

# ABSTRACTS

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### **Analyzing the Cycles of Medium Annual Temperature of Zanjan City**

Latent, gradual and slow cycles in different apparent and latent frequencies are one of the various types of climatic changes. Some of these oscillations in a fixed period e.g. one year, are determined as monthly or seasonally mediums. Some others occur as latent cycles in climatic time series. Spectral analysis is one of useful tools for searching and evaluating such these climatic changes. This method of studying the climatic changes has a considerable and wide spread acceptance in the world. However it hasn't used by Iranian climatologist in detail. Exploring climatic cycles particularly temperature cycles will provide the planning based on temperature-climatic data. In this paper, while introducing Spectral analysis as an accepted and efficient method for tracing latent cycles, it is tried to study and review the latent cycles in medium annual temperature of Zanjan city during the statistical period of 1956-2005(50 years). Therefore by using autocorrelation function, temperature spectrum and temperature cycles of Zanjan city were extracted. Based on the data obtained through this research, Zanjan temperature has a cycle of 2.5 years. These cycles have been in coordination with the other discovered cycles in climatic elements of other parts in the world. As the other scientists have found, the power generating this oscillation is probably the result of vertical transition of jolter from troposphere to stratosphere with irregular return periods of 2-3 years.

**Keywords:** Cycle, Oscillation, Spectral Analysis, Temperature, Zanjan City.

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### **An Analysis on Physical Extension Factors and Spiral Pattern of Tabas City After Earth Quake by Holdrem Entropy Model**

During the last decades, Iranian cities like many other cities in the third world have been undergone remarkable changes. One of these changes is rapid population growth and urban spiral expansion inmost of Iran's cities due to the lack of program for proper use and with a scientific basis of urban lands.

Tabas city like many other cities of Iran has not been immuned from these changes and its population has tripled during the last 30 years, which this increasing population growth, has caused uncontrolled expansion of the city, so that , this city with physical expansion of more than 6 times during this period has caused some problems with undesirable results including increasing the price of land and house, shortage of infrastructural facilities, destruction of agricultural lands located around the city.

Now, in order to balance these civil inadequacies, this paper analyzes the physical extension of Tabas city after the earth quake and the effective factors on it and has investigated the probable guidelines and methods for removing and balancing this process. The method applied in this research, was descriptive - analytics method which for data analyzing, Holdrem models, location coefficient and increasing employment and population model have been used.

The results show that %55 of physical growth of the city in the years between 1976 up to 2006 has been occurred due to the population growth and %45 related to horizontal and spiral growth of the city, while based on the calculations made by the writers, the present limit of the city with inner city expansion will be responsive to the needs of city population up to the next 19 years. In analyzing the effective factors on physical expansion of the city, the obtained results of the research confirms that natural elements such as smooth topography, proper slop of lands in north part of city, social factors of population growth and especially rural-urban migrations and economical factors especially the existence of large coal mines, merging large village of Dihshak to Tabas city are considered as one of the main factors. Among the findings which help to stop the uncontrolled physical expansion of the city, we can refer to inner texture of city expansion, development the culture of vertical expansion of the city and finally providing the welfare facilities in the cities.

**Keywords:** Physical Expansion, Rural-Urban Migrations, Spiral Growth, Holdrem Model, Tabas.

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### **Synoptic Analysis of Heavy Precipitation Events in Iran**

In this research, one of the heaviest and over spreading precipitations of Iran (from 3/11/1994 up to 8/11/1994) was studied for understanding and knowing the effective mechanism on occurrence of such events. In this period, about half of Iran's rainfall stations had a remarkable precipitation. For analyzing this event, environmental circulation pattern was selected. After drawing the isohyetal maps of the under studied days, peak points of rainfall and gravity centers were obtained and then the main circulation pattern and humidity sources at the time of these events were obtained. Analysis of pressure maps of sea elevation showed that European's high pressure and Iraq's low pressure pattern has been effective in occurring such rainfalls. At that time, a high pressure mass from Europe and Black sea was entered from north west of Iran and with Iraq's low pressure made a server gradient. It seems that under this intensive pressure gradient and also integration of tropical and polar front on Iraq, deep falling on Cyprus, moisture feeding of Persian Gulf on elevations of 925 and 850 Hectopascal, moisture feeding of Red sea and Mediterranean in higher elevation, these heavy rainfalls has been occurred.

**Keywords:** Heavy Rainfall, Gravity Centers of Rainfall, Circulation Approach, Geo Potential, Iran.

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### **Recognition of Development Opportunities Resulting From Earthquake with Emphasis on Physical Aspects of City Case Study (Bam City)**

Relationship between development, disaster and reconstruction is considered as the main important theoretical issues of crisis management and disaster studies. Although it is believed that the great natural and un-natural disasters delay the development trends and causes the destruction of resources and disturbance of social and economical activities of societies, but at the same time , these crises and disasters will provide opportunities for future development, particularly in reconstruction process. Managers, planners and decision makers can use these opportunities for promotion of the society strengthening thresholds and benefiting crisis conditions for removing pervious problems, the situations which are rarely possible in normal cases.

Also at the time of crises and disasters occurrences, charity helps will increase and the required financial assistance for physical changes in relation with immunization and quality improvement of constructed environment will accelerate. The aim of this study is to review the relation ship between development and disasters and the physical development opportunities which were identified after Bam earth quake as well as effective factors and criteria on the manner of using them to be identified and analyzed. The research method is analytic-descriptive method and the information is gathered through field-documentary method. (Observation, interview and questionnaire).

Research findings show that physical development opportunities after Bam earth quake were used more in housing (strengthening, monitoring on construction activities building frontage, ...) and public services (training, health, sport, ... services), while less attention was paid on infrastructure services (water, electricity, telecommunication, and sewage), passages and city texture.

It seems that the method of management and lack of the required coordination in the programs and among the involved organizations has had a great role in use or non-use of this opportunities for physical development and the government role was the most effective factor on using developmental opportunities.

**Keywords:** Crisis Management, Disasters, Earth Quake, Development Opportunities, Bam.

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### **Land Slide Zoning in Tutkabon Water Shed Basinby Use of Quantity Models**

Land Slide is a kind of slope movement which tends to move surface materials of very steep slopes. Northern slopes of Alborz mountain under the effect of humid climate and environmental conditions has a high potential in comparing with the other regions of Iran from the view point of occurring the slope movements. The under study basin (Tutkabon) is located in Rudbar town ship. Recording more than loo slides in the basin during the field investigations shows high potential of this basin for land slide occurrence. The purpose of this research in identifying the effective factors on land slide Zoning and also determining the potential of different regions at this basin from the view point of land slide occurrence, in order to decrease the resulting damages. After recording the existing land slides and transferring it on the map, by regarding different variables such as sediment thickness, slope direction, slope, distance from stream, vegetation cover, Lithology and height, the regions with Instability have been recognized. For this purpose, Three methods were used, grading effective variables, valuing the informative layers and surface density.

The main tools for research is the use of ILWIS Microsoft software and the working technique was comparing the influencing rate of variables by using the said methods. Research results through showing Zoning maps in from of the mentioned software and analyzing the zones which are exposed to danger have been divided into the results including, the zone with very low relative danger, low relative danger, Medium relative danger and finally the zones with high occurrence probability and too high danger. It is recognized that the eastern and west north of basin has the highest potentials for land slide and its northern and southern regions has a low danger for land slide occurrence and is stable.

Obviously, planning for this region, particularly for the establishment of structures such as communicating roads of buildings and rural and residential constructions shall be performed with respect to the stability factor of the slopes.

**Keywords:** Land Slide, Tutkabon Water Shed, Density, Surface Method, Rudbar Township, Slope Movement.

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### **Planning and Localizing Daily Bazaars in Isfahan City by Analytic Hierarchy Process (AHP)**

Providing the ease and appropriate access for citizens to all types of civil services is one of the main and important objectives of urban planning. Daily bazaars and fruit and vegetable markets, as especial places for presenting daily necessities of citizens has a great importance in urban life. Therefore construction of these bazaars based on the proper planning—especially in local scale- will be effective in increasing the welfare of citizens. providing the consumers' necessities, saving time and cost, decreasing inner-city travels, providing balance between supply and demand, removal of non legal brokers and strengthening the local relationship of citizens are considered as the advantages of construction such daily bazaars. High shortage of these places in Isfahan city with a population of over 1,600,000 is completely clear.

The aim of the present research would be the planning and localization of daily bazaars which are required in different districts of Isfahan city, therefore this subject was analyzed based on the necessities of comprehensive and detailed plans. Localization of bazaars has been performed separately for all different urban areas by using Geographical Information System (GIS) and Analytic Hierarchy Process System (AHP).

Maximum overall inconsistency ratio in the judgments about each of districts has been estimated about 0.02 which indicates the appropriateness of consistency in judgments.

**Keywords:** Urban Services, Daily Bazaar, Fruit and Vegetable Market, Analytic Hierarchy Process, Inconsistency Ratio.

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### **Determining the Intensity of Environmental Instability in Rural Settlements of Sistan by Multi Criteria Evaluation Model**

The environment is the only existing domain and realm for accomplishment of development objectives. In fact, without such a bed, development would be a useless and meaningless issue. If sustained development is being considered as our ultimate goal and the environmental stability is the essential condition for accomplishment of sustained development, in this case, we require a method and instrument to be able to measure the movement to ward the environmental stability. Iran's Sistan area, for its special Geographical situation is under the affection of various factors in appearance and intensification of environmental instability of villages.

This research has been performed through surveying method (Form autumn 2007 up to summer 2008) in 101 villages out of 808 villages of the area and it is tried to, while presenting the appropriate environmental indices with the instability conditions of Sistan's villages, the intensity of environmental instability of under studied villages to be illustrated by multi criteria evaluation model in geographical information system. The obtained results prove that at the present, the environmental instability in 18.8 percent of the villages is low or medium and in 81.2 percent, it is high or great.

**Keywords:** Sustainability, Environmental Instability, Multi Criteria Evaluation, Sistan's Rural Settlements.

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### **Appropriate Strategies for Tourism Development in Zarivar Lake**

At present, tourism industry is one of the main elements of the world commercial economy. Benefiting this situation requires a favorable condition which is usable in a form of a comprehensive and complete planning. Development of sustainable tourism industry requires proper political, social and cultural infrastructures and demands the extensive cooperation of local societies in development projects, therefore in the projects for development of tourism industry, paying attention to quality criteria and social objectives is necessary, since inappropriate, non harmonic and unplanned development can bring up serious and large threats for the nature and environment. With respect to the existence of a proper and systematic planning and also identifying the advantages and limits of Zarivar Lake, the area development and consequently national development is expected. Therefore, this question is raised that which are the potential and limits of tourism development of the lake? And which strategies and guidelines there exist in this area for development of tourism industry? This research has presented strategies and guidelines for tourism development of Zarivar lake by surveying method, field studies and recognizing the weak, and strong points, opportunities and threats through SOWT method. Through analyzing the obtained results, it can be concluded that damaging threshold of the lake is high for its tourism feature and requires review and presentation of proper policy as well as integrated management for removal of limits and use of its potentials and capabilities.

**Keywords:** Proper Strategies, Tourism Development, Zarivar Lake.

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**Modeling the Vulnerability of Urban Buildings Against Earthquake  
by Method of Analytical Hierarchy Process (AHP)  
(Case Study of Zanjan City)**

With respect to population growth and increase of urbanism, occurrence of natural disasters such as earthquake can make drastic damages and detriments and postpones the development of cities and country.

The necessity for decreasing the vulnerability of cities against this phenomenon is considered as one of the main objectives of physical planning, urban planning and city designing. In this respect, the first step is recognizing the rate of vulnerability of parts and urban elements and their analyzing and evaluating by the existing models in this field, in order to be able to identify the vulnerable areas and textures by using the models and through micro zoning of these areas, present scientific and practical strategies for decreasing the bad effects of earthquake.

With attention to the importance of evaluating the vulnerability of cities against earthquake in the discussions about geography and urban planning, in this paper, it has tried to by using Analytical Hierarchy process method (AHP), a proper estimate to be estimated for the cities vulnerability against earthquake by using the location and elements descriptive data and building main and behavioral elements and determining the effect of each applied criteria in the rate of vulnerability. further by using analytical and presentation facilities of Geographical Information system (GIS) and providing earthquake scenarios in different intensities, the modeling, micro zoning of the damages incurred to buildings, human victims, and economical losses of Zanjan city against the earthquake has been performed.

The results obtained shows that district No. 3 of Zanjan and the buildings located in this area, have high rate of vulnerability due to their worn out texture and use of low durable material in the construction and also their oldness, district No. 2 of Zanjan city due to observing the building standards including the by law No. 2800 and using durable material in construction of the buildings has a lower rate of vulnerability in comparing with the two other districts of Zanjan city.

**Keywords:** Vulnerability, Earthquake, Zanjan, Geographical Information System, Modeling, Analytical Hierarchy Process.