REVIEW PAPER - I ON STUDY AND DESIGN OF MINI DAM ON ADAN RIVER NEAR BORI GOSAVI VILLAGE

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Abstract— Mini dams offer a lifeline to communities during the dry season. The paper discusses issues related to Flood condition, the paper explores, the development, operation, and management of mini dam on Adan River. the main goal of this project to protect the bori gosavi from flood and gives potable amount of water as per future demand. Flood condition is more severe in Bori gosavi because of its location placed on the bank Adan River and in summer season, they are facing the problem of water scarcity due to their adverse planning of storing water. the one of the solution on this problem is to throw back the river water and store the water by constructing mini dam on Adan river away from few kilo-meters of bori gosavi.Dam play's an important role in the provision of many kind of benefits such as drinking and irrigation, water supply, small hydro power generation, fishing and so on this will increase the agricultural growth of farmers by providing sufficient amount of water.This dam will help to villagers to increase the agricultural protection and the safety unconfined flood condition.

Keywords - Dam's, Bori Gosavi, Adan River, Mini Dam, Flood, Bank.

- **INTRODUCTION:**

A typical small storage dam would theoretically include an earth embankment and an earth cut overflow spillway channel. A small project may also include a separate operating spillway and/or a gated outlet structure through the embankment.The valley is crossed by an earth embankment, which holds the stored water. The earth cut overflow spillway channel, which has an inlet elevation at or marginally above full supply level (FSL) and allows for the passage of major flood events, generally serves as a source of material for the embankment.The operating spillway (typically made of concrete, rock, steel, or wood) allows watershed base flow and relatively frequent minor flood events to pass through.In some cases, a separate structure for the operating spillway is not required or warranted, and the earth channel around the embankment discharges all excess flows to the downstream valley.

- **LITERATURE REVIEW:**

1. **Cristofano (1965**): - (Model BEED for breach erosion of earth fill dams) For the purpose of simulating the breach erosion of earth fill dams, a computer model has been created (BEED). To simulate breach enlargement, the model takes into account the processes of surface erosion and slope sloughing. A volume continuity equation is used to estimate the loss of reservoir water, and broad-crested weir hydraulics is used to represent flow over and through the breach. Due to these equations' implicit structure, an iterative solution is suggested, with convergence occurring after just a few iterations.

2. **Harris and Wagner (1967): -** AN EARTH-DAM FAILURE GRADUAL ANALYSIS A dam failure can result in a terrible catastrophe with significant losses of both human life and property. The interaction between water and soil is nonhomogeneous, multiphase, and time-dependent (different materials, various degrees of soil compaction, etc.). A failure of an earth fill-dam requires a variety of intricate and dynamic processes. The principal causes of failure overtopping have been identified as pipe or electrical breakdown, although little is known about the location and extent of the nascent rupture. In the formation of breaches and eventual dam failure, hydraulics, hydrodynamics, hydrology, sediment transport mechanics, and geotechnical issues are all involved.

3. **Johnson and Illes (1976): -** (Floods from Dam Breach) Dams offer society important advantages like irrigation, hydropower, flood control, and water supply. However, catastrophic flooding happens when a dam collapses and the water it is holding back escapes through the breach, killing people and destroying buildings in the valley below. In contrast to precipitation-runoff floods, the

quantity of the flow is typically significantly greater, and the response time available for alerting the people is much shorter.

4. **Singh and Snorrason (1982): -** 20 dam failures were examined for (Prediction of Embankment Dam Breach Parameters), which came to the conclusion that the breach breadth might vary from 2 to 5 times the height of the dam. They found that the dam would completely fall within 15 to 1 hours, and that the greatest depth before failure would be between 0.15 and 0.61 metres in the case of an overtopping failure.

5. **MacDonald and Langridge-Mono polis (1984):-** The article "Breaching features of dam failure" presented the breach formation factor as the sum of the breach outflow volume and the height of the water above the breach at the time of failure. They looked at 42 case studies and came to the conclusion that the breach side slope may often be estimated to be 1H: 2V when the breach shape was believed to be triangular or trapezoidal channel.

6. **Singh and Snorrason (1984): -** (Analysis of dam breaks) 8 fictitious breached dams were examined, and the outcomes of DAMBRK and HEC-1 were compared. Using both models, they forecast peak outflows by changing the breach parameters. From the results of their research, they concluded that, in contrast to small reservoirs, which caused moderate changes in the range of 6 to 50%, large reservoirs created huge changes in the range of 35 to 87% in peak outflow when breach width (B w) was changed. Additionally, they noticed that the flood stage profiles produced by NWS were smoother and more realistic than those projected by HEC. Both models performed well for steep slopes, however the HEC model predicted fluctuating and inconsistent flood levels for mild slopes because it is unable to route flood waves in non-vertical.

7. **Froehlich (1987): -** (Revised specifications for embankment dam breaches) Detailed case studies of real dam failures were analysed. On the basis of data gathered from case studies, he then generated non-dimensional prediction equations from his analysis for the calculation of the average breach width, formation time, and average side-slope factor. He also came to the conclusion that, when all other things being equal, breaches created by overtopping are wider and erode laterally more quickly than breaches caused by other sources..

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- **Conclusion**: After studing these reviews we were concluded that study and design of mini dam on adan river near bori gosavi village, we are assuming that this dam protects the bori gosavi from flood and gives potable amount of water as per future demand.After reading all the review papers we get information that for completing this project, we need to build Mini Dam / Small Dam on adan river near bori gosavi village.If this Project will complete there will be lots of benefits for surrounding villages and farmers.We are assuming that this project will help to villagers to increase the agricultural protection and the safety unconfined flood condition.

- **REFERENCES:**

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