



Aalborg Universitet

AALBORG UNIVERSITY
DENMARK

Three Points Approach (3PA) for urban flood risk management: climate change adaptation through transdisciplinarity and multifunctionality

Fratini, Chiara

Published in:

International Conference of Climate Adaptation in the Nordic Countries: Science, Practice, Policy

Publication date:

2010

Document Version

Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Fratini, C. (2010). Three Points Approach (3PA) for urban flood risk management: climate change adaptation through transdisciplinarity and multifunctionality. In *International Conference of Climate Adaptation in the Nordic Countries: Science, Practice, Policy*

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 -

Take down policy

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

Three Points Approach for urban flood risk management: adapting to climate change through transdisciplinarity and multi-functionality

C. Fratini¹⁺⁴, G.D. Geldof²⁺⁴, J. Kluck³ and P.S. Mikkelsen⁴

Abstract

Urban flood risk is increasing as a consequence of climate change and growing impervious surfaces. Increasing complexity of the urban context, gradual loss of tacit knowledge and decreasing social awareness are leading to inadequate maintenance of urban infrastructures. The European Flood Directive sets clear requirements and emphasises the need for a paradigm change in favour of non-structural measures aimed at urban resilience and social preparedness. The Three Points Approach (3PA) provides a structure that facilitates the organization of the decision making process dealing with urban flood risk management (UFRM) by enhancing the use of transdisciplinarity and accepting the complexity of the urban context. The 3PA introduces three domains where the decision makers may act (1) *technical optimization*, dealing with standards and guidelines; (2) *spatial planning*, to make the urban area more resilient to future changing conditions; (3) *day to day values*, to enhance support and awareness among the stakeholders. This study demonstrates the validity of the 3PA and describes how it can be used in practical UFRM. A multilevel approach to knowledge was employed to understand the mechanisms driving complex adaptive systems, like nature and society, characterizing the urban area and thus apply the 3PA in practice. Two case studies were analysed in the Netherlands and in Denmark with the 3PA. This analysis demonstrates the validity of the 3PA for UFRM and highlights the differences between the two countries in approaching the decision making process, drawing attention to the importance of culture in projects. We conclude that the 3PA offers decision makers an innovative perspective on UFRM and is ready to be used to organize strategy plans for urban adaptation to climate change.

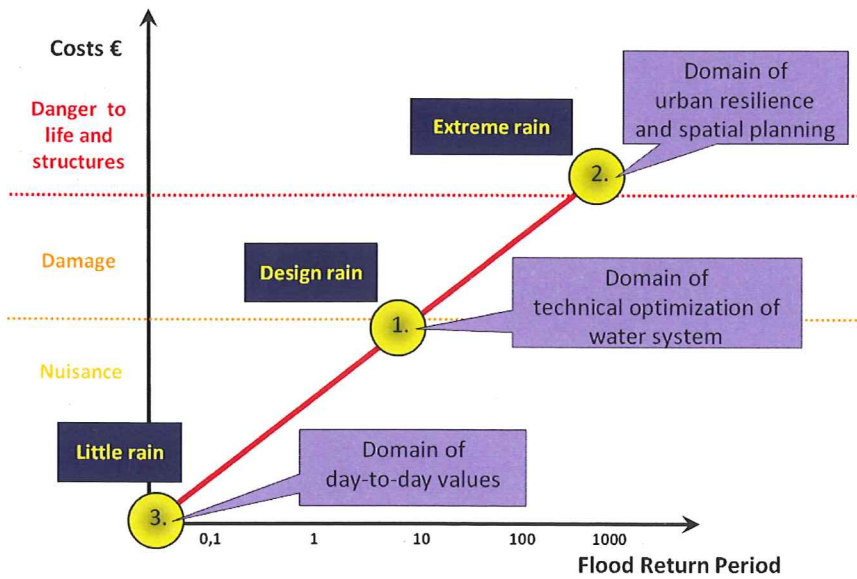


Figure 1. The Three Points Approach scheme. Both the axes are on a logarithmic scale. The horizontal axis represents the return period and the vertical axis represents the size of the flooding in terms of the cost of the nuisance/damage/-danger caused to the urban area and its inhabitants.

¹ Corresponding author, (chif@env.dtu.dk)¹ Department of Management Engineering, Technical University of Denmark, Lyngby, Denmark.

² Geldof c.s., Tzum, the Netherlands

³ Tauw bv, Water Department, Deventer, the Netherlands

⁴ Department of Environmental Engineering, Technical University of Denmark, Lyngby, Denmark