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Morphometric Analysis and Statistical Study of Girna Watershed, Jalgaon District, Maharashtra

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Abstract

Potential of high resolution remote sensing satellite data and GIS with statistical study is used in drainage morphometry of the Girna watershed. The well inventory details are correlated with morphometric parameters. Interrelationship of different morphometric parameters are carried out exhibiting negative correlation by stream order and number of stream segments, whereas positive correlation is exhibited by all remaining morphometric parameters. Geologically, the study area is represented by Tapi alluvium and basaltic flows of Sahyadri Group of Deccan Trap. In view of drainage morphology, weathered basalt and Tapi alluvium exhibit parallel to sub-parallel drainage pattern and dendritic drainage pattern, respectively. Correlation of well inventory and drainage morphometric parameters exhibiting low drainage density areas are developed by borewells and tube wells ranging in depth from 58 to 160m and dugwells in the depth range of 25 to 50m below ground level (bgl). High drainage density areas are charecterised by more water level fluctuating dugwells. Demarcated groundwater prospecting zones depicts that, areas with low drainage density show excellent groundwater potential and high drainage density with poor groundwater potential.

Keywords: Statistical study, high resolution remote sensing, correlation coefficient and groundwater potential.