



# Design of chamrga earth dam

Research Project

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## **Abstract**

The report describes a dam project which constructed in **chamrga village**. After considering all investigation types ( hydrological investigation , geological investigation , engineering survey ) which done at the site , that selected to construct the dam .the dam type is earth fill dam , it is selected according to the availability of the material at the area around the site , after studying all aspects that affect the constructing the dam , the cross section chosen consist of shell and core due to availability of the materials , and this type of cross section is the most famous cross section that chose for dams around the world. (chimney and cut off and safety against seepage).

## **The Object of the project:**

The objectives of this study are:

- Determining the type of the earth dam based on the availability of the materials.
- Determining the height of proposed dam based on the reservoir storage capacity .
- Design of u/s and d/s slopes of the dam and checking their stabilities under the most critical conditions using slide software.
- Seepage analysis through the dam using slide software
- Selecting suitable diversion method according to hydrological and site conditions.
- Estimation of peak flow into reservoir for a flood of 100 years return period for design of spillway.

## **INTRODUCTION**

### **1.1 DEFINITION:**

Earth-fill dams, also called **earthen dams**, **rolled-earth dams** or simply **earth dams**, are constructed as a simple\_embankment of well compacted earth. A homogenous rolled-earth dam is entirely constructed of one type of material but may contain a drain layer to collect seep water. A zoned-earth dam has distinct parts or zones of dissimilar material, typically a locally plentiful shell with a watertight clay core. Modern zoned-earth embankments employ filter and drain zones to collect and remove seep water and preserve the integrity of the downstream shell zone. An outdated method of zoned earth dam construction utilized a hydraulic fill to produce a watertight core. Rolled-earth dams may also

employ a watertight facing or core in the manner of a rock-fill dam. An interesting type of temporary earth dam occasionally used in high latitudes is the frozen-core dam, in which a coolant is circulated through pipes inside the dam to maintain a watertight region of permafrost within it.

Earth dams for the storage of water for irrigation have been built since the earliest times. These dams were however, limited in height but not necessarily in extent. Earth dams are now being built to unprecedented heights. Sites which have hitherto been considered unfit for the construction of dams are now being exploited. Development of soil mechanics, study of behavior of earth dams, and the development of better construction techniques have all been helpful in creating confidence to build higher dams with improved designs and more ingenious details. The result is that the highest dam in the world today is an earth dam.