# HEC-1 Application to Hamidnagar Site

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## ABSTRACT

Surface runoff occurs when rainfall intensity exceeds the abstractive capacity of the catchment. Eventually, large amount of surface runoff concentrate to produce large flow rates referred to as floods. The HEC-1 model has been designed to simulate the response and flood events of a basin to precipitation events. The model simulates the rainfall-runoff process as it occurs in a river basin. 'Mathematical relationships are intended to represent individual meteorological , hydrological and hydraulic processes encompassing the rainfall-runoff phenomena.

In the present report, HEC-1 model has been used for rainfall-runoff simulation and estimation of flood events in the Punpun basin upto Hamidnagar. The components of the HEC-1 model simulates the rainfall-runoff process as it occurs in the river basin. Calibration of the model parameters has been performed by the mathematical optimization algorithm included in the HEC-1. The initial and constant loss rate technique for losses, Clark technique for unit hydrograph and an empirical equation base flow separation were utilized for optimization, calibration and validation of the model parameters. Fairly good results have been obtained by using calibrated model parameters.