

Total Risk and Seismic Stability of Existing Large CFRD's in Turkey

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Abstract - The concrete-faced rockfill dam (CFRD) has been constructed with increasing frequency in last decade, because of no settlement problems through the use of compacted rockfill. It is advantageously regarded that there can be no pore water pressure due to earthquake shaking, because the embankment does not include water inside. Dam specialists had a decision that CFRD's have a high resistance to seismic loading when well compacted. However, its dynamic behaviour was questioned after Wenchuan earthquake, occurred on May 12, 2008 in China. Author states that CFRD's are more critical structures for earthquake case when compared with other types of embankment dams as based on studies which have been carried out for the dams in the locations where are very close to energy sources in Turkey. There are so many dams, which are under the effect of near-source zones in Turkey. One of largest CFRD's, namely Ilisu dam is now built on Tigris river, Eastern Turkey. This study summarizes a dynamic analysis procedure for CFRD's subjected to strong seismic excitation and introduces the total risk and seismic stability of nine large existing CFRD's having structural heights of 60 m to 100 m, in Turkey.

Keywords: Concrete-faced rockfill dam, earthquake, seismic hazard, total risk