Editorial

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This month's issue of *Water Management* contains four full research papers, two discussions and a book review. It is instructive to note that in these few papers, contributions have been made by scientists and engineers from eight different countries, and a wide diversity of different fields and employers within the water engineering field, illustrating the diversity of the interests in this journal. The papers relate to a range of issues covering hydraulics, hydrology and water quality, all offering a practical view, and therefore of use to civil engineers. The issue begins with a contribution on the use of a permeable reactive barrier to treat acid mine water in South Africa (Ekolu *et al.*, 2014), followed by a contribution by Dhakal *et al.* (2014) on the ongoing development of the modified unit hydrograph method. There then follows a paper by Ali *et al.* (2014) on water resources modelling in the Blue Nile, after which Bieroza *et al.* (2014) address matters relating to the stable isotopic composition of raw and treated water in the UK. The international character of the authorship is also reflected within individual author groups in most cases, with international case studies often being worked on by authors from a range of countries, sharing ideas on best practice.

The issue starts with a contribution from Ekolu *et al.* (2014), in which they address the issue of how to treat contaminated minewater, focusing on a South African case. In particular, they focus on acid mine drainage where over time the pyrites from abandoned mining operations react with moisture and oxygen in the atmosphere, and the resulting mine water is highly acidic, causing problems for any nearby receiving waters. Their method uses a novel permeable reactive barrier to raise the pH of the minewater. Although their results must be considered preliminary, it is clear that the use of granite aggregates in particular has a very favourable outcome in this respect.

It is interesting to note that there is still a considerable amount of research interest in the rational method, first proposed around 150 years ago and still being developed to suit the engineering applications used by drainage engineers around the world. This offering by Dhakal *et al.* (2014) is an attempt by them to develop the method for a trapezoidal unit hydrograph where the rainfall duration is less than the time of concentration of the catchment. By examining data from runoff events in Texas, the authors were able to demonstrate the proficiency of their approach against that of other established methods. Clearly, such an approach is of interest in the UK and elsewhere where there are concerns about the increased incidence of prolonged rainfall events of higher intensity than for what the drainage infrastructure was designed.

Ali *et al.* (2014) assess the water resources of the Blue Nile catchment using a one-dimensional model. Readers will be interested to note that their model is underpinned by a large data set of field measurements that can sometimes be missing from studies of this type. The paper contributes to the debate on the use of increasingly scarce water resources in this part of the world by highlighting the impact of extra losses during the dry season that have not previously been properly addressed. As in many countries where a single large catchment covers many international territories, decisions on water resources must be guided by the proper scientific understanding of the science and engineering driving water availability and water demand, both of which are in a state of continuous development. Similar to Ekolu *et al.* (2014), Ali *et al.* (2014) fundamentally make related points about the long-term sustainability of water resources for a range of different uses.

The final full research paper discusses the stable isotopic composition of fresh water, which according to Bieroza *et al.* (2014) has received little attention to date in comparison with similar studies of precipitation. They demonstrate how important is the effect of catchment controls on the stable isotopic composition of raw waters at the inlets to 16 different water treatment works in the UK. Their work has important implications for researchers and practitioners interested in the pathways followed by raw water during and after rainfall events, and the timing of resulting flow hydrographs and so on. Of particular usefulness to researchers in this area is a summary given in Table 1 of the controls that generally apply in the isotopic composition of rainfall and surface waters, containing references to pertinent literature.

A discussion by Li *et al.* (2014) concludes this issue of *Water Management*, containing a contribution by Neill and Andres, together with Li's comment on this contribution. The discussion relates to how to treat Manning's n in an ice-covered river. From this discussion it is clear that there is still some disagreement about the appropriate values to use for a range of flow conditions under icy surfaces.

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