

Flood protection and risk management: the case of Tescio River basin

PIERGIORGIO MANCIOLA¹, SILVIA DI FRANCESCO² & CHIARA BISCARINI³

¹ *CIPLA- Interuniversity Research Centre for the Environment, University of Perugia, Perugia, Italy*
manciola@unipg.it

² *Department of Civil and Environmental Engineering, University of Perugia, Perugia, Italy*

³ *Water Resources Research And Documentation Centre, University For Foreigners, Perugia, Italy*

Abstract This paper presents a definition of the hydrological engineering requirements for formulating and evaluating economically efficient flood damage reduction plans aimed to meet performance and environmental-protection standards. Most of the research efforts have been devoted to the technical factors of risk assessment, providing quantitative and qualitative estimates of possible alternatives, containing measures of the risk associated with those alternatives. Moreover, the issues of risk management are analysed, in particular with respect to the role of decision making when risk information is available. The present study highlights that plans should also be evaluated in terms of many factors, such as contribution to local economic development, impact on the quality of the total environment, impact on the population's well-being, prevention of loss of life, and preservation of cultural and historical values. In order to prove the reliability of the proposed methodology and to show how risk-based information can be incorporated into a flood analysis process, an application is also presented. This application concerns a first set of results of the flood risk assessment in the Tescio River basin.

Key words flood; risk management; Tescio River basin; environmental protection