



Symposium on Transdisciplinary Sustainability Science

March 22–23, 2018

Morgan Hall – Temple University



Sponsored by:

Temple University's Center for Sustainable Communities

Symposium Overview and Aims

This symposium brings together scholars working on the social, environmental, economic, policy and cultural dimensions of sustainability science to inspire and outline the next frontier of research on sustainability science. The aim of the event is to identify gaps, provide a conceptual framework, and outline a transdisciplinary sustainability science research agenda with key questions and funding strategies for research proposals.

Our motivation emerges from the acknowledgment that the magnitude of the challenge to protect both human well-being and essential life supporting systems requires science to transcend from understanding towards solving problems that emerge from the interaction between human and natural systems (DeFries et al. 2012, Miller et al 2014, Castree 2015). The integration of discovery-based and solutions-based research requires transdisciplinary approaches that bring together disparate modes of inquiry between the social, the earth, and the environmental sciences (Mooney et al. 2013, Castree et al. 2014, Liu et al 2015). Construction of such frameworks is both conceptually and technically challenging, because it involves the interplay between human actions and decisions and environmental and ecological processes that support life on Earth (Liu et al. 2015, Verburg et al. 2015).

The event will focus on three themes: i) envisioning sustainable futures; ii) institutional and technological transitions toward sustainability and iii) defining the role of transdisciplinary science and academics on the implementation of transformational policies toward sustainability. Program participants will discuss topics such as: energy transitions and/or socio-technological change; institutional transformations and governance mechanisms for sustainability; urban growth and urban footprint, urban-rural interdependencies; societal values, science communication; ecosystem change; climate, health and wellbeing; food production, consumption and access; sustainable use of water resources; and social, economic and environmental inequalities.

The deliverable outcomes of the event are to: i) outline a synthesis paper about the state of knowledge, gaps and priority contributions of transdisciplinary research to understand and address pressing sustainability challenges; ii) develop a white paper outlining a collaborative research strategy for environmental change and sustainability science research and iii) identify potential strategies for collaboration between participant institutions and researchers. The university research community is invited to engage in this process through the symposium and in follow up activities as we collectively outline an agenda for the future sustainability science research agenda at Temple.

Preliminary Program

Day 1. March 22: Morgan Hall 27

Morning session

Time	Activity	Speaker	Institution
8:00–8:45	Registration and breakfast		
8:45–9:30	Sustainability and environmental change research at Temple University	Michele Masucci, Ph.D. Vice President for Research Melissa Gilbert, Ph.D. Director, Center for Sustainable Communities	Temple University
9:30– 10:30	Panel I: Sustainability research at Temple University		
10:30– 11:00	Morning break		
11:00– 11:40	Reframing sustainability through a lens of equity and social justice	Robin Leichenko, Ph.D.	Rutgers University
11:40– 12:20	Linking local consumption to global environmental impacts	Klaus Hubacek, Ph.D.	University of Maryland
12:30– 1:30	Keynote speaker and lunch: Land System Architecture: Lessons from Land System Science for Urban Sustainability	B. L. Turner II, Ph.D.	Arizona State University

Afternoon session

Time	Activity	Speaker	Institution
1:30–2:10	All Things Considered: Black Faces, White Spaces & Dreaming a Green Future	Carolyn Finney, Ph.D.	University of Kentucky
2:10–2:50	Anti-Carbon Democracy: Building a Climate Politics that Can Win	Matthew Huber, Ph.D.	Syracuse University
2:50–3:20	Afternoon break		
3:20–4:00	Getting to Green: The Role of Facts and Values in the Era of Trump	Rachel Schwon, Ph.D.	Rutgers University
4:00–4:40	Climate and health education as a strategy to build more secure future communities.	Gilma Mantilla, MD	Universidad Javeriana
4:40–5:30	Reception and poster session		

Day 2. March 23

Morning session: Morgan Hall D301

Time	Activity	Responsible	Institution
8:00–9:00	Breakfast		
9:00–10:00	Panel II: Sustainability research at Temple University		
10:00–10:30	Morning break		
10:30–11:10	The Illusive Quest to Make Sustainability Science Matter	Ruth DeFries, Ph.D.	Columbia University

11:10–11:50	TBD	Representative(s) from the Philadelphia Sustainability Office	
11:50–12:30	Can environmental justice lead us to more sustainable and resilient water resources?	Javier Arce–Nazario, Ph.D.	University of North Carolina
12:30–12:45	Concluding remarks	Melissa Gilbert	Temple University

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The Center for Sustainable Communities at Temple University

The College of Liberal Arts at Temple University

The Office of the Vice President for Research at Temple University

About the Center for Sustainable Communities at Temple University

The Center for Sustainable Communities at Temple University, Directed by Dr. Melissa R. Gilbert, conducts integrated social and environmental research on natural, technological, and socio-economic systems to address the challenges of sustainability—how can we meet the needs of people locally and globally through equitable, innovative and practical solutions that protect the environment which sustains life on the planet.

The Center for Sustainable Communities (CSC) at Temple University Ambler was established in July 2000 to develop and promote new approaches to protect and preserve quality of life through sustainable development. The Center, housed in the College of Liberal Arts, draws on resources at both TU Ambler and Main Campuses to conduct interdisciplinary research and offer educational and community outreach programs. A working resource for government agencies, community organizations, and industry, the CSC provides objective information and services to improve decision-making relative to sustainable development. The Center draws on expertise from across the social and environmental sciences and diverse methodological approaches that include geospatial analysis and techniques, community-based research and citizen science.

Participants



Javier Arce Nazario,
University of North
Carolina

Javier Arce Nazario's work has focused on integrating interdisciplinary approaches to better understand environmental change and people's interaction with the landscape. Most recently he has investigated water quality and adaptability to extreme precipitation events in Puerto Rico. His interests specifically include understanding how watershed composition impacts water quality in the tropics, assessing the economic impact of extreme precipitation events, and exploring how community water management can be viewed through the lens of environmental justice. He is also interested in using historical orthophotography as a tool for education and to encourage community involvement in water quality and environmental concerns. Dr. Arce Nazario studied Ecology, Evolution and Environmental Biology at Columbia University, writing his dissertation on how humans and rivers shape the Peruvian Amazon landscape. Before joining the Geography program at UNC, he held a UC President's Postdoctoral Fellow position at UC Berkeley, and professorships at the University of Puerto Rico campuses at Utuado and Cayey. He has been awarded the Presidential Early Career Award for Scientists and Engineers (PECASE), the Fulbright Fellowship, and the Harry S. Truman Leadership Scholarship.



Ruth Defries,
Columbia University

Ruth DeFries is a professor of ecology and sustainable development at Columbia University in New York. She uses images from satellites and field surveys to examine how the world's demands for food and other resources are changing land use throughout the tropics. Her research quantifies how these land use changes affect climate, biodiversity and other ecosystem services, as well as human development. She has also developed innovative education programs in sustainable development. DeFries was elected as a member of the U.S. National Academy of Sciences, one of the country's highest scientific honors, received a MacArthur "genius" award, and is the recipient of many other honors for her scientific research. In addition to over 100 scientific papers, she is committed to communicating the nuances and complexities of sustainable development to popular audiences, most recently through her book "The Big Ratchet: How Humanity Thrives in the Face of Natural Crisis." DeFries is committed to linking science with policy, for example through her involvement with the Environmental Defense Fund, Science for Nature and People, World Wildlife Fund, and reconciling conservation and development in central India.



Carolyn Finney,
University of Kentucky

Carolyn Finney, Ph.D. is a writer, performer and cultural geographer. As a professor in Geography at the University of Kentucky, she is deeply interested in issues related to identity, difference, creativity, and resilience. In particular, she explores how issues of difference impacts participation in decision-making processes designed to address environmental issues. More broadly she likes to trouble our theoretical and methodological edges that shape knowledge production and determine whose knowledge counts. Carolyn is grounded in both artistic and intellectual ways of knowing - she pursued an acting career for eleven years, but a backpacking trip around the world and living in Nepal changed the course of her life. Motivated by these experiences, she returned to school after a 15-year absence to complete a B.A., M.A. and Ph.D. The aim of her work is to develop greater cultural competency within environmental organizations and institutions, challenge media outlets on their representation of difference, and increase awareness of how privilege shapes who gets to speak to environmental issues and determine policy and action. Carolyn has appeared on the Tavis Smiley show, MSNBC, NPR and has been interviewed for numerous newspapers and magazines. Most recently an interview with Carolyn in the Boston Globe was cited as one of the top ten ideas/stories of 2014. She served on the U.S. National Parks Advisory Board working to assist the National Park Service in engaging in relations of reciprocity with diverse communities. Her first book, *Black Faces, White Spaces: Reimagining the Relationship of African Americans to the Great Outdoors* was released in 2014 (UNC Press).



Klaus Hubacek,
University of Maryland

Dr Klaus Hubacek is an ecological economist with a research focus on conceptualizing and modeling the interaction between human and environmental systems and developing and modeling scenarios of future change. Klaus has worked extensively with stakeholders in participatory research projects and led large interdisciplinary research teams. He has published more than 200 articles in journals, books and research reports on topics such as climate change adaptation and mitigation, participatory modelling, management of ecosystems services, land use change and governance. Klaus has conducted studies for a number of national agencies in Austria, China, Japan, UK, and U.S. and international institutions such as the European Statistical Office (EUROSTAT), the International Union for Conservation and Nature (IUCN), and the World Bank. Currently, he is on the advisory board for the City of Shanghai Climate Center in China and for the Sustainable Land Management Program of the German Federal Ministry of Education and Research; he serves on the editorial board of a number of scientific journals and is council member of the International Input-Output Association.



Matt Huber,
Syracuse University

Dr. Huber is interested in three areas. (1) The relationship between oil, capitalism, and the politics of “life” in the United States. (2) The relationship between industrial capital and ecological degradation (3) The role of capital investment in shaping governance and property relations in mining territories. In his book, *Lifeblood: Oil, Freedom and the Forces of Capital* (University of Minnesota Press, 2013) he looks beyond the usual culprits—Big Oil, petro-states, and the strategists of empire. The book finds a deeper and more complex explanation for our ‘oil addiction’ in everyday practices of oil consumption. He suggests that those practices have in fact been instrumental in shaping the broader cultural politics of American capitalism. His new research focuses on making visible the “hidden abodes” of industrial production -- spaces of intensive material and energy throughput, emissions, and waste production. He suggests political ecology in general and the politics of climate change in particular have not paid sufficient attention to such the industrial core of our nature-society metabolism. He received the 2014 James Blaut Award in recognition of innovative scholarship in cultural and political ecology from the Cultural and Political Ecology Specialty Group of Association of American Geographers.



Robin Leichenko,
Rutgers University

Dr. Leichenko's research intersects the fields of economic geography and human dimensions of global environmental change. My work examines how and why processes of global economic and environmental change differentially affect cities, regions and sectors, and the implications of these processes for questions of vulnerability, equity and sustainability. My book, *Environmental Change and Globalization: Double Exposures* (with Karen O'Brien, Oxford University Press, 2008), was awarded the 2009 Meridian Book Award for Outstanding Scholarly Work in Geography from the Association of American Geographers. The book presents a generalizable approach for analysis of many types of interactions between global environmental change and globalization. Current funded projects explore three inter-related issues: economic vulnerability and resilience to climate change; economic and social equity implications of climate change impacts and adaptation; and the interplay between global change processes and urban spatial development. These projects are focused on coastal zones in New Jersey, New York, and the Caribbean, and I also have research interests in South Asia, China, southern Africa, and the Arctic. I am serving as a Review Editor for Working Group II of the IPCC Fifth Assessment Report, and I recently completed service on an NRC Panel on Climate Change and Social and Political Stresses. I am Associate Editor for *Urban Climate* and serve on the editorial boards of *Economic Geography*, *Growth and Change*, and *Journal of Extreme Events*. I am also currently chairing the AAG Economic Geography Specialty Group (EGSG). Here is a listing of EGSG sessions ([link](#)) at the upcoming AAG Meeting in San Francisco (Mar 29-Apr 2, 2016).



Gilma Mantilla,
Universidad Javeriana

Gilma Mantilla is a medical doctor and epidemiologist with over 25 years of public health experience on designing and implementing public health policy, health promotion and disease control programs and disease surveillance and control systems at international, national and local levels. In the last 12 years with extensive engagement in policy processes related to the development of effective demand for climate information including the implementation of innovative tools and protocols for creation, integration and dissemination of knowledge and information related with climate and public health. She also contributes to applied research to produce risk profiles of selected climate-sensitive diseases by country and region and development of partnerships to assess and verify climate and health information. Education and training have been key components of Gilma's work; she has organized training courses, developed curriculum and trained international public health staff in public health management and public health policy. Lately she has organized training courses and developed curriculum on Climate Information for Public Health local and internationally.



Rachel Schwom,
Rutgers University

As associate professor in the School of Environmental and Biological Science's Department of Human Ecology, Dr. Schwom conducts research that links sociology, psychology, engineering, economics, and public policy to investigate how social and political factors influence society's responses to energy and climate problems. More specifically she has studied public opinion on climate change, household behaviors to mitigate climate change, and NGO politics of energy and climate change in the U.S. and China. Since arriving at Rutgers eight years ago, Professor Shwom, who became Associate Director of the Rutgers Energy Institute (REI) in July 2017, has actively participated in REI and has served as a key member of its Energy Economics, Environment, and Policy Systems strategic planning committee. Rachael has also served on the Rutgers Climate Institute's advisory committee and is currently a Co-PI on a multi-university, \$1.5 million National Science Foundation grant on "Reducing Household Food, Energy and Water Consumption: A Quantitative Analysis of Interventions and Impacts of Conservation." Since 2003, she has served on: the American Statistical Association's Advisory Committee to the Department of Energy's Energy Information Administration, the American Sociological Association (ASA)'s Task Force on Climate Change from 2011-2015, and Chaired the Research and Publications Committee of ASA's Environment, Technology and Society Section from 2015-2016. Prior to coming to Rutgers, Rachael was a Christine Mirzayan Science Technology and Policy Fellow at the National Academies of Sciences and a Michigan State University Environmental Science and Policy Fellowship recipient (Ph.D., Sociology 2009). From 2001-2004, Rachael worked in the utility demand side management sector.



B.L. Turner II,
Arizona State
University

B. L. Turner II is a geographer and human-environmental scientist who works on land change from prehistory to present, urban land system design, vulnerability and resilience, and sustainability. He works on deforestation, primarily in Mexico and Central America, and urban design in arid environments, especially the American Southwest. Professor Turner has been involved in a number of international and national science programs examining global environmental change including those dealing with land systems of the International Geosphere-Biosphere Programme, the International Human Dimensions Programme, DIVERSITAS, and the U.S. National Climate Assessment, and is a senior review editor for *Climate Change and Land: An IPCC Special Report*. He is also the Associate Editor of the *Proceedings of the National Academy of Sciences* focused on sustainability. He teaches courses society and environment, sustainability, and land systems.