

**Determination of SCS Runoff Curve Number and Landuse Changes For
Hamidnagar Sub-Basin of Punpun Basin**

C. Chatterjee, R. Jha and A. K. Lohani

ABSTRACT

Design of any hydraulic structure necessitates the estimation of runoff. The soil conservation service (SCS) model, developed by USDA, computes direct runoff through an empirical equation that requires the rainfall and watershed coefficient as inputs. The watershed coefficient is called the curve number (CN), which represents the runoff potential of the land cover soil complex. The approach of estimating CN using remote sensing technique saves time and is less expensive as compared to conventional techniques.

The study of landuse changes is a prerequisite for making developmental plans. Landuse changes can be studied through satellite data, however, where rainfall-runoff data are available over a longer period of time, a general trend of landuse changes can also be assessed through establishment of runoff curve numbers.

A project is proposed for the construction of a diversion barrage on river Punpun at Hamidnagar at longitude 84° 38'E and latitude 25° 4'N in the district of Aurangabad near Goh. For design of the barrage, estimation of water availability and runoff due to precipitation in the upper catchment is essential. In the present study, the runoff curve number for Hamidnagar sub-basin of Punpun basin is established using IRS 1A, LISS II data and soil information of Hamidnagar sub-basin. The rainfall-runoff data over a period of nine years are also used to develop the runoff curve numbers. Further, an attempt is made to study the landuse changes of Hamidnagar sub-basin by comparing the developed curve numbers.

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