



Environmental Science Graduate Program Student Seminar Series

Social Behaviors and Green Infrastructure Design to Improve Urban Stormwater Runoff Quality

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<https://osu.zoom.us/j/98924708162?pwd=VF1WWNwOGFGd2kzZWV3RXQ0Z09uQT09>



Abstract

Urban stormwater runoff represents a substantial source of pollutants, which negatively affects ecosystems and human health. Green infrastructure (GI), such as bioretention and permeable pavement, uses soil, porous media, and plants as a natural filter. People live, work, and play in and around GI. When people are not properly informed about the purpose, process, and implications of GI installation, backlash is inevitable. Given the inherent socio-cultural component of GI, people need to be well-informed and involved in the design process. Well-informed and involved people will likely not only be more supportive of GI practices, but also change their daily behaviors to be more pro-environmental. Further, as GI practices are being adopted worldwide, design features need to be well-suited for specific regions.

The purpose of this proposed research is to unite the social and engineering aspects of GI. This will be accomplished through questionnaire, laboratory, and international studies. Questionnaire distribution will quantify resident opinions of and knowledge about GI, which will guide future outreach targeted at changing stormwater-related human behavior. Laboratory column studies will determine optimum bioretention cell design features and soil mix for fertilizer and deicing salt abatement in cold climate regions. Finally, GI installations in Chinese “sponge cities” will be compared to those in the U.S. to uncover design features and outreach best suited for improving regional stormwater quality.