Editorial

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This edition of *Water Management* is a themed issue addressing the unfortunately topical subject of flood resilience. The papers in this issue cover a range of new ideas, such as those that can be used to address flood risk in terms of new tools to identify vulnerability and risk, new concepts to better manage risk over the long term and papers that present examples of collaborative working with other professions to better deal with flood risk and so enhance flood resilience.

The consequences of flooding in the UK periodically raises the public visibility of the need for enhanced flood management and the role of civil engineers in delivering better flood risk management. The recently announced inquiry by the Parliamentary Committee for Environment, Food and Rural Affairs into future flood prevention in England following the severe flooding this winter is another opportunity for the profession to argue the need for more resources and focus from government to help address flood risk. However, the profession needs to be able to present the best and latest evidence-based methods to reduce flood risk if it is to gain the confidence of government and the public. It is only by continually improving our knowledge and capabilities that the public will have confidence in the abilities of civil engineers and other professions to deliver the infrastructure and management structures that they can place trust in. The papers in this issue play a part in the continual development of knowledge in this area.

The first paper is the product of research funded by the European Union from a multi-disciplinary British/Dutch research team that reports on the development and implementation of a range of screening tools (Escarameia *et al.*, 2016). These tools operate at different scales and allow for the identification and assessment of the vulnerability of critical buildings and infrastructure, and so allows for their better protection and eventual repair if they are damaged.

The second paper describes a large-scale study to investigate surface water flood risk in Liverpool (Parkes *et al.*, 2016). The paper describes the use of a number of computational tools to assess the surface water flood risk by considering the interactions from different infrastructure systems; for example, the sewer network and surface water culverts, operated by different authorities. The results of the paper clearly demonstrate the need and benefits from different corporate bodies working collaboratively, but also shows the difficulties and constraints that exist when different authorities attempt to work via a collaborative approach.

The third paper encourages a new way of thinking about how to tackle flood risk while acknowledging uncertainties (Brisley *et al.*, 2016). This paper examines the potential benefit of using a managed adaptive approach rather than the traditional precautionary approach as a way to deal with long-term uncertainties. A theoretical case study was presented using a well-accepted method of cost–benefit analysis to estimate the value of using an adaptive management approach. This work led to the development of an appraisal guide to help decision makers to adopt adaptive management approaches when addressing uncertain flood risk.

The fourth paper examines how collaborative working within a local authority in Norway can help to address the challenge of increasing surface run-off with insufficient capacity in the existing drainage system (Nie, 2016). The paper reports on efforts to strongly integrate surface water management with the local planning and development process. This is an example of how two branches of local government can collaborate and shows how planning policies can impact on the long-term development of storm water drainage systems in order to be better able to adapt to long-term climate change. One message from this paper was the need and the difficulty in engaging with private citizens and other non-public organisations.

The fifth paper explores such issues in more depth and examines the public awareness and perception of flood risk and the use of Sustainable Urban Drainage Systems (Suds) to deal with situations of increasing flood risk (Everett *et al.*, 2016). Therefore, the final paper examines the implementation of Suds schemes in both the UK and the US. The paper investigates the public awareness and understanding of Suds systems. The study uses data collected during interviews with numerous stakeholders to develop a deep understanding of the level of awareness among stakeholders of how Suds operate, and the benefits and constraints of using such systems as a surface water management measure. The authors suggest that more consultation with residents early in the design process would have developed greater consensus and an acceptance of the need to provide funding to support Suds implementation. They argue that tailoring Suds schemes to the local context increases the perceived benefits and therefore the willingness of stakeholders to contribute to the installation and long-term maintenance of Suds.

The strength of this edition is the range of papers concerned with the management of flood risk. All have an urban

perspective but their concept ranges from studies examining the development of tools and their application, through to a study that questions existing practice with regard to risk management, and finally studies that examine the need and advantages of collaborative working both within public bodies and with citizens in order to reduce flood risk as drainage systems age and long-term changes such as climate, economic development and population change impose larger pressures on our existing infrastructure and flood risk management systems.

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