



Runoff Estimation by Integration of GIS and SCS-CN Method for Kanari River Watershed

Ayushi Trivedi and Manoj Kumar Awasthi

*Department of Soil and Water Engineering
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur-450 001, India
E-mail: ayushikhandwa@gmail.com*

Abstract: Conventional water management is the only alternative to overcome the gap between demand and supply and for this surface water resource management is interpretative issue. Kanari river watershed, located between 23°33'36.73"N and 80°06'57.49"E at an elevation of about 490 m in Jabalpur district of Madhya Pradesh State, India has been used for the study. The major component of the hydrologic cycle is rainfall, directly related to runoff. Integration of GIS and SCS-CN method can be beneficial to overcome this problem of runoff estimation. The runoff varies from 465.59 to 1119.24 mm (1990–2019). The amount of rainfall varies from 1136.7 to 1592.98 mm in the Kanari river watershed. The calculated average annual runoff was 729.87 mm and average runoff volume for the period of 29 years is 218.36. The model finally depicted the runoff in the area kept on increasing as rainfall kept on increasing following a linear trend which predicted that the infiltration opportunity decrease and ultimately resulting in decreased infiltration rate causing decreased base flow. Artificial recharge structures can be recommended in the study area.

Keywords: Soil conservation service, Curve Number, GIS, Runoff, Water resource management
