

## Improved modelling of intermittent water supply systems

### Summary

Intermittent water supply (IWS) systems provide water to over 1.3 billion people in developing countries. IWS is classified from predictable, regular to unreliable with interruptions that vary from hours to days. Utilities are unable to improve the inadequate levels of service given their typical emptying-filling decline cycles. Existing IWS models are largely based on modified continuous water supply (CWS) models, hence unable to predict IWS phenomena. This project aim is to develop a new modelling approach for the operation and management improvement of IWS systems and the design of transition pathways to CWS.

The methodology includes the development, calibration and validation of a novel hydraulic modelling approach which will allow the simulation of the different IWS phases, namely system filling, water supply and system emptying/depressurization. The model will provide a detailed description of IWS systems, supporting their analysis and the establishment of improvement measures to the IWS transition to CWS. The research will include numerical modelling, experimental analysis and full-scale tests to support model development. Results will allow establishing recommendations for designing and operating IWS.

### Keywords

Intermittent water supply, numerical modelling, pipe filling, pipe emptying, entrapped air.



*Entrapped air pocket in pipe.*



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