Modeling Agricultural Destruction Lands Resulted by Urban Growing in Suburb of Urmia City, Using an Object Based Image Analysis Approach

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Abstract

In the present research land use changes modeling in the Urmia city is considered in order to detect changes in agricultural lands. In this regard, Landsat satellite images were used and then the object base processing satellite images was performed by applying the process segmentation and in the next stage, the optimization of scale segmentation and image analysis to its constituent elements, the object basic algorithms according to the physical condition, geometric of each land-use classes were used. During images processing in addition to spectral data, the data in the form of homogeneous, shape and texture (GLCM) were used for land use extraction. The results show that the Urmia city had so many physical expand in the past 31 years so that its area has increased from 7.43% of the total study area in 1363 to 30.75 in 1394. This increase was rectify by the reduction of agricultural lands so that large amount of agricultural lands have been used for construction purposes which has caused land degradation, particularly fertile lands in this area, particularly within the Shahr chay river, Mahabad road, Sero road, Darya road and the road of Salmas.

Keywords

Agricultural land, Changes in land use, Destruction of agricultural land, Object modeling, Urmia city.

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Spatial Optimization Using Goal Programming, Game Theory and GIS

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Abstract

The present study aims to provide a solution to optimize land use through multi-objective linear programming, and to solve the conflicts generated in the process using game theory, in two cities of Gorgan and Kurdkoy, Iran. The primary land use planning was completed for seven land use through multi-criteria evaluation and then a first allocation was implanted using MOLA. In the secondary land use planning phase, land use optimization, with multi-objective linear programming was conducted considering economic-social and environmental needs. Environmental requirements such as reducing runoff, non-point nitrogen pollution and soil erosion, were modeled using L-THIA and RUSLE models. For socio-economic parameters job, profit and initial costs were considered. To finalize, a multi-objective linear programming model, was designed. The environmental and socio-economic stakeholders have different needs. That creates conflict in the land use planning process. In the final third phase of the land use planning, game theory was used to resolve conflicts. Environmental and socio-economic players were allowed to play scenarios in triplicate. The results showed the winning changes in land use to the extent that equilibrium between interest groups was reached.

Keywords

Game theory, Land use planning, Linear programming, Optimization, Stakeholder.

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The Lattice Hexagon Approach Applied in Landscape Degradation Assessment (Case: Shemiranat County)

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Abstract

The present study has been conducted on Shemiranat county landscape, using lattice hexagon approach, for the first time, in order to achieve homogeneous units in degradation model. To this aim, with respect to the extent of the studied area, a lattice hexagon composed of 36 units (cells) was created and each grid cell was considered as a sub landscape. Next, ecological vulnerability, degradation agents and their severity was calculated for each cell, using landscape metrics and then classified and standardized based on fuzzy logic. Eventually, according to the obtained degradation coefficients, landscape zoning and analysis was done. Overall, 73 percent of the Shemiranat County was identified as with low degradation area which is developable with paying attention to ecological restrictions and buffers (distance of river valleys, main faults and protected areas). Also, 23 percent and 4 percent of the studied area was determined as need rehabilitation and needs protection, respectively. Using the lattice hexagon as the basis of landscape degradation assessment, in addition to more accurate calculation of metrics and estimation of the degradation coefficient, separately for each homogeneous cells, landscape degradation status and future development potential will be determined.

Keywords

Fuzzy logic, Landscape degradation model, Lattice hexagon, Metric, Shemiranat county.

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Survey Status of Performance and Coverage Radius Parks, Case: Ardabil City

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Abstract

The purpose of this paper is to analyze the Utility operating radius and service on city parks in Ardabil neighborhood, local, regional and urban level, to investigate the relationship between the distribution of these parks with water levels in the city of Ardabil, including Shorabil Lake and Balyqlv river and reviews for distribution park. The data and information used by documentary. To analyze the data, the Thiessen polygons to measure the radius of the functional utility, network analysis to assess radius of the service or coverage of parks, and standard deviation ellipses analysis was used to examine the distribution of parks. The results indicate that the function of the radius of the park in the center of the city was favorable and neighboring areas with high water levels in the periphery of the city were unfavorable. In addition, the test also showed that the standard deviation ellipse for distribution parks in the city of Ardabil in the Northeast, Southwest and more in the direction of the river Balyqlv located. Also, investigating the per capita levels of parks in urban areas determined that, the area 2 municipality per capita is highest among municipality areas and the area 4 municipality has lowest per capita among municipalities.

Keywords

Ardabil City, Functional Radius, Network analysis, Thiessen polygons, Urban parks.

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Comparative Study of the First and Second Generations of the New Towns Development: The Case of the South Korea

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Abstract

This article, with a focus on the change and transformation process of the approaches and trends affecting the new towns policy, scrutinizes the first and second generations of the new towns in reference to the South Korea as a case study. The first generation of new towns development in South Korea is associated with the rapid growth of urbanization, industrialization and subsequently economic increase of this country. Lack of housing and inadequate housing supply, formation and growth of the informal settlements especially in connection with Seoul, and the subsequent centralization in the Seoul metropolitan area are the main and significant urban challenges of South Korea in this period. The second generation of new towns has been planned first with the aim of housing supply as their main function in the capital region. These cities are the result of approach that follow the qualitative, gradual and planned development in the form of small scale but multiple projects compared to the past. Decentralization of Seoul and Seoul metropolitan area, integrated regional development, and ultimately the balance of South Korea's national territory are the key purposes of this process, in terms of spatial planning.

Keywords

First and second generations, New towns, Seoul metropolitan area, South Korea, Spatial planning.

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The Zoning of Land Demolition of Kerman City Bounds due to Urban- Industrial Development (Technogenical Desertification) by Using GIS

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Abstract

In the recent decades, the effect of dry climate of Iran is due to expanding desertification in this country. The countryside of Kerman has selected for this survey. For investigating of amount of deserts generation around this city after geometric and radiometric studying, the image of Landsat ETM + 2009 and aerial photos at a scale of 1:5000, preparing of basic maps of earth and vegetation covers maps. To estimate of the severity level of desertification in Kerman, The indicator of Urban and industrial development based on IMDPA, that including density of roads and mines, amount of green space and changing to pasture and forest land. After that giving score to these parameters did upon its affect for destroying and desertification .Finally, in GIS software, with using analytic functions required based on IMDPA. Land area was classified in terms of desertification. The results show that the effects of desertification land in Kerman city can be classified to three sections critical, medium and low.

Keywords

GIS, IMDPA, Landsat, Technological desertification.

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The Determination of Optimal Areas for the Development of New Towns and Cities Using Efficient Models (Case: Tehran Province)

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Abstract

One of the critical issues related to sustainable urban in twenty-first century, is the growth and development of the city in space and on this basis, the civil management was forced to think about urban development. Tehran metropolis with its growing, developing immersive and without physical, environmental instability surrounding the statue has arrived. One of the ways for decentralization and redistribution of the population and facilities thought in spatial planning is the, urban development and building new settlements around the metropolis which must meet the criteria of environmental, social, economic, physical, geographical distance, etc. be considered in studies not lead to environmental catastrophes. The method of this research is descriptive-analytical and its target is applied using the K-means and FCM's clustering methods to check this important. To evaluate the quality of the environment and determine optimal sites for the development the new cities in Tehran province in 3 pm base (man-made environment, social environment, economic environment and the natural environment) with a total of 22 indexes are used. The analysis and processing of indices for the paper two environments Matlab2013 and Arc GIS software was done. The results of clustering using FCM and overlay in the form of maps showing which areas are suitable for urban development in the East and South of Tehran. Also the plan was prepared by K-means that we can be used to provide strategies and integrated management areas.

Keywords

FCM (Fuzzy C-means Clustering), K-means, New towns, Optimal areas, Tehran Province.

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