

# **GIS-Based Spatial Information Integration, Modeling and Digital Mapping: A New Blend of Tool for Geospatial Environmental Health Analysis for Delhi Ridge**

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**Key words:** GIS, Geospatial Modeling, Digital Mapping, Environment, Sustainable Development.

## **ABSTRACT**

### **1. Brief Introduction**

The main focus of present research is to provide an understanding of spatial data integration into the Geographic Information System (GIS) along with their modeling strategies to promote more effective digital mapping in the present fast changing field of information technology (IT) environment. GIS along with Remote Sensing (RS) technology provides an excellent spatial information and framework for understanding the fundamental principles of spatial analysis. Over exploitation of land, forests, water and air and the failure to tackle the problem of ecological degradation have exposed humanity to the threat of environmental change. Delhi Ridge forest cover has failed to meet reduction targets for greenhouse gases emission in the Delhi due to constant concrete jungle sprawl over the periods. So, over the Delhi Ridge, there is less concern with ecological change, especially in the face of rapidly growing population of the Delhi. However, the vulnerable impact of environmental change on Delhi Ridge includes ecological imbalance, deforestation, population growth, quarrying/mining activities, urbanisation, and industrialisation.

### **2. Description of Methods**

The new technological tools viz: the Geographical Information System (GIS) technology provides an up-to-date spatial information in order to detect the change and the spatial pattern of an attribute along with strategic modeling and mapping solutions in this fast changing World. Further, developments and applications of integrated GIS approaches should help provide solutions for many of the emerging spatial problems at local, regional, national and global levels, and may become the preferred environment for modeling in GIS technology.

### **3. Summary of the Results**

GIS has emerged as promising tools for prioritising and analysing geospatial environment management data alternatives. Because environment management and land use conflicts are spatial, any rigorous analysis of environment and land management alternations must include consideration of the spatial interactions between people and their environment. Forest cover is another the most important biophysical parameters used for monitoring environmental

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change. Change in vegetation cover regulates long-term climatic changes at the micro-region level. So, it is essential to monitor vegetation cover over the periods of time to assess environmental conditions especially in case of the micro-region like Delhi Ridge, which is functioning as a green lung for the Delhi.

There is a rapid increase in the level of air pollution due to the rapid expansion of the urban and industrial activities. The atmospheric pollution in Delhi environment is increasing, largely because of diverse human activities. However, the low-cost measures to maintain or increase future flexibility of response to environmental change need to be identified and implemented as part of an integrated approach to sustainable environment development management for the Delhi Ridge.

#### **4. Conclusion**

Consequently, the ultimate goal is to achieve with an understanding of spatial data integration problems and issues to provide practical examples and strategies to promote more effective integration in GIS environment. It can definitely be pointed out that this particular field of technology is expected to expand manifold in future leading to more efficient, comprehensive and effective solutions through spatial analysis for different regional problems and their planning. However, the present research is based on the assumption that development should take place without destroying the environment. What is important is the sustainability of development over a long drawn period of time rather than the ephemeral nature of development the gains of which will only be available by the present generation. Hence, a composite picture of the developmental impact on the environmental change and ecosystem will be developed with a view to developing prognostic models of man-nature interaction in the ecologically sensitive Delhi ridge.

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