

Analysis of Growth Pattern in Tehran City and Identification of Its Driving Factors

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Abstract

Today, metropolises have become as the focal points of production and consumption due to the encompassing a large number of population. This issue has caused their rapid growths and developments and made them face risks concerning the development methods. Without a careful identification and planning, metropolises will plunge into their adverse consequences in the areas of environment, natural resources, human health, and socio-economic aspects of the urban life. Therefore, monitoring of spatiotemporal patterns of urban growth and identification of their driving factors are of vital importance for urban planning and sustainable development, especially in the developing countries. The main objective of this research is to investigate the spatiotemporal changes in the land use/cover patterns of Tehran metropolis and its surroundings within the past four decades by using remote sensing techniques and landscape ecology approach to identifying their triggers. To generate land use/cover maps, Landsat family satellite images were utilized. Analyses of the patterns were conducted in the form of landscape ecology approach using spatial metrics. To identify the driving factors of the urban growth, a logistic regression has been employed. The results obtained represented the greatest increase has occurred in the territories built, and the spatiotemporal process of urban growth in Tehran metropolis and its surroundings has included the three main phases of initial core formation of urban growth, diffusion, and aggregation. In other words, urban growth in the region has started with the formation of growth cores and new urban patches have been gradually formed around the cores after their growths. These patches have continued to grow along the main urban cores while many of them have joined to form larger urban parcels. Also, the distances from the commercial center of Tehran City and the roads during the period of 2000 to 2014 have been the most important driving factors of urban growth in Tehran metropolitan city.

Keywords: Urban development, Remote sensing, Landscape ecology, Logistic regression, Tehran metropolis