SCHOOL of SUSTAINABILITY

ARIZONA STATE UNIVERSITY

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy
Tischa A. Muñoz-Erickson

Will defend her dissertation

How Cities Think: Knowledge-Action Systems Analysis for Urban Sustainability in San Juan, Puerto Rico

Abstract

With over two thirds of the world's population living in cities by 2050 and a large ecological footprint globally, it behooves us to understand urban sustainability and improve the capacity of city planners and policymakers to achieve sustainable goals. Producing and linking knowledge to action is a crucial strategy for sustainability and a key tenet of sustainability science. This dissertation examines how knowledge-action systems — the networks of actors/institutions involved in the production, sharing and use of policy-relevant knowledge — work in cities in order to inform what capacities are necessary for the local governance context to effectively attain sustainable outcomes. Little is known about how knowledge-action systems work in cities and how they should be designed to address the complexity of these urban systems. I examined this question in the context of land use and green area governance in the city of San Juan, Puerto Rico, where political conflict exists over extensive urban development, particularly over the city's remaining green areas (e.g., urban forests, parks, and riparian areas). Despite having an official plan for sustainable land use, the Municipality of San Juan faces tremendous challenges in attaining this vision and desired outcomes. This study evaluated how well the existing knowledge-action system is addressing and building capacities for addressing sustainable goals in San Juan.

The overall research question guiding this research is: How do we develop knowledge-action systems in complex, dynamic, and contested urban governance context? I developed and applied an interdisciplinary framework that draws from multiple social science perspectives. The Knowledge-Action System Analysis (KASA) Framework integrates theories and concepts of social network analysis and knowledge co-production (i.e., epistemic cultures and boundary work). Implementation of the framework involved multiple methods - surveys, interviews, participant observations, and document analysis - to gather and analyze both quantitative and qualitative data. Results from the analysis revealed a diverse network of actors contributing different

types of knowledge– from scientific, planning, organizational, to local – to the urban land use and green area governance context in San Juan. This network and epistemological diversity reflects potential for multi-scalar creative and innovative capacities to address land use sustainability. These capacities, however, are hindered by various political and cultural factors, such as: 1) breakdown in knowledge flow between state and local actors; 2) divergent visions of future urban development, especially within the Municipality itself, resulting in a lack of shared imaginary of sustainability for the city; 3) extensive boundary work by city and state officials to question the legitimacy and credibility of local knowledge from the university and communities; 4) and privileging knowledge of outside experts (e.g. private architectural firms), therefore reflecting a competing network of knowledge also influencing planning in San Juan.   Specific recommendations to address these barriers and build appropriate knowledge capacities for San Juan are discussed. Furthermore, I propose a set of criteria for building just and effective knowledge-action capacities and institutions for cities, including: context and inclusiveness, adaptability and reflexivity, and polycentricity. In this way, this study also makes theoretical contributions to the knowledge systems literature specifically, and urban sustainability in general.

Wednesday, March, 28, 2012
10:00 am
Wrigley Hall, 481

Faculty, students, and the general public are invited.

Supervisory Committee:
Kelli L. Larson (Co-Chair)
Charles L. Redman (Co-Chair)
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