Landslide Hazard Assessment and Zoning Using LIM Model by GIS in Givi Chay Watershed, Ardebil

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Abstract

Identifying of impact factors in occurrence landslides of and hazard zoning is basic instrument for controlling this Phenomenon. Aim of this research is the assessment of the effective factors in landside occurrence and mapping it by using landside index model (LIM). For above pepouse", 11 important factors in mapping of landslide were evaluated and recognized by field working. Then landslide hazard zoning was performed by landside index model on the basis of 11 factors weight. After calculating of these factors (altitude classes, slope gradient, slope orientation, network dantsity, distance from river, distance from road, lithology, distanse from fault, vegetation cover, land use, annul rainfall and soil hydraulic group), final map was commutated from algebraic overlaying of 11-layers and there by final weight map was obtained. Study and analysis of 11-raster map, and important factors in Givi Chay watershed landslides using LIM Method showed that area with annual 375-405 mm precipitation had more influence in landslide occurrence. Also altitude classes between 1512-1927m area with low vegetation, area with high permeable soils and slopes with east and northeast orientation higher influence in occurrence.

Keywords: Landslide, Zning, L.I.M.), Give Chay.

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Is the Jolfa-Hadishahr Plain (Northwest of Iran) a Geomorphosite: A New Domain of Tourism Sites Management?

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Abstract

Jolfa-Hadishahr plain existing in the Aras free industrial and trade zone (northwest of Iran) are used by tourists for trekking or as pathways to other tourist sites and neighbor countries around the plain. The aim of this paper is to introduce the plain as a geomorphosite and to define vulnerability of geoheritage which draws attention to the geological and geomorphological elements of nature, to planners. The research was based on the following survey and data processing phases: a) definition of general characteristics of study area, b) survey of geomorphological units, 3) survey of the geomorphological features and the geoenvironmental elements that may affect vulnerability, d) definition of possible risk scenarios. In conclusion, the Jolfa-Hadishahr plain is a geomorphosite and its characteristics are showed in a table as geomorphosite description card. Increasing people and tourists on the site threats environmental stability of the plain. The data collected on this geomorphological environment could be made available to a wider public, ranging from the individual visitor, to plain agency departments and staff, in the form of thematic geotourist maps and geomorphosite description card and in turn, plain agencies could utilize these maps as support for plain area planning and management with the aim of safeguarding both the plain and the plain visitors and dwellers, while also valorising the environment.

Keywords: Tourism zone management, Geomorphosite, Geomorphological hazards, Geotourism, Jolfa-Hadishahr plain, Northwest of Iran.

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A Summary of Reproduction of Residential Spaces in Informal Settlements: Case Study of Seylab Neighborhood in Tabriz

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Abstract

This paper discusses about reproduction of residential spaces on specific parts of Seylab neighborhood in Tabriz. This case may become more important when we note that a considerable part of population in Tabriz consists of settlement residents and this portion increases annually by the impact of social and economic conditions. Due to rapid growth of these phenomena, providing formal and standard residence in a short-time procedure is not possible, therefore programming for residences appropriate with social, economic, geographic and physical status of area is inevitable. Present paper is organized on procedure of planning and designing residential spaces by surveying method, which has been implemented by using existing statistical information and also interviews, questionnaires and physical studies. Studying Seylab neighborhood residential spaces clarifies that in addition to upgrading qualities of living spaces, optimum using of spaces and constructional materials reinforcement, also applying zoning architecture principles and development of multifunctional spaces regarding to local climatic, economic and traditional conditions should be considered on planning.

Keywords: Reproduction, Informal settlement, Residential space, Tabriz city.

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Analysing the Physical and Spatial Expansion Pattern of Margheh Using Quantatitive Models

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Abstract

The growth and development pattern or city form is defined as spatial pattern of human activities. At present the city pattern is divided into two groups as horizontal or sprawl and vertical or compact. Evidences show that cities are grown unplanned in recent years and the cities' limits have expanded several times than their primary area. Thus, planners and policy makers are trying to identify the physical pattern of cities to manage and direct the city growth in line with sustainable development. Maragheh is the case study for this research which is located in the north west of the country. The research applied analytical-comparative methods to identify and assess the pattern of physical and spatial growth of the city in different periods. The quantitative models included accumulation degree (Moran and Grey), Entropy, Ginny coefficient, Heldern and density. The results show that the city has experienced a slow and compact physical and spatial growth in the past through which the start of rapid urbanization during 1355 to 1365 expanded rapidly. The area of city increased 16.5 times and this was in the form of sprawl and continued to 1385. Regarding the results of the research the compact city pattern is recommended for the change of growth pattern and approaching the urban sustainable development.

Keywords: Urban growth pattern, Sprawl, Compact, Quantitative models, Maragheh.

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The Assessment of Health Centers Services of Zabol City Using TOPSIS Model

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Abstract

Health center services in cities and urban communities have directly related to the health and advance in these societies. Individuals in different ages have different health needs and the provisions of these needs are possible in framework of desirable distribution of these services only. Assessment of health services in two qualitative and quantitative aspects are important. For the purpose of this paper we carried out the assessment of Zabol city using TOPSIS model. The methodology was based on descriptive and analytical studies in one part and library and field research in the other part. The study area included health centers of Zabol city to evaluate the health facilities - health and rural health centers that also provide services. Foe data collection we used health centers with distribution questionnaire of between Zabol citizens. Centers considered according to 6 criteria of qualitative and quantitative (ability to develop in the future, the number of facilities, number of employees, easy access radius service, distribution of health facilities in the city based on population covered) were evaluated using TOPSIS model. The results of using TOPSIS model showed the hierarchy and prioritization of health centers in the city of Zabol as A1> A3> A2> A4. Thus A1 (Valieasr) ranked 1, A2 (Emam Reza) ranked 3, A3 (Hazrat Rasol) at Rank 2, and A4 (Payegahe Almahdi) placed fourth in the ranking.

Keywords: Health center services, Zabol city, TOPSIS Model.

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Estimating Probable Maximum Precipitation Based on Synoptic Method in Karaj River Basin

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Abstract

In this research five synoptic stations are selected including Mehrabad, Karaj, Gazvin, Ramsar and Noshahr. After analysis and processing of the parameters such as wind speed, dew point, pressure and storm coefficient data, PMP in continuation of 24 and 48 hours for related basin was estimated, in order of 140/56 , 254/ 58mm. Considering resulted number and obtained flow in 1374/68 m and 40% ronoff average daily flow we estimated 550 m , which in comparison with the maximum daily flow in Siera (dam entrance) station with 20 years statistical period which is 154/54 $m^3/_s$ for being acceptable. According to synoptic charts, three rainfall systems caused 24 hours Maximum precipitation turn in 48 hours.

Keywords: Probable maximum precipitation, Probable maximum flood, Synoptic, Karaj river basin.

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A Research on Second Houses and their Role in Rural Area Land Use Changes (Case Study: Heravi villages, Haj Abdal and Dizaj Leili Khani Located in East Azerbaijan Lighvan Valley)

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Abstract

Spatial interactions and functional relationships between cities and surrounding regions such as rural areas, located in their hinterland, gradually lead to different changes in their different spheres. Among important changes mainly affected by cities and seen in some rural areas of Iran in recent decades, there are functional changes originated from promoting rural tourism in them. Rural areas of Tabriz metropolitan are not excluded from of this rule and they are experiencing significant functional changes by formatting and promoting construction of second houses as a form of rural tourism. To explain how the functional changes are made and effective factors on them three village of Tabriz hinterland, have been chosen as reprehensive villages and were examined. Methods in present study are descriptive, analytical and we examined and express the relationships among research variables. The document method was used to review previous works and their changes and developments. This was a practical study in terms of our ultimate goal. The findings of this study show that these changes mainly have occurred during recent years and construction of second houses have to converting a significant proportion of agricultural function of these villages to entertainment-leisure function and also imposing major changes on land use of these villages.

Keywords: Second houses, Rural areas, Land use changes, Lighvan valley, East Azerbaijan.

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Analysis of Earthquake Deleterious Factors in Tehran's District 1 Using GIS

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Abstract

Iran is one of the earthquake-prone countries in the world. Almost 90% of Iran is located in an earthquake belt. Based on seismic zoning maps, Tehran metropolitan area is highly dangerous and unsafe. Tehran's district 1 is situated in one of the main Tehran's faults called North Tehran fault. Since recognizing the deleterious factors plays an important role in reducing earthquake dangers, so analysis of these factors can have a significant role in controlling the harmful factors and reducing death toll and financial losses.

The main goal of this study is to identify the most important predisposing factors which result from earthquakes in Tehran's district 1, also to distinguish target areas according to their level of vulnerability as high, moderate and low is another aim of this paper. Data and information collected in this study are spatial, statistical and descriptive. The method of research is descriptive-analytic. In this paper, also the geographical information systems (GIS) have been used. The results indicate that the most important predisposing factors in the region are by an order of preference: the distance from the fault, the slope of the land, proximity of incompatibilities with applications, the building's life, population density, lack of access to open spaces and urban areas are parts. The most vulnerable regions of this area are 8-6-10-4 respectively.

Keywords: Predisposing Factors, District No.1 of Tehran, Earthquakes, Geographic information systems (GIS) District No.1 of Tehran Data Base

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Evaluation of Runoff and Sediment in the Marl Outcropping in East Azerbaijan

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Abstract

Marl units in territory-watershed basin in East Azerbaijan province have expanded significantly, and cause natural malformation, including soil erosion, erosion facieses types (surface, rill-gully) and sedimentation in the basin. In this study, digitized geological stratigraphy and lithology maps that were prepared. Marlstone regions were drawn, Accordingly, three units, including Eocene, Miocene and Cretaceous marlstone were determined. The climate and slope maps of the province were crossed in GIS system and ILwis software and final maps of the area and working units were determined. Amount of runoff and sediment on marlstone regions were measured using artificial showers. Results indicated that the correlation coefficient of topographic slope was equal to the amount of runoff 0.479 and the statistical significance of their relationship together. Simple correlation coefficient between runoff and sediment calculated to be (0.452) and their relationship was acceptable was significantly meaningful. Correlation coefficient between the amount of sediment from soil erosion caused by rain instrument with organic carbon neutral materials were equal to -0.374 and are -0.382.

Keywords: Runoff, Sediment, Outcropping, Marlstone, East Azerbaijan.

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In Assessing the Potential Synergy between the Historical-Cultural Metropolis of Tabriz

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Abstract

Although population growth is the primary cause of urban sprawl, however sprawl has unreasonable adverse effects on natural and cultural environment which affects communities. Great efforts to overcome the negative effects of urban development has grown whose main strategy of "smart growth" as one of the strategies to combat "sprawl" and smart growth, urban development, in fact is an alternative to sprawl. The increasing pattern of development is one of the tools of smart growth and the realization of sustainable development is the obvious example. Shortage of land, natural and artificial barriers to horizontal expansion of cities, the locating of city on risky zones and faults, high costs of creating infrastructure services and utilities, as well as, some considerations related to environmental sustainability, development and originality of the old urban texture, reducing waste and energy investment, suitable transport network, all have led to the development pattern and the increasing investment in the urban context.

By the horizontal spread and development of the city, sometimes the natural constraints face cost increases in utilities. If we add the number of aged residents tissue to the above number, probably about half of the population is poor under rough living conditions. Due to the increasing development and improvement of old tissue and the encouragement of low-density settlement in downtown areas, such problems could be solved.

In this study to evaluate the potential synergies, the historical-cultural city of for has been selected and detailed design of the data is used Tabriz 6th district master plan. In order to evaluate the potential

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synergies have been determined between its model and them. Finally, with regard to the status quo and the outgoing model, this result was obtained that the increased development and changes in the texture of the surface will promote stability in the city and provide an appropriate physical structure.

Keywords: Sustainable development, Through increased development, Tissue erosion, Urban planning, Smart growth.

Synoptic Analysis of Systems with Heavy and That Cause Flooding Precipitation on the Kashkan Basin for during (1350-1384)

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Z. Hojjati[4]

Abstract

The aim of present study is the synoptic analysis of systems having by heavy precipitation on the Kashkan basin. After study of 34-years statistics from stations for basin and its environments three storms by maximum precipitation were selected. The results of study of weather maps, humidity, earth surface pressure difference and 850 hPa of 48 hours before and after storms, showed that with regard to the fact that three selected storms have out of heavy storms during statistics period occurred in various seasons of the year, their generating system was equal and Sudan-Mediterranean merger system pattern generated maximum precipitation. Synoptic conditions in three chosen storms are: 1-High pressure over Europe northwest and influx of the cold weather in higher latitudes toward low pressure that is situated in east Mediterranean, 2-Sudan low pressure nutrition and motion toward northeast. 3-Days that maximum precipitation has occurred in the basin. These low pressure systems are merged with each other in east of Iraq, and high pressure situated on east of Iran with influx of cold weather over Oman and Arab seas on the one hand and presence of anticyclone in Arabia have caused humidity transfer inside low pressure system situated over west of Iran and generated maximum precipitation.

Keyword: Synoptic, System, Heavy precipitation, Flooding, Kashkan basin.

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Rainfall Estimation with Artificial Neural Network Based on Non-Rainfall Weather Data in Shiraz, Mashhad and Kerman Regions

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Abstract

Rainfall due to its noise and random nature has structural changes at different times. Because of large uncertainty, fluctuations in the amount of rainfall forecast is created the prediction of which has been difficult. In this article, precipitation predictability was carried out rescaled by range analysis (R/S) technique in Shiraz, Mashhad and Kerman regions. Snapshot Hurst (H) showed that rainfall parameter has the ability of predictability, because H was higher than 0.5 and much closer to the value 1. Minimum Hurst value was 0.8 in Mashhad and maximum Hurst value was 0.92 in Shiraz. In order to predict rainfall we used artificial neural network. Type of input parameters based on Pearson correlation test between data from non-rainfall, were a combination of temperature and humidity data. Number of input parameters, the number of middle layers, and other information related to artificial neural network randomly were selected. As a whole, rainfall estimation was calculated through Peresptron multi-layer neural network for comparing the performance of neural network. Results showed that the use of 3 and 4 meteorological parameters has the best rank estimator. Proposed layouts for the Shiraz station is 1-21-21-3, for Kerman 1-25-25-3 and for Mashhad 1-19-19-4 in which 1-25-25-3 of have correlation coefficients more than 91 percent. Validation rainfall models showed that network designed for rainfall parameters has best performance rainfall in Mashhad, Shiraz and Kerman stations with 4, 11 and 14 percent error

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respectively. As a whole, results showed that neural network method with considering the temperaturel and humidity data for describing the process and their combination in predicting good results were offered.

Keywords: Annual rainfall, Pearson test, Artificial neural network, Air temperature, relative humidity, Hurst.