



Quantifying the potential of local stormwater infiltration measures in western Copenhagen

Bergman, Maria; Fryd, Ole; Jeppesen, Jan; Mikkelsen, Peter Steen; Mark, Ole; Bergen Jensen, Marina; Binning, Philip John

Publication date:
2011

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Bergman, M., Fryd, O., Jeppesen, J., Mikkelsen, P. S., Mark, O., Bergen Jensen, M., & Binning, P. J. (2011). *Quantifying the potential of local stormwater infiltration measures in western Copenhagen*. Poster session presented at Cities of the Future 2011 , Stockholm, Sweden.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



Quantifying the potential of local stormwater infiltration measures in western Copenhagen

Maria Bergman¹, Ole Fryd², Jan Jeppesen³, Peter Steen Mikkelsen¹, Ole Mark⁴, Marina Bergen Jensen², Philip Binning¹

¹Technical University of Denmark, ²Copenhagen University, ³Alectia A/S, ⁴DHI Water & Environment
E-mail: mkbe@env.dtu.dk



Introduction and problem definition

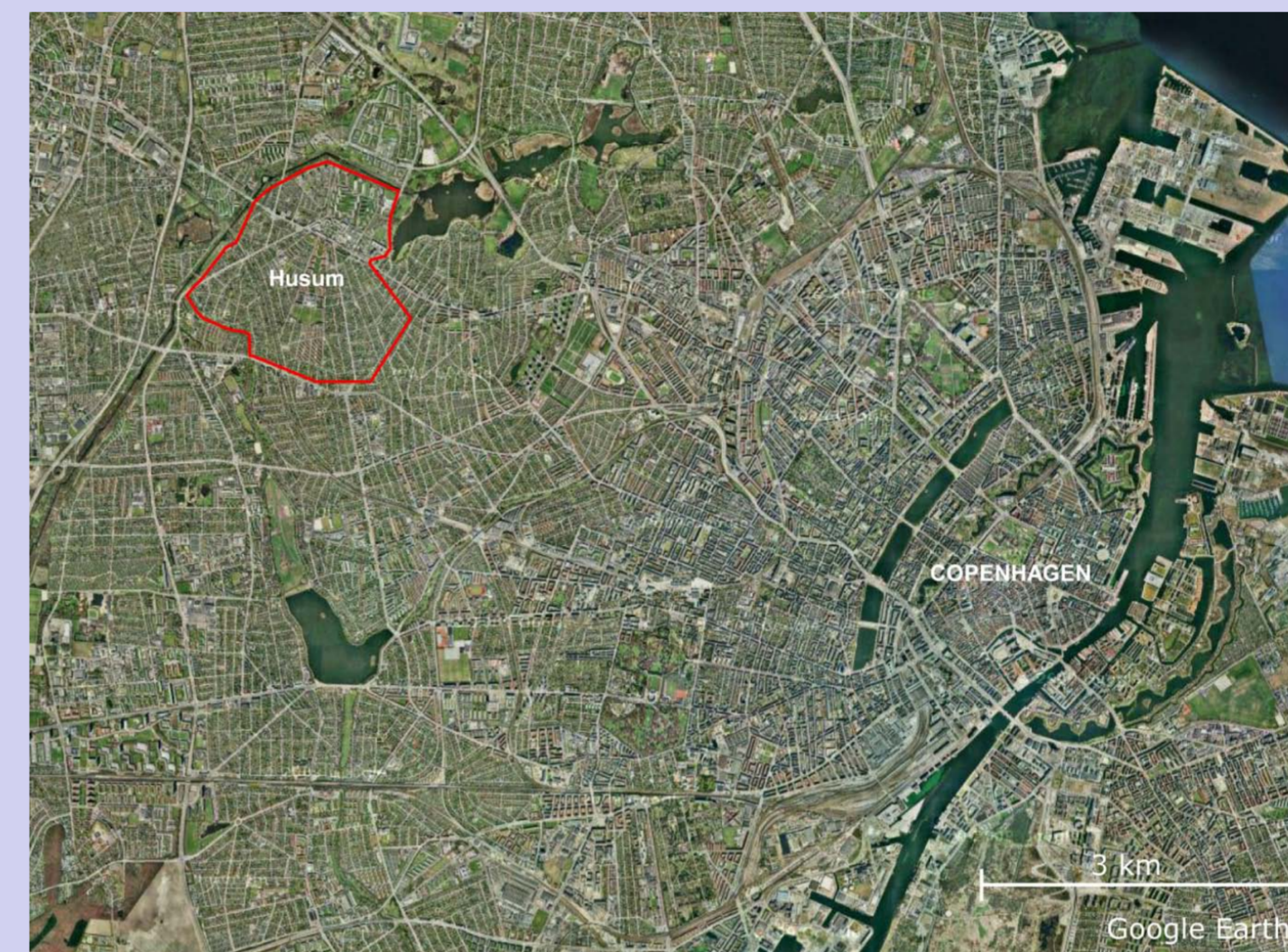
Frequent combined sewer overflows (CSOs) to the Harrestrup river in western Copenhagen lead to poor water quality in the estuary Kalveboderne. To solve this we need to greatly reduce the number of annual CSOs to the Harrestrup river, from today's 15 to 1 CSO per year and structure.

Copenhagen Municipality (2007), in: "Vision for the Harrestrup river system and Kalveboderne"

Local stormwater solutions are important in adaptation to climate change.

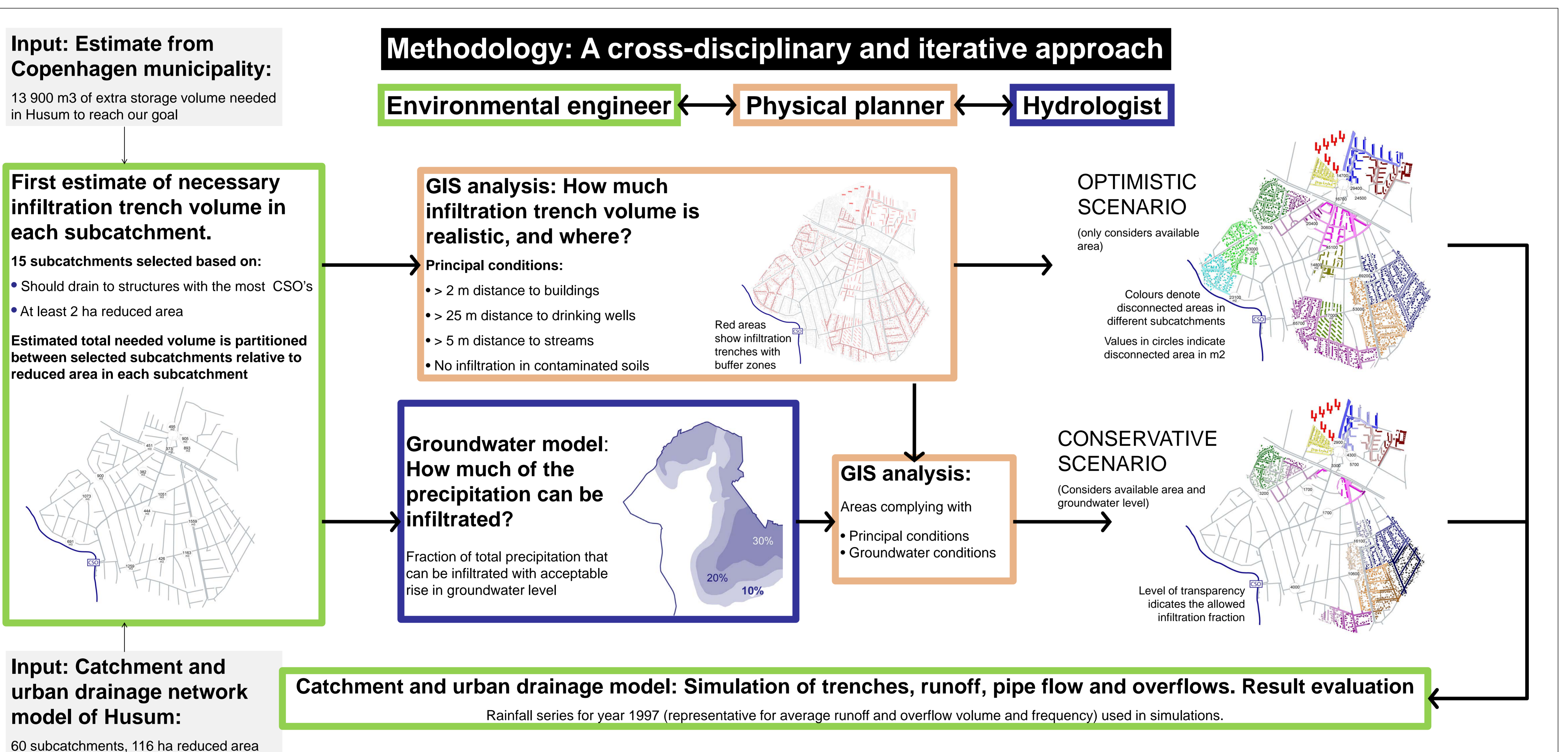
Copenhagen Municipality (2010), in: "Climate Adaptation Plan (Københavns Klimatilpasningsplan)"

Case study area: Husum in western Copenhagen



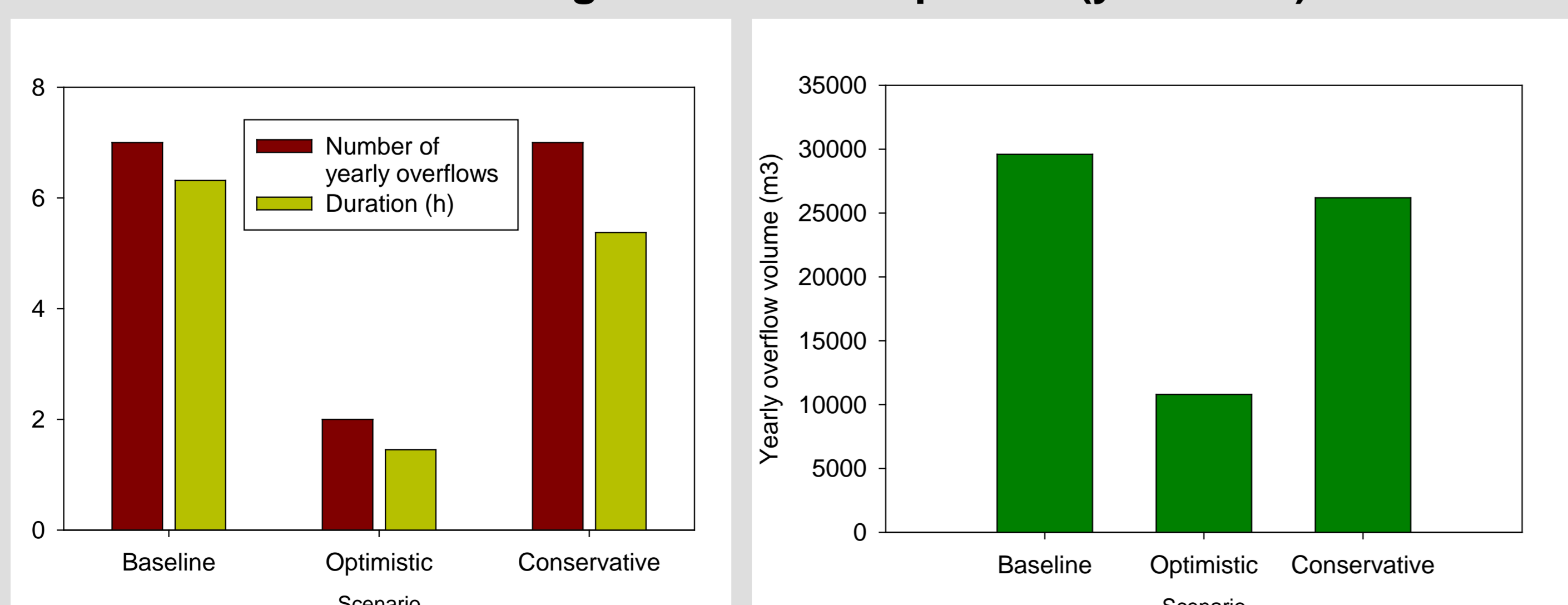
- 300 ha in the upstream part of Harrestrup river catchment
- Mainly residential area: single family houses and a few apartment blocks
- Restrictions for infiltration: drinking water interests, low permeability soils (glacial till), high groundwater table

How can we make a realistic estimate of the amount of stormwater that can be infiltrated in Husum?



Results and evaluation

Estimated effects of infiltration trenches in Husum on CSO discharges to Harrestrup River (year 1997)



Conclusions and future challenges

Conclusion:

- Our methodology can be used to estimate the amount of stormwater that can be infiltrated locally
- The estimated reduction in overflow volume is between 10% (conservative scenario) and 67% (optimistic scenario)

Suggested future improvements:

- Integrate groundwater model with runoff/pipe flow model
- Extend model with more types of local stormwater management structures (e.g. green roofs, permeable pavements etc.)