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Estimation of Soil Erosion by Satellite Images Integration and SVM Method (Case Study: South Khorasan Province)

Sara Nakhaei Nejadfard[1], Hamid Gholami[2], Davood Akbari [3]

Abstract

Landsat 8, Modis and Support Vector Machine (SVM) classification algorithm are used to map soil erosion in South Khorasan province in the present study. For this purpose, three information layers of land use map, slope and vegetation are used. In the proposed method to prepare the land use map, four supervised classification algorithms of maximum likelihood, Mahalobani distance, minimum distance and artificial neural network with thermal infrared band are used. Six integration algorithms of NNDiffuse, HPF, Brovey, Gram-Schmidt, PC and CN are used to prepare the vegetation map. The ASTER satellite DEM map is used to prepare the slope map of the area. The results of the experiments show that the maximum likelihood algorithm with thermal band is the most accurate in land use mapping. The NNDiffuse algorithm is also more accurate for integrating the red and infrared bands near Landsat 8 and Modis. After preparing the land use, slope and three vegetation maps derived from Landsat 8, Modis and Landsat 8 and Modis integrated images, three erosion maps are prepared using SVM algorithm. The results show that the highest value of Kappa coefficient (69.1) is related to the erosion map obtained from Landsat 8 and the lowest value (57.1) is related to Modis image. The integration of Landsat 8 and Modis increases the kappa coefficient to 67.3 %.

***Keywords**: Satellite Images Integration, Landsat 8, Modis, SVM Classification, Erosion Map*.

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Investigating the Indicators of Sustainable Development in Urban Areas with an Emphasis on the Clarence Perry Neighborhood Unit Theory (Case study: Asadi neighborhood, 13th district of Tehran)

Amir Reza Salimi[*1]

Abstract

Many of the old neighborhoods of cities that once had a form of settlement-based solidarity are now booming due to a lack of revitalization of the body and activity. On the other hand, with the passage of time and the emergence of social changes in societies, many housing researchers are skeptical about repeating the traditional pattern of housing in new cities. What this study seeks to achieve is to examine the status of neighborhood sustainable development indicators with an emphasis on Clarence Perry Neighborhood Unit Theory through descriptive-analytical research method. The study area is Asadi neighborhood of Tehran 13th district, from which 384 residents are selected using the Cochran's formula. The questionnaire is distributed among them by cluster random sampling. The researcher-made questionnaire is validated by professors and experts and its reliability is confirmed by Cronbach's alpha of 0.781. Data analysis is performed through one-sample t-tests and Friedman ranking. The results show that the indicators of sustainable neighborhood development in Asadi neighborhood are in a poor condition (mean = 2.739). Among the indicators of sustainable neighborhood development, safety and security index (T = 4.975) have the best status and identity and vitality index (T = -27.229) have the worst status. Also, prioritization of neighborhood sustainable development indicators show that in this neighborhood, safety and security components are the first priority and environmental components are the last priority.

Keywords: *Neighborhood, Sustainable Neighborhood Development, Clarence Perry, Asadi Neighborhood.*

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Pedestrianization of main streets with the aim of creating a collective and public space (Case study of Tehran Bazaar sidewalk)[1]

Azam Raufi[2], Mitra Saberi[*3], Shohreh Taj[4]

Abstract

The sidewalk has a lot of social role that today, these paved passages with no car have become the best platform for spending leisure time in modern countries with outdoor restaurants and lots of benches. Therefore, as a case study, the Tehran Bazaar sidewalk, which is in the 12th district of Tehran Municipality with a daily floating population between 1-1.5 million people is studied here. The present research is applied in terms of its objective and descriptive-analytical survey. The statistical population is 380 using Cochran formula. In this regard, 260 pedestrians and 120 employees working in this area have completed the questionnaires. Data are analyzed using SPSS software. The t-test of all indices is significance with 95% confidence and less than 0.01% level. Because in all indices the value of correlation coefficient r (Pearson) is between (1 and -1), the intensity of the relationship between independent and dependent variables is positive and moderate. Results show that 72% of employees considered the activities to be appropriate and 28% of them did not consider the sidewalk space suitable for the activities due to disruption of the business. However, 93% of pedestrians considered the activities to be appropriate and only 7% of them did not want to hold any activity and use this sidewalk only because of shopping in Tehran bazaar. According to these results, it is proved that in the sidewalk with valuable texture, there is a possibility or opportunity to create facilities and activities that create a collective and public space. From the citizens' point of view, a suitable collective space has been created on the existing sidewalk, and the Bazaar sidewalk has the opportunity to create a collective and public space.

Key words: *Pedestrianization, Main Street, Public Space, Collective Space, Tehran Bazaar.*

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۱. This article is an excerpt from a master's thesis.

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Identifying and Ranking the Obstacles to the Full Implementation of the Comprehensive and Detailed Plan of Ilam City

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Abstract
The present study aims to identify and rank the obstacles to the full implementation of the comprehensive and detailed plan of Ilam city. This research is applied in terms of its objective and mixed (quantitative-qualitative) research in terms of data collection method. The statistical population consists of two sections: the qualitative section consisting of 30 experts of the municipality and members of the city council of Ilam and the quantitative section including all employees of the Ilam municipality, i.e. 225 people. A researcher-made questionnaire is used to collect data, whose face and content validities are confirmed by supervisor. Cronbach's alpha coefficient is used to determine its reliability, turning out to be 0.90, which is statistically acceptable. Research hypotheses are tested by SPSS 22 and LISREL 8.5 software. The statistical methods used in this research are Kolmogorov-Smirnov test to verify the normality of the data, the structural equation modeling to investigate the hypotheses, and also fuzzy Delphi technique to rank the variables. Based on the results of factor analysis, factor load of obstacles to the full implementation of the comprehensive and detailed plan of Ilam city is greater than 0.50 and their significant coefficients are greater than 1.96. Therefore, all components (lack of power concentration and execution facilities, delays in the design of the detailed and executive plans, specific feature of the plan, passive approach to the plan, inefficiency of organizations, lack of local participation, and land ownership problems) and all 24 obstacles to the full implementation of the comprehensive and detailed plan of the Ilam city are confirmed. According to the components' ranking, the problems related to the land ownership with a weight of 0.240 have the least impact and passive approach to the plan and inefficiency of organizations with a weight of 0.355 have the greatest effect on the full implementation of the comprehensive and detailed plan of Ilam city.

Keywords*: Comprehensive Urban Plan, Detailed Urban Plan, Urban Management.*

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Examining the health status and socio-cultural conditions in urban parks (Case study: Izeh city parks)

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Abstract

The present study is an attempt to examine the health status and socio-cultural conditions in urban parks (Case study: Izeh city parks). This research is applied in terms of its objective and descriptive-analytical in terms of research method. The required data are collected through documentary-library surveys and field studies. Findings are analyzed using descriptive and inferential statistics in SPSS20 software. The statistical population of this study is the total population of Izeh city and the sample size is estimated to be 391 people using Cochran's formula. Then, using the survey method and questionnaire tools, the required information is collected from the visitors of Izeh city parks. The results of the questionnaire using a one-sample t-test show that among the health, social and cultural indicators, socio-cultural and health indicators with averages of 2.43 and 1.86 are in the best to the worst conditions, respectively. Also, the results of the questionnaire using the One-Way ANOVA parametric test show that among the 10 parks in Izeh (parks studied in this study), Shadi, Shahr, Sultan Dinavar, Azadegan, Shahrbazi, Banoo, Sakhrei, Valiasr, Baharan and Laleh are in the best to worst conditions with averages of 2.27, 2.26, 2.24, 2.23, 2.22, 2.21, 2.19, 2.18, 2.17, 2.10 and 2.2 (according to normal average 3), respectively. Moreover, none of them have normal health and socio-cultural conditions. This indicates the poor performance of Izeh urban management in both sections.

Keywords: *Urban Parks, Health, Socio-Cultural, Izeh city.*

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Comparative study of the amount and dimensions of degradation in textures requiring regeneration in Kashan city

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Abstract

In order to organize the tissues that require regeneration, the indices and dimensions of different worn out urban textures are particularly important. In this regard, this article seeks to do a comparative study about the extent and dimensions of burn out in textures that need regeneration in Kashan. The method of this research is applied, considering the purpose, and descriptive- analytical, in terms of nature. In this research, studying the background and literature of the subject, the social, economic, cultural, service, physical and environmental indices were extracted and examined from objective and subjective aspects. In the objective aspect, the questionnaire method and in the subjective one, the statistics of the responsible centers were used. In this regard, the questionnaire data were collected and classified using stratified random method and objective data were analyzed using TOPSIS technique and entropy weighting method. The results show that there are four types of tissues in Kashan that need regeneration, including historical, middle disturbed, areas with rural background and informal settlement. Given this, a district was selected and studied from each type. The overall results of the study show that rural areas have the highest levels of wear burn out and the middle disturbed texture have the lowest one. In this respect, the informal settlement and the historical context are in the second and third place in terms of the intensity of burnout. The results of regression analysis indicate that the service dimension with beta coefficient of 0.72 has a greater effect on burnout than other dimensions. Also, the results of Pearson correlation test show a significant relationship between burnout dimensions. The findings show that regeneration of worn-out tissues requires a comprehensive look at all aspects of physical, social, economic and environmental dimensions.

Keywords*: Index of worn tissue, urban districts, regeneration, Kashan.*

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