

Towards climate-resilient WaterScapes

Exploring methods for developing transformation pathways for the Dutch water system

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Project description

Countries worldwide are facing complex water challenges, with both flooding and drought becoming more frequent due to climate change (Bartholomeus et al., 2023). Traditionally, Dutch water management has focused on controlling water through technical measures such as embankments, canals, and rapid drainage (Zevenbergen & Gersonius, 2007; Morrison et al., 2018). However, recurring droughts highlight the need to retain water in the landscape (Hartmann & Driessen, 2017; Busscher et al., 2019). This requires a shift in approach – often referred to as the water transition – in which water retention, spatial adaptation, and governance innovation play a central role. Within the [WaterScape project](#), different forms of knowledge about water systems, landscapes, and governance are brought together to explore possible futures for climate-resilient water landscapes (i.e., waterscapes; Karpouzoglou & Vij, 2017) in several Dutch regions. These explorations aim to develop transformation pathways (Sommerauer et al., 2026), requiring integration insights from different domains – including hydrology, spatial planning, and governance – and translating them into approaches that support dialogue and decision making among stakeholders.

This project explores methodological approaches that support the development and use of transformation pathways in water transitions. In particular, the student will examine how different forms of knowledge can be combined when developing such pathways. On the one hand, the research will explore how insights from different disciplines, such as hydrology, spatial planning, and governance, can be effectively integrated into transition pathways. On the other hand, it will examine how this integrated knowledge can support dialogue among policymakers and practitioners involved in the water transition.

Tasks will include: (a) reviewing academic literature on transformation pathways, knowledge integration, and collective scenario development; (b) mapping and comparing methodological approaches that combine scientific knowledge with policy and planning processes; (c) synthesising insights into key themes, strengths and limitations of these approaches, and (d) summarising findings in a concise overview that can inform the methodological development of the WaterScape project. Depending on the student's interests, a small number of exploratory interviews with researchers and practitioners may also be conducted.

The outcomes of this project will provide insights into developing transformation pathways toward climate-resilient Dutch water systems. In particular, the project will improve understanding of how interdisciplinary knowledge integration and transdisciplinary engagement can support dialogue and decision making in water management and spatial planning. The findings will inform the methodological development of the WaterScape project.

Job requirements

The suitable candidate has a strong interest in spatial planning, water governance, and sustainability transitions, and is motivated to contribute to research on how the Netherlands can become more climate-robust. Experience with qualitative research methods – such as literature reviews, document analysis, interviews, and/or thematic coding – is an asset. Good writing skills are an asset, particularly if the student wants to contribute to written outputs (internal reports or paper drafts).

Literature

- Bartholomeus, R. P., et al. (2023). "Managing water across the flood–drought spectrum: Experiences from and challenges for the Netherlands." *Cambridge Prisms: Water* 1: e2.
- Busscher, T., et al. (2019). "Strategies for integrating water management and spatial planning: Organising for spatial quality in the Dutch "Room for the River" program." *Journal of Flood Risk Management* 12(1): e12448.
- Hartmann, T. and P. Driessen (2017). "The flood risk management plan: towards spatial water governance." *Journal of Flood Risk Management* 10(2): 145-154.
- Karpouzoglou, T. and S. Vij (2017). "Waterscape: a perspective for understanding the contested geography of water." *WIREs Water* 4(3): e1210.
- Morrison, A., et al. (2018). "A review of the flood risk management governance and resilience literature." *Journal of Flood Risk Management* 11(3): 291-304.
- Sommerauer, W. J.-W., et al. (2026). "Forging Common Paths: A Systematic Review of Co-Creation and Collaborative Learning in Adaptation Pathways." *WIREs Climate Change* 17(1): e70038.
- Zevenbergen, C. and B. Gersonius (2007). Challenges in urban flood management. *Advances in urban flood management*. R. Ashley, S. Garvin, E. Pasche, A. Vassilopoulos and C. Zevenbergen. New York, Taylor and Francis.