



## **Planning support for reducing risks related to flooding and water quality in the City of Stockholm**

Ulla Mörtberg (1), Kajsa Lundgren (1), and Zahra Kalantari (2)

(1) KTH Royal Institute of Technology, Stockholm, Sweden, (2) Stockholm University, Stockholm, Sweden

The urbanization trend during the last decades have several environmental impacts, particularly associated with increasing runoff and flood hazard, and decreasing water quality. These topics have been investigated all around the world, but relatively little is known about the impacts of urban development at the early stage of the urban planning in cities. This project aims to develop planning support tools for addressing impacts of different urbanization patterns in alternative planning scenarios on surface water within the City of Stockholm, the capital of Sweden.

With the help of urban planners at the municipality, alternative future urban scenarios will be created and assessed from a hydro-meteorological risk assessment perspective. The scenarios will include alternative development patterns for buildings, infrastructure and supply of several regulating and cultural ecosystem services. For the water-related risk assessment, a hydrological model will be set up and validated using available data for a selected catchment that is affected by the scenarios. This will then be used to assess the impacts of the scenarios on the hydrological response and its implications. In the end, the results are expected to contribute to identifying how localization and type of different ecosystem services in the urban planning can be employed as nature-based solutions for hydro-meteorological risk reduction and climate adaptation.