Towards Adaptive Waterscape:
Strategic Spatial Planning and Design for Synergy in the Living Landscape of the IJsselmeer Region

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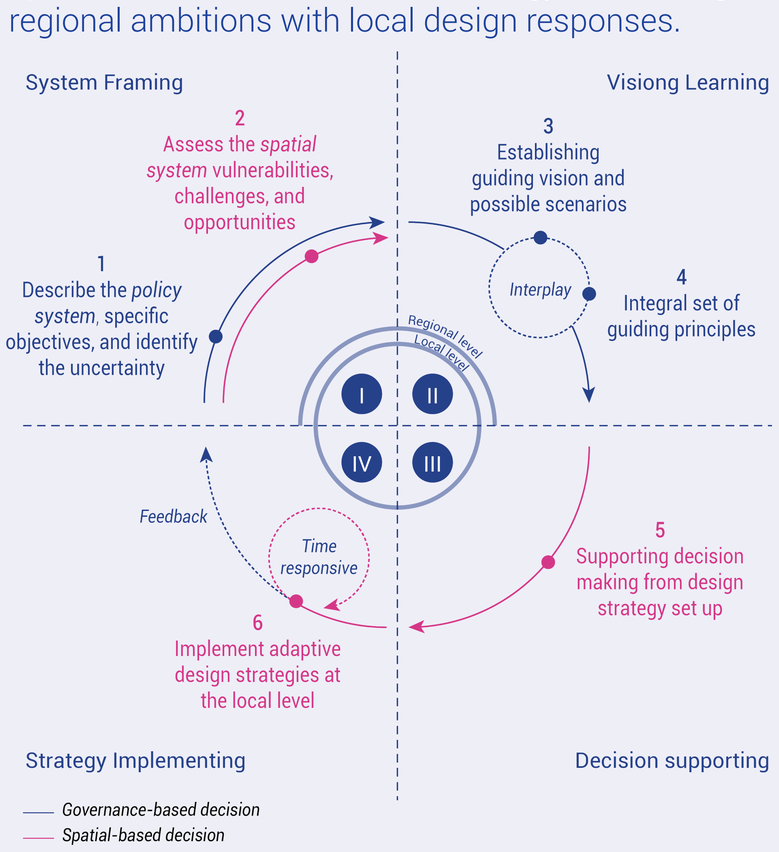
INTRODUCTION

Freshwater scarcity in the IJsselmeer Region is intensifying due to the dual pressures of climate change and socio-economic development, which exacerbate water demand and have exposed the limitations of the current water system. This research addresses the urgent need for adaptive spatial planning by developing a Dynamic Spatial Adaptive Pathway (DSAP) approach to expand freshwater buffer capacity through water circularity, combining regional planning frameworks with design-based spatial strategies under four phases. Applied in the Northwest Overijssel subregion, the approach bridges the top-down policy and bottom-up design, not only responding to the uncertainties but promoting co-benefits for spatial quality and long-term resilience.

METHODOLOGY

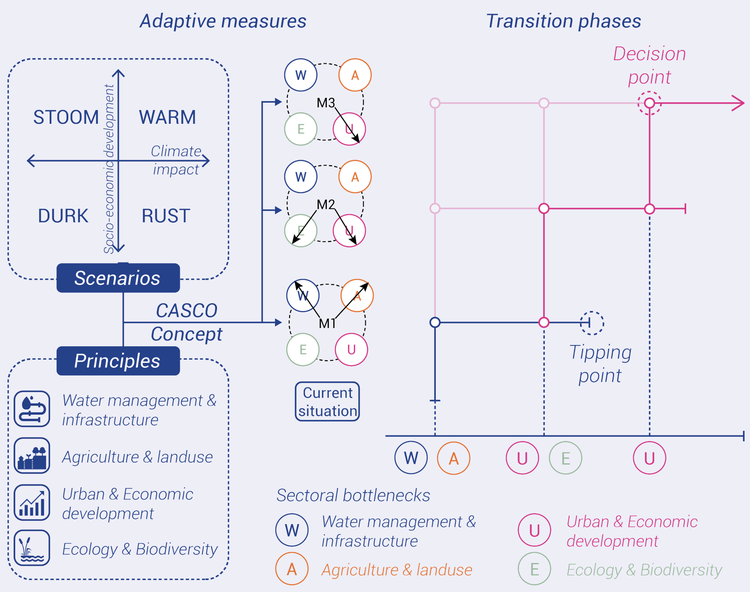
DYNAMIC SPATIAL ADAPTIVE PATHWAY (DASP) APPROACH

The Dynamic Spatial Adaptive Pathway (DSAP) approach consists of four interconnected phases. Each phase addresses a specific aspect of adaptive planning, yet they are interdependent in ensuring both robustness and responsiveness in spatial strategy-making. Importantly, the DSAP approach operates as a cross-level methodology, connecting regional ambitions with local design responses.



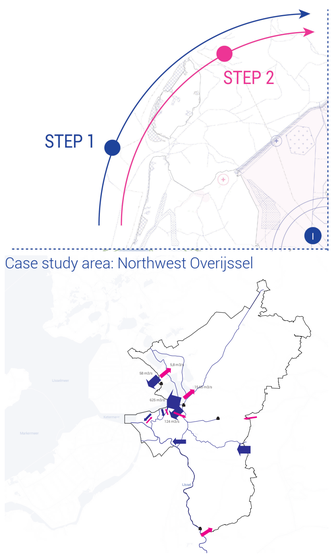
DEVELOP AND APPLY ADAPTIVE MEASURES

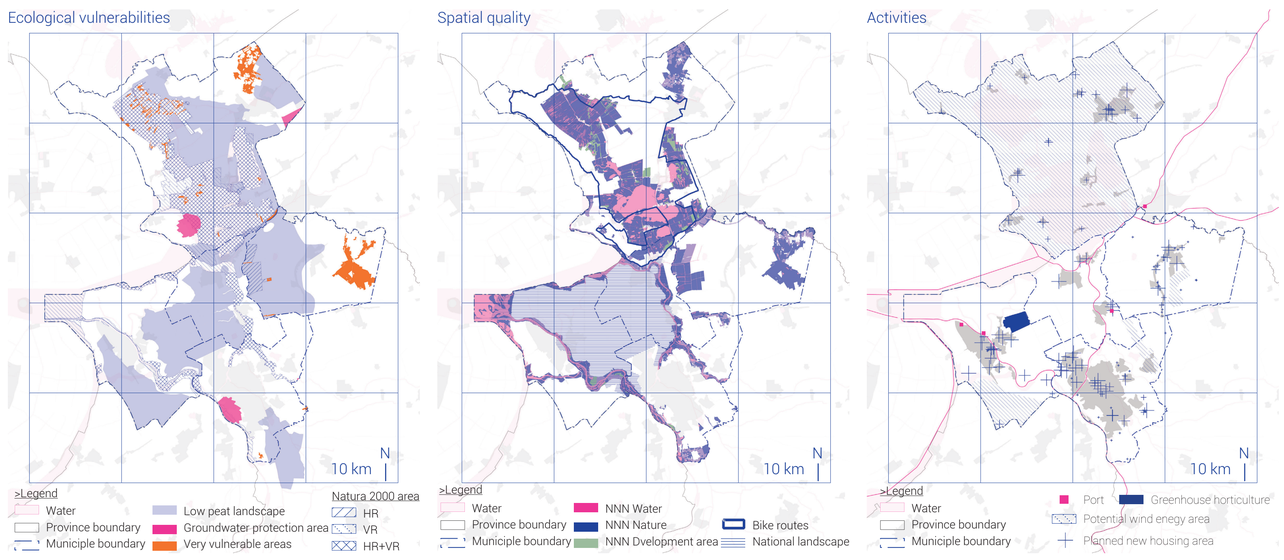
Adaptive measures are formed through the combined action of scenarios and adaptive principles.The adaptive pathway is designed to respond to changing conditions by identifying key moments, or tipping points, at which existing strategies no longer meet their objectives and alternative measures must be adopted.



RESULT

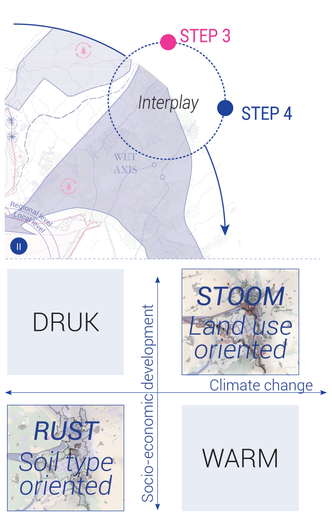
PHASE I SYSTEM FRAMING

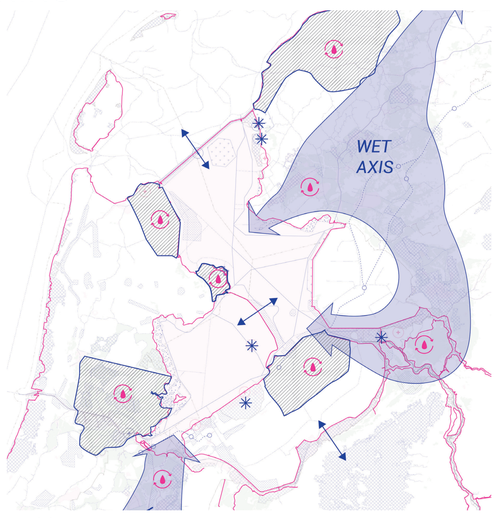




Establish a clear problem framework by analyzing the governance context and spatial domains, to ground adaptive planning in real territorial dynamics and future challenges.

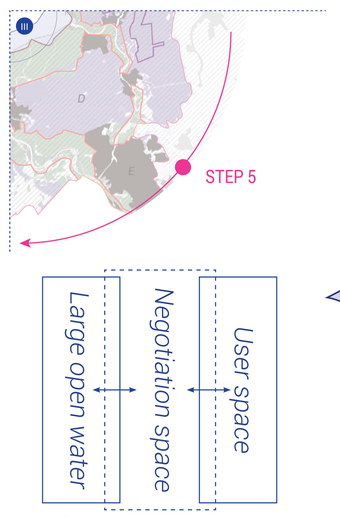
PHASE II VISION LEARNING

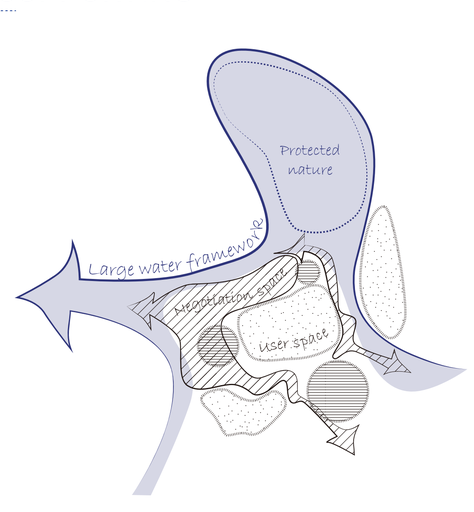




Formulating a long-term guiding vision and developing exploratory scenarios to address future uncertainty.

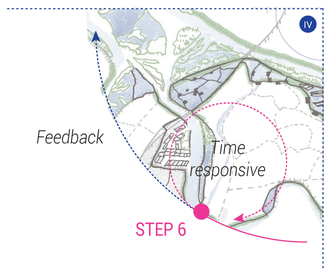
PHASE III DECISION SUPPORTING



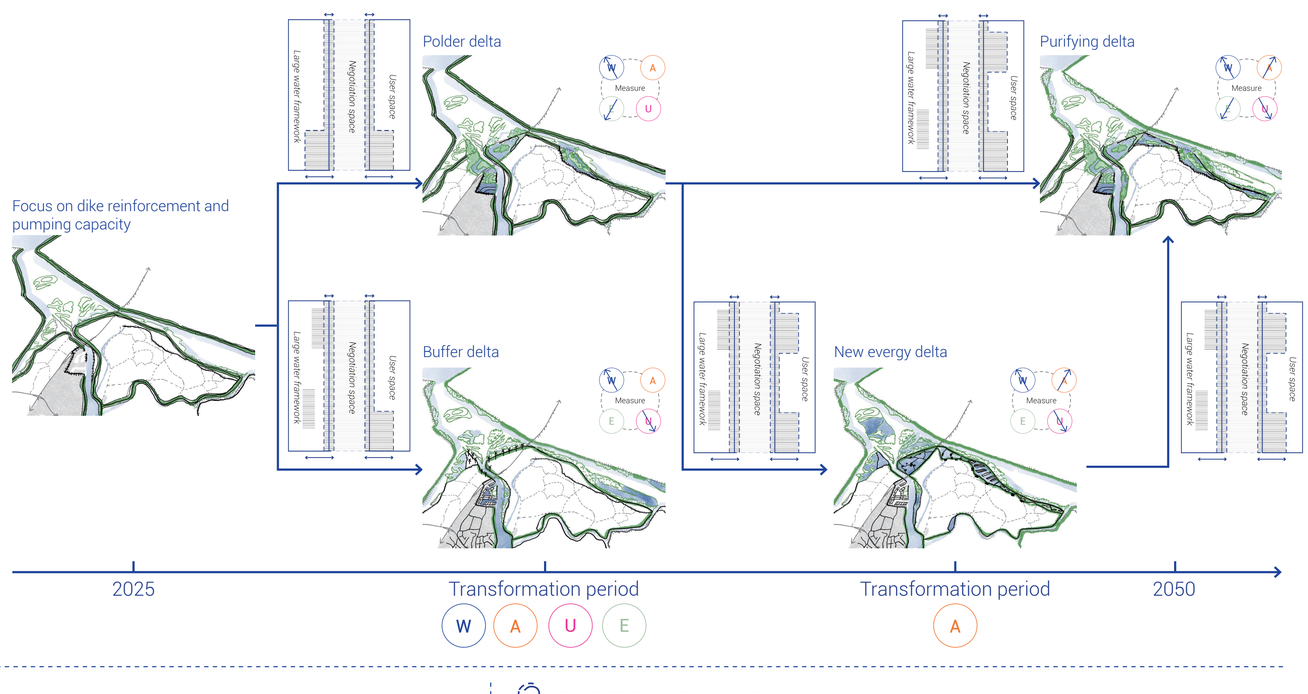


Transforming scenarios into spatial design strategies by CASCO zoning framework.

PHASE IV STRATEGY IMPLEMENTING



Design measures respond adaptively to tipping points, enabling phased, spatially responsive interventions for long-term resilience.



CONCLUSION

METHODOLOGY CONTRIBUTION

This research addresses climate uncertainty and socio-economic challenges by developing an Dynamic Spatial Adaptive Pathway approach for water circularity, aiming to enhance freshwater buffer capacity in the IJsselmeer Region, with a focus on the Northwest Overijssel case.

IMPLEMENTATION OUTCOME

In Northwest Overijssel, two contrasting future scenarios, STOOM and RUST, were applied to test spatial flexibility. Overlapping results informed the development of three functional zones, forming a foundation for local spatial strategy packages that are robust yet adaptable, while responding to the regional goals.

TRANSFERBILITY

The methodology provides a transferable planning framework for delta regions facing similar socio-hydrological challenges, supporting future-proof and co-beneficial water strategies.

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