



## Multi-hazard and Resilient-informed system for Enhanced Local and Regional Disaster risk management

MEDiate is a Horizon Europe project that has been granted by the European Commission under the topic HORIZON-CL3-2021-DRS-01-03: “Enhanced assessment of disaster risks, adaptive capabilities and scenario building based on available historical data and projections”.

The consortium consists of 18 partners from 7 European countries, involving a multi-disciplinary team of meteorological, environmental, social and geophysical scientists, civil and risk engineers, information technologists, business economists and managers, and end-users, working together to ensure that MEDiate delivers solutions that are user-led and supported by appropriate technology.



Geographical representation and Testbeds

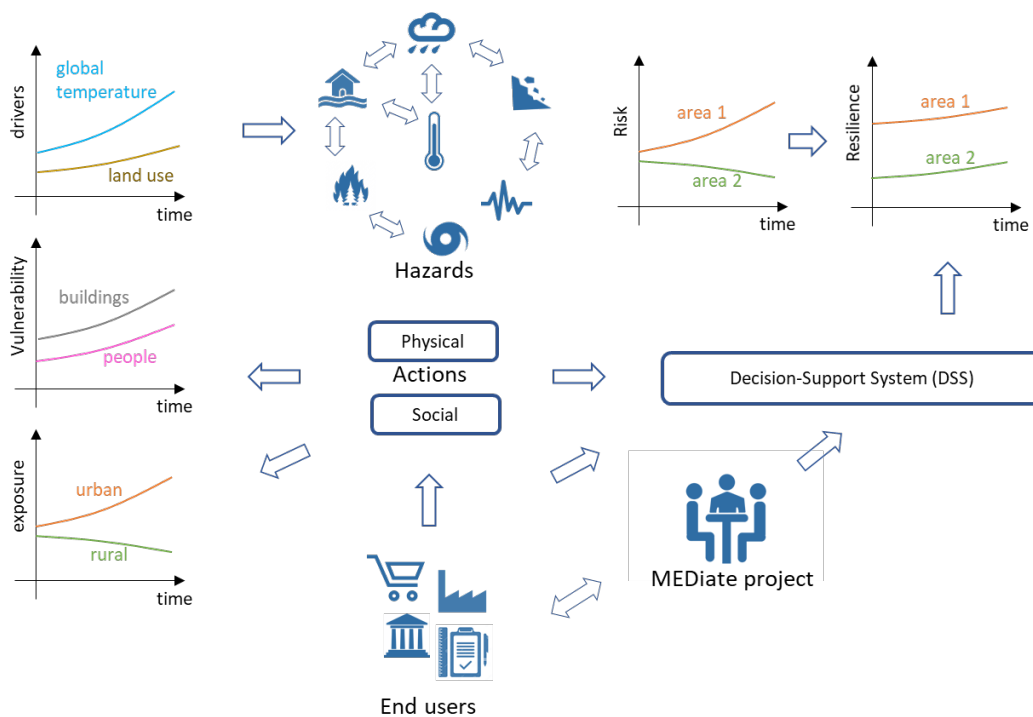


Funded by  
the European Union

The project aims to make significant advancements to enhance local and regional disaster risk management and improve the prediction of potential impact of mitigation and adaptation risk management actions.

MEDiate will concentrate on facilitating the reduction of losses (e.g., human, financial, environmental) from the natural hazards with the highest potential to cause the most significant impacts in Europe over the coming decades: firstly, weather-related hazards (and their knock-on hazards in terms of wildfires and landslides) and, secondly, earthquakes (with the potential knock-on hazards in terms of landslides and ground failure).

**The project will develop a decision-support system (DSS)** for disaster risk management by considering multiple interacting natural hazards and cascading impacts using a novel resilient-informed, service-oriented and people-centred approach that accounts for forecasted modifications in the hazard, vulnerability and exposure. The integrated disaster risk management framework will provide end users (e.g., local authorities, businesses and citizen groups) with the ability to build accurate scenarios to model the potential impact of their mitigation and adaptation risk management actions (and those of other end users). The scenarios, which can be customised to reflect local conditions and needs (e.g., demographics, deprivation, natural resources etc.), will be based on a combination of the historical records and future climate change projections to forecast the location and intensity of climate related disaster events and to predict their impacts, including cascading impacts, on the vulnerability of the local physical, economic and social systems (i.e., inherent vulnerability and resilience). The scenarios will allow end users to evaluate the potential impact of different risk management strategies to reduce vulnerability and enhance community resilience.

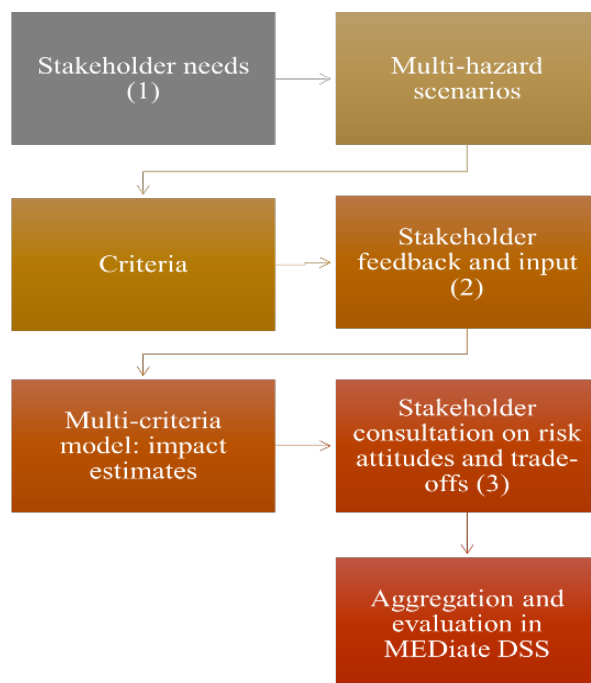


*MEDiate DSS Concept Model*

MEDiate will consist of analysis of relevant data, co-design and co-development of the DSS with decision-makers from four testbeds located in four European countries that all face pressing concerns related to a variety of interacting natural hazards and have specific end users, contexts (e.g. in terms of hazards) and cover different scales in terms of sizes and populations.

**MEDiate will include a multi-criteria decision analysis (MCDA) framework** for multi-risk governance and stakeholder preference elicitation, which includes a set of processes for negotiation as well as a set of decision rule mechanisms for hazard events. These will ensure stakeholders' access to all relevant information on hazard scenarios, estimated

likelihoods and systemic impacts, and their meaningful participation in co-developing the MEDiate DSS from problem identification to preference and value expression. This framework for eliciting stakeholder preferences in multi-hazard scenarios is based on earlier work that highlighted the benefits of this approach and can be reiterated in real-world hazard preparedness and mitigation.



*Stakeholder preference elicitation MCDA framework*