

**Streamflow Drought Severity Analysis of Betwa River System  
(INDIA)**

Pandey, R.P., S.K. Mishra Ranvir Singh and K.S. Ramasastrri

**ABSTRACT**

Streamflow appraisal in time and space particularly in semi arid and dry sub humid regions has vital importance in the formulation of round the year plan of water uses comprising domestic & industrial water supply, irrigation scheduling, reservoir operation, in-stream flow maintenance etc. Drought severity analysis including the estimation of flow availability, drought duration, and deficit volume etc. was carried out using the 20–42 years (1960–2001) 10-daily streamflow data of five sites on the Betwa River system and. independent streamflow drought events were described by pooling the data, and severity of an independent drought event classified using a new drought severity index (DSI<sub>e</sub>) defined as a function of (1) the ratio of deficit flow volume to corresponding volume at the truncation level and (2) the ratio of duration of deficit flow to the maximum possible duration of the independent streamflow drought event. The study found that the upper reaches of river course were more prone to severe droughts than were the lower reaches. The drought events starting during August–November were more likely to be severe drought events than those in the other months.