

Foreword

Comprehensive Flood Risk Management is gaining ground in Europe and elsewhere, thanks to developments in science and policy, and devastating flood events every now and then. The scientific concepts, approaches and methods of flood risk analysis and management were shared and discussed among researchers and practitioners during the successful First European Conference on Flood Risk Management (FLOOD*risk*2008) in Oxford. This event marked the finalisation of the largest-ever European research project on flood risk management, FLOOD*site*. Shortly before, the European Commission issued the “Directive on the assessment and management of flood risks” (2007/60/EC), which triggered substantial activity in the EU member states. Recent flood events, for example in Pakistan (2010), Europe (2010 France, Romania and Ukraine), Japan (the 2011 tsunami), Thailand (2011), the USA (2011 Mississippi River), and Australia (2011 and 2012), once again stress the societal relevance of sound flood risk management, and ensure that we do not lose vigilance.

This makes 2012 a timely moment to share new insights and experiences from all over Europe and beyond, and to jointly set the course for new research and approaches in flood risk management.

Comprehensive flood risk management encompasses:

- preventive flood risk management, disaster management and recovery; in the fields of
- science, policy and practice; and thus actions such as
- analysis, assessment, and management planning; requiring involvement of
- natural sciences, social sciences, and arts/ethics; as well as their applied counterparts
- civil engineering, governance, and architecture and design.

Preventive flood risk management, disaster management and recovery are successive stages in an ongoing process of assessing flood risks, reducing them to an acceptable level against acceptable societal costs, then voluntarily bearing the remaining risk deliberately and consciously. This places comprehensive flood risk management at the centre of a continuously evolving societal consideration and debate about sustainable development and the place and role of flood risk management in that process. It is now commonly acknowledged that flood risk management is not a goal in itself but, instead, is an indispensable means to enable living safely and gaining benefits in environments that have much to offer in terms of prosperity and attractiveness, but not without risk. A delicate balance indeed.

Flood risk management puts the *risk* of flooding central, instead of the *hazard*. The notion that ‘without people, there is no risk’ requires not only an engineering approach to flood protection and flood control, but also a planner’s approach to spatial development, to ensure that people and property are located outside hazardous areas or can cope with floods. This calls for further integration of water management and spatial planning. This obviously requires both a natural scientist’s view on flood hazards and a social scientist’s view on society’s vulnerability. The natural scientist should look at coastal floods, river floods, pluvial floods, flash floods and tsunamis alike, but also at the development of flood hazard due to climate change. The social scientist should add focus on demographic developments and economic growth as key determinants of social vulnerability, but also on how cultural and technological developments may affect the people’s coping capacity. And of course, we need the engineer’s inventiveness, the designer’s creativity and due knowledge about governance.

Finally, comprehensive flood risk management not only involves research and development, but—more importantly—also practical application and governance. FLOOD*risk*2008

already focused on research and practice, but the gap between these still remained large. Therefore, *FLOODrisk2012* has as its adage: closing the gap between science, policy and practice. In this context, several recent developments are promising and deserve special mentioning.

In Europe, the issuing of the EU Floods Directive in November 2007 has given a huge impetus to the development and implementation of flood risk management in practice. This directive has been transposed into national legislation, and all member states have begun implementing the various required steps of preliminary risk assessment (2011), flood hazard and risk mapping (2013) and risk management planning (2015). This called for dedicated data collection, investigations and research, from which we can now learn a lot: about the actual questions which require an answer, about how to do deal with practical problems (e.g. of a lack of data when drafting flood hazard maps), and about the various approaches to making flood risk management plans in different member states. These practical questions have not only stirred up the responsible authorities, but also encouraged researchers and scientists to dedicate attention to flood risk management issues.

Simultaneously, dedicated European research within Framework Programmes 6 and 7 addressed relevant flood risk management issues, building on the foundations laid by *FLOODsite*. The research includes projects aimed at improving analysis methods (e.g. *CONHAZ* on cost estimates of hazards), with an emphasis on the influence of climate change (such as *WATCH* and *ENSEMBLES*), with a focus on certain flood types (e.g. *IMPRINTS* on flash floods, *THESEUS* on coastal flooding), on specific environments (e.g. *CORFU*, *FloodProbe* and *SMARTeST* on urban areas), on monitoring and warning (e.g. *HYDRATE* for flash floods and *UrbanFlood* for failing flood defences), on preventive policy (*KULTURisk*), on people's coping capacity (*CapHazNet*), and more. The majority of these projects present their latest findings at *FLOODrisk2012*. But also *ERA-NET CRUE* activities (e.g. *EXCIMAP* on hazard mapping), various Interreg IV projects (*FLOOD-WISE*) and several national research programmes (*FloodControl2015*, *XtremRisk*, *Knowledge for Climate*) have interesting new ideas and results to offer.

Rotterdam, *FLOODrisk2012*'s venue, is among the world's leading seaports, and is the gateway to the hinterland of western Europe. With half the European inland shipping fleet and about 100,000 border crossings per year, the Rhine River is of utmost economic significance. However, there is a substantial flood hazard where this second largest European river meets the North Sea.

In this context, it is worth mentioning that more than 55% of the Netherlands is flood-prone, constituted of river floodplain, coastal plain, or land reclamation. And it subject to subsidence. This makes the country very dependent on reliable embankments, and vulnerable to climate change. The national authorities are dedicated to doing justice to their claim that the Netherlands is the best-protected delta in the world and to anticipating the consequences of climate change. To this end, a Delta Programme for the 21st century is being drafted, which stimulates the co-operation between science, applied research, policy and practice. This programme, for the first time in the Netherlands, drafts a comprehensive flood risk management strategy for the future that is not simply a response to an (immanent) flood disaster having occurred. This may explain the interest of the authorities in *FLOODrisk2012*.

On behalf of the Local Organising Committee, we express thanks to all those who helped make *FLOODrisk2012* a success. Special thanks are due to the Scientific Committee for their efforts to review all contributions to this volume of abstracts, as well as the full papers on the enclosed CD.

Finally, on behalf on the Organising Committee, we welcome you to the conference and wish you many fruitful interactions and exchanges of ideas.

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