Zoning the Flood Bearing Mordaghchai Watershed (Eastern Azerbaijan)

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Abstract

Flood is a natural phenomenon, which has been experienced by human being from very old times. In Iran, due to its very large area, several climates, time and local density of precipitation in most watersheds, there are many great floods in most areas of the country. In this study, run-off coefficient, maximum debit of flood, identifying the factors and elements that are effective on floodiness, and zoning of the area of Mardaq Chai watershed based on its flood bearing are analyzed. The curve number method of the Soil Conservation Service of America, which proposed a method to determine surplus precipitation in 1954, was used for this watershed. This is the most usual method for prediction of run-off volume. To do this, firstly, the needed data and information including the statistical situation of the area climates and satellite images were gathered and entered to the GIS data system. Compiling these data and information by the SCS method and the CN of the watershed, the infiltration level and run-off volume were prepared. Finally, the zoning map of the annual flooding potential of the area with different reoccurring periods were produced using weighting model and compiling the area precipitation, hydrological groups of soil, slope level, land use, etc. Iran, due to its very large area, several climates, and time and local density of precipitation in most watersheds, faces with many great floods in most areas.

Keywords: Mardaq Chai Watershed, Zoning the flood bearing, GIS, Run-off, SCS.

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Determining and Analyzing Levels of Development in Rural Areas of Chaldran County

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Abstract

Diagnosis and study of possibilities and limitations is the first step of the process of planning for development of rural areas. For so doing, determining and analyzing levels of development of villages is crucially important. This is usually done by using quantitative methods. The main purpose of this paper is to determine and to analyze of development level of rural areas of county of Chaldran in northwest of West Azerbaijan Province. For this purpose, 38 variables of population, education, infrastructure, framework, health, administrative, services and economic indexes at township level have been employed. *Moriss Model* and *coefficient of variation method* have been used for analysis. Finally, using ArcGIS software, the results of classification of townships by all indexes have been provided as maps. According to findings of the research, none of the townships of the county can be considered as developed, four townships can be classified as developing and one is less developed. Regarding the distribution of facilities and services, the index of infrastructure–framework holds the least and the index of educational–cultural holds the most level of equilibrium.

Keywords: Levels of development, Rural areas, Coefficient of variation, Chaldran, West.

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Land Cover/ Use Changes Detection by Object-Oriented Processing Satellite Image Dates (Case Study: Tabriz County)

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Abstract

Over time, patterns of land Use changes and consequently the land use are essentially altered. Thus for efficient using of capabilities of natural resources, finding detailed information about potential of land uses is necessary. Nowadays, remote sensing technology as a valuable approach to identify natural resources, particularly in the process of preparing land use plans in different regions of the world are documented scientifically. On this basis, for studying the land use changes of Tabriz county during 2010, 2007, 2001, 1989; TM 1989, ETM 2001&+2010, IRS 2007 images were processed and classified by an object-oriented technique. Then, bypre-classification comparing method, all changes were displayed during time period. The results show that the rate of changes over periods of 1989-2001, 2001-2007, 2007-2010, 1989-2010 are about 60.80, 66.30, 56.80, 56.40 percent respectively, so that vegetation cover and the water surfaces had the maximum changes. Meanwhile the most using conversion had happened on built-up lands.

Keywords: Satellite Image, Object-Oriented Classification, Land Use, Tabriz County

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The Analysis of Factors Affecting Primary School Students' Mode of Travel

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Abstract

Investigation of factors affecting urban traveling is one of interested topics in urban transport research field. It is estimated that educational trips are around 30-40 percent of urban trips which are mostly dependent on parents' decision and behavior. A large body of research can be found exploring the impacts of urban form features such as density, land use and street network on students' travel. In this research, data on students' travel were collected throughout four residential neighbourhoods of Mashhad metropolitan area using a household questionnaire distributed randomly (n=328). These neighbourhoods were selected based on their physical and socio-economical characteristics. The data then were analyzed using statistical tests such as bi-variate correlation test, cross-tabulation and logit regression model as well as GIS. The results confirm that the significancy of differences exist among students living in different neighbourhoods. Household income and students' age were showed to be the most influential factors in choosing the mode of travel. Having a parking space available at home place was also an important factor for modal split, while it was mainly dependent on household economic status and the quality of residence. Therefore, it can be claimed that household income is the most important factor to choose a mode for educational trips regardless of residence location.

Keywords: Primary school student, Modal split, Phydical atrributes, Mashhad metropolitan area.

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Quantitative Research on Meanders of AjiChay River between Khaje and Vanyar

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Abstract

Most of water structures and land uses being rivers or in rivers banks are somehow influencing morphological changes in rivers. Therefore survey of this phenomenon is considered as the most important part of studies projects and land uses. In this study part of the Aji Chay River has been studied between Khaje and Vanier with about 22 km length. The main aim of this study is indicating trend of morphological changes in the river, in 52-years period using the geometric parameters of the channel such as arc length, along the river valley and radius of the river circle tangent arc in the form of models the curvature coefficient and the central angle. For this purpose river path from satellite image IRS sensor Pan and aerial photos for years 1956-1995 and 1995-2008 in the ArcGIS environment in two intervals and two periods were digitized and calculated. Causes of changes using the topographic maps 1:50000 and geological 1:100000, hydrological data and field methods were investigated. Results show that 1) river on average in both periods and in both interval of their arch curvature is reduced. So that the central angle in the first interval of 137 to 100 degrees and the second interval of 160 to 148 degrees and curvature coefficient in the first range of 1/133 to 1/15 and the second period from 1/48 to 1/27 is reached. Also numbers of arcs in the years 2008 to year 1956 have increased making the year 2008 the first range number of arcs of 11 to 51 and the second interval of 19 to 86. No observed meander-like and horseshoe (oxbow) pattern on the river exists. Morphological changes of AjiChay River in the timeframe and location studied have been affected by natural factors such as loss of power of flow due to reduction of annual average water discharge and sediment, accumulation of sediment and erosion.

Keywords: River morphology, Meander, Curvature coefficient, Central angel, AjiChay.

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Potential Detection of Groundwater Resources Using AHP Model and GIS Technique (Case Study: Shahroud-Bastam Basin)

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Abstract

In recent decades, growing trend of Shahroud city has implied the strategy of groundwater resources management in the region more than before. One of the strategies of water resources management is the identification of zones with various potential and utilization from them with attention to their capacity. The aim of this study is the zoning of Shahroud-Bastam basin using effective factors in nutrition of groundwater through AHP model and GIS technique. To achieve the goals, we used geology, climatology, geomorphology and hydrology criteria. We recognized five potential areas such as high, good, moderate, low and no potential regions. Finally, to ensure final results, potential layer of study area was prepared by three ways of raster calculator, weighed overlay and weighted sum. The results show that among five defined zones, area maximum and minimum of high potential zones have been given in the first and second methods, respectively. But the third method is between previous methods, and its results have the higher reliability. The zones with high potential are coincident on coarse alluvial deposits of Quaternary era and alluvial fans. The zones with no potential are coincident with the maximum elevation areas having clay and marl depositions. The results of this research can be fruitful in plans of environment management of groundwater resources and preventing from -overexploitation of their power.

Keywords: Shahroud-Bastam, Potential detection, Groundwater resources, AHP method, GIS technique.

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Site Selection of Municipal Solid Waste Disposal Using AHP Model and GIS Technique (Case Study: Kouhdasht City)

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Abstract

In recent decades, uncontrolled growth of population and urban development have caused various social, economic and environmental conflicts, such as production of municipal solid waste that has followed its inappropriate disposal. So that, how disposal, site selection and correct management of landfill solid waste is one of the urban environmental problems, nowadays. Therefore, finding the appropriate place for this process is one of the first and main objectives of urban development plans to achieve sustainable development. Central part of Kouhdasht city, with production of 110 tons of waste daily, is facing with environmental, social and health problems in this field, due to lack of recycling equipments and its improper disposal place. The aim of this study is appropriate site selection of municipal solid waste disposal in the Kouhdasht city using analysis of human, environmental, hydrological, geological and geomorphologic parameters through AHP model and GIS technique. AHP model is one of the most efficient techniques that designed for multiple criteria decision making. This technique is provides the possibility of formulating complex problems as hierarchy. The results show that we can classify zones of the waste disposal of the Kouhdasht city into five classes. In the meantime, zones and most suitable and suitable, with area of 316.193 and 673.219 Km^2 respectively, have highest priority for solid waste disposal and with 24.9 percent of total area in the Kouhdasht city are in the first priority of waste disposal projects. The results of this research would be beneficial in systemic management of urban environment and also in plans of municipal solid waste optimum disposal in study area.

Keywords: Kouhdasht city, AHP model, GIS technique, Solid waste, Site selection.

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Estimating the Outdoor Recreation Value and Investigating Effective Variables on Willingness to Pay of Individuals from Asiyabkharabe Waterfall Using Contingent Valuation Method

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Abstract

After oil industry, tourism makes revenues as the second world's economy for many countries. Tourism today not only has become the world's largest and most widespread industry, but one inseparable from the needs of mankind contemporary life. Protection of natural resources as a major ecotourism capital faced challenges because most people think of the natural resources has free. Therefore, assessment of environmental resources and ecotourism areas for economic policy and strategic decisions should be considered important as the principles of tourism development. Asiabkharbe waterfall in Jolfa city being located in East Azerbaijan province is considered as one of the most attractive tourism destinations in regional level. Present paper attempts to determine and estimate the recreational value of this ecotourism attraction by using contingent valuation method (CVM) and reviews the factors affecting willingness to pay (WTP) by logit model. The results show that 68 percent of visitors are willing to paying for visiting this ecotourism destination and the amount proposed, education, income, satisfaction, family size, age and gender are the most important factors in WTP, and on the other hand, average willingness to pay per visitor is 4000 Rials and annual recreational value of this ecotourism attraction is 380,000,000 Rials. Planners should give more attention to develop tourism and enhance the welfare of visitors to the Asiyabkharabe waterfall, according to high value and importance of this waterfall.

Keywords: Asiabkharbe Waterfall, Contingent Valuation Method (CVM), Ecotourism, Outdoor recreational value, Willingness to pay (WTP).

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The Influence of Land Use on Water Quality in Alvand River

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Abstract

This study examines the spatial variations of water quality of the Alvand River in the west of Kermanshah Province. Nine sites were selected for sampling from the Alvand corridor، and ten parameters of water quality-temperature of environment (ET), temperature of river (ER), pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), electric conductivity, turbidity, TDS and salinity were measured twice in each season. In order to measure heavy metals (Cu, Al, Cr, Pb, Cd, Ni, Mn, V) and also for measuring the total coli form and the faucal coliform, two samples were taken on March and August 2006. The comparative and cluster analysis of the data show that increase in most parameters of water quality and coli forms gradually increased in a downstream direction through crossing populated sites. However, irregular flucatuations of turbidity and COD were observed at the entrance of Ghare-Boolagh. The fluctuation of river heavy metals was found to be considerable. The amount of Cr and Ni were especially high in the Rijab (first station); nevertheless, most other heavy metals were reached their peak in the middle of the river, between Sar-pol-e-Zahab and Ghare-Boolagh, especially before Ghare-Boolagh. A small branch of the river joining from the north of the region seems to be responsible for most of the increases observed in the heavy metals. Turbidity, Cod, Cd and Pb were respectively 16 N.T.U., 8 mg/L, 111.2 and 2.9 pbb at this branch of Alvand river. Whereas, these parameters were respectively 0.068 N.T.U., 0.199 mg/L, 0.068 and, 199 pbb at Rijab in the upstream.

Keywords: Spacial variation, Water quality of river, Alvand river.

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Ecotouristic Features Analysis and Identification of Kaftar Lake Using SWOT

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Abstract

In today's modern and industrial world, tourism and taking advantage of natural attractions in original natural regions is more sensible. One of these natural attractions is beach and lake regions that attract many tourists all over the world. The Kaftar lake which has located in north of Fars province south of Eghlid has county is also one of these natural attractions, although many potentials regarding tourism industry, there has been no study to identify its potentials. The dominant approach in this research is developmental-applicable and research method is a combination of analytic, survey and causal method through using SWOT technique. We identify weaknesses, potentials, and the threats of tourism industry. The results from research show that the development of tourism in Kaftar lake has many setbacks that requires more attention of responsible and local people that is regarded as the approach to attract private and governmental investment from big cities around in order to foster hygiene-medical and accommodation infrastructures. Gaining a rate of 370 is regarded as the best approach of tourism development in Kaftar lake. At the end we provide the developmental approaches of Kaftar Lake in four immediate, short-term, middle-term, and long term phases.

Keywords: Ecotourism, Tourism planning, SWOT technique, Kaftar Lake.

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Precipitation Regime in South Part of Iran Studying of Iran

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Abstract

This is a study of change in annual precipitation amounts and variability in southern part of Iran during 1974-2005. Southern part of Iran has been regionalized based on six factors in 183 stations using Principal Component Analysis (PCA) and Cluster Analysis (CA). The stations were grouped into four individual clusters. Topography and latitude play an important role in determining boundaries between identified subdivisions and existence of spatial differences between them as well. Spatial variability and relationship between the precipitation series at 183 of stations were investigated by principal component analysis. A PCA of annual precipitation reveals five components that account for 68% of the total variance. The annual precipitation PCs are controlled by atmospheric circulation. Analysis of the results revealed that annual precipitation in south part of Iran is mainly related to Sudan and Mediterranean wave.

Keywords: Precipitation regime, Principal component analysis, Cluster analysis, Southern part of Iran.

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A Typology of the Iranian Cities with Emphasis on the Urban Centres More Than 100000 Populations during the Last Forty Years (1966-2006)

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Abstract

This research tries to typify the urban centers which experienced a more unbalanced growth in the recent 40 years. The main approach of the present paper is analytical-genetic and is based on the data which have been collected from the statistical center of Iran. The cities have been classified in four groups between 1966 to 2006. The results revealed that these cities comprise about 70% of the urban population and had grown by number and share of population. There is a steady growth from 1966 to 1986 and it gradually decreases to the recent years. The main factors of urban population growth for the early centuries have been physical as it had a crucial role to the Iranian urban population distribution in the country, but in the recent decades the human factors such as economic and demographic policies impacted the growth and distribution of the urban population. Islamshahr with 12.91 % average growth had the highest level and the satellite cities of Tehran such as Qods, Melard, Qarchak and Pakdasht in the outskirt of Tehran place in other levels due to absorption of the overspill population of the capital. Some cities like Masjedsolaiman and Abadan experienced very low and negative growth.

Keywords: Urban typology, Demographic transition, Llarge cities, Negative growth rate.

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