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Topic: System-wide benchmark simulation model

Apart from wastewater treatment plants, urban wastewater systems also include catchment, sewer systems and receiving waters. It has been well established that all these sub systems are strongly interconnected and the performance of one system is affected by that of others. One of the main aims of any modern wastewater infrastructure is to reduce the impacts of human activities on receiving waters.



My research focuses on extending the benchmark simulation model spatially to include the above-mentioned components of the urban wastewater system. The integrated model that is being developed allows for a direct analysis of the performance of wastewater treatment plant and sewer system in terms of receiving water quality instead of using indirect measures like effluent quality, sewer overflow frequency etc. In short, we move from emission-based evaluation to river water quality based evaluation. Such an urban wastewater system-wide benchmark simulation model will be a valuable tool for analysing control strategies at local as well as system-wide scale.

In the future, the model can be used as a platform to evaluate and compare various integrated control strategies. It can also be adapted to individual urban catchments to analyse their performance and study integrated control possibilities specifically suitable for a specific urban catchment.