



Dam Break Analysis using HEC-RAS and Flood Inundation Modelling for Pulichinatala Dam in Andhra Pradesh, India

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Abstract: Dams have been playing a significant role in enhancing socio-economic status of people and environmental benefits in arid and semi-arid region of world. However, they cause a huge damage to the life and property when dam breaches. To minimise the effect of dam breaches, it is important to identify potential areas which likely get affected by using through modelling analysis. The aim of modelling is to simulate the movement of dam break flood wave along a river valley and to provide a solution in form of warning to the cities living downstream of dam. The present study analyse the breach of Pulichitnala dam located at Guntur district of Andhra Pradesh upto Prakasam barrage using HEC-RAS. The data required for analysis such as cross-sections elevation, dam structure, flow hydrograph, rating curve were collected from different line department of the State. The result obtained through the simulation of dam breach indicates a discharge of $121368.90 \text{ m}^3 \text{ sec}^{-1}$ at dam site and $84042.91 \text{ m}^3 \text{ sec}^{-1}$ at about 85km away from dam. A sensitivity analysis has been carried out changing Manning's roughness, changing PMF, breach time and breach width.

Keywords: Dam break, HEC-RAS, Flood, Flood inundation
