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Capturing the multiple benefits associated with nature-based solutions: lessons from natural flood management project in the Cotswolds, UK

Chrisopher Short, Lucy Clarke, Chris Uttley, and Brian Smith
(cshort@glos.ac.uk)

Following severe flooding in 2007, and subsequent smaller flood events, a decision was taken in 2012 to explore nature-based solutions in 250km2 river catchment in the southern Cotswolds in the UK. A major tributary within the catchment has been designated as rapid response; with a primarily limestone geology limestone and a mixture of spring and surface drained sources along a number of tributaries feeding in the river, with one main population centre where the water bodies converge. The project involves landscape and land management interventions aimed at attenuating high flows to reduce flood risk through changes in land management practices in both agriculture and forestry and slowing peak flows in surface flows through increased infiltration and attenuation areas. After three years of the project it is clear that the threshold for effectiveness requires the majority of the upstream catchment area to be implementing these measures. However, the cost effectiveness of the approach seems to be substantial compared to traditional hard-engineering approaches. The level of community involvement, including local flood forums, is high and the social, and natural, capital has been enhanced through the project. Early results suggest that there have been localized improvements in water quality and biodiversity as well as a reduction in peak flow but such changes are difficult to directly associate to the project. What is clear is the role of communities, landowners and partners to implement natural flood management on a catchment wide scale. In this sense the project has adopted a co-management or adaptive management approach which brings together the knowledges of hydrologists, ecologists, farmers, woodland owners and the local community to implement locally be-spoke solutions within a broader project framework. This paper will outline the initial findings and the governance structure that has assisted in the early success of the project within a theoretical framework of co-management and suggest how this type of framework is suitable for a range of nature-based solutions across Europe. However, the challenge remains of capturing the multiple-benefits that such projects offer as these are often missed through conventional approaches such as cost-benefit analysis and some reflections on this will also be presented along with a potential way forward.