

Conclusions

Disasters caused by natural and anthropogenic causes, particularly those on a large scale, drastically affect communities, infrastructure and ecosystems, often leading to adverse economic, societal, political and environmental consequences. The interest in improved models or pilot actions for the risk management cycle (RMC) is gradually increasing at local, national, European and global levels. In Chapter 2, the RMC is described from three main perspectives, each one being a prerequisite for the next: risk assessment (subchapter 2.1), risk management planning (subchapter 2.2) and implementation and monitoring (subchapter 2.3). Thereby, Chapter 2 synthesises the state of the science in each of those areas, highlights persisting gaps and challenges, and provides future directions for research and action.

Today it is widely acknowledged that efforts to reduce current risk and prevent future risk should be based on a solid understanding and assessment of the drivers, spatial patterns and dynamics of disaster risk. The participation in risk assessments of a large variety of disciplines and actors, such as scientists from the social and natural sciences, policymakers, practitioners, the private sector and citizens, is key to capture the complexity of disaster risk, but also to facilitate the mainstreaming of risk information into policy and practice. Over recent years, a number of concepts and approaches have been developed to assess risk associated with natural hazards and with climate change at and across different spatial (local to global) and temporal (past trends, present-day risk, future scenarios) scales. Despite recent advancements in the understanding and assessment of risk, a number of challenges persist. These include questions on how to better incorporate traditional/local knowledge as well as intangible factors (e.g. changing risk perception, values, norms and beliefs) into assessments, but also how to capture the systemic nature of risk in an increasingly interconnected world. Further, in order to be useful for decision-making, communicating risk information as well as associated uncertainties to relevant stakeholders in an understandable and actionable manner is of crucial importance.

Risk management planning is a complex, multilevel and multi-stakeholder practice. It requires the active engagement not only of public bodies and of the private sector, but also of civil society groups and of citizens, all in an effective synergistic way. As a consequence, risk management planning requires the development and preparation of specific capacities and capabilities by a variety of institutions based on evidence coming from risk assessment processes. Risk management planning covers the entire spectrum of the RMC, including the pre-disaster phases of prevention/mitigation and preparedness, the immediate response to the disaster and the post-disaster phase of recovery. In practice, however, some overlap is observed between the various RMC phases. As a consequence, the determination of clear responsibilities for specific tasks is vital for an effective and functional risk management policy. Although each agency has to organise risk management planning from its own perspective, responsibilities, budgetary restrictions and capabilities, vertical and horizontal coordination of mechanisms and interoperability between the different agencies and administrative levels involved in planning and decision-making are needed to increase societal resilience.



The implementation of risk management policies and measures relies strongly on risk assessment, risk management planning and support by advanced scientific and technological methods and tools. The EU, its Member States and other stakeholders have identified complementary methods to monitor, measure and evaluate the performance and impact of individual projects and programmes. Responsibilities and decision-making actions shared between the various stakeholders should be in place and clearly determined by governance arrangements at all administrative levels, i.e. from local to international. At the levels of the EU and Member States, relevant policies and legislative regulations have been developed for engaging stakeholders (including local communities, civil society organisations, the private sector and volunteers) in the implementation of risk management strategies in all phases of the RMC.

Continuous scientific and technological innovation supports more effective disaster risk management. In the preparation phase, one may include the elaboration of both hazard zones and disaster risk scenarios for different types of hazards, including multi-hazard risk. Improved management and analysis of data and inventories from past disasters support learning to further reduce exposure, vulnerability and, thereby, risk. Strengthening and enhancing early warning systems and risk estimation matrices constitute potential and promising tools for improving risk management, particularly when complemented by a comprehensive risk information communication strategy and effective response procedures, which in turn require well-designed standing emergency management plans and procedures.

