

Governance Factors of Sustainable Stormwater Management: A Comparative Study of Case Cities in China and Sweden

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Abstract : Cities worldwide are increasingly adopting sustainable stormwater solutions such as using green infrastructure to mitigate challenges related to stormwater, e.g., pluvial flooding, and stormwater pollution. Barriers caused by governance factors have been identified as the main reason for the slow pace of sustainable stormwater management implementation. In this study, we examined governance factors influencing local implementation in four case cities: Lund and Malmö, Sweden, and Xi'an New Area and Zhenjiang, China. Based on systems thinking of interrelations between previously identified influencing governance factors in sustainable stormwater management (SSM), we developed a causal loop diagram (SSM-CLD) and used it to analyze 23 semi-structured interviews with local government officers in the four case cities. Based on the results, we created one SSM-CLD for each country and analyzed the main differences between these four SSM-CLDs. The results revealed that differences in governance structures can lead to differences in the influencing governance factors. In top-down political systems, e.g., China, the role of national policy in setting local leaders' priorities is significant for SSM implementation. In political systems with more power devolved to local governments, e.g., Sweden, public awareness and local government politicians' priorities are important for SSM implementation. Acquiring funding for long-term maintenance was identified as a challenge in all four cities studied. These results are relevant for policymakers, local government departments, consultancy companies, and researchers seeking a better understanding of how governance factors influence sustainable stormwater management.

Keywords : sustainable stormwater management, causal loop diagram, governance structures, local government priorities, public awareness, maintenance

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