

# **Contribution to the study of gravity dam stability by the development of a semi-probabilistic limit states method**

Usually in Algeria, for the sizing of gravity dams, deterministic calculation is justified in only one format. The latter, although insufficient, has the advantage of being easily implemented. Indeed, it does not allow taking into account the dispersion of each of the parameters involved in the calculation, which may lead to oversizings. The aforementioned calculation proves to be uneconomical as regards structure sizing which does not reflect the reality of an efficient and adequate calculation for this type of structures.

Our work aims to, first, develop the semi probabilistic method, and later, a comparative study between three approaches, namely deterministic, semi probabilistic and probabilistic one. This work was extended to study the influence of some parameters on the stability and the state of stresses of gravity dams.

A study of practical cases on six dams (Oued Fodda, Boussiaba, Koudiat Acerdoune, Beni Haroun, Hamiz and Cheurfa II) was considered, namely a digital application of CADAM software.

**Keywords:** Gravity dam; semi-probabilistic; CADAM, EUROCODE; deterministic, probabilistic; partial factor; model facto; stability, stress.