principal investigator and Chief Editor of the *Annual Review of Low Carbon Development in China* which has been published in both English and Chinese since 2010.

Robert N. STAVINS is the A. J. Meyer Professor of Energy & Economic Development at the Harvard Kennedy School, Director of the Harvard Environmental Economics Program, Director of Graduate Studies for the Doctoral Programs in Public Policy and Political Economy & Government, Co-Chair of the Harvard Business School-Kennedy School Joint Degree Programs, and Director of the Harvard Project on International Climate Agreements. He is a University Fellow of Resources for the Future, a Research Associate of the National Bureau of Economic Research, Co-Editor of the Review of Environmental Economics and Policy and the Journal of Wine Economics, and a member of the Board of Directors of Resources for the Future and the Scientific Advisory Board of the Fondazione Eni Enrico Mattei. He is an elected Fellow of the Association of Environmental and Resource Economists. He was formerly Chairman of the Environmental Economics Advisory Committee of the U.S. Environmental Protection Agency's Science Advisory Board. He has been a Lead Author of the Second, Third, and Fifth Assessment Reports of the Intergovernmental Panel on Climate Change. His research has focused on diverse areas of environmental economics and policy, and has appeared in leading economics, law, and policy journals, as well as a dozen books. He has been a consultant to several administrations, Members of Congress, environmental advocacy groups, the World Bank, the United Nations, state and national

governments, and private foundations and firms. He holds a B.A. in philosophy from Northwestern University, an M.S. in agricultural economics from Cornell, and a Ph.D. in economics from Harvard.

Robert STOWE is Executive Director of the Harvard Environmental Economics Program (HEEP) and Co-Director of the Harvard Project on Climate Agreements, both University-wide initiatives based in the Harvard Kennedy School (HKS). He teaches courses on climate-change policy at HKS and, with the HEEP team, designs the curriculum for an HKS executive-education program on climate-change and energy policy. Dr. Stowe has participated, through the Harvard Project, in the annual Conferences of the Parties of the U.N. Framework Convention on Climate Change since 2007. He was a Contributing Author to a chapter on international cooperation in the Intergovernmental Panel on Climate Change's Fifth Assessment Report and has participated regularly in biannual meetings of the Climate Change Expert Group, hosted by the Organisation for Economic Co-operation and Development, in Paris. With the HEEP and Harvard Project team, Dr. Stowe has designed agendas for fourteen research workshops and policy roundtables since 2011. Topics include China's national carbon-pricing system, the elaboration and implementation of the Paris Agreement, sub-national climate-change policy in North America, and the governance of solar geoengineering. Workshops and roundtables have been held at HKS and in Beijing, Shanghai, Toronto, Mexico City, Berlin, and New York. Dr. Stowe has co-edited, with Professor Robert Stavins (HKS), three volumes of expert briefs based on research workshops (most recently: *Governance of the Deployment of Solar Geoengineering*, February 2019). Dr. Stowe holds a Ph.D. in political science from the Massachusetts Institute of Technology and an A.B. in physics from Harvard College.

Katie SULLIVAN serves as Managing Director of IETA, the premier global multi-sector business voice for the intersection of markets and climate change. For two decades, IETA's mission has been to support durable climate policies and financial structures that attract private sector engagement and capital at scale. On behalf of IETA's 150+ corporate members, Katie leads efforts to inform market solutions to address environmental challenges across the Americas and globally. She also manages IETA's growing climate finance, aviation and digital innovation sustainability initiatives. Katie currently sits on the University of Toronto's Environmental Finance Committee, the newly-launched Canadian Institute for Climate Change Advisory Panel, the International Carbon Capture & Storage (CCS) Knowledge Centre Board, Ivey Foundation's Climate Advisory Group, the Global Steering

Committee for the Carbon Pricing Leadership Coalition (CPLC), and Blockchain for Climate's Advisory Panel. Prior to IETA, Katie worked as a Senior Consultant at ICF International. In 2019, Katie was recognized as a Clean16 and Clean50 award recipient for contributing to Clean Capitalism Leadership in Canada.

TAN Xianchun, Ph.D., is Professor and Vice Director of the Institute for Sustainable Development Strategy in the Institute of Science and Development, Chinese Academy of Sciences. She was also a visiting scholar at the John F. Kennedy School of Government, Harvard University from 2015 to 2016. Prof. Tan's research areas include climate economics, climate change strategy and planning, including adaptation and mitigation strategies to climate change and relative capacity building of government officials, national and regional low-carbon development strategies, and planning to implement China's (I)NDC, address climate change through South-South Cooperation. She has been carrying out valuable theoretical exploration in the modeling and prediction of energy - economy - carbon emission system, emission reduction potential and cost-benefit analysis of the greenhouse gas reduction policy, regional low-carbon development planning and low-carbon roadmaps. Prof. Tan has led more than twenty research projects, published more than thirty academic papers, and has received three research awards and three patents.

Fei TENG is an associate professor and deputy director of Institute of Energy, Environment and Economy in Tsinghua University. He is also a lead author of IPCC 5th and 6th assessment reports in WG III. He is the lead author of the second and the third China's National Assessment Report on Climate Change, member of drafting team for several key national documents, including National Plan on Climate Change and White Paper on Climate Change. He served as an advisory expert for China's negotiation team on mitigation and transparency under the UNFCCC for many years. In 2014, he was selected as the chair of consultative group of experts (CGE) to non-Annex I countries national communication. He has also been a member of BASIC expert group since 2011. He was the chief scientist of National Basic Research Program of China on Comparability and MRV in mitigation actions. His research interests include: climate policy, international climate regime, consumer behavior in energy consumption, and energy modeling.

TIAN Qi works in the Department of Ecological Environment of Hubei Province dealing with climate change. Tian Qi has been engaged in climate change and carbon market construction for many years, and has pursued in-depth study on low-carbon development and carbon market construction.

WANG Pu is an Associate Professor at the Institute of Sciences and Development, Chinese Academy of Sciences. His research fields include climate and energy policies and sustainable development strategies. More specifically, his current research projects involve China's carbon emissions trading program and co-benefits between greenhouse gas mitigation and environmental pollution reduction. Wang Pu received his Ph.D. from Cornell University in 2014 in the field of natural resources. He was a postdoctoral fellow at the Belfer Center for Science and International Affairs at the Harvard Kennedy School of Government from 2015-2017, where he conducted research on cap-and-trade systems for greenhouse-gas emissions in China and China-U.S. cooperation in climate-change policies. He was sponsored by CAS Pioneer Hundred Talents Program in 2017.

Christine WONG is Professor of Chinese Studies and Director of the Centre for Contemporary Chinese Studies at the University of Melbourne. She was Professor of Chinese Public Finance and Director of Chinese Studies at the University of Oxford from 2007 to 2013, and the Henry M. Jackson Professor of International Studies at the University of Washington during 2000-2007. She has also taught economics at the University of California, Santa Cruz and Berkeley campuses; and Mount Holyoke College. Outside of academia, Professor Wong has held senior staff positions in the World Bank and the Asian Development Bank, and worked with many other international agencies including the IMF, OECD, and UNDP. She is a member of the OECD Advisory Panel on Budgeting and Public Expenditures. Professor Wong has published widely on China's public finance, intergovernmental fiscal relations and their implications for governance, economic development and welfare.

WU Libo, is Professor of Economics and Professor of Applied Statistics at Fudan University, Director of the Dept. of Development and Planning, Fudan University, Deputy Director, Institute for Big Data, Fudan University, and Director, Center for Energy Economics and Strategies at Fudan University. She was the 2016 Youth Yangtze Scholar nominated by the Ministry of Education of the People's Republic of China. She is mainly devoted to studying energy consumption behavior and emissions reduction mechanism of micro-market entities, assessing their environmental willingness and driving factors, simulating the economic and technological impacts of low-carbon energy policies, emissions reduction effects and exploring their industrial, regional and individual heterogeneity. She has published more than 50 papers in *PNAS*, *Nature Climate Change*, *Energy Economics*, *Social Sciences in China*, *Economic Research Journal* and other SSCI, SCI, and domestic authoritative journals. She has undertaken national major projects such as the National Social Science Fund Major Project and the National 863 Project. Wu has received several awards for theoretical research achievements, having won second prize of the Excellent Research Achievements of the Humanities and Social Sciences of the Ministry of Education, third prize of the Outstanding Achievements of Shanghai Philosophy and Social Science Research, and second prize of the Shanghai Excellent Teaching Achievement. She has abundant consulting experiences for government policy making and successively won four policy decision-making consultation awards such as the second prize of the National Energy Administration's outstanding achievements in soft science research. Several research achievements were adopted by the Development and Reform Commission, the Economic and Information Commission of Shanghai Municipal Government.

ZENG Xuelan, PhD, director of Guangdong Research Centre for Climate Change of Sun Yat-sen University, is mainly engaged in research and application in the field of carbon trading, low-carbon policy and planning, and renewable energy. She is one of the major experts supporting the design, construction and operation of Guangdong ETS (once served as the leader of Guangdong ETS management working team established by Guangdong government). She also participates in the design of the China national ETS (served as deputy director of China national ETS allowance allocation working team established by Department of Climate Change, National Development and Reform Commission). She has received grants from Ministry of Science and Technology, National Development and Reform Commission and Guangdong Province, and others to undertake many projects on low-carbon development, carbon trading, and renewable energy. She has published

many papers in journals such as *Climate Policy* and *Applied Energy*. She has awarded the third prize of science and technology of Guangdong province.

ZHANG Jianyu helped found the China program of Environmental Defense Fund (EDF), a leading US environmental NGO. Since 1999, he has been responsible for the establishment and overall management of the EDF China program. Being an expert on environmental and public policies, with a focus on the application of Market-Based Instruments (MBIs) in solving environmental problems, Zhang is known for his leadership and contribution to the establishment of China's Carbon Trading System, the largest of its kind in the world. Zhang has authored many peer-reviewed articles, columns, book chapters and is a frequent commentator on environmental issues in China with public media. Zhang serves on many advisory boards, including Chinese Research Academy of Environmental Sciences (CRAES), China-ASEAN Environmental Cooperation Center, and is a special advisor for China Council for International Cooperation on Environment and Development (CCICED). Zhang is a visiting fellow with the School of Public Policy and Management of Tsinghua University, as well as a Visiting Professor with the School of Environment and Energy, Peking University. Zhang got his advanced degrees from Tsinghua University (Bachelor), Stanford University (Master), and Carnegie Mellon University (Ph.D.). He recently completed his Ph.D. studies in Finance from the Chinese Academy of Social Science.

ZHANG Xiliang is Professor and Director of the Institute of Energy, Environment, and Economy, Tsinghua University. Prof. Zhang is also Director of the Tsinghua-MIT China Energy and Climate Project and Deputy Director of the Low Carbon Energy Laboratory, Tsinghua University. His current research interests include low-carbon energy economy transformation, integrated assessment of energy and climate policies, renewable energy, and automotive energy. Since 2015 he has been heading the expert group on China's national carbon market design under the Department of Climate Change and Ministry of Ecology and Environment. He is also leading a major research initiative "Green and Low Carbon Economy Transformation" for the National Natural Science Foundation of China. He co-led the expert group for drafting the "China Renewable Energy Law" in 2004-2005 under the Environment and Resource Committee of the People's Congress. Prof. Zhang has been a lead author of the 4th and 5th IPCC Climate Change Assessment Report. He is Chair of the Energy Systems Engineering Committee of the China Energy

Research Society, and Vice President of the China Renewable Energy Industry Association. Prof. Zhang holds a Ph.D. in Systems Engineering from Tsinghua University.

ZHOU Li is an Associate Professor at the Institute of Energy, Environment and Economy at Tsinghua University and Deputy Director of China Carbon Market Center (CCMC). She is an expert in the field of key technologies and national policies related to climate change and energy issues. She has published more than 30 papers. She has obtained the support of Beijing's first youth talent program for outstanding young teachers under the age of 35, and was selected by an exchange program for new scientists supported by the Chinese Ministry of Science and Technology. She hosted or participated in several important projects, sponsored by scientific and technological support research of the 11th five-year plan, National 973 Program, National Natural Science Foundation of China, UNDP, Rockefeller Foundation, World Bank, and others. Her research results are recognized by other experts, and she was invited to be an author for the Global Energy Assessment (GEA) report, National Assessment Report of Climate Change, and China's third national assessment report on climate change. Some of the results were adopted as important technical support for national policy making, like provincial carbon emissions intensity control targets and national carbon market design. She was invited as an expert to participate in the "Annual Obligation Trial Assessment and Evaluation Work of Controlling Greenhouse Gas Emission Targets" since 2013, which is organized by national departments.