

## Effect of Moisture Content Compaction in the Geometry Definition of Earth Dams

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**Abstract :** This paper presents numerical flow and slope stability simulations in three typical sections of earth dams built in tropical regions, two homogeneous with different slope inclinations, and the other one heterogeneous with impermeable core. The geotechnical material parameters used in this work were obtained from a lab testing of physical characterization, compaction, consolidation, variable load permeability and saturated triaxial type CD for compacted soil samples with standard proctor energy at optimum moisture content (23%), optimum moisture content + 2% and optimum moisture content +5%. The objective is to analyze the general behavior of earth dams built in rainy regions where optimum moisture is exceeded. The factor of safety is satisfactory for the three sections compacted in all moisture content during the stages of operation and end of construction. On The other hand, the rapid drawdown condition is the critical phase for homogeneous dams configuration, the factor of safety obtained were unsatisfactory. In general, the heterogeneous dam behavior is more efficient due to the fact that the slopes are made up of gravel, which favors the dissipation of pore pressures during the rapid drawdown. For the critical phase, the slopes should have lower inclinations of the upstream and downstream slopes to guarantee stability, although it increases the costs.

**Keywords :** earth dams, flow, moisture content, slope stability

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