

IMPACT OF TEMPORAL CHANGE IN LANDUSE CHARACTERISTICS OF URBAN WATERSHED ON HYDROLOGY

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ABSTRACT

Changing native land use system due to urbanization influence hydrological behavior of the catchment. Scientific study on assessing the impact of city expansion found necessary to understand its effect on hydrology. To investigate the impact of temporal change in land use system on a watershed, present study was conducted at a microwatershed located in the northern part of Bengaluru city, Karnataka, India. Temporal change in land use system during 1975 and 2014 was investigated. ArcInfo and ERDAS Imagine a GIS and Image processing software respectively were used for spatial data analysis and satellite image processing respectively. Runoff was estimated using NRCS curve number method. Results of the study indicated that, the habitation/human settlement increased from 193.31 ha to 831.00 ha, agricultural land area was reduced from 963.31 ha to 369.07 ha between the years 1975 and 2014 respectively, plantation area was reduced by 23% and there was negligible change in area of the water body. Run off curve numbers value was increased from 78.17 to 84.92 indicated that, more runoff from a small storm event leading to flood due to changed land use in the watershed.

KEYWORDS: ERDAS, Hydrology, NRCS, Curve Number, and GIS