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# Introduction

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Flooding has become the most devastating natural hazard and recent events such as those in Pakistan, China and Australia have given extra impetus for the development of new adaptation and mitigation strategies. The global financial crisis implies that funds for major flood defence schemes are increasingly being put under pressure as Governments have to consider other national priorities. This at a time when climate change predictions are indicating an increase in extreme weather patterns leading to more frequent and more severe flooding world-wide. This special issue of the International Journal of Safety and Security Engineering contains a collection of papers themed around the Social and Economic Impacts of Flooding. The global threat of flooding is well represented in that contributions include those from researchers located in Canada, the United States, Ghana, the UK and Italy.

Deshmukh *et al*, present a severity assessment tool (SAT) for evaluating the social and economic impacts on communities and industries due to disaster impacted infrastructure. A case study approach involving the 2008 Midwest Floods in the United States is adopted to demonstrate the interrelationship between infrastructure, communities and industries towards helping those involved in preparing for a major flood. The study reveals that the serviceability of critical infrastructure plays an important role in post flood situations, affecting the ability of other parts of the community to cope and recover.

Perdikaris *et al*, present a planning and risk management tool for assessing the vulnerability of communities to flooding, using a novel combination of techniques. The study builds upon previous work of the authors concerning vulnerability and provides a quantitative measure of the vulnerability for a number of flood damage centres, including the development of estimates for the total expected annual direct and indirect damage costs for each centre. The indices developed represent a useful tool for stakeholder consultation and communication, and can be used for water resources, land use and emergency planning within the watershed.

Beddoes and Booth present a new flood protection product that combines resistance and resilience concepts to address the ingress of floodwaters into properties with solid floors. Such properties are common in the UK and this product is seen to have much potential application. Interestingly, the method does not attempt to prevent flood water from entering the property, but instead manages the water using ways that it is said homeowners can appreciate. The product is relatively simple to install and is considered affordable. Furthermore, the new system can be installed in both new and existing properties. The authors conclude that the new system provides a practical solution towards encouraging the uptake of property level flood adaptation measures, which by and large, has been slow to develop.

Mullins and Soetanto introduce the concept of community resilience and how decisions made by key community groups can affect the ability of a community to absorb and respond to the impacts of flooding. Specifically, the authors consider perceptions of social responsibility and explore the differences between social responsibility, corporate social responsibility and

public relation models. Examples are drawn from recent flooding events which indicate the importance of social responsibility in influencing community resilience. Main considerations for future research are described, including the need for establishing a common framework for measuring and monitoring social responsibility within the community.

Ahadzie and Proverbs explore flooding in developing countries using Ghana, Africa as a focus. It is revealed that flooding has been a long standing hazard, with reported events dating as far back as 1936. The paper reports a dearth of research in the context of flooding in Africa and Ghana in particular. Using content analysis, the organizational and structural themes with respect to the management of flooding in the last ten years are identified. Shortcomings in the Ghanaian flood risk management strategy are reported. It is contended that, with an increasing population and growth in human settlements, the worst effects of flooding might be ahead. The authors call for a detailed review of the existing policy towards the development of a holistic flood risk management plan. It is suggested that the plan should embody a robust and well-packaged programme towards raising awareness and toward developing an improved understanding of safety issues connected with major flood events.

Filippini *et al.* consider the influence of unauthorised mining in rivers on flood hazard in the River Po catchment area. It is reported that there is a significant demand for building materials such as sand and gravel, and that when obtained from rivers, these are considered to be of good quality. Evidence suggests that large quantities of materials are being removed from rivers unlawfully. These actions lead to changes in environmental hazards and flood hazard in particular, including problems such as erosion of embankments, increased vulnerability of structures such as bridges, and lowering of the river bed. Among the main forms of damage reported are the cutting of a meander, the collapse of a number of structures, the flooding of villages, collapse of embankments and the erosion of agricultural land. The authors go on to consider the legal implications and application of the current law in Italy concerning such unauthorised mining.

This Special Issue of the International Journal of Safety and Security Engineering which focuses on the Social and Economic Impacts of Flooding presents a collection of papers which covers a wide spectrum of themes from authors located in a variety of international locations. It is hoped that the findings reported will lead to an improved understanding of the social and economic impacts of flooding and towards the development of a more resilient and safer community.

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Guest Editor, 2011