12th International Conference on Hydroscience & Engineering
Hydro-Science & Engineering for Environmental Resilience
November 6-10, 2016, Tainan, Taiwan.

Planning for Resilience in Coastal Cities: the PEARL Online Decision Support and Stakeholder Engagement Platform and Knowledge Base

Christos Makropoulos
Department of Water Resources and Environmental Engineering, National Technical University of Athens
Athens, Greece

ABSTRACT

While flood risk is evolving as one of the most imminent natural hazards and the shift from a reactive decision environment to a proactive one sets the basis of the latest thinking in flood management, the need to equip decision makers with necessary tools to think about and intelligently select options and strategies for flood management is becoming ever more pressing. Within this context, the PEARL online decision support and stakeholder engagement platform and knowledge base is presented as an environment that allows end-users to navigate from their observed problem to a selection of possible options and interventions worth considering within an intuitive visual web interface assisting advanced interactivity. It also allows users to investigate the impact of several what-if scenarios of interventions on the risk evolution against different hazards while also allowing for a dynamic knowledge co-production through community engagement for on-the-ground problem identification and data crowdsourcing using an application called the PEARL Detective. Incorporation of real case studies within the PEARL KB enables the extraction of (evidence-based) lessons from all over the word, while the KB's collection of methods and tools directly supports the optimal selection of suitable interventions. The Knowledge-Base also gives access to the PEARL KB FRI tool, which is an online tool for resilience assessment at a city level available to authorities and citizens. We argue that the PEARL toolkit equips authorities with tangible and operational tools that can improve strategic and operational flood risk management by assessing and eventually increasing resilience, while building towards the strengthening of risk governance. The online tools that the PEARL KB gives access to, were demonstrated and tested in the city of Rethymno, Greece.