

# **ABSTRACTS**

## **The Feasibility Study of Applying Creative Multicenter Network Metropolitan Approach in the Metropolitan Area of the Central Mazandaran**

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Cities are considered as the bed for innovation and a place for driving creative energy of human being and also play an effective role in human capital concentration and management. Creativity in two areas of industry and creative class need an appropriate and desirable background for flourishing. Hence most experts believe that polycentric-network structures due to their own specific spatial structure have more advantages and priority in attracting such industries and creative classes. So this article, by descriptive-analytical method examines the effective components and aspects in attracting creative industries in the metropolitan area of central Mazandarn which includes four main and large cities of the province as Sari, Ghaemshahr, Babol and Amol. In total, 14 indicators in five approaches of historical and cultural heritage, Agglomeration advantages, dependent diversity, human capital and creative class have been tested. density of ccultural and historical heritage, company size, share of professionals out of total employment, Reverse Herfindahl index, population as the potential market size, dependent diversity index, -Hal Sysuh index, entropy index, the accumulation of educated people, index, share of educated people from job applicants, the share of immigrants of other provinces form the indices of this study. the results showed that this metropolitan area lacks an efficient and desirable diversity and demand threshold; the reason of this can be attributed to the fragmented nature of the region and lack of a well-connected metropolitan structure. Also optimum concentration of economic activities of creative jobs has not been able to incorporate the relevant activities together to produce products with better quality. In contrast this area provides a suitable environment for attracting creative classes which some issues such as concentration of cultural and historical facilities of cities, cultural acceptance of other ethnic groups and high capacity for absorbing new technologies approves this matter.

**Keywords:** Creative industries, Creative class, Polycentric, Network structure, Mazandaran metropolitan area.

## **Assessment and Review the Environmental Risks Resulting from Climatic Changes in Abarkooh Basin**

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Increasing more injection of substances (precipitation) and decreasing the evaporation process in water basins has led to formation of Abarkooh hole in cold periods and also Abarkooh lake; a lake around which several social communities have been created due to this feature and in warm periods, it has turned into desert as the result of disturbing the proportion of its input and outputs. These climatic fluctuations and changes and environmental responses to them have produced many changes in the local hydrologic system and accessible water sources and have also endangered the sustainability of the area because of the external disorder factors such as drought. The danger which certainly threatens the social communities and if no special management practices have been employed, will lead to the destruction of human communities and demolish of its natural ecosystems. This study which is derived from a research plan in Isfahan University has been conducted by the aim of studying how the weather changes affect the evolution path of Abarkooh basin. Moreover, it has examined the basin status and icings reduction rate and therefore the basin input rate, by relying on the Allometry procedure and evaluating 6 synoptic stations in analyzing the annual changes process of climatic parameters such as mean temperature, maximum temperature, minimum temperature, current and past precipitation of the lake and also by using the evapotranspiration method. Results obtained from the research suggest that changing the current environmental parameters ratio to the colder periods have all exceeded from the stability thresholds and the general state of the environmental systems is about to collapse.

**Keywords:** Threshold, Climatic change, Abarkooh Darning Basin, Quaternary, Water resources.

**Performance Evaluation of Responsible Institutions in the Development of Rural Settlements by Using the Structural Equation Modeling Approach**  
**Case study: Javanrood Township**

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Based on the studies, the villagers assessment about the function of the authorities of rural affairs, was limited to the evaluation of the performance of village administrators and councils. While, some institutions such as agriculture Jihad, housing foundation, natural resources, etc. are deeply involved in rural issues and the impact on rural communities with different methods. The purpose of this study, which is made by descriptive-analytical method, is the assessment of rural communities regarding the performance of authorized institutions (Council, village administrator, governor, Agriculture Jihad, governorate, Housing foundation, natural resources, etc) and study the effects of such institutions on various indicators of rural development in the villages of the Javanrood Township. The statistical society of the study are 4811 rural households residing in 89 Villages of Javanrood Township, which by using statistical formulas, 356 households were estimated as the sample. The main research tool was researcher's made questionnaire, which confirmed its validity and reliability respectively with opinions of academics and Experts and also, Pre-test and Cronbach's alpha coefficient. SPSS and Amos software were used for the analysis of the collected data. Results of the study indicated that 12.4 percent of villagers had a great satisfaction about the performance of rural authorities, 39 percent had average satisfaction and 48.6 percent had poor satisfaction. Despite the poor satisfaction of Javanrood villagers about the rural authorities, the results of the final accessed model of structural equations showed that the said institutions with the total impact of 0.421 and 0.324 respectively have had maximum effects on the two indicators of physical - infrastructure development and Quality of Life and their impact on the environmental protection index with total effect of -0.234 was Negative.

**Keywords:** Rural Development, Authorized Institutions, Structural equations, Javanrood township.

**Study and Evaluation of the Impact of Resettlement Patterns on Social  
Capital Changes in Earthquake-Stricken Villages  
Case study: Varzaqan County Earthquake-Stricken Villages**

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Earthquake occurrence in Varzaqan county in the summer of 2012 has led to destruction of many rural areas. In order to reconstruct and prevent further financial and human losses and Casualties, resettlement of some of the villages in three models of displacement, integration and reconstruction of some villages in this county was taken place. The purpose of this study is surveying the impact of triple resettlement patterns of earthquake stricken villages on the social capital of residents of rural communities.

For this purpose, three fields including social reliability, social participation and social correlation were selected for the study of social capital in the study area. Statistical population of this study are the Local households living in villages of the study area which the volume of the sample was determined by Cochran formula and simple random as 400 Households. Pilot study in similar Statistical population was performed with 50 questionnaires. The reliability of various parts of the questionnaire was obtained by Cronbach alpha special formula and obtained data as 0.895 to 0.912. Data analyses of this study in both descriptive and inferential statistics have been made by using SPSS software. To compare the pattern of displacement, integration and reconstruction, T-test of independent samples was used. The results of this test indicate that among the resettlement patterns, there is a Significant differences on 0.000 level regarding the changes' rate of social capital. In addition, the results demonstrate that the amount of social capital with average 2.87 is greater than the two others in the reconstruction pattern. Moreover, the correlation level between the variables of participation and social correlation, social trust and community involvement were respectively 0.795, 0.354 and 0.324. Eventually, according to the research findings, some Practical suggestions in fields of education, Protection, Systematic management approaches and Future studies also presented.

**Keywords:** Natural disasters, Resettlement, Earthquake-stricken village, Emergency management, Social Capital, Varzaqan county.

## **The Effects of Tectonic Activity in Morphology of Rueen Basin in the North East Part of Iran**

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Roein basin is one of the sub-basins of CalShour River, which is located in the northeastern part of Iran, on the southern slopes of the Aladagh Mountains. Tectonic activities of this basin has been started from the last Laramide orogeny and is continuing. These activities, in addition to the occurrence of natural disasters have many effects on different characteristics of this basin. Information about the tectonic activities due to the vicinity with this basin and its influence on Bojnoord city, (center of Northern Khorasan province) and river planning is a necessity. To investigate these activities, morpho tectonic indicators which were related to geomorphologic were used, It means the comparison of the longitudinal and logarithmic profile; width of the valley floor index to its height ratio ( $v_f$ ), Sinuosity Mountain Front index ( $smf$ ), sinusoidal index of river ( $s$ ) and index of tectonic activities ( $lat$ ). The obtained results of these indicators and the influence of folds indicated that this area is subject to intense tectonic activities and these activities in this basin have caused irregular longitudinal profile of rivers, deep and narrow valleys, extended basins and the low maze path of rivers and mountain front. Also, this study indicate that tectonic activities at the tributary of this river, in fact in the Domannim region has reached to its peak and its result is a narrow strait, steep rocky and the river slope phenomenon which is given special feature to the topography of this basin.

**Keywords:** Rueen basin, Morpho tectonic index, Morphology of basin.

## **Assessment of Ecological and Social Impact of Fadami Dam Construction on Agricultural Development of the Area**

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The assessment process of development projects before implementing them is a way to predict, identify and analyze the details of all positive and negative effects of projects so that to maximize benefits and minimize its negative effects. The environmental and social impacts' assessment of each project is a process that determines an acceptable way to manage its implementation plan in order to achieve the aims of sustainable development. Moreover, the studies of environmental impacts' assessment are used in projects of regional development as an important tool for decision-making and a sign of acceptance or non-acceptance of the project in the region. The aim of this study was to evaluate the ecological and social impacts of Fadami dam construction on agricultural development area in Fars province. ICOLD matrix method was used in this study. The effect of each component of the project on environmental activities were measured in two phases, the construction and utilization. Results showed that the environment had a positive impact on the entire project (268+ points). Based on obtained results, construction of Fadami Dam in Fars province based on the construction standards is feasible. At the end, according to the results of this study, recommendations were presented.

**Keywords:** Environmental impact assessments, Dam construction, The socio-economic effects, Ecological impacts, Cultural impacts.

## **The Feasibility of Electricity Production by Using Rooftop Solar Panels in Rural Areas of Khuzestan Province**

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The aim of this study is to investigate the potential of producing solar electricity with photovoltaic panels on rooftops of rural residential buildings in Khuzestan as an auxiliary system to provide electricity. The assessment of available rooftop area in rural residential buildings showed that 45 percent of all rooftops is available to install photovoltaic systems. Most of the available rooftops of rural residential buildings are located in Ahvaz, Dezful, Shosh and Shadegan with 22.56, 10.08, 8.58 and 7.73%, respectively. According to the map provided in GIS, the average solar radiation of all rural areas of Khuzestan province was calculated 5.219 kWh/m<sup>2</sup>/day annually. Among all counties, Ramhormoz and Hendijan with 5.37 and 5.36 kWh/m<sup>2</sup>/day respectively, had the greatest solar radiation. By assuming the availability of 25% of rooftop area and the efficiency of 6.48% for photovoltaic systems, it possible to generate 766.5 GWh/year of electricity that is equal to 7.29% of total household electricity consumption and 28.80% of household electricity consumption per capita in Khuzestan province. Results showed that the maximum solar radiation was concurrent with the maximum power consumption in Khuzestan province. High solar radiation along with its great potential to produce solar energy, can be useful to overcome the overloading of power grids and consequently power outages in the hot summer.

**Keywords:** GIS, Khuzestan, Photovoltaic system, Rooftop of rural residential buildings, Solar energy.

## **The Role of Natural Factors in Instability of Rural Settlements in Mountainous and Foothill Areas of Zagros (Case Study: Villages of Marivan and Sarvabad Counties)**

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Historically, natural factors have been effective on the establishment, type of livelihood and displacement of populations, and the example of its influence can be seen clearly in the instability of rural settlements, This study was conducted to investigate the role of natural factors in the instability of rural settlements in Zagros mountain and foothill (Case study: Villages of Marivan and Sarvabad Counties). In this study, 9 factors (climate, altitude, slope, fault, rivers, landslides, lithology, erosion, land users) were used, Layers of these factors were provided in ARC GIS environments .and weighted by using Expert choice software And by adding weights to AHP model in ARC GIS and overlapping layers, the stable, semi stable and unstable villages were specified.The research method was descriptive - analytic method, and ARC GIS software and Expert choice were used, The results showed that out of 229 settlements in the study area, about 24 villages (10/48%) were located in stable zone, 58 villages (32/28%) in the range of semi-permanent, And 147 villages (64/19 percent%) are located in unstable areas, In general, the under study area in terms of environmental - ecological factors is considered as unstable, Therefore, Fundamental and serious attention to these factors in order to avoid the risks and preventing the loss of capital in any planning, seems to be necessary.

**Keywords:** Natural factors, Instability, Migration, Villages of Marivan and Sarvabad Counties.

**Comparison of Fuzzy Inference Models and Artificial Neural Networks  
for Estimating the Depth of Rock bed of Aquifer  
Case study: South Khorasan, Birjand Aquifer**

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Groundwater is one of the most important water sources in the arid and semi-arid areas. With regard to reducing the level of water tables due to overdraft in most of Iran's plains, the wells' flow rate has been greatly decreased and this issue necessitates the attention to planning the water resources. Determining the aquifers' thickness and type of alluvial and materials in aquifer is necessary for the development of the city planning and its infrastructures . with respect to the importance of estimating the depth of bed rock of aquifers for estimating the volume and planning the water resources in this study, the efficiency of artificial neural network models and neural fuzzy inference system were studied on the bed rock depth and its zoning in different parts of the aquifer. In this study, the parameters of geographical latitude and longitude, salinity, water table level, and the ground level were used as input, and tried to determine a suitable model for predicting the bed rock. Results showed that the neural network with  $R^2=0.835$  RMSE<sup>1</sup>=49.488 meter with the inputs of geographical latitude and longitude and the groundwater level has a higher accuracy of ANFIS<sup>2</sup> models.

**Keywords:** Aquifer thickness, Artificial neural network, Bed Rock, A neural fuzzy inference system, Prediction.

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<sup>1</sup> -Root mean square error

<sup>2</sup> -Adaptive neuro fuzzy inference system

## Synoptic Analysis of Upper- Cold Air Pool Effects on Generating or Intensifying Rainfall in the Warm Season in East Azerbaijan

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In synoptic meteorology, establishment of cold air masses at the middle and upper levels of the atmosphere is called cold air cell or cold air pool (Cold Pool). In this study the role of the cold pool in developing or intensifying the precipitation was examined by studying the synoptic maps for the period from 2007 to 2013 and 118 cases were identified. Synoptic maps, thermodynamic diagram (SkewT) and the distribution of rainfall on the selected days were investigated over East Azerbaijan province.

The results showed that cold pool appears in three different synoptic patterns, temperature trough, closed cell or combination of trough and cell (at different levels). Although cold pool has been observed in warm season but the highest frequency appears in May. Investigation of rainfall recorded at the meteorological stations showed that 64% rainfall and 12.2% intense rainfall that has caused flood had been occurred in the establishment of cold pool. The results of thermodynamic diagrams' information indicated that although in most cases of atmospheric instabilities is confirmed by the indicator but in some cases weaknesses was observed in defining air instability which shows that dynamic condition (compared to the thermodynamic) is dominant during the establishment of cold pool. Finally, whenever the temperature difference in 850 and 500 level gets higher the probability of occurrence of intense rainfall, hail and flood are increased.

**Keywords:** Cold pool, Synoptic analysis, Thermodynamic diagram (SkewT), Precipitation, Flood, East Azerbaijan.

**Landslide Hazard Zoning by Fuzzy Analytical Hierarchy Process (FAHP)  
by Emphasis on the Slope Shape Factor (Case study: Kamyaran County)**

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With the increasing development of cities, villages, industrial areas, roads, etc. the study of slope stability and determine of the risk value are essential. Among the methods for determining the relative risk of landslide and its zoning, quantitative and semi-quantitative methods gives better results. One of the semi-quantitative methods is Analytical Hierarchy Process (AHP) that uses the method of paired comparisons to analyze the multiple criteria. In this study, to remove ambiguity in the opinions of human, the combination of AHP and fuzzy system for landslide hazard zoning in Kamyaran County that is located in the south of the Kurdistan province, was used. In this research, in addition to usual factors in landslide risk zoning, two factors of slope shape, i.e. plan curvature and profile curvature, were used. The results show that the 52.03 percentage of area had a low and very low risk and the remaining area had medium to very high risk. Among the studied factors, slope, litho logy and land use have had maximum effect respectively, and slope shape had minimum effect on the instability of slopes in the studied region.

**Keywords:** Landslide risk, Fuzzy Analytical Hierarchy Process (FAHP), Slope shape factor, Kamyaran.