

*Indian Standard*

**CODE OF PRACTICE FOR  
STABILITY ANALYSIS OF EARTH DAMS**

**FOREWORD**

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 10 December 1975, after the draft finalized by the Dam Sections ( Non-overflow) Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** Earth embankments are widely used for roads, railways, river training works, canal embankments, dams, etc. The economy and safety of these works can be accomplished by adopting proper methods of design, construction and maintenance. The failure of these structures is likely to result in loss of life and damages to property. It may also result in damage and/or washout of the structure fully or partially.

**0.3** The most important cause of failure is sliding. It may occur slowly or suddenly and with or without forewarning. Such a failure causes a portion of the earth fill to slide downwards and outwards with respect to the remaining part generally along a well-defined slide surface. At the time of the failure the average shearing stress exceeds the average shearing resistance along the sliding surface. It is, therefore, necessary that the designer takes special care to eliminate the possibility of such a failure.

**0.4** In the design of earth dam both safety and economy call for thorough soil studies of the foundation and of the materials of construction, combined with stability computations. The methods of stability analysis currently in use have been developed largely as a result of studies of actual slides on old dams. The stability computations serve as a basis either for the redesign of slope of an existing structure or for deciding the slope of a new structure in accordance with the specified safety requirement. Because of wide variations in the properties of subsoil formation and the heterogeneity of soils available for construction of earth dam, the design of an earth dam constitutes a problem that calls for individual treatment. Additional studies are required in complex situations such as earth dams founded on marshy soils, marine clays and materials susceptible to liquefaction.

**0.5** Effective stress method of analysis is recommended in this code.

**0.6** For the purpose of this standard it is presumed that the requirement given below have been determined before carrying out the stability analysis relationship expressed by Coulomb's equation: