

PROJECT REPORT
ON

Measurement and control of flow through box culvert as canal outlet

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Abstract

Hemavathi canal is running through Tumkur district. This canal has number of outlets. The discharge through these canal outlets is not been able to estimate by the canal authorities. This problem is chosen to develop measuring methodology to estimate the discharge through these canal outlets.

Laboratory model to simulate flow through culverts has been used to collect discharge and water level measurements. Two different shapes of culverts, namely square and circular, are tested. The measurements presented in this report are intended to provide useful information regarding the variety of flow regimes. It is known that modeling the culvert flow regimes and capturing the transitions among these regimes numerically is a challenging task.

Modifications of the culvert geometry to achieve preferably a constant discharge through the culverts irrespective of difference in water levels are done here. To achieve this idea first venturi section is introduced in to the box and circular culverts. This resulted in some improvement in the results. Later orifice type modification is carried out. This resulted, still improvement in the form of unique curve for the different variations of difference in upstream and downstream water levels. In the field both box and circular shaped culverts are used. Modeling of both shapes are tried in the laboratory.