



Effect of Seismic Load on the Stability of Earth Dam Reinforced with Geosynthetic Material

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ABSTRACT

Earth dams are sometimes built with large dimensions in order to produce electrical energy, control floods, supply drinking water and agriculture, etc. The failure of earth dams also causes irreparable economic and human losses, which increased the importance of designing and strengthening dams. The stability of earth dam mainly depends on the shear strength of the soil, and this resistance in earth dams is provided by the friction between soil particles. The greater the angle of internal friction between soil particles, the more the shear resistance of soil improves. As a result, the stability of dam increases. The issue of increasing the shear strength in the soil with using geosynthetics in the earth dam is the main goal of this research. The effect of geosynthetics and their arrangement, placement distance from each other, length, and materials used, including cohesion, unit weight and internal friction angle are the main research variables. In this research, by using geotextile in the earth dam body, the stability and safe and economical design of the dam in static and dynamic state under seismic load has been evaluated. For this purpose, Plexis software has been used.

Keywords:

Earth dam, Geosynthetic, Static loading, Dynamic loading, Stability analysis.