

Thematic Mapping and Morphometry of Chandrabhaga Watershed, Purna River Sub-basin, Maharashtra, India

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Abstract

The Chandrabhaga watershed is a part of Purna river sub-basin covering an area of about 931km². Thematic maps pertaining to geology, geomorphology, land use/land cover, slope and DEM have been prepared. The drainage pattern of the watershed is delineated by using Survey of India (SOI) topographic sheets on 1:50000 scales followed by their updating through LISS-III (23.5m spatial resolution) data of IRS-P6 (2006). The morphometric parameters are computed with the applications of ArcInfo and ArcMap software version 9.1. Attempt has been made for detailed morphometric analysis including type of drainage, stream order, length, drainage density, bifurcation ratio and their interrelationship. Beside, the area, shape, length, relief characteristic, form factor and circulatory ratio, elongation ratio of the basin have also been calculated. The drainage including a maximum of the 7th order stream shows dendritic to sub-dendritic patterns in upper reaches, whereas parallel to sub-parallel in lower part showing lithology, slope and topography as major controlling factors. Suitable water and soil resources development action plan has been generated by integrating thematic and morphometric parameters.

Keywords: Thematic mapping, Morphometric analysis, Remote sensing, GIS, Chandrabhaga watershed, Purna River Basin