



Risk assessment for large Romanian dams situated on Bistrita and Siret Rivers

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The work will present an ongoing national Project that have as final goal to provide the local emergency services with warnings of a potential dam failure and ensuing flood as a result of a large earthquake occurrence, allowing further public training for evacuation. Probabilistic seismic hazard (PSH), vulnerability and risk studies in 6 counties from Moldova region including Izvorul Muntelui Dam, down on Bistrita and following on Siret River and theirs affluent will be accomplished during the project. A number of 5 large dams (the most vulnerable) 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. The results will consist in 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 5 dams from the region) and possible affected localities. The maps will provide the best available estimate of the general location and extent of dam failure inundation areas and will tell if a specific location lies within a dam failure inundation zone.

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. In this paper we will obtain the ground motion parameters in the dams locations using probabilistic hazard assessment techniques, 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, and will compute the risk factor for the most exposed dams in the area.

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