THESIS

# APPLICATION OF HEC-RAS COMPUTER MODEL FOR TRAINING RIVER CHENAB AT MARALA



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## ABSTRACT

River Chenab enters Pakistan upstream of Marala barrage. The reach between Marala Barrage and Alexandra Bridge became problematic since 1988. Various physical model studies were attempted to mitigate the problem. Another attempt was made with the help of a numerical model HEC-RAS. Various distortions which have to be made in a physical model of a river on the basis of availability of space were taken into account. A 30 km long and 5 km wide river was modeled alongwith a 0.25 mm sediment particle. It is assumed that the model should maintain the relationship with all the parameters, but most of physical models are not able to match the conditions of the prototype. Same was the case with the physical model examined in this study. The result of HEC-RAS was quite different from that of those reported by the physical one. The major difference observed was in the following areas:

a) Backwater curve

b) Velocity distribution across the stream

c) Effect of levees

The velocity distribution across the channel at RD 50 varies from 3 ft/sec to 8 ft/sec. 8 ft/sec velocity was lying in the middle of the stream. The water surface RL for the computer model was 792 ft. and that for the physical model was 785 ft. Both physical and computer model was run upto 11 lac cusecs. On the basis of the above observations, it was recommended that the numerical model should also be tested alongwith the physical model.

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