



Quantitative potential for rainwater use

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Published in:
6th Annual Meeting of DWRP - Abstracts

Publication date:
2012

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

[Link back to DTU Orbit](#)

Citation (APA):
Sørup, H. J. D., Arnbjerg-Nielsen, K., Mikkelsen, P. S., Albrechtsen, H-J., & Rygaard, M. (2012). Quantitative potential for rainwater use. In *6th Annual Meeting of DWRP - Abstracts*

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6th Annual Meeting of

DWRP

12 January 26-27
2012

ABSTRACTS

Quantitative potential for rainwater use

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Abstract

The study evaluates the quantitative potential of utilizing rainwater as a resource through three cases set up for the municipalities of Copenhagen and Aarhus. For each case the limiting factors are identified, and the quantitative potentials in relation to replacement of potable water and easing the load on the sewer system are evaluated in relation to the Three Point Approach (3PA), see Figure 1 (Geldof, 2007). The three cases and their expected main limiting factors are:

1. **Maximum infiltration:** Ground water rise and infiltration capacity of soil
2. **Maximum harvesting and use:** Water quality and storage capacity
3. **Maximum harvesting for recreational use:** Storage/transport to place of use and quality

The 3PA is used to evaluate how the different cases handle rain events from different domains; the everyday domain, the design domain and the extreme domain. Each domain have associated typical intensity/duration specifications to it, and it is furthermore evaluated how big a volumetric proportion of the mean annual precipitation that falls as events within each domain. The result is that 95 % of the precipitation falls as everyday rain, 4 % as design rain and only a marginal fraction as extreme rain. This even though the volume of a single extreme event may account for hundreds of everyday events.

The use of the 3PA as evaluation tool is expected to be a splendid way of assessing if a case working fine in one domain has unexpected impacts in another; thus evaluating technologies not only for the specific design situation but also for other typical types of precipitation.

The study is carried out within the framework of "Fremtidens Vandhåndtering i Storbyer" (future water management in large cities), a project with Copenhagen Energy (KE), Aarhus Water (ÅV) and DTU Environment.

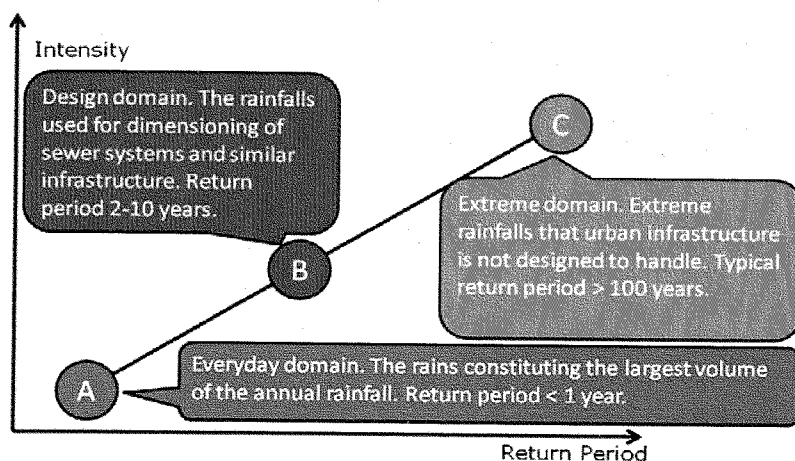


Figure 1. The Three Point Approach. Classification of rain events according to their return period.

Reference:

Geldof, G.D. (2007) The three point approach. South Pacific Stormwater Conference, in proceedings.

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