

Green Infrastructure and Socio-Hydrology: A Concept for Sustainable Cities

Laura Schifman, Ph.D.
Graduate Program Manager
BU Urban - Graduate Program in Biogeoscience and Environmental Health
Boston University

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Abstract. An ageing combined sewer network and the realization that urban green spaces are beneficial for humans have made green infrastructure a popular means to in urban planning. However, management using green infrastructure (GI) has largely focused on storm water management. Thus, design and implementation of GI usually rely on physical site characteristics and local rainfall patterns, and do not typically account for human or social dimensions. This traditional approach leads to highly centralized storm water management in a disconnected urban landscape and can deemphasize additional benefits that GI offers, such as increased property value, greenspace aesthetics, heat island amelioration, carbon sequestration, and habitat for biodiversity. I propose a framework in which GI planning and implementation moves from a purely hydrology-driven perspective to an integrated socio-hydrological approach. This allows for an iterative, multifaceted decision-making process that would enable a network of stakeholders to collaboratively set a dynamic, context-guided project plan for the installation of GI, rather than a “one-size-fits-all” installation. I explain how different sectors (e.g., governance, nongovernmental organizations, communities, academia, and industry) can create a connected network of organizations that work toward a common goal. Through a graphical Chambered Nautilus model, the framework is experimentally applied to contrasting GI case studies and shows that this multistakeholder, connected, decentralized network with a coevolving decision-making project plan results in enhanced multifunctionality, potentially allowing for the management of resilience in urban systems at multiple scales.



Biosketch. Dr. Laura Schifman received her M.S. in Hydrology and Water Resources Management from SUNY ESF in 2010 and her Ph.D. in Environmental Science from the University of Rhode Island in 2014. Her dissertation research focused on designing and testing improved stormwater filtration materials as part of an interdisciplinary team between environmental scientists and engineers. After being awarded her Ph.D., Dr. Schifman spent one year in the Sustainable and Environmental Technologies Laboratory at University of Rhode Island where she monitored for contaminant accumulation in stormwater ponds. After that, Dr. Schifman was awarded a National Research Council Fellowship with the U.S. EPA in Cincinnati, OH where she joined another interdisciplinary team of environmental and ecosystem scientists to address issues related to urban stormwater management. Dr. Schifman now manages a new graduate program at Boston University that bridges Biogeoscience and Environmental Health in Urban Systems.

Schedule at: <http://www.usf.edu/engineering/cee/documents/ewre-seminar-speaker-schedule-spring2018v2.pdf>

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