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Comparison of landslide hazard and risk assessment practices in Europe

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An overview is made of the landslide hazard and risk assessment practices that are officially promoted or applied in Europe by administration offices, geological surveys, and decision makers (recommendations, regulations and codes). The reported countries are: Andorra, Austria, France, Italy (selected river basins), Romania, Spain (Catalonia), Switzerland and United Kingdom. The objective here was to compare the different practices for hazard and risk evaluation with respect to the official policies, the methodologies used (qualitative and quantitative), the provided outputs and their contents, and the terminology and map symbols used. The main observations made are illustrated with examples and the possibility of harmonization of the policies and the application of common practices to bridge the existing gaps is discussed.

Some of the conclusions reached include the following: zoning maps are legally binding for public administrators and land owners only in some cases and generally when referring to site-specific or local scales rather than regional or national ones; so far, information is mainly provided on landslide susceptibility and hazard and risk assessment is performed only in a few countries; there is a variation in the use of scales between countries; the classification criteria for landslide types and mechanisms present large diversity even within the same country (in some cases no landslide mechanisms are specified while in others there is an exhaustive list); the techniques to obtain input data for the landslide inventory and susceptibility maps vary from basic to sophisticated, resulting in various levels of data quality and quantity; the procedures followed for hazard and risk assessment include analytical procedures supported by computer simulation, weighted-indicators, expert judgment and field survey-based, or a combination of all; there is an important variation between hazard and risk matrices with respect to the used parameters, the thresholds defining the different hazard or risk levels and the number and physical interpretation of the latter.

In this context suggestions are made to bridge the gaps between the practices and to enhance homogenization of the hazard and risk assessment procedures and of their outputs.

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