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Flood risk change in some European, African and Asian catchments

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In light of the expected increase of flood risk in large parts of the world due to climate change and globally increasing exposure, efficient integrated flood risk management needs to be implemented. Societies learn from floods, and consequently improve their risk management. Such learning can occur through 'focusing events', i.e. events that provide a sudden, strong push for action. For example, the 1953 North Sea flood triggered the Delta Works in The Netherlands and the construction of the Thames Barrier. We show how societies have learnt from focusing events in river systems, by a semi-quantitative assessment of eight paired flood events around the world, i.e. consecutive floods that occurred in the same catchments, with the second flood causing significantly lower damage. We unravel the main mechanisms underlying these eight success stories of risk reduction. Across all case studies, we find that lower damage caused by the second event was mainly due to significant reductions in vulnerability. The role of changes in exposure is less apparent; positive and negative changes are reported. In some cases, significant investments in flood protection between the floods have played a large role in exposure and damage reduction. Reduction of vulnerability seems to be a key for better risk reduction via integrated flood risk management. Thus, we need to redouble efforts to improve our understanding of vulnerability.