

Resilience-based approach for improving water supply system response under uncertainty scenarios

Summary

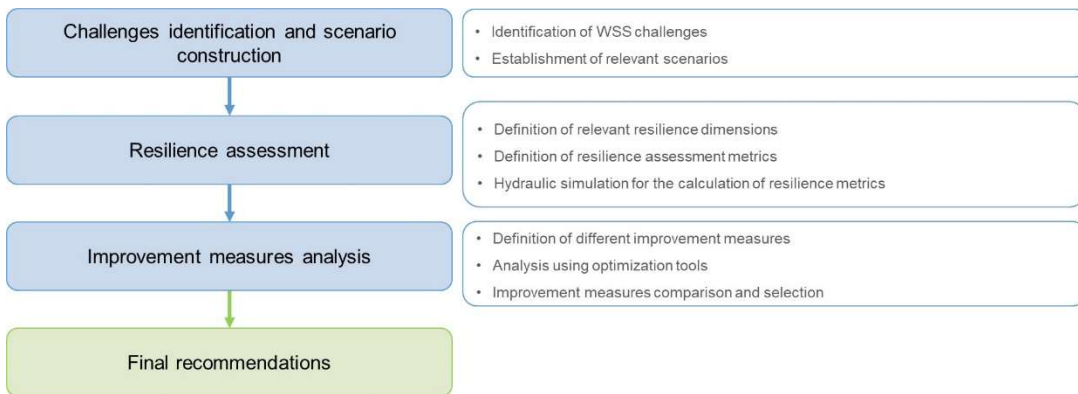
Drinking water supply systems are crucial infrastructures that have been facing several challenges, such as the change of water demand needs and patterns, water scarcity, that change the assumptions originally considered in the water supply planning and design, leading to faulty supplies and less efficient and reliable systems.

The assessment of water supply systems resilience under uncertain scenarios and the establishment of improvement measures are key-priorities for water utilities. The main objective of the doctoral project is to develop and demonstrate a comprehensive and integrated methodology to analyse water supply systems resilience and identify improvement measures, considering future challenges and the respective uncertainty.

The methodology includes challenges identification and respective scenario construction, the system resilience assessment and the analysis of improvement measures. This methodology will combine numerical hydraulic and water quality modelling, optimization methods and decision analysis. Real-world case studies from Portuguese water utilities will be used for testing and demonstrating the proposed methodology. Lessons learnt will be used for establishing recommendations for improving the resilience of water supply systems.

Keywords

Water supply systems, resilience, efficiency, uncertainty, modelling, optimization.



Integrated methodology to assess water supply systems resilience.



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