

PREDICTING CHANGE IN LANDUSE OF ALWAR DISTRICT USING SATELLITE IMAGERY AND GIS

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Abstract:

Landuse/Landcover change analyses and projection provide a tool to assess ecosystem changes and their environmental implication at various temporal and spatial scales. Due to inappropriate planning and management, accelerated urban growth and tremendous loss in land have become a great challenge for sustainable urban development. Detection of such changes may help officials and planners in decision making and long term planning. Remote sensing and GIS techniques may be used as efficient tools to detect and assess landuse changes and to generate a sustainable development plan. In recent years, a considerable landuse changes have occurred in the Alwar district of Rajasthan. The main objective of the study is to determine past spatial and temporal landuse changes and predict future landuse changes in Alwar district. In order to understand the type and rate of changes in this area, Landsat legacy images of 1989, 1999 and LISS III image of 2008 will be used for comparison. These images will be classified using Supervised Classification method to generate landuse maps for the three different years. Accuracy of classified maps will be assessed by using error matrix. After that, results of landuse classification for different years will be compared to reveal landuse changes. Then based on 1989-2008 trends, combined Cellular Automata with Markov Chain analysis will be employed to forecast human impacts on landuse change until 2020 in Alwar district. Software Used: ArcGIS 10.1, Image Processing Software

Keywords: Landuse, Change Detection, Markov Chain Analysis, Cellular Automata.

