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Understanding perceptions and adoption of green stormwater infrastructure

Fanny Carlet

Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
In
Planning, Governance and Globalization

Kris Wernstedt, Chair
Ralph Buehler
C. Theodore Koebel
Michael Mortimer
John Randolph

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Alexandria, Virginia

Keywords: green infrastructure, stormwater, diffusion of innovation, innovation adoption, local government

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Understanding perceptions and adoption of green stormwater infrastructure

Fanny Carlet

Abstract

Building on existing theories of diffusion of innovation and technology acceptance, the object of this study is to investigate how municipal officials' perceptions of key attributes of green infrastructure influence their attitudes toward adoption. In addition, this dissertation provide useful insights into the relationship between the diversity of green infrastructure tools that local jurisdictions across the US support with policies or programs, and the factors influencing adoption.

A key feature of this study is a nationwide survey conducted among US city stormwater managers, planners and other public officials, whose responses were combined with secondary data and analyzed using multiple regression techniques. Findings indicate that municipal officials' perceptions of relative advantage, compatibility, trialability, and perceived resources are significant predictor of favorable disposition toward adoption, while perceived risk has a negative influence on attitudes. In addition, the level of environmental awareness and support has the greatest impact on the number of green infrastructure strategies jurisdictions have adopted. Based on the analysis in this study, proponents of green stormwater infrastructure will be better prepared to promote diffusion of these strategies at the local level.

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