

Seismic hazard and risk assessment for large Romanian dams situated in the Moldavian Platform

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Besides periodical technical inspections, the monitoring and the surveillance of dams' related structures and infrastructures, there are some more seismic specific requirements towards dams' safety. The most important one is the seismic risk assessment that can be accomplished by rating the dams into seismic risk classes using the theory of Bureau and Ballentine (2002), and Bureau (2003), taking into account the maximum expected peak ground motions at the dams site - values obtained using probabilistic hazard assessment approaches (Moldovan et al., 2008), the structures vulnerability and the downstream risk characteristics (human, economical, historic and cultural heritage, etc) in the areas that might be flooded in the case of a dam failure.

Probabilistic seismic hazard (PSH), vulnerability and risk studies for dams situated in the Moldavian Platform, starting from Izvorul Muntelui Dam, down on Bistrita and following on Siret River and their affluent will be realized. The most vulnerable dams will be studied in detail and flooding maps will be drawn to find the most exposed downstream localities both for risk assessment studies and warnings. GIS maps that clearly indicate areas that are potentially flooded are enough for these studies, thus giving information on the number of inhabitants and goods that may be destroyed. Geospatial servers included topography is sufficient to achieve them, all other further studies are not necessary for downstream risk assessment.

The results will consist of local and regional seismic information, dams specific characteristics and locations, seismic hazard maps and risk classes, for all dams sites (for more than 30 dams), inundation maps (for the most vulnerable dams from the region) and possible affected localities. The studies realized in this paper have as final goal to provide the local emergency services with warnings of a potential dam failure and ensuing flood as a result of an large earthquake occurrence, allowing further public training for evacuation.

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