



Flood impacts beyond the direct and physical ones: the case of the Po catchment in Italy

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Flooding is among the leading climatic threats to people's livelihoods, affecting development prospects worldwide. While the danger is already substantial, climate change and rapid urbanization in flood zones will likely further drive-up flood risks.

The support from flood risk assessment studies, which quantify the impacts of hazardous events on the built environment, economy and society, is fundamental for defining and implementing strategies to manage and reduce flood risk effectively. However, according to the typology of considered assets, there are different methodologies for flood risk assessment. While for direct physical and monetary dimensions, the scientific community offers a variety of widely used models, the application of models beyond these dimensions is much less frequent, and the selection and implementation of a model for estimating indirect losses or impacts for a given application case are not straightforward.

This work presents the lesson learnt from the recent updating process of the Flood Risk Management Plan of Po River District Authority carried out in the context of the MOVIDA project (<https://sites.google.com/view/movida-project>, 2022), in compliance with the European Floods Directive (2007/60/EC). The analysis spread across the following assets: residential buildings, crops, dairy farms, commercial and industrial sectors, strategic facilities, roads and railways, cultural heritage, environment and population. In particular, this study critically examines and discusses the needs and challenges faced by the research consortium to implement a comprehensive impact. Furthermore, the major bottlenecks for the different assets are explored across the standard dimensions: state of art, data availability and openness, spatial/temporal resolution and scale, methodology framework and implementation.