



Urbanization and its Impact on Groundwater and Natural Drainage: A Case Study of Ludhiana City

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Abstract: Urbanization is generally increasing worldwide as well as land is in a constant flux of continual changes due to the transformation resulting from either natural processes or human activities. Remote Sensing and GIS techniques are widely used for the mapping of land use/land cover to examine the changes in urbanization. Its impact on groundwater physio-chemical characteristics and natural drainage has been examined in this study. Cartosat-I and IRS-P6 (LISS-III) satellite data along with toposheets of the year 1960 were used to study temporal changes for a time span of forty six (1960-2006) years for a localized area in Ludhiana city. Analysis of multivariate data spanning over this period shows that total area under built up category of the city had increased by 39 % and 42 Km long paleochannel has been obliterated. Results of this study illustrate that urbanization had widely affected the groundwater quality and course of natural drainage due to which various problems like flooding and deterioration of groundwater quality has occurred.

Key Words: GIS, Groundwater, Natural drainage, Remote Sensing, and Urbanization
