

SPATIAL FLOOD RISK MANAGEMENT IMPLEMENTING CATCHMENT-BASED RETENTION AND RESILIENCE ON PRIVATE LAND

Forward

The past decade or so has witnessed a substantial increase in research on nature-based solutions (NBS). Research efforts have principally concentrated on technical aspects of their efficacy and effectiveness for managing flood risk and establishing key technical solutions for having most impact. The use of the concepts has also evolved and broadened to not only consider re-wilding and flood storage, but to incorporate inter-urban solutions and led to the adoption of terms such as Blue-green and sponge cities. Work such as the development of criteria for nature-based solutions (e.g. Albert et al., 2017) and the production of guides (e.g. USACE's Engineering with Nature Atlas, now in its second edition) have helped to bring NBS more into the mainstream. Their position has also raised on the political agenda with the multi-benefits of aligning the reduction of flood risks with realising the broader goals of sustainable development and greening the environment. However, despite their potential of critical importance to their development is the availability and accessibility of space on which to develop nature-based solutions. Significantly, this often involves the need to access privately-owned land, but for wider community benefits, a key challenge for the successful application of nature-based flood risk management. It is this implementation gap where this book and associated initiatives focusses.

This volume is the final culmination of the Land4Flood European Union COST action (CA16209). I have had the pleasure of witnessing how this initiative has brought together researchers, practitioners and other stakeholders to discuss key barriers, share best practices and seek transferrable solutions to NBS implementation challenges. Integrating scientific understanding from an extensive range of disciplines (e.g. hydrology, geomorphology, engineering spatial planning, geography, sociology, political science, economics etc), policymaking and practice-based experience of the development of NBS together with landowners and local expert knowledge of those affected has been particularly powerful in understanding the complexity of these issues. Land4Flood has utilised an array of engagement and knowledge transfer approaches to capture the attention of a range of interests, but also looked to train the next generation of scientists working in NBS to ensure that they understand the significance of private land and appreciate the value of including so called 'lay' knowledge and stakeholder perspectives into the debate.

The book is structured according to three key approaches to nature-based solutions and this comprehensive perspective is to be applauded. Not only is there a section considering typical measures such as flood retention, but one is also dedicated to water retention in the hinterland and efforts to improve land management and soil infiltration. Finally, the consideration of resilient cities challenges the more traditional conceptualisation of NBS as being located in rural catchments on mainly agricultural land. Coupled with comprehensive outlook is the inclusive perspective of land embracing both the biophysical and socio-political context and centralising the role and perspectives of key stakeholders. The cross-disciplinary and international co-authorship, with physical and social scientists of at least two countries coming together offers the provision of wide-ranging evidence-based examples of best practices. Adopting this collaborative approach to authorship prevents the silos often seen in academic contributions and the presentation of broader theoretical, policy and practice-oriented lessons.

Among the important conclusions of the book the following stands out. There is much we can learn from integrating disciplinary knowledge and integrating expert and lay understanding of NBS, that independently is not significant. Although many of the examples stress the importance of context, so whilst it is necessary to consider the natural, socio-political, economic, legal and of course technical feasibility of any NBS options, there is much best practice available from which we can learn. So the solution or inspiration for solutions are potentially out there to solve implementation challenges if we care to look for them, and this volume is a great place to start. Finally, the Editors' development of the concept of spatial flood risk management is a novel addition to the theoretical consideration of NBS and their place in achieving solutions. Its inclusion emphasizes the importance to consider private land and its access for flood risk management, an aspect which has been somewhat underplayed until now.

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