



“Gheorghe Asachi” Technical University of Iasi, Romania



MODELING IMPACT OF LAND USE CHANGE TRAJECTORIES ON GROUNDWATER QUALITY USING REMOTE SENSING AND GIS

**Prashant K. Srivastava^{1*}, Sudhir K. Singh², Manika Gupta³,
Jay Krishna Thakur⁴, Saumitra Mukherjee⁵**

¹Department of Civil Engineering, University of Bristol, Bristol-BS8 1TR, United Kingdom

²Centre of Atmospheric and Ocean Studies, Nehru Science Centre, KBCAOS, IIDS, Nehru Science Centre,
University of Allahabad, Allahabad-211002, India

³Water Resource Engineering, Department of Civil Engineering, IIT, New Delhi, India

⁴Department Hydrogeology and Environmental Geology, Institute of Geosciences, Martin Luther University, Halle, Germany

⁵School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India

Abstract

World will face a major fresh water crisis in the coming decades due to high contaminants in surface and subsurface water. Groundwater is ultimate and most suitable fresh water resource for human consumption in both urban as well as rural areas. The groundwater quality reflects the information about the natural and anthropogenic source of pollution. This study aims to determine the water quality status of the area and to deduce its relation to seasonal variations in land use/land cover (LULC) changes. Geographical Information System is taken into account for the enhanced interpolation of the area in terms of pollution status and mapping. The World Health Organization, Indian Council of Medical Research and Indian Standard Institution standardized water quality parameters were taken into account to compute the water quality index of the area, while IRS 1D LISS III satellite images are used for the LULC classification. This study has been carried out with the vision to get better information about groundwater quality and to design effective way for sustainable management of groundwater resources. The results show that although the district is less urbanized, nevertheless the water quality of majority of the area is unfit for consumption.

Key words: Geographical Information System (GIS), groundwater, land use/land cover classification, satellite images, water quality index

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