

COASTAL RISK ANALYSIS FROM CLASSICAL METHODOLOGIES TO RISK PERCEPTIONS

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Nowadays, coastal regions are heavily exposed to several hazards weakening their environmental quality and sustainability. Risk impact and intensity depend on both the hazard physical nature and how it is managed.

Also at the light of climate change consequences, planning strategies and management activities are required by means of a reliable, understandable and timely knowledge of processes affecting coastal hazards, getting decision makers, stakeholders and local communities involved (IRGC, 2017). The coastal environmental risk, in fact, is usually ambiguously perceived. For example, in several cases the state of health of beaches is evaluated through shoreline recession and emerged beach decreasing. Such a phenomenon immediately influences decision makers, stakeholders and local communities' perceptions of risk, causing alarm amongst those actors who are directly affected.

For this reason, technical scientific analysis should be complemented by the investigation of experiential knowledge in order to understand risk perceptions and their potential consequences on the active role of decision makers, stakeholders and local communities in risk management (Boström, 2010).

Accordingly, Figure 1 (left panel) shows an inclusive approach to frame, assess, evaluate, manage and communicate risk issues, often marked by complexity, uncertainty and ambiguity (IRGC, 2017).

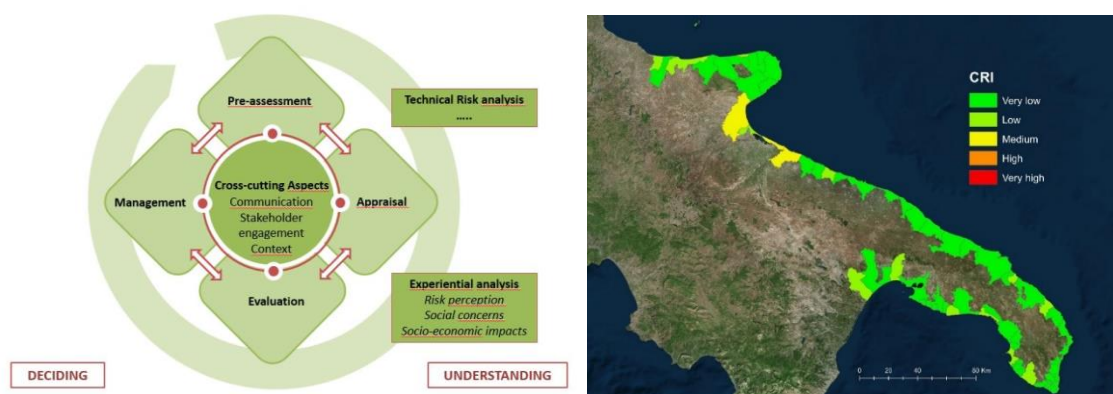


Fig. 1 Left panel: risk governance framework (adapted from IRGC, 2017); right panel: coastal risk map (modified indicators).

In the full paper a joint assessment of hazard (H), exposure (E) and vulnerability (V) to coastal erosion and flooding affecting Apulian and Emilia-Romagna coasts will be analyzed. As risk (R) could be given by a well-known relationship $R=H \times V \times E$, coastal risk maps developed following the

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EUROSION approach will be reported and explained (EUROSION, 2004). For an enhanced evaluation of coastal risk management, some modified indicators have been adopted (i.e. erosional trend, coastal flooding, anthropization, etc.) and climate change projections have been included (IPCC, 2014). Results have been compared with those derived from the application of the EUROSION procedure (for Emilia-Romagna, in Perini et al., 2016). A combined analysis in terms of storm-induced damages will be also discussed for the Emilia Romagna coast, where results of damage survey in 2017 and 2018 have been correlated to the flooding and erosion hazards.

Figure 1 (right panel) reports the risk map at regional scale normalized with respect the maximum value theoretically derived from the model for Apulia region. Risk perception and its potential consequences will be analyzed, and management strategies will be constructed by a representative selection of decision makers and stakeholders through a participatory approach. In particular, an adapted version of the ‘future workshop’ approach (Jungk & Mullert, 1987) will be applied to a part of the Apulian coast affected by significant erosion. Starting by a critical understanding of actual problems and following different phases of individual reflection and group interaction, participants will point out shared desirable future visions and ways to move from the actual situation to a preferable one (Valqui Vidal, 2005).

Results of both analyses will be compared highlighting the importance to integrate classical methodologies with experiential knowledge in order to rise collective awareness of problems and needs and common lines of actions to improve the effectiveness of coastal management.

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