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Morphometric Signatures of WRJ-2 Watershed and their Implications on Water Conservation

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Abstract

The WRJ-2 watershed of Jam river sub-basin, Nagpur District, falling under the Eastern Deccan volcanic province was studied in detail pertaining to linear, areal and relief attributes that revealed homogeneous climatic and morphological conditions under the less complex morphometric setup. The stream analysis confirmed predominance of total number and length of stream segments in first order supporting the Horton's law. The lower values of drainage density, length of overland flow, ruggedness and higher values for mean bifurcation ratio, infiltration number and relief ratio indicate homogeneity in texture and less structural control over the area. Due to low infiltration capacity of basement rocks and high run-off there is a scope for artificial recharge measures at appropriate drainage lines of WRJ-2 watershed. For harnessing the runoff water, construction of gulley plugs, loose boulder structures, cement bandhara, afforestration, water absorbing trenches, continuous contour trenches (CCT), earthern check dams and percolation tank like structures are recommended. The overall analysis stands significant in locating sites for artificial recharge and water conservation and flood mitigation in the study area.

Keywords: Morphometric analyses, WRJ-2 watershed, Artificial recharge structures, Nagpur District, Maharashtra.