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RECENT ADVANCEMENTS IN THE TREATMENT AND MANAGEMENT OF URBAN STORMWATER

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Abstract

Climate change in Sweden requires more climate commitment. To facilitate modern urban stormwater management a number of challenges must be addressed. Urban flooding will increase due to continuous urbanization, densification of urban areas, changing land use, and climate change including changing rainfall patterns. More resilient and sustainable urban flood mitigation systems are needed, using natural detention and drainage. Integrative and multi-criteria aspects in the legal and organizational system must also be addressed.

In this paper, the big Formas-funded SURF project is described (Sustainable Urban Flood Management), as well as the basis of sustainable urban drainage systems (SUDS). The overall objectives of SURF are to increase sustainability of the built environment with respect to flood risk and to propose steps towards improved urban flood management in Sweden. SURF is a multi-disciplinary research project at Lund University with partners also from Malmö, water utilities, insurance companies and local city developers. The nominal project duration is 1 October, 2015 - 30 September, 2018. Sustainable flood risk management has to take a systems approach and promote a flexible use of a smorgasbord of techniques for each specific case. Non-structural components like stakeholder participation and social learning also are important parts of any flood management system. Furthermore, such systems will always be dependent on urban design and economic considerations. All in all, a functional system has to involve several professions and therefore in order to do meaningful work we have a multidisciplinary approach to our research.

Treatment of stormwater is a neglected area. The quality of stormwater is normally not an issue from a regulatory point of view and few countries demand point-of-discharge treatment for stormwater flows. Methods to treat stormwater through sedimentation and filtration will be reviewed and one specific technology to treat it through floating filters will be presented and the pro's and con's of such an approach be highlighted.