Editorial

Bettina Bockelmann-Evans PhD, CEng, MICE

Lecturer in Hydro-environmental Engineering, Hydro-environmental Research Centre, Cardiff University, UK

With pictures of the recent devastating floods in Australia and Brazil fresh in our minds, we have all been reminded of the relevance of water management worldwide and especially the importance of dealing with increasing flood quantities predicted as one of the consequences of climate change. The large outflow from the Wivenhoe dam whose reservoir reached about 190% of its nominal capacity was probably one of the most memorable aspects of these most recent floods.

The first paper in this issue of *Water Management* (Mehraein *et al.*, 2011) addresses an important area related to outflow jets from the crests of dams or dam outlets where high velocity can lead to bed scour downstream. The main aim of this paper entitled 'Local scour due to an upwards inclined circular wall jet' was the development of new equations for estimation of scour parameters that can be used to accurately estimate dam foundation placement and assurance of the stability of downstream structures. Laboratory experiments on scour due to submerged horizontal and upwards inclined water jets issuing from a pipe were conducted to study the characteristics of scour parameters and the outcomes are presented in this study.

Supply of safe drinking water is a major problem in many developing countries and, again, climate change will make water security an even greater challenge in the future. The paper by Carlevaro and Gonzalez (2011) on 'Costing improved water supply systems for developing countries' addresses this problem in a very constructive way by presenting a practical manual prepared for the World Health Organization on how to identify, collect, estimate and compare costs of the available technical options to provide access to safe drinking water in low-income communities. The authors present an analytical approach on data collected using questionnaires and provide a spreadsheet that can help enable the implementation of the costing tasks to actual projects.

The third paper addresses the vulnerability of coastal aquifers to saltwater intrusion through overdraft of groundwater abstraction or insufficient recharge, another area that will need to attract focus under the threat of climate change and predicted sea level

rise. In their paper 'Optimum operation of wells in coastal aquifers', Bozorg Haddad and Mariño (2011) present a management tool that can help maximise the net benefit derived from a pumped freshwater volume. The authors show that the evolutionary honey-bee mating optimisation algorithm is performing efficiently in handling the non-linear discontinuous groundwater simulation/optimisation and recommend its use in the field of groundwater optimisation.

The efficiency of a designed network based on nodal demand uncertainty during the operational period is analysed in the final paper 'Long-term efficiency of water networks with demand uncertainty' (Seifollahi-Aghmiuni *et al.*, 2011). The results from Monte Carlo simulation and another evolutionary algorithm, the shuffled frog leaping algorithm, show the capability of dynamic design methods for optimal design of water distribution networks. The authors conclude that the extension of methods that can model the uncertainty of existing variables during the operational period of a water distribution network is a useful way to increase the efficiency and reliability of network designs.

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