

WORKSHOP ON NEW TRENDS ON SUSTAINABILITY

RCC AT HARVARD. December 1, 2017

26 Trowbridge Street, Cambridge, MA

8:00-8:30 - **WELCOME BREAKFAST** -

8:30-8:45 **Opening remarks**

José Manuel Martínez Sierra. RCC Director

Alberto Garrido. UPM Vice-Rector for Quality and Efficiency

Julio Lumberras. UPM Representative to RCC.

8:45-9:10 **William C. Clark**

Harvey Brooks Professor of International Science, Public Policy and Human Development

Harvard Kennedy School

"Pursuing Sustainability"

SUSTAINABILITY IN THE AGE OF CLIMATE CHANGE: AN INCONVENIENT CONTEXT

9:20-9:45 **John D. Spengler**

Akira Yamaguchi Professor of Environmental Health and Human Habitation.

Harvard T.H. Chan School of Public Health

"Climate Change Requires Radical Collaborations"

9:50-10:15 **Rafael Borge**

Professor of Environmental Engineering

Universidad Politécnica de Madrid

"How Climate Change and Air Quality is reshaping urban life"

10:20-10:45 **Ricardo Francisco García Herrera**

Professor of Atmospheric Physics and Director of the Complutense Foundation

Universidad Complutense de Madrid

"Mechanisms and Variability of the Climate System in a Warming Environment"

10:50-11:15 **Kerry Emanuel**
Professor of Atmospheric Science
 Massachusetts Institute of Technology
 “Rethinking Climate change as a problem of risk assessment and management:
 a cross-sectoral approach to the near future”

11:15-11:35 - **COFFEE BREAK** -

11:35-12:00 **Charles Davis**
Professor of Organismic and Evolutionary Biology
 Curator of Vascular Plant Collection
 Director, Harvard University Herbaria
 “Old plants, new tricks: Creating and leveraging a virtual natural history
 collection for climate change research”

ARE SUSTAINABLE CITIES POSSIBLE? THE SOCIAL AND GOVERNANCE CONDITIONS

12:00-12:45 **Quinton Mayne & Fernando Fernández-Monge**
*Associate Professor of Public Policy & Research Fellow of the Bloomberg Harvard
 City Leadership Initiative*
 Harvard Kennedy School
 “The Political Foundations of Urban Sustainability: The case of Pittsburgh.”

12:50-1:15 **Thomas W. Malone**
 McGovern Professor of Management and the founding director of the MIT
 Center for Collective Intelligence
 MIT Sloan School of Management

1:20-2:00 - **LUNCH BREAK** -

LEADERSHIP AND INNOVATION TO FULFILL THE PROMISES OF URBAN SUSTAINABILITY

2:05-2:30 **Eva Ponce**
Executive Director, MITx MicroMasters in Supply Chain Management
 MIT Center for Transportation & Logistics
 “New Trends, Technologies & Impacts in Supply Chains”

2:35-3:00

María Eugenia López-Lambas

Associate Professor on Urban transport and planning

Deputy Director of TRANSyT-UPM

Universidad Politécnica de Madrid

“Reimagining urban mobility for the city of the future”

3:05-3:30

Alberto Garrido

Professor of Agricultural and Resource Economics

Vice-Rector for Quality and Efficiency

Universidad Politécnica de Madrid

“Linking the local with the global sphere to find paths for sustainable agricultural and food systems”

3:30-3:45

- COFFEE BREAK -

BEYOND URBAN BORDERS: PRESERVING NATURAL SITES

3:50-4:15

Francisco Pulido

Professor of Evolutionary Biology and Conservation

Universidad Complutense de Madrid

“Assessment and conservation of biodiversity in the face of global change”

4:20-4:45

Antonio Molina

Professor of Biotechnology and Plants Genomics

Director of the Centre for Plant Biotechnology and Genomics (CBGP, UPM-INIA)

Universidad Politécnica de Madrid

“Plants Adaptation to Environmental Changes: Challenges and Biotechnological Solutions”

4:50-5:15

Emilio Cerdá

Professor of Economic Analysis

Universidad Complutense de Madrid

“Environmental Economics, Climate and Energy”

5:20-5:30

Final remarks and closing

BIOGRAPHIES

Rafael Borge holds a degree on Forestry and Environmental Engineering and a Ph.D. on atmospheric modeling from the Technical University of Madrid (UPM), Spain. He leads the Laboratory of Environmental Modelling at the Department of Chemical and Environmental Engineering of the UPM. Associated professor at this same University, he runs courses on environmental engineering, air quality and environmental modeling. Currently, he coordinates the TECNAlRE research project that aims at the development and integration of new technologies and methods for multiscale modelling and measuring of urban air pollution.

Emilio Cerdá holds a PhD in Mathematics from Complutense University Madrid. He is Professor of Economic Analysis at Universidad Complutense de Madrid since 1992, and the Director of research in Sustainability and Environmental Analysis, in the Complutense Institute of International Studies (ICEI), since 2007. He was the Director of the Department of Economic Analysis 2003-2007, the President of Spanish-Portuguese Association of Natural and Environmental Resource Economics 2012-2014, the Coordinator of the PhD Program in Economics (UCM) 2013-2017, and the Coordinator of the research group in Natural and Environmental Resource Economics (UCM). He has more than 70 academic publications.

William Clark is the Harvey Brooks Professor of International Science, Public Policy and Human Development at Harvard University's John F. Kennedy School of Government. Trained as an ecologist, his research focuses on sustainability science: understanding the interactions of human and environmental systems with a view toward advancing the goals of sustainable development. He is particularly interested in how institutional arrangements affect the linkage between knowledge and action in the sustainability arena.

At Harvard, he currently co-directs the Sustainability Science Program.

Charles Davis is a Professor of Organismic and Evolutionary Biology Curator of Vascular Plant Collection and the Director of Harvard University Herbaria. He is interested in plant diversity and the intersection of evolution and ecology. His research uses phylogenetic methods to study biome evolution, floral development, molecular evolution, recent climate change, and plant classification.

Kerry Emanuel is a Professor of Atmospheric Science at Massachusetts Institute of Technology and a prominent meteorologist and climate scientist who specializes in moist convection in the atmosphere, and tropical cyclones. His research interests focus on tropical meteorology and climate, with a specialty in hurricane physics. His interests also include cumulus convection, the role of clouds, water vapor, and upper-ocean mixing in regulation of climate, and advanced methods of sampling the atmosphere in aid of numerical weather prediction.

Emanuel received an S.B. degree in Earth and Planetary Sciences and a Ph.D. in Meteorology (1978) both from MIT.

Ricardo García Herrera is a Professor at Department of Earth Physics, Astronomy and Astrophysics II, Complutense University of Madrid. He holds a Ph.D. in Physical Science from Complutense University of Madrid.

He was the President of the Spanish Agency of Meteorology (AEMET); the Public Health Director, Regional Ministry of Health of the Basque Country between 1987-1991; Environmental Health Officer, Public Health Institute of Navarra between 1986-1987; Environmental Health Officer, Regional Ministry of Health of Castilla y León, 1985-1986.

Alberto Garrido is Professor of Agricultural Economics and Policy at the Technical School of Agronomic, Food and Biosystems Engineering, Universidad Politécnica de Madrid (UPM), and Vice-Rector of Quality and Efficiency of the UPM (2016 -). Director of the Botín Foundation's Water Observatory (since April 2016). Holds a Doctoral Degree in Agricultural and Natural Resource Economics from the UPM (1995), and Master's degree from the University of California, Davis (1992). Was Assistant Director of Quality and Teaching Organization of the Technical School of Agronomic, Food and Biosystems Engineering (2015-2016). At the Research Center for Agricultural and Environmental Risk Management (CEIGRAM), a mixed R & D center of the UPM, he served as Secretary (2007-2010), Director (2010-2014) And Deputy Director (2014-2015). He was visiting professor at the University of California, Berkeley, in the 2005-2006 academic year. He is a member of the Advisory Committee of the Rosenberg International Forum of Water Policy (a program of the University of California) since 1996. His research has focused on the sustainability analysis of agriculture, with a focus on water use and policy, Agricultural and insurance risks and agricultural and natural resource policies. He is the author of 197 publications, including 21 books and 70 articles in scientific impact journals. Has supervised 21 Doctoral Theses.

Julio Lumbreras holds a degree on Chemical and Environmental Engineering from the Technical University of Madrid (UPM), and a Master in Public Administration from the Harvard Kennedy School (HKS). Julio is passionate about increasing sustainability in higher education, and transforming universities in change agents within cities. He got his PhD on Air Quality in 2003. Currently, he is Associate Professor at UPM, and Visiting Scholar at HKS. He is the UPM's Director for North America, and UPM representative to RCC. He is the Spanish representative at the Task Force on Integrated Assessment Modelling within the UN Convention on Long-Range Transboundary Air Pollution (CLRTAP). He is co-author of more than 60 papers and book chapters. He has participated in many international workshops and conferences on urban air quality, climate change and sustainable development. He has collaborated in more than 50 research works.

María Eugenia López-Lambas holds a PhD. in Law by the Universidad Complutense de Madrid, and Specialist Degree in Land Transport and Sustainable Transport, both by the Universidad Politécnica de Madrid (UPM). She is Deputy Director of TRANSyT UPM, where she works as Senior Researcher since 2002. María Eugenia is also Associate Professor since 2006 at UPM's Civil Engineering School, Department of Civil Engineering. Transport and Urban Planning. She is specialized in urban

transport, urban sustainable mobility plans and land use planning. She has extensive experience as a member of international scientific committees (ECTRI, FERSI, EC – II Civitas Programme, ELTIS, etc.), as a researcher in international and national research projects (more than 16 since 2002), She has also experience as a consultant in the public and private sector (European Investment Bank, Deloitte, Steer Davies Gleave, etc.). She is author of over 40 publications in topics related to different aspects of urban transport (e.g. infrastructures, benchmarking, urban mobility management, etc.)

Thomas W. Malone is the Patrick J. McGovern Professor of Management at the MIT Sloan School of Management and the founding director of the MIT Center for Collective Intelligence. He was also the founder and director of the MIT Center for Coordination Science and one of the two founding co-directors of the MIT Initiative on "Inventing the Organizations of the 21st Century." Professor Malone teaches classes on organizational design, information technology, and leadership, and his research focuses on how work can be organized in new ways to take advantage of the possibilities provided by information technology.

Professor Malone has published over 100 articles, research papers, and book chapters, including a widely cited 2010 article in Science magazine on measuring the collective intelligence of human groups. He is also an inventor with 11 patents and the co-editor of four books: Coordination Theory and Collaboration Technology (2001), Inventing the Organizations of the 21st Century (2003), Organizing Business Knowledge: The MIT Process Handbook (2003), and Handbook of Collective Intelligence (2015). In 2012, he received an honorary doctorate from the University of Zurich.

Jose M. Martinez is the Director of the Real Colegio Complutense at Harvard, Jean Monnet ad personam Professor for the Study of European Union Law and Government, Faculty Affiliate of the Minda de Gunzburg Center for European Studies at Harvard and Faculty Associate of the David Rockefeller Center for Latin American Studies. He teaches different courses about Europe and Spain at Harvard College. He is a Member of the IGLP Advisory Council at Harvard Law School, chair of the Internationalization and Innovation in Higher Education Study Group, co-chair of the European Union Law and Government Study Group and co-chair of the Study Group A Center-Periphery Europe? Perspectives from Southern Europe at the Minda de Gunzburg Center for European Studies at Harvard. Martínez is Academic Advisor of the European Horizons at Yale University, and one of the faculty members involved in the European Conference at Harvard University.

Quinton Mayne is Associate Professor of Public Policy in the Kennedy School of Government at Harvard University. He received his Ph.D. in Politics from Princeton University. His dissertation, entitled The Satisfied Citizen: Participation, Influence, and Public Perceptions of Democratic Performance, won the American Political Science Association's 2011 Ernst B. Haas Best Dissertation Award in European Politics as well as the 2011 Best Dissertation Award in Urban Politics. Mayne's research and teaching interests lie at the intersection of comparative and urban politics. He is

particularly interested in how the design and reform of democratic political institutions affects how citizens think and act politically.

Antonio Molina is Professor of Biochemistry and Molecular Biology at the Department of Biotechnology and Plant Biology of the Universidad Politécnica de Madrid (UPM). Since February 2016 he is Director of the Centro de Biotecnología y Genómica de Plantas (CBGP), a joint research center between the UPM and the Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA) (www.cbgp.upm.es). Dr. Molina completed his doctoral thesis at the UPM under the supervision of Dr. Francisco García-Olmedo and did a postdoctoral at the Agricultural Biotechnology Research Unit (ABRU) Syngenta (NC, USA) under the supervision of Dr. John Ryals.

Fernando Fernandez-Monge holds a MPA from the Harvard Kennedy School, a M.A. in Public Finance and Taxation from the Spanish Institute of Fiscal Studies & UNED, and JD and a B.A. in Political Science from the Autonomía University of Madrid. He is an expert on public sector reform and urban policy, and currently a fellow with the Bloomberg-Harvard City Leadership Initiative. Previously, he was a governance specialist at the World Bank, where he led technical advisory and investment projects, both with national and subnational governments, mainly in Latin America and the Middle East. He has a deep interest on cities as engines of socially inclusive and environmentally sustainable economic growth. He has worked with the City of Boston to analyze avenues for expanding its revenue sources and led a research project on the urban transformation of Pittsburgh, P.A.

Eva Ponce is the Executive Director of the Supply Chain Management MITx MicroMasters Program as well as a Research Associate at the MIT Center for Transportation & Logistics. She oversees the five online MITx courses in Supply Chain Management (CTL.SCx courses) that make up the MicroMasters Program. The courses are attended by tens of thousands of students in open enrollment from more than 180 countries. Her current research focus is the design of urban distribution models (freight deliveries) with special focus on omni-channel distribution strategies. She also leads research initiatives on Reverse Logistics and Closed-Loop Supply Chains.

Francisco Pulido is a Professor at the Department of Biodiversity, Ecology and Evolution at Complutense University of Madrid. He holds a Ph.D. in Biological Sciences from University of Konstanz (Germany). During his PhD (1993-1998), Francisco Pulido, was involved in the most important scientific study on the control of bird migration in birds (with Peter Berthold at the MPI of Ornithology in Radolfzell). In this study, he investigated the genetics and evolution of migratory behavior in blackcaps and developed the “threshold model”, which is currently the “null model” for testing evolutionary changes in migratory behavior. This study involved the study of almost 2000 blackcaps in captivity. As a postdoc, he started studying enzyme polymorphism and genetic variation at candidate gene loci with the aim of understanding the physiological and genetic bases of variation in migratory behavior. He has identified two genetic polymorphisms that are



associated with variation in migration in the blackcap, demonstrating, for the first time, the molecular basis of variation in migratory behavior

John D. Spengler is the Akira Yamaguchi Professor of Environmental Health and Human Habitation at the Harvard School of Public Health and director of the sustainability and environmental management program at the Extension School. Spengler has conducted research in the areas of personal monitoring, air pollution health effects, indoor air pollution, and a variety of environmental sustainability issues. Several of his investigations have focused on housing design and its effects on ventilation rates, the selection of building materials, energy consumption, and total environmental quality in homes. He is the author of numerous articles on air quality and other environmental issues, and co-author or co-editor of *Health Effects of Fossil Fuel Burning: Assessment and Mitigation*, *Indoor Air Pollution: A Health Perspective*, *Particles in Our Air: Concentrations and Health Effects*, and *Indoor Air Quality Handbook*.

ATTENDEES

Ángel Agudo, RCC Fellow; Visiting Researcher, Harvard T.H. Chan School of Public Health, Harvard University.

Inmaculada Borrella, Postdoctoral Associate at the MIT Center for Transportation and Logistics, Massachusetts Institute of Technology.

Rafael Carbonell, Executive Director, Taubman Center, Harvard Kennedy School, Harvard University.

Manuel Collazo, Education Attaché, Spanish General Consulate at Boston, Spanish Government.

José Domínguez, RCC Fellow; Visiting Researcher at Harvard Kennedy School, Harvard University.

Paula Fernandez-Wulff, RCC Fellow; Fulbright-Schuman Visiting Researcher, Harvard Law School, Harvard University.

Thomas Gloria, Responsible for Sustainability, Harvard Extension School, Harvard University.

José Gómez-Ibáñez, Derek C. Bok Professor of Urban Planning and Public Policy, GSD and HKS, Harvard University.

M^a Jesús García, RCC Fellow; Visiting Researcher, Ash Center for Democratic Governance and Innovation, Harvard Kennedy School, Harvard University.

John D. Macomber, Senior Lecturer of Business Administration, Harvard Business School, Harvard University.

Mounia Mostefaoui, Ph.D. Candidate, Economics and Political Science, La Sorbonne University, France, and Program on Negotiation Graduate Research Fellow at Harvard Law School.

Julie Newman, Lecturer of Environmental Planning and Sustainability; Director, MIT Office of Sustainability, Massachusetts Institute of Technology.

Flavia Perea, Director, Mindich Program in Engaged Scholarship, Center for Public Service & Engaged Scholarship, Harvard University.

Ramon Lorenzo Luis Rosa Guinto. Doctor of Public Health Class of 2019, Harvard T.H. Chan School of Public Health.



Rebeca Salguero, Master in Sustainability and Environmental Management, Harvard University.

Amanda Sardonis, Assistant Director, Environment and Natural Resources Program, Belfer Center for Science and International Affairs, Harvard Kennedy School, Harvard University.

Brooke Sutter, Master in Public Administration, Harvard Kennedy School, Harvard University.

Rand Wentworth, Louis Bacon Senior Fellow in Environmental Leadership, Adjunct Lecturer in Public Policy, Member of the faculty for the Senior Executive Fellows, Harvard Kennedy School, Harvard University.