

Fate of the Earth 2017



Climate-Food- Energy-Water Nexus

April 12-13, 2017

Kellogg Hotel & Conference Center
East Lansing, MI

Presented by the Environmental Science and Policy
Program at Michigan State University

@ESPP | #FOE17 | espp.msu.edu

Day 1: Public Symposium

Schedule for Wednesday April 12, 2017

8 am - 8:45 am Big Ten B
Registration and Breakfast

9 am - 9:15 am Big Ten C
Rachel Croson, Dean of the College of Social Science
Opening Remarks

9:15 am - 10 am Big Ten C
Joan Rose, Michigan State University
“The Water Quality Crisis: Are We Risking Our Health?”

10 am - 10:45 am Big Ten C
Lyla Mehta, Institute of Development Research
“Water and Human Development”

10:45 am - 11 am BREAK Big Ten B

11 am - 11:45 am Big Ten C
Charles Fishman, author
“What Water Needs Now: Smart Water in the Era of Climate Change & Donald Trump”

Participate in the live Twitter discussion online by using #FOE17 and following @ESPP. Ask a question by also using #AskFOE.

12 pm - 2 pm Big Ten B
Lunch and Lecture:
Lana Pollack, International Joint Commission
“No Clean Slate- Opportunities to Clean Up the Mess You are Inheriting”

2 pm - 2:45 pm Big Ten C
Michael Mascarenhas, Rensselaer Polytechnic Institute
“Troubled Waters: Access and Safety Under Emergency Conditions”

2:45 pm - 3 pm BREAK Big Ten B

3 pm - 3:45 pm Big Ten C
Panel “The Flint Water Crisis: What Have We Learned”
Susan Masten, Civil and Environmental Engineering
Debra Furr-Holden, Epidemiology and Biostatistics
Kent Key, Office of Community Scholars

4 pm - 5 pm Lincoln Room
Joint Reception with The Fountain Challenge

Student Poster Presentations

Students from across MSU are participating in a poster presentation during Fate of the Earth. The posters will be displayed in Big Ten B both days of the symposium, with judging taking place during lunch on Wednesday April 12. Winners will be announced at espp.msu.edu. [See a list of presenters on page 15.](#)

Day 2: Scientific Colloquium

Schedule for Thursday April 13, 2017

Although the Scientific Colloquium is open to the public, the intended audience is primarily researchers, including faculty, postdocs and graduate students, and the language will be technical.

8 am -8:30 am
Registration and Breakfast
Big Ten B

12 pm - 2 pm
Lunch
Big Ten B

8:30 am - 9:15 am
Shahzeen Attari, Indiana University
“Misperceptions of Water Use and Water Systems”
Big Ten C

2 pm - 2:45 pm
Vincent Tidwell, Sandia National Laboratories
“Evolving Nexus of Climate, Energy, Water and Waste”
Big Ten C

9:15 am - 10 am
Jennifer Carrera Michigan State University
“Water Poverty in a Land of Wealth: Considering the Implications and Coupled Resources in Low-income Communities in the United States”
Big Ten C

2:45 pm - 3:30 pm
Sergio Villamayor-Tomas, Humboldt University Berlin
“Bottom-Up Nexus Adaptations Through the Lenses of Polycentric Governance”
Big Ten C

10 am - 10:15 am BREAK
Big Ten B

3:30 pm - 3:45 pm BREAK
Big Ten B

10:15 am - 11 am
Rainer Horn, Christian-Albrechts University at Kiel
“Effect of Landuse Management Systems on Coupled Hydraulic Mechanical Soil Processes”
Big Ten C

3:45 pm - 4:30 pm
David Zilberman, University of California-Berkeley
“Climate Change Water and Energy”
Big Ten C

11 am - 11:45 am
Megan Konar, University of Illinois
“Food is Groundwater in Disguise: Aquifer Depletion, Food Security and Drought”
Big Ten C

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Speaker Biographies



Shahzeen Attari
Indiana University

Dr. Shahzeen Attari, member of Indiana University's School of Public and Environmental Affairs faculty since 2011, focuses on human behavior and resource use. Dr. Attari and her lab work on a range of research topics that span perceptions, motivations, and biases of how people understand complex systems and use natural resources.

Jennifer Carrera
Michigan State University

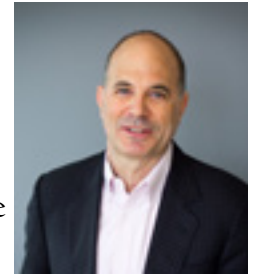
Jennifer Carrera is an assistant professor jointly appointed in the Department of Sociology and the Environmental Science and Policy Program. She is also a core affiliated faculty member for the Gender, Justice and Environmental Change program within the Center for Gender in Global Context. Dr. Carrera's work uses citizen science and community based participatory research (CBPR) methods to explore access to affordable and clean water in low-income and minority communities. Her current projects include water quality affordability and shutoffs in Detroit, Michigan, failing septic systems in Lowndes County, Alabama, and the relationship between the politics of water governance and health in Flint, Michigan. Her research focuses on the relationship between water governance and power and how everyday practices of governance produce and reproduce environmental injustices.



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Charles Fishman
Author and Investigative Reporter

In the last four years, author and investigative reporter Charles Fishman has become one of the most forceful, challenging and inspiring public voices on water issues, speaking everywhere from MIT and UCLA, to Hershey chocolate and the U.S. State Department. Fishman's book, "The Big Thirst: The secret life & turbulent future of water," is the best-selling water book in a generation, and is changing how people think about water, and how they manage it. "The Big Thirst" does something few water books do — it restores a sense of wonder about water, along with a sense of urgency. Fishman is a former reporter for the Washington Post, and was a reporter and editor at the Orlando Sentinel and the News & Observer in Raleigh, NC. Since 1996, he has worked for the innovative business magazine Fast Company.



Debra Furr-Holden
Epidemiology and Biostatistics, MSU

Dr. Debra Furr-Holden is an epidemiologist with expertise in drug and alcohol dependence epidemiology, prevention science and environmental strategies and structural intervention for violence, alcohol, tobacco and other drugs. In the last decade her work has focused in large part on developing environmental strategies and structural interventions for violence, alcohol, tobacco and other drug prevention in high-risk and urban settings. She currently PI's the Centers for Disease Control and Prevention grant Alcohol Policies to Prevent and Reduce Youth Violence Exposure and the co-Director of the Johns Hopkins Center for the Prevention of Youth Violence.



Rainer Horn

Christian-Albrechts University at Kiel

Dr. Rainer Horn is Professor for Soil Science at the Christian-Albrechts University at Kiel. Dr. Horn is Chair of the Institute of Plant Nutrition and Soil Science and President of the International Union of Soil Sciences. His research interests include soil mechanics, stress strain effects in structured soils, soil structure effects, chemical as well as hydraulic processes in structured soils, couples processes in structured unsaturated soils, waste deposit management capping system, soil tillage effects on soil properties and functions, chemical and biological aspects of soil aggregates, and carbon sequestration.



Kent Key

Director, Office of Community Scholars and Partnerships, MSU College of Human Medicine

Kent D. Key, PhD, MPH, BBA, has an extensive background in community engaged research that spans over the past fifteen years in the city of Flint. His research interests include both racial and ethnic health disparities research, and clinical and translational research. During the past ten years, Dr. Key has worked to create culturally effective approaches to engage urban youth into public health research and careers in public health. Since 2013, Dr. Key has focused his research efforts to explore Community Engaged Research as it relates to the Flint Water Crisis. Dr. Key is the Director of the Office of Community Scholars and Partnerships at the Michigan State University, College of Human Medicine-Public Health Division.



Megan Konar

University of Illinois

Dr. Megan Konar is assistant professor in the Department of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign where she conducts policy-relevant research that focuses on the intersection of water, food, and trade. Her research is interdisciplinary, drawing from hydrology, environmental science, and economics.



Michael Mascarenhas

Rensselaer Polytechnic Institute

Dr. Michael Mascarenhas is Associate Professor at Rensselaer Polytechnic Institute. He is a sociologist with scholarly interests in the fields of Post-colonial and Development Studies, Environmental Justice and Racism, and Science and Technology Studies. His research examines the political, social, and environmental tensions and controversies surrounding recent transnational changes in the governance of water regimes.



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Susan Masten

Civil and Environmental Engineering, MSU



Professor Masten's research involves the use of chemical oxidants for the remediation of soils, water, and leachates contaminated with hazardous organic chemicals. Her research is presently focused on the in-situ use of gaseous ozone to oxidize residual contaminant in saturated soils using ozone sparging and in unsaturated soils using soil venting. Dr. Masten is also very interested in evaluating the toxicity of the by-products of chemical oxidation processes as measured by gap junction intercellular communication. Work has focused on the ozonation and chlorination of several pesticides, including atrazine, alachlor, and lindane and on the PAHs, especially pyrene. Current work is being conducted to identify the by-products formed upon the ozonation of several PAHs and to assess their toxicity.

Lyla MehtaProfessional Research Fellow
Institute of Development Studies

Professor Lyla Mehta is a Professorial Research Fellow at IDS and a Visiting Professor at Noragric, Norwegian University of Life Sciences. She trained as a sociologist (University of Vienna) and has a Ph.d. in Development Studies (University of Sussex). Her work focuses on water and sanitation, forced displacement and resistance, scarcity, rights and access, resource grabbing and the politics of environment/development and sustainability. More recently, her projects have addressed peri urban dynamics, the politics of Integrated Water Resources Management (IWRM) in Africa and uncertainty and climate change from below in India.

**Lana Pollack**United States Section Chair,
International Joint Commission

Lana Pollack was elected three times to the Michigan Senate and spent 12 years as President of the Michigan Environmental Council. Currently Pollack, appointed by President Obama, is United States Section Chair of the International Joint Commission. This bi-national treaty organization helps prevent and resolve disputes and advises Canada and the United States governments on their shared boundary waters. Pollack was also a Fellow at the Institute of Politics at Harvard's Kennedy School of Government, taught at the University of Michigan, was elected a trustee of the Ann Arbor Board of Education, ran for the U.S. House and Senate, co-directed a school in Zambia and served on several educational, non-profit and corporate boards.

**Joan Rose**Homer Nowlin Chair in Water
Research

Dr. Joan Rose is the Homer Nowlin Chair in Water Research at Michigan State University. Dr. Rose is an international expert in water microbiology, water quality and public health safety, publishing more than 250 manuscripts. She has been involved in the investigation of numerous waterborne outbreaks world-wide. Her work has examined new molecular methods for waterborne pathogens and zoonotic agents such as *Cryptosporidium* and enteric viruses and source tracking techniques. She has been involved in the study of water supplies, water used for food production, and coastal environments as well as drinking water treatment, wastewater treatment and reclaimed water.



Vincent Tidwell

Sandia National Laboratories

Vincent Tidwell is a Principle Member of the Technical Staff at Sandia National Laboratories. He has 18 years experience conducting and managing research on basic and applied projects in water resource management, nuclear and hazardous waste storage/remediation, and petroleum recovery. Most recently efforts have focused on establishing a multi-agency, multi-university center devoted

to the creation and application of computer-aided decision support tools and stakeholder mediated decision processes. Focus of this effort is on water resource management and planning. These models adopt a system dynamics framework for integrating the broad physical and social processes important to water planning. Additionally, these system level models are directly linked to a variety of other tools, providing an integrated basis for analysis, visualization and decision support.

Sergio Villamayor-Tomas

Humboldt University

Sergio Villamayor-Tomas is Marie Curie research fellow at the Institute of Science and Technology (ICTA, Autonomous University of Barcelona) since September 2016. Previously, he spent three years as lecturer and research associate at Humboldt University and 4 years as PhD student at the Ostrom Workshop in Political Theory and Policy Analysis (Indiana University, Bloomington). Sergio's work is motivated by an interest in the theory of the commons and a concern about the interplay between individual and community-based adaptations, the management of large scale water socio-ecological systems, environmental justice movements and the water-energy-food nexus. He has carried fieldwork research in Spain, Mexico, Colombia, Germany, Switzerland and currently also in Brazil.



David Zilberman

University of California-Berkeley

Dr. David Zilberman has been a professor in the Agricultural and Resource Economics Department at UC Berkeley since 1979. His research has covered a range of fields including the economics of production technology and risk in agriculture, agricultural and environmental policy, marketing and more recently the economics of climate change, biofuel and biotechnology.



The Fountain Challenge

ESPP is partnering with The Fountain Challenge this year during the Fate of the Earth Symposium. Student teams design an innovative, functional and aesthetically-pleasing indoor or outdoor public drinking water fountain that addresses concerns about water quality. Teams compete for a \$30,000 prize pool. Judging of the designs will take place during Day 1 of FOE culminating in an awards announcement at the end of FOE, followed by a reception Wednesday evening. Plan to view the finalists team banners at the Kellogg Center April 12. For more information, go to fountainchallenge.msu.edu



The **Fountain**
Challenge

Students, form a team to create a design for a chance to win!

Environmental Science and Policy Program

Dr. Jinhua Zhao

Director

Dr. Vlad Tarabara

Associate Director

Symposium Organizing Committee

Dr. Thomas Dietz

Sociology and ESPP

Dr. Julie Libarkin

Geological Sciences

Dr. R. Jan Stevenson

Integrative Biology

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The annual Fate of the Earth Symposium is made possible through a generous endowment given to the Environmental Science and Policy Program by Barbara J. Sawyer-Koch and Donald F. Koch.

Donald F. Koch is an MSU Professor Emeritus of philosophy and a nationally recognized scholar of the American philosopher John Dewey. Barbara J. Sawyer-Koch received her master's degree in social science from MSU in 1990 and served as a member of MSU Board of Trustees from 1980-1996.

Poster Presenters

Jelili Adebiyi Community Sustainability

Jacob Bruner Engineering

Zeyou Chen Plant, Soil and Microbial Sciences

Younsuk Dong Biosystems Engineering

Tyler Hampton Earth and Environmental Sciences

Patricia Jaimes Geological Sciences

Caitlin Kirby Earth and Environmental Sciences

Joseph Lee-Cullin Earth and Environmental Sciences

Shengpan Lin Integrative Biology

Lin Liu Earth and Environmental Sciences

Camille McCall Civil and Environmental Engineering

Tula Ngasala Civil and Environmental Engineering

Kevin Query Crop and Soil Sciences

Vidhya Ramalingam Environmental Engineering

Eleanor Rappolee Earth and Environmental Sciences

Melissa Rojas Downing Biosystems and Agricultural Engineering

Jean-Rene Thelusmond Civil and Environmental Engineering

Anthony Van Witsen Journalism

Poster Judges

Dr. Julie Libarkin Geological Sciences

Dr. Jade Mitchell Biosystems and Agricultural Engineering

Dr. Robert Richardson Community Sustainability

Dr. Alvin Smucker Plant, Soil and Microbial Science

Dr. Wei Zhang Plant, Soil and Microbial Science

Hosts

Dr. Jennifer Carrera Sociology and ESPP

Dr. Stephen Gasteyer Sociology

Dr. Emily Huff Forestry

Dr. Shu-Guang Li, Civil and Environmental Engineering

Dr. Maria Claudia Lopez Community Sustainability

Dr. Alvin Smucker Plant, Soil and Microbial Sciences

Dr. R. Jan Stevenson Integrative Biology

Dr. Adam Zwickel Criminal Justice and ESPP

Dr. Jinhua Zhao Economics and ESPP

MICHIGAN STATE UNIVERSITY



Environmental Science
& Policy Program
at Michigan State University

#FOE17



Environmental Science and Policy Program
Michigan State University

293 Farm Lane, Room 274
East Lansing, MI 48824
environment.msu.edu
espp@msu.edu
517-432-8296