

# Integration as a Central Challenge of Flood Risk Management

Jochen Schanze

Leibniz Institute of Ecological and Regional Development (IOER) Dresden  
Member of the Dresden Flood Research Center (D-FRC)

## Abstract

Flood risk occurs in a comprehensive context of hydro-meteorological and societal processes. Generally speaking flood hazards cause social, economic and ecological damages according to the vulnerability and the exposure of elements at risk. The management of this „flood risk system“ needs to link the knowledge on the causal interrelations with societal decision making. Accordingly, flood risk management is dealing with a complex issue including a wide range of natural and social science aspects. To bring all these items together in a consistent approach *integration* plays an important role.

The contribution provides an overview on fundamental theoretical and methodological items of integration in terms of flood risk management. First, it explains basic terms and concepts like the „source-pathway-receptor-consequence-model“ which characterises the causal chain from the meteorological event to the generation of impacts with their monetary and non-monetary societal effects. Moreover, the term flood risk management is defined as „continuous and holistic societal analysis, assessment and mitigation of flood risk“.

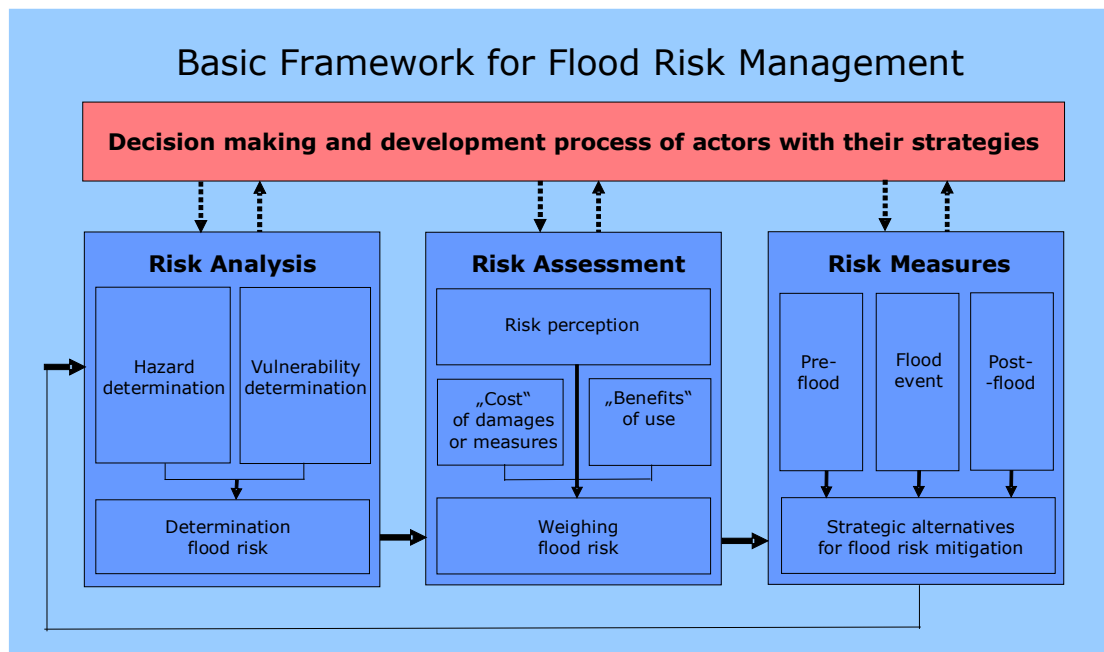


Figure 1. Basic framework of flood risk management

Second, a systematisation of main tasks of flood risk management is provided. Risk analysis is understood as task of determining hazards, vulnerability and risk. Risk assessment encompasses risk perception and weighing risk regarding to “costs” of damages and measures and “benefits” of using flood-related areas. Risk measures are distinguished in pre-flood, flood event and post-flood activities based on the understanding of a continuous cycle of management. Relevant components of these main tasks are briefly described including methodological approaches for their investigation.

Third, a framework of integration is introduced linking risk analysis, risk assessment and risk measures with the societal decision making process (see figure 1). Hereby, the decision making process is supposed to consist on the formulation and implementation of strategies by actors of flood risk management. These actors represent different administrative sectors and different spatial units of local, regional and (inter-)national authorities and act with certain individual and societal backgrounds and goals. The decision making process therefore cannot be reduced to the content of the flood risk system. Instead, the societal context and the process of strategy development strongly influence the weighing of risks, the selection of strategic options and their implementation.

As a conclusion knowledge on integration is seen as a “mental map” for the placement of all research and practical activities of flood risk management. It serves as the basis for the communication and cooperation between researcher of various fields, practitioners of different sectors and units from multiple levels as well as between science and practical flood risk management. FLOODmaster provides this mental map with in-depth knowledge on relevant theories and methods.