Dupont Summit 2014

::::::::: *Science, Technology, and Environmental Policy Issues*

December 5, 2014 ❖Historic Whittemore House, Washington, DC

The Policy Studies Organization

Panel
"Cross-scale Comparisons of Urban Sustainability Strategies: Environmental Science, Technology, and Urban Policy Implications"
Moderator: Richard W. Foley, *University of Virginia*

The 2010 census shows that approximately eighty percent of US residents live in metropolitan areas. Those people depend on aging infrastructure, which will cost an estimated $30 billion per year for the twenty-five largest cities over the next decade to replace, according to the Center for an Urban Future. Those expenditures are only addressing deferred maintenance and are not tackling critical sustainability challenges, such as urban heat island effects, rising storm damage from flooding, and blighted neighborhoods. Environmental science and technology shows that green infrastructure offers a means to alleviate the worst effects of climate change in urban areas and reconnect neighborhoods across the city. However, municipal governments are struggling to finance the upfront capital and recurring maintenance costs for many of these solution options. Urban sustainability challenges involve complex, intertwined socio-technical systems that will not yield to 'silver bullet' solutions. Yet, they demand coordinated strategies to achieve urban sustainability this century. This panel brings together three diverse perspectives on urban sustainability strategies from the neighborhood level, to city planning offices, and through goal setting by a mayor's office.

The first speaker (Michael Bernstein) will present on a sustainability science project, at the neighborhood-scale, which sought to advance green infrastructure, reinvigorate community, enhance community livability, and mitigate urban heat island effects. The second speaker (John Harlow) will present on sustainability planning strategies for 'Reinventing' Phoenix along the Lightrail corridor in Central Phoenix. This research explores the dynamics among city planners, Arizona State University researchers, business owners, landowners, and residents facilitated by a "Sustainable Communities" grant issued under a partnership between the Department of Housing and Urban Development (HUD), the Department of Transportation (DOT), and the Environmental Protection Agency (EPA). The third speaker (Dr. Braden Kay) will discuss how goals motivate urban sustainability strategies within the municipal government of Orlando, FL. The goals are intended to leverage research in support of solution-oriented policies.

The panel moderator (Dr. Rider W. Foley) will close with remarks on the cross-cutting lessons from these three diverse cases, then facilitate discussion with the audience. All speakers are working, researching, and engaging with stakeholders to enact sustainability strategies in urban settings. The panel offers cross-case comparison across scales from neighborhood to city-wide strategies and across geographies from the Southwest (Phoenix, AZ) to the Southeast (Orlando, FL). This panel presents a unique opportunity for federal and national policymakers to consider a suite of case studies that build toward urban sustainability strategies.

Biography

Richard W. Foley, *University of Virginia*

Rider W. Foley is an assistant professor in the Science, Technology and Society program in the Engineering and Society Department at the University of Virginia. He co-leads the 'Nano and the City' thematic research cluster for the Center for Nanotechnology in Society. His research interests attend to the intersection of society and society and the complex problems left demanding solutions.

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"Urban sustainability intervention at the neighborhood level: Mitigating urban heat island and enhancing walkability in Phoenix, Arizona, USA"

Michael Bernstein – *Arizona State University*

Phoenix, Arizona as with other southwestern US cities, struggles with urban sprawl, water stress, and childhood obesity. These challenges disproportionately affect low–income communities. While the City of Phoenix has taken steps to tackle some of these challenges, limited resources, the complexity of the issues themselves, and outright resistance to change hamper or even obstruct city efforts. Alliances of non-profit organizations, professionals, researchers, community organizations, and citizens have begun to try to augment city through a range of programs and projects. This presentation reports on preliminary work of one such alliance: an intervention research project conducted in collaboration with community representatives, city staff, and non–profit organizations to mitigate adverse effects of urban sprawl in the Sky Harbor Neighborhood in Phoenix. Challenges associated with community-based projects, such as balancing the desires of the community and broader principles of sustainability are discussed. Transferable lessons for tree and shade projects specifically, and university--community--city partnership projects generally, will be offered and discussed.

Biography

Michael Bernstein is currently a doctoral candidate at the School of Sustainability at Arizona State University. His research looks at interventions into complex systems. For this presentation, Michael will draw upon his research with urban communities. Michael is a graduate research assistant with the Center for Nanotechnology in Society and is studying public values in science policy.

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"Interdepartmental Urban Sustainability"

John Harlow – *Arizona State University*

Phoenix, AZ opened a 20-mile light rail corridor for service in 2008. In order to leverage its large public investment, the city applied for and received a "Sustainable Communities" grant from a partnership between the Department of Housing and Urban Development (HUD), the Department of Transportation (DoT), and the Environmental Protection Agency (EPA). The grant's explicit sustainability mandate was operationalized in six domains: 1) economic development, 2) green infrastructure, 3) health, 4) housing, 5) land use, and 6) mobility. The goals of the grant were to engage the light rail corridor's breadth of stakeholders to envision a more sustainable Phoenix across all six domains in 2040, as well as build strategies to work toward that vision. This presentation explains how the interdepartmental origins of the grant funding translated into a complex actor network under the grant. The perspectives, skills, and time needed to effectively manage such a network are instructional for similar projects, and transdisciplinary work in general. The most important and transferable aspects of the work will be highlighted: building trust and effective communication among funding bodies, city departments, researchers, and citizens that can be the foundation for developing sustainable solution options for complex urban challenges.

Biography

John Harlow is currently a doctoral candidate at the School of Sustainability at Arizona State University. His research examines how sustainable urban planning through Reinvent Phoenix can improve participation and urban development. It also addresses how governance systems can leverage digital tools and behavioral sciences (psychology, neuroscience, economics, etc.) to achieve more sustainable outcomes. John helped develop and has taught for The Sustainability Science Education Project at the Center for Sustainable Health. He was also the Conference Director for ICSS 2012 at Arizona State University.

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"Motivating a Sunbelt City to a Forty Percent Tree Canopy: The role of local policy makers, science, the federal government, philanthropy, and citizens"

Braden Kay – *City of Orlando Office of Sustainability and Energy*

In 2013, The City of Orlando passed the GreenWorks Community Action Plan, which set aggressive sustainability goals in order to promote quality of life, mitigate climate change, and become a creative and economically competitive 21st Century city. One key aspect of the plan calls for achieving a 40% tree canopy by 2040, which will require 200,000 to 400,000 new trees to be planted within the 102 square miles of land in the city in 25 years. While the economic, social, urban heat reduction, energy efficiency, and climate adaptation justifications for tree canopy investments can be made, there is a critical need for data and research to be communicated to elected officials, city staff, businesses leaders, local philanthropies, and citizens in order to catalyze the land use, water, and financial resources required to dramatically shift the city's tree canopy from 25% to 40% in an urbanizing city. We will discuss the role and importance of solution-oriented science, and science translation in guiding green infrastructure investments. Barriers and successes in both community-led and government-led green infrastructure projects will be analyzed in order to layout the challenges that the climate and sustainability research and advocacy communities face, including insufficient budgets, conflicts with the needs of utilities, a lack of biodiversity, water shortage, tree diseases, disengaged or distracted citizens, property rights debates, and development pressures. We will propose what research, policy, and innovation networks are needed to guide green infrastructure investments in American cities from the perspective of an American city with ambitious tree canopy goals, but a potential lack of the research, policy, political, and social strength for the goal to be a slam dunk. This case study is important to consider in terms of particular needs in the Sunbelt, where cities face serious political and cultural barriers to large-scale urban interventions, but have the serious need to reduce carbon and urban heat island. If green infrastructure is going to take a foothold in the majority of American cities, then it will be important for policy makers, researchers, sustainability professionals, and city governments to use solution-oriented data collection and citizen/stakeholder engagement in order to guide investments towards sustainable urban forests and necessary climate action.

Biography

Braden Kay is currently the Sustainability Project Manager for the City of Orlando. He is holds a PhD from Arizona State's School of Sustainability. Recently, Braden managed community engagement and sustainability strategy building for the City of Phoenix's Reinvent Phoenix grant, which is funded by the U.S. Department of Housing and Urban Development's Sustainable Communities program.