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A web-platform for resilience assessment in mountainous valleys impacted by slope instabilities.

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The ANR-SAMCO project aimed to develop a proactive resilience framework enhancing the overall resilience of societies on the impacts of mountain risks. The project elaborated methodological tools to characterize and measure ecosystem and societal resilience from an operative perspective on three mountain representative case studies. To achieve this objective, the methodology was split in several points: (1) the definition of the potential impacts of global environmental changes (climate system, ecosystem e.g. land use, socio-economic system) on landslide hazards, (2) the analysis of these consequences in terms of vulnerability (e.g. changes in the location and characteristics of the impacted areas and level of their perturbation) and (3) the implementation of a methodology for quantitatively investigating and mapping indicators of mountain slope vulnerability exposed to several hazard types, and the development of a GIS-based demonstration platform available on the web.

The strength and originality of the SAMCO project lies in the combination of different techniques, methodologies and models (multi-hazard assessment, risk evolution in time, vulnerability functional analysis, and governance strategies) implemented in a user-oriented web-platform. We present the results of this developments, architecture and functions of the web-tools, the case studies database showing the multi-hazard maps and the stakes at risks. Different kinds of risk were assessed over several area of interest in Alpine or Pyrenean valleys, so that different analyses are presented for current and future periods for which climate change and land-use (economical, geographical and social aspects) scenarios are taken into account. This tool, dedicated to stakeholders, should be used to evaluate resilience of mountainous regions since multiple scenarios can be tested and compared.