THESIS

SIMULATION OF FLOWS FROM KANSHI RIVER CATCHMENT AT JHANGI

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ABSTRACT

The study deals with the simulation of flows from Kanshi River catchment at Jhangi. In the tributaries of Jhelum River, flows have high seasonal and year to year variation i.e. their flow pattern is very uncertain. Due to uncertainty of flows, damage caused by the floods is also considerable. The situation can be improved by suitable operation of the system of reservoirs and canals in the River basin. A conceptual and physically based model (TOPMODEL) was used to simulate the flows of Kanshi River. The model simulates the daily stream flows.

The model was applied, tested and calibrated for simulating the flows. The selected model was calibrated using eight years (1961-1967) data of stream flows for Kanshi River basin at Jhangi and then used to simulate daily stream flows. In this model, only five parameters are required for calibration. The parameters of the conceptual model were calibrated using observed data of the watershed with in the limits given by the model.

Precipitation, observed discharge and potential evapotranspiration were the primary data inputs required along with some information about the catchment geomorphology. Rainfall data from 1961 to 1967 was used to simulate the daily stream flows. The model was applied without snowmelt subroutine because snowmelt contribution was negligible in the Kanshi River basin. Lumped parametric approach was used.

Results achieved are quite satisfactory (0.004 standard error) and indicate that the model can be used for flow simulation in Kanshi River basin. The simulated flows by the model showed a close agreement with the actual observed flows. The model is suitable to simulate the flows of the selected river basin. The flows simulated by the model almost adopt the observed pattern. The model can be applied effectively for low, medium and high flow simulation.