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**The Impact of Border Markets on Political-Spatial Development
of Rural Settlements in Frontier Areas
Case Study: Bashmaq Border of Marivan**

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Introduction

Border areas are often recognized as undeveloped regions, and the borderline between the two countries forms the basis for the unbalanced development of regions and border villages (Jones, 1994: 259). In these areas, the lack of diversity in the economic and job opportunities, especially for the manpower, is rising (Hosseini, 2014: 20). In order to overcome these problems, the advancement and movement toward the rural development of these areas, focusing on trade exchanges and creating border markets can act as an economic gateway and a good incentive to increase official exchanges, flourish relative benefits, and expand cooperation. Developing inter-regional markets, fixing prices, orienting trade profits, increasing employment and prosperity for rural communities. (Kamran, 2010: 13, Zarghani, 2012: 2). From distant past, the boarder areas due to potential disabilities, were considered as isolated and deprived areas. Therefore, the cities in these areas are very limited and have a low development. But with the globalization of industry, commerce, financial affairs and changes in the international system, geostrategic thoughts focused on the economic geographic boundaries of the borders. So that changes in the boundary functions and attitudes towards it, as an economic opportunity from the ruling political systems, have led to an increase in population in the border regions and new conditions have emerged. This new condition forced the center to revise its relationship with the periphery. (Pena, 2005). Boundaries also have connectivity and linking functions. This means that residents of the border regions can take advantage of the differences between neighboring countries and expand the range of economic, social and cultural cross-border activities. There are excellent conditions for the formation of such relationships where ethnic minorities are familiar with language and culture across the border (Wasti-Walter, 2009).

Methods and Material

In the present study, 360 samples were obtained, A personal interview was also conducted with 30 sample individuals to complete the findings. To analyze the data, one-sample t-test, chi-square test and ANOVA test were used in SPSS software., as well as for spatial analysis and map generation based on statistical data, low/lot clustering methods, spatial autocorrelation, analysis of hot spots and IDW (Inverse Distance Weighted) in the GIS software is used.

Results and Discussion

The present study aimed to investigate the effect of border markets on the promotion of spatial political indicators in the rural areas of the border areas in the districts of Khav and Mirabad, Zarivar and Sarkul in the city of Marivan. In this regard, there were some questions that the research findings responded to.

According to the findings of the research and interviews, border markets have had a positive impact on the improvement of the Spatial physical condition, particularly in terms of improving the transportation network, telecommunications network, shops and stores in the border area. Which is consistent with the findings of Reza Ghaderi et al (2012), Sirwan Abdolzadeh (2013) and Fakhr Fatemi (2004). But they did not have much impact on rural construction

In other words, they have not been able to perform well on the status of the construction of rural areas of the frontier. According to the findings and interviews with rural people, the villages in the middle distance from the border (15-5 km) have more influence on the boundaries of the markets in terms of spatial-physical characteristics. Near-frontier villages (0-5 km), despite being far away from the border and border markets, do not have such a positive effect on border markets in physical spatial indices.

Conclusion

According to field observations and interviews with rural people, in villages near the border, there is no proper communication roads. In distant villages (15-25km), due to distance from the border, less influence is obtained from border markets in terms of physical spatial indices In the context of political security indicators, border laws and regulations have had a negative effect on the employment of rural people. Border markets have also played a significant role in the political, cultural and economic ties between the two Kurdish provinces. Villages near the border (0-5 kilometers) are more dissatisfied with the political situation in the border markets. In other words, according to the findings of the research and the findings of the researcher, the political security situation in the near-border villages in the last few years has caused most people to lose their jobs, as well as many rural youths in this regard have lost their lives.

In general, border markets can also have an impact on the economies of the rural areas and will prevent the migration and evacuation of villages. In the end, for the expansion of economic and commercial activities, in particular the enhancement of trade exchanges, as well as the

Keywords: Border, Border markets, Spatial-Physical development, Rural areas, Marivan county.

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The Impacts of Zarivar Wetland on the Livelihood Assets of Rural Households

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Introduction

Resources and the natural environment are considered as the main property of rural people for their living and livelihoods, and most of their livelihood activities are directly related to the environment and environmental resources. In the meantime, wetlands are valuable ecosystems that have many functions in a variety of natural ecosystem and in addition to protecting biodiversity, they also have many other natural, economic and social values that can affect the livelihood of local people and ultimately their livelihoods. Therefore, this research aiming to study the effects of Zarivar wetland on the livelihoods of rural households living around it in the form of a sustainable livelihood approach. In fact, the research attempts to answer the main question: How did the wetland contribute to improving the rural population's assets?

The provision of a sustainable livelihoods framework for empowerment and capacity building in rural areas as a new livelihood strategy in development theories was a key tools for achieving sustainable development in the 1990s. One of the most important and effective ways to advance development goals in rural areas is to identify household living conditions, access to livelihoods and factors affecting their livelihoods. Capital or assets are one of the most important components of a sustainable livelihood framework and livelihoods are supported by investing in the capabilities of sustainable livelihoods and the interaction between different livelihoods is crucial to creating a deeper understanding of sustainable livelihoods. Livelihoods of local people are often presented as a pentagon model that can be used to demonstrate schematic differences in their access to local capitals. There is a strong and complex connection between natural resources and rural livelihoods so that villagers in developed countries dependent to the availability of natural resources and access to it to support their livelihoods. Wetlands have had a fundamental role in development of economic-social, regional and national in Iran. The goods and services that wetlands usually produce are directly or indirectly used by people. The livelihood system communicates with the wetland at multiple time and space scales, shaping and strengthening ecosystem services as well as livelihood that forms the basis of livelihood strategies. Wetland ecosystem services can be considered as forming part of the natural capita which might help other forms of livelihoods through structures and processes.

Methods and Material

The present study as an applied study is a descriptive-analytic in nature that from data collection point is both documentary and field study using questionnaire. The study area is Marivan Township which is located in Kurdistan province and the statistical population of the study was 7 villages around Zarivar wetland with a population of 6165 people and 1539 households. Because of the abundance of the population, 230 of them were chosen as sample group according to Cochran formula. The main research instrument for collecting necessary data and information from the field was a questionnaire designed to identify the indicators and variables explaining the livelihood assets of the sustainable livelihood framework (DFID, 1999). Validity of the questionnaire was confirmed by a panel of relevant experts of extension and rural development and the reliability its various sections according to Cronbach's alpha coefficient gained acceptable at 0.81-0.87. Data analysis was performed using both SPSS20 and LISREL8.8 software and also the Confirmatory Factor Analysis.

Results and Discussion

For the purpose of analyzing the effects of Zarivar wetland on people's sustainable livelihood, a second confirmation factor analysis (CFA) was applied in order to study the significance and fit of its impact measurement model. The model for measuring the effect of Zarivar wetland on the sustainable livelihoods of member households was evaluated in the form of five capital, namely natural capital (4 aspects), human capital(2 aspects), social capital(3 aspects), physical capital(2 aspects) and economic capital(3 aspects). Based on the results obtained from the fitted model in a meaningful state, if the value of t is greater than 2.56 or less than -2.56, factor loads at a confidence level of 99% and, if the value of t is greater than 1.96 or less than -1.96, the confidence level would be at 95%. Therefore, the zero assumption is based on the non-significance of the role of the indicator (variable) on the formation of the constituent (factor) of the rejection and the significance of the relations in the form of verifiable factor analysis is acceptable. For an acceptable validity, there must be a significant correlation between structure and dimension, and between dimension and indices. If the relation (standard coefficients) is higher than 0.3, then it can be said that the indices have good explanation of power and this relationship is significant. Regarding the reported values of fitness indicators, the model for measuring the impact of Zarivar wetlands on the sustainable livelihoods of the marginal households has a suitable and appropriate fit. So, it can be concluded that the data of this research are fitted with the structure of the factor and theoretical basis of the research and this indicates that the markers (variables) are compatible with the factors (structures) in the model of the wetland's impact on the sustainable livelihoods of its marginal households. This result confirms the accuracy of the selected dimensions for assessing the impact of wetlands on the sustainable livelihood of the individuals surveyed and the significance and fit of the model for measuring the impact of the wetland on the sustainable livelihoods of the villagers in the form of five funds. The standardized path coefficients show the intensity of the relationship between the first order factors and the second order factor. Accordingly, according to the results of natural capital ($\lambda = 0.81$), it is the strongest indicator.



Conclusion

One of the most important factors affecting the livelihood level of local people living around Zarivar wetland is the three economic sections including agriculture and livestock, tourism, and fisheries. From the respondents' viewpoint, the various functions of these three sections had the most impact on households' livelihoods and, consequently, their livelihoods in the study area. The results of confirmatory factor analysis showed that the selective markers of the research had a significant effect on the level of five (natural, human, social, physical and financial) investments in the wetland households. Therefore, the present model structure is suitable for all dimensions of livelihoods and their indicators of measurement, and it shows a satisfactory agreement with the research theory foundation. Natural capital ($\lambda = 0.81$) was the strongest indicator for measuring the sustainable livelihoods of rural households living in the study area. The results reveals that Zarivar wetlands have had a positive effect on the five livelihoods of their marginal households in their respective dimensions including land, water, natural resources, knowledge and skills, health and food security, participation, networks and social connections, infrastructure, production and income. And has improved them. Therefore, changing the direction of development plans and the priority of investments in these areas in order to create resources and opportunities for improving ecological status (more forest cover and reducing erosion, etc.), economic (more agricultural and livestock productivity , tourism prosperity) and social (health improvement and training facilities and infrastructure) are necessary to achieve a sustainable livelihoods level.

Keywords: Sustainable livelihood, Livelihood assets, Ecosystem services, Zarivar wetland, Marivan County.

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**Urban Expansion Modeling Using Logistic Regression Method based on Geomod Model
Case study: Kordkuy city**

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Introduction

Nowadays, land use change is one of the major challenges that different countries of the world are faced with. Land use can be expressed as how humans use natural resources to meet their needs. Among all land uses, urban land use is considered as the main cause of changes in natural landscapes, which result in devastating environmental effects, such as the loss of agricultural and forest lands, water and air quality reduction, an increase in the volume of runoff, and so on. Therefore, monitoring and evaluating temporal and spatial changes in this land use category can be considered as an important step towards achieving sustainable development goals and reducing destructive effects on ecosystems. In this way, decision makers in the field of natural resources management as well as urban planners to expand sustainable development strategies need to be aware of the extent of land use changes and urban growth in the past, and predict the pattern of land use change in future periods to prevent some unpleasant changes on the environment. One of the most important strategies for understanding and analyzing spatial and temporal dynamics is the use of various models to identify, analyze and predict the behavior of these land uses over time. The Geomod model is one of applied models to predict land use changes.

Methods and Material

Kordkuy city is located between longitude 54° 6' 53" E and latitude 36° 47' 51" N. In order to simulate land use change using Geomod model, three steps are considered:

Land use change detection; Modeling of Transition Potentials; and Change Prediction and Modeling.

In the first step, Landsat satellite images were prepared in three periods of 1987, 2000, and 2015.

Then, the geometric correction method with ground control points was used according to non-

parametric method. In the next stage, the training samples were selected with high accuracy and appropriate distribution for the supervised classification based on the maximum likelihood algorithm. Then, the accuracy of the generated maps was determined. In the second step, it was necessary to estimate the potential for the transition of other land use to urban land use according to logistic regression model. Logistic regression is a statistical model that investigates the relationship between the dependent and independent variables. In this research, the dependent variable is urban growth areas in the two study periods. Independent variables include digital elevation model, slope, distance from agricultural land, distance from natural forest, distance from the road, distance from the river, distance from industrial areas, distance from planting forest, distance from the edge of city, distance from village, and distance from city center. Also, to assess the goodness of fit for logistic regression model, Pseudo- R^2 and ROC statistics were used. In the third step, it is necessary to predict the pattern of urban growth in future periods based on Geomod model. The Geomod is a land use change model that simulates one-way change of a land use category into another land use category. There are two components in this model: the amount of change in land use and where the change in land use occurs. In order to obtain land use change, multi-temporal satellite images are used, and to model the locations of change, the relationship between the effective factors of degradation and land use change is investigated. Then, the Geomod model simulates the land use change location based on places that have the highest probability of transition.

Results and Discussion

In order to produce land use maps of the study area, satellite images were prepared for three periods of 1987, 2000, and 2015. In the next step, ETM⁺, TM and OLI sensors are geometrically corrected with RMSE of 0.37, 0.26, and 0.17. Then, land use maps were prepared in four categories including forest land, agricultural land, planting forests, and residential areas using maximum likelihood algorithm. The Kappa coefficient of the land use maps of 1987, 2000, and 2015 was 0.74, 0.73, and 0.82, respectively which was totally acceptable. According to the results of the land use change detection, changes in land use have led to the growth of residential areas in over the studied period, so that 306 hectares of agricultural land and 27 hectares of forests land have changed into the residential areas. Also, the results of logistic regression model showed that in both periods of 1987-2000 and 2000-2015, the distance from agricultural lands had the greatest effect on urban growth. Also, assessment of goodness of fit of model using two Pseudo R^2 and ROC statistics with values of 0.37 and 0.93 for the first period, 0.31 and 0.92 for the second period, and 0.39 and 0.93 for the over studied period indicates a good fit of regression relationship. Then using the probability map of the urban growth in the second period and land use map in 2015, urban growth was predicted for 2040 using the Geomod model. Probable prediction of the Geomod model in 2040 indicates a decrease in forest land (5 hectares) and agricultural land (291 hectares), and increase in urban areas.

Conclusions

In this research, the urban growth pattern in Kordkuy city in 2040 was predicted using the Geomod model. The results of this prediction showed that agriculture land is declining at a rapidly and

consequently rate, residential areas will increase with high rates, so that 17.6% of agricultural lands have changed into the residential areas from 1987 to 2040. The results showed that the dispersed trend in Kordkuy city has had a profound effect on the destruction of agricultural lands. The issue can be due to the increase in urban population density, the limitation of the spatial arenas of city, and the low price of city's marginal lands, which makes people tend to inhabit in these lands. But the important issue is that the emphasis on the trend of urban sprawl in the agricultural and forestry lands that could bring environmental and economic irrecoverable damage to the region in the future.

Keywords: Geomod, Land Use, Regression Logistic, Simulation, Land Use Change Detection.

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**Assessment and Estimation the Spatial Variation of Groundwater
Level by Various Interpolation Methods in Sarab Plain**

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Introduction

Groundwater (GW) is the most important source of freshwater on our planet. The use of groundwater has increased manifolds in the recent past due to increased water demands owing to the accelerated growth of population and industrialization. Over-exploitation of groundwater resources over the past few decades has caused quantitative and qualitative constraints. Today, groundwater resources encounter with numerous problems such as loss, declination of level, chemical wastewater of industries and agriculture inputs, salting and etc. This issue is very significant in arid and semi-arid areas due to low precipitation and limited recharge of aquifers. Considering the issues, it is essential and highly needed for a comprehensive, accurate and reliable estimating of groundwater level in aquifers of arid and semi-arid areas. In this context, various interpolation methods have been initiated in environment of geographic information system (GIS) to determine the spatial variation of groundwater level. Correct selection of one method among several ones is important and basic step related to water resources management. Sarab plain is one of the fertile plains of East Azarbayjan province, NW Iran, where inhabitant's economy is based on agriculture and ranch. Due to arid and semi-arid climate, life of human associations is greatly depends to water resources supplied in streams and aquifers in this area. Thus, the knowledge of spatial variation of groundwater level based on scientific and accurate estimation is essential in order to optimal exploitation and management of groundwater resources in the study area. This research aimed at optimum estimation of spatial variation of GW over Sarab plain by comparison of various interpolation methods and presentation of zoning map of GW in the area.

Methods and Material

Data include the sample data of GW depth collected from 50 wells over Sarab plain were used. We use the data of 2012 year, considering the most newest and reliable data. The process of the research is so that firstly, database of groundwater depth was prepared in GIS environment. Then, spatial statistics of the variable based on various interpolation methods was analyzed. In this regard, the aim is to choose the most suitable method for mapping the groundwater level zoning using cross-validation method and relevant criteria (mean bias error (MBE), root mean square error (RMSE) and square of correlation coefficient (R^2) between estimate and observed rates). Used interpolation methods include algebraic and geo-statistical models that follow:

- Algebraic Interpolation Methods

In Algebraic methods one or more procedures fitted to set of observed points (z) with definite coordinates. Algebraic interpolation can be exact or approximate, so that if observed values are considered as exact value (having no error or uncertainty) at the sampling sites, using a precise method for interpolation is recommended. But, if we consider some uncertainty for variable, we may select a smoothed method. So, we can use various mathematical functions for fitting the interpolation levels to given points in this group of interpolation methods. Algebraic methods used in this research include Inverse Distance Weighted (IDW) and Radial Basis Functions (RBFs).

- Geo-statistical Interpolation Methods (Kriging)

Geostatistics is an effective tool for modeling the spatial structure of various physical parameters. This approach include methods based on statistical properties of the spatial series of given variable such as mean and standard deviation. It analyses the spatial variation of the variable using different semi-variogram models to obtain the best linear unbiased estimators of spatially dependent data.

Results and Discussion

The results of comparison and validation of the methods are as follow:

-Inverse distance weighted (IDW):

In this method we used at least 8 to at most 10 neighborhood points for mapping the groundwater level, having lowest error among other points based on cross-validation. RMSE and MBE of this method are 10/78 and 1/26, respectively.

- Radial Basis Functions (RBF):

Cross-validation of RBFs showed that the spline with tension model has lowest estimate error among others. RMSE and MBE of the method are 10/62 and 0/27, respectively. Furthermore, resulting map of this method was smoother than IDW map.

- Geo-statistics (Kriging)

Since the used data in this method should have normal distribution, we transformed the data into normal form by log normal method. Results of the comparison of Kriging models based on Cross-Validation showed that the Rational Quadratic model had lowest estimate error in among models of this approach. So, we used this model for zoning of groundwater level. RMSE and MBE of the method are 9/79 and -0/76, respectively.

Totally, the comparison of Algebraic and geo-statistical models indicated that the Kriging method was the most accurate method for estimating the spatial variation of groundwater level in study area (table 1). This fact was attributed to consider the spatial structure of data in one hand, and reduction of variance of them in other hand. Furthermore, zoning maps of groundwater level showed that groundwater level over Sarab plain was high. Spatially, groundwater level was high in southern sections compared to northern sections.

Table 1: Estimate errors and square of the correlation coefficient between estimate and observed rates in interpolation methods

Interpolation Method	MBE	RMSE	R ²
IDW	1/26	10/78	0/24
Spline with tension	0/27	10/62	0/17
Kriging	-0/76	9/79	0/31

Conclusions

We examine the accuracy and efficiency of interpolation methods including Inverse Distance Weighted (IDW), Radial Basis Functions (RBFs) and Kriging to spatial estimation of groundwater level in Sarab plain, NW Iran. Results indicated that Kriging was the most efficient and accurate model among others for estimation and zoning the groundwater level in the study area, having lowest estimation error (RMSE= 9/79) and highest square of the correlation coefficient between estimate and observed rates (R²= 0/31). This fact can related to considering the spatial distribution and structure of used data by Kriging. In this regard, Kriging minimizes the amount of variance to enhance the prediction power of interpolation model. Also, this method prevents the impact of absolute minimum and maximum rates within data. Resulting zoning map of groundwater level over the plain showed lower groundwater depth in southern areas respect to northern areas. This geographic distribution of the variable may be attributed such factors as lithology, drainage system and human activities and exploitations of water resources, need to further study in future. It should be more attention from water resources planners and policy makers to areas with high groundwater level, considering the relationship between GW depth and such hazards as water loss, water pollution and subsidence.

Keywords: Grounwater Level, Interpolation, Algebraic Models, Geo-statistical Models, Sarab plain.

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Pathology the Competitive Quality of Tourism Desert Destination Management Case Study: Shahdad Kerman Desert

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Introduction

Today, tourism is one of the most dynamic economic activities that play an important role in local sustainable development. In this connection, According to the World Tourism Organization, by 2020, the number of international tourists will reach to 1.5 billion, and the growing trend of tourism will continue and in the meantime, ecotourism is of such a place that the United Nations called year 2002 as the International Year of Ecotourism. In the prospect document for development of the twenty years, the Islamic Republic of Iran has set itself the goal of achieving the first rank in the various economic, social and cultural spheres of the region, achieving 1.5 % of the world's tourism. In other words, on horizon 1404 Iran has to attract twenty million tourists. In this regard, desert tourism as an economic sector is growing rapidly, So that, An intense competition exists among potentially eligible areas to attract more tourists, Surely, Based on the experiences made in the world, One of the powerful tools is the improvement of the quality of tourism destination management. Shahdad desert is part of the western border of Loot desert. Shahdad with 24 thousand square kilometers in southeastern part of Iran and northeastern part of Kerman is one of the largest parts of the country and the most ancient part of Kerman province which has the characteristics of attracting tourists. But the problem is that in Iran, according to the potentials of tourism attractions of the desert in the country, Including Shahdad Kerman desert, Attracting tourists is not successful. That seems among the effective factors, are the damages on the tourism destination management of desert from the competing view.

Methods and Material

This study due to the importance of the subject with the aim of testing the said hypothesis and its pathology was carried by using library and documentary methods and field surveys, and using a questionnaire tool. The statistical community of this research included university professors and tourism experts, on condition of complete knowledge of desert tourism and desert, and in particular familiar with the desert of Shahdad, Kerman. Based on Karachi and Richie models, the destination management indicators were extracted and Delphi method was localized and a questionnaire was prepared based on Cronbach's alpha of 0.85. The questionnaire had appropriate reliability. Also, to determine the rank and position of Indicators, weighting, normalizing, weighted scoring, and finally, the weakness rating of indicators were used. An appropriate model for developing tourism destinations is very important with these considerations. In the late 1990s, Krach and Richie

presented their model for the analysis of tourism competition, which is a conceptual model of the competition destination. This conceptual model is based on the well-known framework of Porter (1990), the National Diamond Competitiveness Framework. Krach and Richie, used Porter's framework of competitive advantage but did not concentrate on companies and products. They developed their attention from companies and products / services to service industries and national economies.; therefore, they believed that the competition of the destination should be not only be measured by its ability to promote livelihoods and social flourishing, but also by the efficiency in allocating resources that will bring about prosperity in the long run. The model consists of five factors (Nadalipour, 2013): supporting factors and resources, Axis resources and attractions, Destination management, policy, Destination planning and development, and Qualitative characteristics (Moderator and amplifier characteristics). But in this research, Krach and Richchi model became native. Based on native model, Indicators of measurement, marketing (advertisement) tourism products, attractive and suitable programs for visitors, the quality of visitors experience, crisis management, holding festivals, use of information and communication technology, competitive pricing, improving the quality of human resources involved in desert tourism, Creating constructive and bilateral interaction between the private, public and public sectors engagement constructive and bilateral indicators between the private, public and public sectors were determined.

Results and Discussion

Based on the findings of the research, the highest ranked weak ranking are, respectively: Use of information and communication technology, marketing (advertisement) of tourism products, attractive and suitable programs for visitors, competitive pricing, holding festivals, improving the quality of human resources involved in tourism, research, the quality of visitors experience, crisis management and engagement constructive and bilateral indicators between the private, public and public sectors. In this regard, based on the findings of the research, currently, with the exception of a few websites and public weblogs which introduced Shahdad desert, an integrated system for the management and marketing of destinations based on information and communication technology has not been designed and launched. Also, according to research findings, in association with the marketing and advertising index in Shahdad desert, four powerful forces are effective, including the shape and form of marketing of tourism, climate, natural resources and culture. The climate, natural resources and culture dominated by the Shahdad desert due to the nature of desert and desert tourism adventurer, Kerman area is suitable for attracting such tourists, therefore, the problem should be sought in the form of marketing tourism.

Conclusions

Therefore, based on the findings of the research and in line with the research hypothesis, it can be concluded that damage to desert and desert tourism destination management with emphasis on the desert of Shahdad Kerman from the perspective of competitive advantage has lead to the weakness of its position in both domestic competition and Foreign competition. At the end, solutions, as follows, was proposed to increase the tourism of Kavir Shahdad Kerman: Establishment of the Destination Management System (DMS), the establishment of a Destination Management Organization (DMO), enhancing the sense of competitiveness among the authorities and indigenous people of the Desert Shahdad area, eliminating the interference between the supplier's personal interests and social benefits, arranging attractive and suitable programs for attendees with a minimum competitive price, with a long-term look at demand stretching, receive a decent percentage of the cost of improving the

human resources involved in tourism in the desert Shahdad by the government, increasing research on the tourism of desert Shahdad from different perspectives such as institutional, productive, historical, Managerial, sociological, geographic, interdisciplinary, system, etc., More attention to the importance of mouth-to-mouth (oral) propagation, more attention to the importance of crisis management, and the creation of constructive and bilateral interaction between the private, public and public sectors in the context of DMOs

Keywords: Pathology, Kerman, Shahdad desert, Tourism Desert, Tourism destination management.

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Chilling Accumulation Pattern Analysis of Iran Cold Region Based on CH, Utah, CP Models

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Introduction

The accumulation of chilling during the dormancy period for fruit trees is very important. Failure to chilling requirement will reduce performance and waste of resources. Successful cultivation of horticultural products depends on suitable climatic conditions. Dormancy is considered one of the most important stages in the life cycle of temperate plants. Horticulture and fruit production are one of the most important parts of the country. The bulk of the country's exports are covered with arid and frosty crops. Providing winter chilling to the temperate regions is critical to the lack of attention to this, causing the loss of capital and resources. Measuring different areas through weather stations is an effective step in understanding the climate potential of each area to understand the accumulation of cold. Considering the trend of global warming and climate change, today, the assessment of global warming has been the focus of global studies. The study indicated that a comprehensive study with more stations and long-period hourly data on cold accumulation and calibration of different estimator models was not carried out. Therefore, the present study aims to analyze the winter cold accumulation of cold regions of Iran based on CH, Utah and CP models using statistics. The long-term temperature of three hours of observation of meteorological stations has been designed and carried out.

Methods and Matrial

In this study, the weather temperature data during the recession period was extracted from the Iranian Meteorological Organization (IMO) from 1985 to 2013. The 9744000 hour temperature record for the three different models of estimation of cold accumulation during the dormancy period was set up from November to March. For each model, 3258000 data is provided for the hourly temperature to determine the time series of the accumulation of cold. In order to estimate the accumulation of cold in the country through the meteorological stations studied, three common models of estimation of cold accumulation, chilling hours (CH), Utah units and dynamic model (CP) were used. The non-

parametric Mann-Kendall method was used to process the time series changes and the validation criteria were used to calibrate different models performance of accumulation of chilling. Linear interpolation was used to convert the temperature of three hours to the hourly temperature. In this method, the temperature is collected three hours later, at a temperature of three hours, and added to the previous temperature by three-hour intervals. It should be noted that this method is used independently for each three hour period of air temperature based on the temperature before and after it. Operation of this method is provided in the Excel software programming environment for each station and each year from November to March. In order to validate different models of need for cold, MAE, MBE and RMSE validation criteria were used to determine the performance models of chilling accumulation.

Results and Discussion

The output of different models showed that the pattern of the accumulation of cold influenced from the height of each region. In all models of higher stations they still have the necessary accumulation of chill. Typically, Yasuj station with a lower latitude has the higher accumulation of chilling in the doamaner period. The structure of each model is different for quantifying the chilling requirement fruit trees. In the chilling hours model, temperatures above zero to 7.2 are more likely to play a role in the Utah model, because temperatures above 7 to 10 are also chilling effect, so the data obtained in Utah model are higher, which can not be a strong reason for this superiority model. Therefore, it is better to match the different species of chilling requirement trees with the potential of climate and the accumulation of high-temperature multiplier for each region.

The coefficient of variation in the accumulation of cold in the model of CH is higher at higher station with higher chilling. Based on the Utah model, this coefficient of variation is observed in the stations, Ghouchan, Golmakan, Mashhad and Torbat Heydarieh, and in the dynamic model at Tabriz, Sarab and Fasa stations. Estimating hourly temperatures over a long period of data based on different models shows that the highest rate of high accumulation at the beginning of the statistical period has been studied and occurred over the past decades. In fact, cold and relatively cold winters in the past have been more capable of providing more power to accumulate cold over the past decades. In the last two decades, the decrease in peak cloud accumulation has become apparent. The results of stations in Ardebil, Mako, Meshkinshahr, Khoy and Sarab with hours of freezing between 1,000 and 1,200 hours indicate that being located in higher latitudes can not be a reason to provide the required capital for high-demand fruit trees such as late apple, because the Extreme temperature and lower than zero degrees in the accumulation of cold do not only play a role, but also have a negative effect. So the high latitude is not a strong reason to provide the cold caaccumulation deciduous with high chilling requirement. The results of the validation tests indicate that the dynamic model, according to MAE and RMSE, has a higher performance among the models.

Conclusions

The evolution of the long-term temperature of the observed stations for the estimation of the accumulation of cold showed that, Based on the model of cold chilling hours (CH), the accumulation of cold from 775 to 1445 hours, Based on Utah's model, the accumulation of heat from 1191 to 2121 units of heat Based on the Dynamic Model (CP), the accumulation of cold temperatures varies between 63 and 96 portions in cold and temperate regions of Iran The elevation factor of the sea level plays an important role in estimating the accumulation of cold in each of the models. In terms of time variation according to the long-term time series, the frequency of peak accumulation in the past decades has been more than recent decades. In fact, the cold season in the past has been more than a decade of cooling power. The trend of cold storm changes based on non-parametric Mann-Kendall test showed that there were significant changes in significant changes in the stations at Isfahan and Shahrekord stations at a significant level of 0.05. Although there was no significant trend at most stations, the trend slope of the trend line at most stations is important. These conditions can be attributed to the effects of global warming through mild winters in recent decades. The results of the validation criteria of the models for estimating cold accumulation showed that the dynamic model with less error rate in the prediction of cold accumulation has a higher performance than other models. The results of this research are important in providing a comprehensive and initial model of cold accumulation in temperate and cold regions of the Iran in order to adapt the varieties consistent with the climate potential and the pattern of the accumulation of cold in each region.

Keywords:Chilling accumulation,Chilling hours,Chilling units, Dynamic model,Hourly temperature.

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**Investigating Psychological Effects of the Urban Physic and Landscape on Crime
Case Study: Esferayen Town**

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Introduction

Identification of environmental and locational factors of criminality and making efforts to remove these factors or reduce their effects is a solution for immunity and prevention of known anomalies. Social anomalies, in every way that committed by humans, have a bed and a space and time backgrounds that distinguishes these behaviors from each other. Hence, difference in the locational structure and behavioral features of individuals, alongside the factor of time, lead to formation of different space-time patterns of crimes in the unit of place. Increase of crimes in the cities has not only led to insecurity, chaos and disturbance to the lives of citizens, but also the public sector of the society has spent a lot of budget and expenditure, forces and time on investigation of crimes, capturing of criminals, doing justice to them, holding them, and also on punishing them. The notable point is identification of crime centers in the cities, analyzing their structural problems, cultural and social characteristics of residents of these areas or users of such neighborhoods, so that in this way, by following the required policies and solutions, delinquents could be controlled. It is possible to prevent many of the crimes especially by creating fundamental changes in the forming or facilitating elements of crimes, and also by appropriate designing of vulnerable spaces in order to change them into resistant spaces against delinquency. Therefore, in this survey, the most attention in the crime areas is on the visual factors and on the structure of the city. According to what was said and with the objective of identifying crime centers in the delinquency of drug use and traffic in the city of Esferayen, this article tries to answer these questions: 1. Have environmental and visual elements in the cities led to rise of crimes in different areas? What solutions could be planned to decrease crimes and existing anomalies?

Methods and Materials

In terms of objectives, this study is an applied study, and in terms of methodology, it is descriptive-analytical in which, data collection about the rise of crimes has been done by the use of library as well as field studies. Statistical population of the study includes all family heads in the city of Esfarayen who were 17049 members. Out of this population, 150 individuals were selected as the sample size by the use of simple random sampling. The Cronbach's alpha coefficient for determining the sustainability level of the questionnaire was 0.86 and the validity of the questionnaire tool was also confirmed by using the views of experts in this field and summarizing the dimensions, components and variables effective with Delphi collective wisdom and performing pre-test. Also, SPSS software was used as statistical analytical software to analyze the required data and ArcGIS software was used to draw up required maps.

Results and Discussion

The most important objective of the study is identification of crime-rising centers and regions that have the potentials for crimes and delinquency and also achieving results showing the relationship between structure and physical texture of the city with the level of crimes. Therefore, the most important crimes which were studied in the city of Esfarayen are fight, family disputes, robbery, addiction and social delinquencies. One form of the crimes within the five types of urban crimes is the crimes related to beating, injuring individuals, fight, etc. Mixture of different rural and urban lifestyles, existence of people with different ethnic backgrounds and different dialects, vastness of household dimensions, inappropriate structural patterns, and narrowness of alleys and pathways which makes them too much crowded, are some of the factors that have led to increase of committing different types of crimes including crimes against individuals. Another one of the crimes discussed in this study is the crimes related to families. It seems that economic weakness and inability to earn a livelihood, too much concentration of population, and cultural issues are some of the factors that are effective in highness of the percentage of these anomalies. Crimes such as robbery and burglary from cars, shops and houses are some of the important crimes in the city of Esfarayen. Crimes related to stealing have direct relationship with economic situation in such a way that as economic poverty grows higher, the crimes related to stealing also grow higher. The crimes related to addiction are another form of the important crimes in Esfarayen. In addition to that, lack of control and regular and effective police patrol in the crime-rising residential areas, inappropriate structural patterns, oldness of the texture of the areas, too much concentration in some areas, and specially unemployment are some of the factors that seem to be effective in this regard. Frustration could be mentioned as the most negative effect of the environment on the individuals. Many factors are effective on formation of frustration. The most important ones are related to lack of relationship between elements (element and background; element and the user; space and situation; and also material and application), hence, these elements should receive the most consideration in the urban environments.

Conclusions

The city of Esfarayen, as one of the big cities in the Northern Khurasan, includes many varieties in terms of the type of crime and its spatial distribution in different regions and areas. The urban environment is effective on committing illegal actions. This study shows that the most negative environmental effect has happened respectively in Imam Reza (A), Imam Khomeini (A), and Sheikh Azari streets; and the most positive environmental effect has appeared in Esfarayeni Street. Also, the most frequent types of crimes in the urban regions are respectively fight, household disputes, robbery, drug traffic, and social corruption. Frustration is the most outstanding reason for committing crimes. Therefore, if closer attention is paid to environmental factors by the city authorities, a considerable part of the urban crimes could be reduced, and steps can be taken for betterment of the urban environment and provided an environment suitable for human life for citizens.

Keywords: Social deformity, A crime caper centers, Urban body, Urban landscape, Esfarayen.

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Study of Morphometric Characteristics of Gol Square Playa During Quaternary Period

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Introduction

Playa refers to internal regions, which are typically flat and covered by salt or salty fine-grained clastic sediments. Playa is the deepest part of a closed basin of a desert area, which has smooth surface with slight slope and is covered by fine-grained sediments. These surfaces have either no or little vegetation. Basically, due to the high water table of underground waters and the lack of appropriate drainage, the soils around the playas in Iran are always subject to saltiness because intense evaporation and presence of capillarity force result in accumulation of salt in different soil horizons and surface zones of the playas, which leads to inappropriate ecological conditions for establishment of plants. Creation of playas in Iran is a geological phenomenon in which human plays no role; since, as a result of dynamic movements during Mio-Pliocene period in recent 7million years, many of the Iranian deserts such as Dasht-e-Lut and Dasht-e-Kavir (also known as Great Salt Desert) have been created, which currently have growing desertification trend. During the rainy (glacial) stage, surface of the playas was expanded, saltiness of water was reduced, and sediments were mainly clay-silty at center and coarse-grained at boundaries; however, during the interglacial stage, similar to the current period, surface of the playas were smaller, waters were saltier, and sediments were mainly evaporite and gypsum. The internal depressions in Iran in quaternary (fourth) period have been formed as a result of the folds during Oligocene period and then have been filled with erosive matters such as molasses (soft greensand along with maroon and conglomerate). These sediments have been folded by the last Plio-Pleistocene phase of Alpine orogeny. The playas in Iran have generally surrounded all the internal plates as well as many of the inter-mountain depression. The major environmental conditions that cause formation of playas in Iran include: petrologic characteristics, structure, depth and elevation, drainage status, and climatic conditions of environment.

Methods and Material

Respecting the subject and objective of the present study, it was conducted via statistical analysis and field survey. For this purpose, various data, statistics, and information were collected from the study

area, and various methods were selected and used for data analysis. Therefore, in general, the present study is aimed to investigate the geomorphological changes of the playa in Meydan Gel in Qatruyeh during quaternary period. The topographic maps used in this study, which covered the entire Iran, included maps with 1:250000 and 1:50000 scale compiled by Geographical Organization of Armed Forces. Also, these maps covered the playas in Meydan Gel including: Neyriz NH40-9, Meydan Gel 6948II, Beshneh 6948I, Vazireh 6947I, Darab NH40-13. As for the geological maps of the study area, the 1:250000 map of Neyriz (H-II) and 1:100000 map of Qatruyeh provided by GSI Organization (Geological Survey & Mineral Explorations of Iran) were used. Moreover, the geological 1:100000 map of Darab provided by GSI was used as well.

Results and Discussion

Since, under hydromorphological conditions rivers, waterways network, and lakes exhibit different behaviors as regular flow, mixed flow, mud flow, and flood flow, measurement of the sediment particles' diameter and determination of their weight percentage is called granulometry. During the quaternary period, the climate has had some fluctuations and has passed warm and cold epochs. During the cold epochs in regions such as Zagros, internal regions of Iran, and Alborz, some pluvial lakes have been formed, most of which are currently dried due to evaporation resulting in formation of playas in Iran.

In quaternary period, three main processes were important: erosion, sedimentation, and soil formation. These processes have been active from the highest to the deepest points of the world, including Iran. Therefore, from high elevations toward internal basins (playas), various processes have been active, which include: glacial processes, aeolian processes, limnic processes, glaci-aeolian processes, glaci-aquatic processes, marine processes, mass wasting (also known as mass movement), volcanic activities, fluvial processes, soil formation processes.

Sediments are of an inevitable significance in aeolian and aquatic erosion studies, so that qualitative and quantitative investigation of sediments plays an outstanding role in identifying and controlling the dominant erosive processes. In both quaternary glacial and interglacial epochs, various erosion processes have occurred. In quaternary period, at glacial regions of physical weathering (degradation), the weathering process is dominant, and consequently the small and large pieces become angled. As a result of freezing process, the soil is disrupted and some disturbances are created in its structure, resulting in sedimentation. Once the ices are melted and water is flown, the rocks collide together, the smashing of which results in sedimentation in depressions and lakes.

Conclusions

Results of the present study showed that at the borderline of playa and erosive plain, the water table would be at higher level, which is dependent on the genus of sediments in this part; so that, the medium-grained sediments are placed at this section and then tend toward fined-grained and wet salty sediments by moving toward the playa. The water level variations occur as a result of fluctuations of the rate of input and output water (evaporation) from the basin. The high water level causes carbonated (calcite and dolomite) sedimentation, while in case of low water level, the sulfated sediments, including gypse and then magnesium sediments, are deposited. Through a complete deposition cycle in playas and limnic environments, the clastic, carbonated, sulfated, and chlorinated sedimentation process occur in a downward (top-down) direction. In such case, the minerals' content variations from clastic to chlorinated along the playa's core must exhibit a regular reduction; whereas, due to the climatic changes and water level variations, such trend is not seen in Qatruyeh playa. The water level variations can be investigated using the minerals found in playa. The water level variations are commonly associated with sulfated-to-carbonated phase conversion (increased water

level) and carbonated-to-sulfated phase conversion (reduced water level). Alternation of evaporative-clastic minerals in playas is an excellent paleoclimatological evidence, so that during periods with wetter climate, due to the increased sedimentary load of rivers, mainly the clastic minerals entered the river; while, during the warmer periods, the evaporative sediments' content was increased.

Keywords: Playa, Quaternary, Contraction and expansion, Geomorphological facies, Qatruyeh.

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Estimating the Received Solar Radiation by Bird and Hulstrom Model in Isfahan Province

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Introduction

Solar energy is one the most important renewable energies in Iran, but according to Iran's high potential of using this energy, it has not been seriously used. Iran has deserts so that it brings about a high capability of using solar energy. Nowadays, the growth of population in the world has led to the limitation of energy resources and many ecological effects have been occurred so the attraction of attentions to the renewable energies has increased. For example, the plan of using solar energy has been started in Germany, although it is located in high latitude. As Iran's oil resources are non-renewable energy, by constructing solar power plants, the government can produce electricity, export to neighbor countries and increase its income. The main purpose of this study is to estimate and assess the time-spatial variation for the received radiation by earth surface in Isfahan province by using the optimized model of Bird and Hulstrom. This model considers most of the influential parameters on received radiation such as absorption and scattering, water vapor, atmosphere mass, atmosphere Albedo and etc.

Methods and Material

In this study, the daily solar radiation amount has been estimated by considering climatic and Spatial features in Bird and Hulstrom model. Bird and Hulstrom (1981) have represented equations according to atmospheric parameters as shown in equation (1) (Safaripour and Mehrabian, 2011). To estimating the total daily received radiation by earth surface, equation (1) is used:

Equation (1):
$$H = (H_B \cos \theta + H_{DF}) / (1 - r_g r_s)$$

In equation (1), H_B is the Direct daily global irradiation at earth's surface, θ is Altitude Angle, H_{DF} is Daily diffuse irradiation at earth's surface, r_s and r_g are Ground albedo and Sky albedo. The value of H_B (the Direct daily global irradiation at earth's surface) is calculated by equation (2):

Equation (2):
$$H_B = I_B (n/N)$$

In equation (2), I_B is the Direct beam irradiance for clear sky which is calculated in equation (3) as following:

Equation (3):
$$I_B = 0.9662I_0(T_M - a_w)T_A$$

In the equation (3), I_0 is the solar constant with the value of 1367 W/m^2 , T_M is the Transmissivity of atmospheric gases except water vapor, T_A is the Transmissivity due to absorption and scattering and a_w is the Water vapor absorptance. The value of H_{DF} is calculated by equation (4) as following:

Equation (4):
$$H_{DF} = I_{DF} \left(\frac{n}{N}\right) + K^* \left(1 - \left(\frac{n}{N}\right)\right) (I_B + I_{DF})$$

The value of constant K^* is equal to 0.32, n is Hours of measured sunshine, N is the Potential astronomical sunshine hours (within the day) that vary according to the season, year and solar angle. Diffuse irradiance for clear sky (I_{DF}) is calculated based on equation (5) as following:

Equation (5):
$$I_{DF} = I_0(\cos\theta)(0.79)T_0T_wT_{UM}T_{AA}[0.5(1 - T_R) + B_a(1 - T_{AS})]/[1 - m + (m)^{1.02}]$$

In equation (5), T_0 is the Transmissivity due to ozone, T_w is the Transmissivity of water vapor, T_{UM} is the Transmissivity due to oxygen and carbon dioxide, T_A Transmissivity due to absorption and scattering by particles, T_{AA} is the Transmissivity due to absorption by particles, and T_R is the Transmissivity due to Rayleigh Scattering. B_a is the percentage of scattered radiation by earth surface under the effect of superficial suspended particles (constant value equal to 0.84). The Extraterrestrial daily irradiation is calculated by equation (6) as following:

Equation (6):
$$H_0 = \frac{24I_0E_0}{\pi} (\cos\phi \cos\delta \sin\omega_s + \frac{\pi\omega_s}{180} \sin\phi \sin\delta)$$

In equation (6), I_0 is the solar constant equal to 1367 W/m^2 , δ is Declination angle, ω_s is Sunset hour angle.

The Direct Solar irradiance on horizontal surface, Solar irradiance on horizontal surface from atmospheric scattering and Total (global) solar irradiance on a horizontal surface (7), (8) and (9) respectively shown as following (Bird and Hulstrom, 1981):

Equation (7):
$$I_d = I_0 * \cos\theta * 0.9662 * T_r * T_0 * T_{UM} * T_w * T_A$$

Equation (8):
$$I_{as} = I_0 * \cos\theta * 0.79 * T_A * a_w * T_0 * T_{UM}$$

Equation (9):
$$I_T = (I_d + I_{as}) / (1 - r_g * B_a)$$

Results and Discussion

The maximum received radiation in winter is for central, western and southern regions of Isfahan and this is because of these region’s altitudes. The minimum received radiation by earth surface is in January and February for Khorobiabanak station and in March for Kashan station. The maximum received radiation in January, February and March is for Daran and Kabutar Abad stations respectively. In spring, the radiation is a little different from winter. Generally, in spring, the sun latitude gets higher and more radiation is received by the earth. In April, the minimum radiation is for Shahreza and the maximum is for east Isfahan station. In May, the maximum radiation is for Golpayegan station and the minimum is for Kashan. In June, most regions of the province have high radiation and only Kashan station has lower radiation than the others. At the end of the spring and the beginning of the summer, with the sun latitude reaching to its most, desert regions have more radiation energy than High ones. In June and July, the maximum radiation energy is received in most regions and that is because of receiving direct radiation. The radiation reached to the surface of the

earth in summer is influenced by sunshine and solar radiation angle. On the other hand, entering external factors such as air mass get cut and subtropical high pressure gets control of the region. Radiation angle in southern latitudes of Isfahan province is more and the atmosphere thickness is lower than northern latitudes. The amount of radiation weakness is dependent on the length of the path while passing the atmosphere. This is because the earth's gas coverage absorbs an important part of the solar radiation and emits the rest of the radiation to the surroundings. In this season, the maximum radiation received is for eastern and southern regions of the province. After July, the Altitude Angle gradually decreases and in autumn, the maximum received radiation is for Khorobiabanak station.

Conclusions

The main purpose of this study is to estimating the received radiation on earth surface by using Bird and Hulstrom model in Isfahan province. The gained results from this model were using co-Kriging Interpolation Methods. The results of this study showed that Bird and Hulstrom model can estimate the radiation well in this province, so that the maximum Direct beam irradiance for clear sky (I_B) is in July with the value of 36.77 MJ/m². Diffuse irradiance for clear sky (I_{DF}) has the minimum value in winter and autumn, so that the minimum received radiation in January is with the value of 5.68 MJ/m² and the maximum is in July with the value of 6.43 MJ/m².

The Direct daily global irradiation at earth's surface (H_B), the Daily diffuse irradiation at earth's surface (H_{DF}) and the Daily global irradiation at earth's surface (H) received by earth surface have the maximum value in July and June respectively. It seems that the reasons caused the most radiation occur in summer are Altitude Angle, increase in sunshine and Iran's location around subtropical high pressure. The estimated results showed that in December and January (autumn and winter), the received radiation is minimum and in June it is maximum. The average received radiation in winter, spring, summer and autumn is 16.91, 27.37, 27.04 and 15.93 MJ/m² respectively.

Keywords: Received radiation, Sunshine, Bird and hulstrom.

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**Assessing Supply and Demand's Perception of Tourism Development Using
Importance - Performance Analysis (Case study: Village of Sulaghan)**

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Introduction

Tourism industry basically is a new source of revenue in developing countries, a social activity, big business and of the most important world's economic sectors which its human-oriented in both supply and demand sides shows the importance of studying and considering people' perception in its' planning. Despite the importance of this issue, only one side's view and perception (in particular the supply side) has been paid in most of tourism researches .

Tehran as a metropolitan city surrounded by some touristic villages. Village of Sulaghan as the most one boasts pleasing weather rural suburbs considered by Tehran tourists. Tourism in this region could be found in various forms including nature - based, construction of villas, second homes, climbing and religious tourism. Since the perception of supply and demand sides is essential for successful tourism development planning, preventing of causing and increasing problems of tourism growth, the present study seeks to answer two main questions :

- 1- Hat is the perception of local residents and tourists about the development of tourism in village of Sulaghan ?
- 2-How much is the importance - performance of tourism development indicators in local residents and tourists perspective?

Methods and Material

In this research, dimensions and indicators of tourism development are extracted from previous research and theoretical base including economic, socio-cultural, environmental, physical and general dimensions. The tool for collecting of required data is a self-administered questionnaire. The present research has used "IPA (Importance-Performance Analysis)" method in IBM SPSS. 22to examine the perception of local community (as supplier side) and tourists (as demand side) about tourism development in the village simultaneously. The statistical population consists of two groups of local residents of the village and those who visit this destination (tourists). Since the number of both

statistical populations is not precisely determined, in each statistical society, 30 questionnaires are distributed and the size of two samples is determined using the collected data and sample size determination formula .

Results and Discussion

demographically, %59.8 of locals are male, %28.5 aged 40-49, %63.6 had an income of 1-2 million Toman and %17.5 have been living in the village for over 20 years. In the second sample (tourists), %59.4 of tourists are male, %29.0 aged 39-30, %45.5 visited twice, %45.9 visited for recreation and %81.7 were citizens of Tehran.

Analysis of the results of 239 questionnaires of local people and 148 questionnaires of tourists illustrate that in local people point of view, among the 5 dimensions, economic dimension has the most of importance and performance average and the least difference between its importance and performance. Environmental (2.58) and public (2.06) dimensions had the greatest amount of difference. concerning the importance, economic had the most (4.34), then environmental (4.25), socio-cultural (4.20) and finally general (4.18) and physical (4.18) dimensions.

In opinion of demand side, security (average: 4.90), natural attractions and hospitality (4.83), health local restaurants (4.82), transportation quality (4.81), recreation facilities (4.81), environment sanitation (4.81) and finally cost-effectiveness of recreational tourism services (4.80) are the most important dimensions. However, such features as recreational facilities, transportation quality and access to village, tourist guide information, possibility of visiting of the rustic texture and cleanliness of nature have the most amount of difference between their importance and performance .

Conclusions

Paying attention to demand and supply sides are vital in rural tourism development as an important part of tourism industry. The results provide valuable information on supply and demand's perceptions of Sulaghan tourism development's current situation. Likewise, in developing countries, the first and most important reason for tourism development is to benefit from its positive economic effects. A debatable result of the economic dimension is the local population's dissatisfaction with the increasing of property value. The idea is that increasing the value of properties is not a high priority for people, but the performance of this indicator is more attention; more clearly, people are dissatisfied with the jumping properties price in the village due to tourism growth. In addition lack of tourism management causes the environmental and socio-cultural challenges in Sulaghan. Considering the capacities and potential in rural areas and the adoption of environmental protection policies and strategies along with wise planning and management of tourism tends to be a suitable basis for sustainable development.

Generally some of suggestions like improving the rural environment and transportation (roads) situation, controlling the illegal constructions, maintenance of traditional village texture and improving the situation of all indicators that their distance of importance and performance is high, can increase the quality of visiting and the competitiveness of rural tourism in Sulaghan .

Keywords: Tourism, Local residents, Tourists, Sulaghan village, Importance-Performance Analysis (IPA) .

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Analysis of the Relationship Between Livelihoods Diversity Strategies and Agricultural Land Management (Rural Areas in Poledokhtar County)

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Introduction

Implementation of rural development policies is the basis for empowerment and improvement of rural household livelihoods. Livelihood strategy is one of the important issues to be included in rural development policies. Many researchers define livelihood diversification. Subsistence Variety refers to the processes taking place at different levels of the economy. Livelihood diversity is a combination of activities and choices; a means to earn a living and includes the capabilities, assets and activities required for a better life. There are four distinct types of livelihood strategies, such as agricultural production, non-farm employment at or outside the farm, and non-farm income from trading, skilled occupations and employment, and a combined strategy. In this regard, it can be said that increasing the production of agricultural products and paying attention to the agricultural sector - due to the dependence of livelihoods of the majority of rural women in this sector - the most important strategy is the livelihoods variety. Particularly in rural areas, poverty, population growth and environmental degradation are the cause of the decline in agricultural land size, which has led to a decline in agricultural land and the spread of land to grassland. One of the most important ways to prevent the destruction of agricultural land is their desirable management. On the other hand, rural households need a variety of income to deal with poverty. In addition, the use of rural livelihood strategies may have positive or negative effects on agricultural land management systems. Therefore, it is necessary to study the relationship between livelihoods diversity strategies and agricultural land management.

Methods and Material

The present research is in the field of applied research and in terms of "method" in the framework of "descriptive-analytical" method. Data collection has been done in both "documentary" and "survey" methods. The statistical population consisted of households in villages of Poledokhtar township (N= 9431). 379 households were selected using the Cochran formula and were randomly selected as samples. To collect data from questionnaires and little questions two options were used. For this reason, this type of questionnaires were used as models range between one and zero And to analyze the model of this type of questionnaire should be used. In order to study the concentration of

activities and livelihoods of rural households, the Herfindahl-Hirschman Index (IHHD) and econometric model (Tobit) were used to study the relationship between livelihoods and sustainable land management practices. All models and methods of data analysis was performed using the software Eviews version 9. Validity of the questionnaire was measured and verified using content validity, which is determined by those who specialize in the subject matter. In order to measure the reliability of the model, it was confirmed by using the reliability tests of the model.

Results and Discussion

Findings on the application of land management practices show that farm households do not use a fair amount of management practices. Some have adopted all management practices, while some have used one or more methods. The findings show that the use of fertilizer (0.825), land drainage (0.707) and soil condition (0.670) were the most widely used among rural households, respectively. The methods of grass stripping (0.139), cultivating the cover plants (0.211) and planting trees around the ground (0.263) have also been the least used. The findings showed that the income diversity of the income measured by Herfindahl-Hirschman Variety Index has a positive and significant effect on sustainable land management activities. In addition, the effects of factors affecting livelihoods on farmers' decision to use or not to use agricultural land management practices from Tobit's econometric model showed that among 18 variables of research, six variables have a significant relationship with farmers' decision to use land management practices. The significance level below 0.001 indicates that the number of labor force, land ownership, property ownership, agricultural income, non-agricultural income and the combined income of households have a positive and significant effect on the adoption of land management practices.

Conclusions

Livelihood strategy, in addition to providing part of income needs, helps to increase working hours during seasonal unemployment and to strengthen the livelihoods of households. This in turn increases the use of land management practices. In addition, the use of management practices and increased ways of livelihoods due to complementary effects can help to increase livelihoods and increase the use of managerial practices. By increasing their livelihoods through non-farm income, farmers can improve their livelihood capacity by maintaining their quality and managing their land. This also has a direct impact on their livelihoods and their income sources. Because farm income surpluses can be invested in agricultural activities, this in turn increases household incomes and, as a result, more investment in land management. Therefore, it can be said that these two variables have a direct relationship and can complement each other. Investigating the relationship between the effects of factors affecting livelihoods and agricultural land management practices shows that labor force, land ownership, property ownership, agricultural income, and non-agricultural income (unearned) and combined income have positive and significant effects on the adoption of management practices Land has had. Therefore, integrated rural livelihoods and land management strategies can be combined to help increase livelihoods and use of land management practices.

Keywords: Livelihood diversification, Land management, Agriculture, Tobit model, Poledokhtar Township.

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The Assessment of Hydrogeological Characteristics and Sustainable Development of Groundwater of Mahabad Plain Aquifer

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Introduction

Hydrogeological study of groundwater is important in order to accurately understand the characteristics of the aquifer and its behavior (Fitts, 2002; Todd & Mize, 2005). So that the prediction of the stored water volume and extractable water from an aquifer depends on the accurate estimation of hydrogeological parameters. The results of detailed hydrological studies of groundwater resources in a semi-arid country such as Iran can lead to the use of proper methods for exploitation of these resources and ultimately, to be consumed correctly and with the highest efficiency.

The main subjects of the quantitative monitoring of groundwater include the study of factors such as groundwater level, the discharge of selective utilization resources and the discharge of groundwater resources, which can be achieved by analyzing the changes in these factors over time and combining the results (Thangarajan, 2007) .

In most cases, extraction of groundwater resources is excessive in terms of recharge amount and leads to a dangerous trend in aquifer conditions (Niamnsi & Mbue, 2009). The water balance is a quantitative issue of groundwater that is very important in development design issues and water resource management (Fetter, 1994; Gaur et al., 2011). Also, aquifer water balance studies can be used for optimal management of surface and groundwater resources (Peranginangin et al., 2004), application of its equations for pumping experiments in aquifers (Ruud et al., 2004), discharge forecasting calculations (Stephanie et al., 2010), and reducing damage caused by floods and droughts.

Previous studies on the groundwater resources of Mahabad plain was limited. Also, studies have not covered the entire plain area and is mainly related to the early parts of the plain. Therefore, the need for more and comprehensive studies in this plain is necessary.

In the study area of Mahabad plain various formations have different hydrodynamic characteristics due to the lithological variation that play an important role in recharging and discharging of groundwater aquifers.

Study of various geological formations is one of the basic requirements of hydrological studies in terms of Lithological effects on the quantity and quality of groundwater and the role of geological structures in relation to the formation of hydrodynamic units .

The recognition of different geological formations in terms of lithology effects, the quantity and quality of groundwater and the role of geological structures in relation to the formation of hydrodynamic units is one of the essential requirements of hydrogeological basic studies.

Considering that a large part of the aquifer recharging is carried out by the Mahabad river bed and the streams around the plain also due to the hydraulic relationship between different formations and alluvial deposits of the plain, the quantity and quality of groundwater resources of the Mahabad plain in relation to land formations Has been studied.

Methods and Material

The study area of the Mahabad Plain with an area of 829km² located in the Northwest of Iran, In the West Azerbaijan province and the Southern part of Urmia Lake (Figure 1) .

Geology

Geological formations have a major role in relation to the quantity of groundwater resources, depending on lithology, expansion and characteristics such as permeability.

The Formation of Pck, Pcbr and Pccs with its outcrops in the southern parts of the region, due to its very low permeability and limited expansion, has little importance on the quantity of water resources in the region. Pcmr Formation in the southern and southwestern part of the region, along with the topographic steep slope of rocky outcrop contains the formation water. The karstic structures of the Pr 1 formation, along with seam, split and fracture systems, have increased the permeability of this rock unit and the formation of karstic springs in the north of the region. The low permeability of Shale and Tuff of the Cretaceous is indicative of the low importance of this unit for quantity and quality of the water resources of the region.

Qum Formation (Mq) forms the dominant lithology of the region, which has a very important role in recharging groundwater aquifer with high permeability due to the tectonic processes and gaps. Groundwater recharge of plain is enclosed exclusively in all areas of the Mahabad River (Qt) and the permeable horizons surrounding the plain boundary, including Quaternary sediments (Qt and Qsm) in some areas.

Structural features

The structural patterns in the region are the result of various tectonic events from the Precambrian to the Quaternary. Current structures of Mahabad plain have formed the last movements of the Alpine orogeny phase before Miocene.

Field studies in Mahabad plain led to the identification of two burial faults

Hydrology and Hydrogeology

Mahabad Plain is part of the Urmia Lake Basin. The altitudes of the plain margins, have little effect on the groundwater aquifer. However, Permian dolomitic rocks and Oligomiocene horizons are somewhat effective in recharging of the plain margine, due to the presence of joints and fractures and the possibility of the presence of karst phenomena. Recharging the aquifer take place throughout the year from the altitudes and through the Mahabad River bed with continuous flow.

Using the combination of exploratory drilling results and field studies, it has been determined that the main structure of Mahabad plain consists of the occurrence of alluvial deposits of rivers and Lakes' fine-grained terraces.

The groundwater aquifer in this plain is unconfined with a thickness of 30 to 90 meters. The main direction of the flow is from the south to the north and in the direction of the flow of the Mahabad River.

Data Analyses

For the purpose of hydrogeological studies, determination of the aquifer characteristics and water balance, the data obtained from the Regional Water Authority of the West Azarbaijan Province has been of great help. The systematic observations of piezometric wells have been used to study the fluctuations and the depth of the water table.

In order to study the hydrogeological properties of the Mahabad plain aquifer, hydrodynamic coefficients of aquifer, as well as all the recharge and discharge factors necessary for calculating the groundwater balance were considered. To calculate the water balance of the plain, long-term average data were used at the dam site of the Mahabad River and the Gherd Yaghoub hydrometeorological station. Also, the water table, unit hydrograph of the piezometer, and the unit hydrograph of the plain, drawn using the statistical period, and is used in calculations.

In order to calculate the Mahabad plain water balance in the corresponding calculations, the area between the dam reservoir (beginning part of the plain) and the Gherd Yagub Measuring station (end part of the plain) with the area of 829 Km² has been used.

Results and Discussion

According to the exploratory well logs, it can be said that the whole plain except the plain border has upper layers have low permeability and lower layers at the top of the bedrock have high permeability. Alluvial deposits of the plain area can be divided into three zones due to the particle size and thickness, which is influenced by the flow regime governing sedimentation and tectonic processes.

Based on the isopotential contour of the water table for the dry and wet seasons, the main direction of the groundwater flow is from the south to the north and along the Mahabad River. Based on the isopotential contour of the water table depth in Mahabad plain, the maximum depth of the water table is 12 meters in the southeastern at the entrance to the plain and at least 1 meter of the north at the end part of the plain. In this area evaporation from groundwater over time causes massive salt marsh.

The quantity and quality of groundwater resources in the Mahabad plain will be more related to the quality and quantity of geological formations, surface water resources, soil texture, evaporation, and the effects of the advent of the saltwater frigate marshes. Based on the studies, it has been determined that most of the recharge of the Mahabad aquifer is in the input and middle parts of the plain, with the Mahabad River bed and the streams around the plain.

The significant difference in the transmissivity between the middle and the end parts of the plain is probably due to changes in the thickness of the layers between these two regions, which correlates with the related isopach map of alluvial deposits.

The aquifer specific storage coefficient is the reaction of the reservoir's water table against recharge and discharge. According to the calculations, the specific storage for the entire plain can be considered as 0.02.

Measuring of water table and the result of the studding hydrograph of piezometers, indicate that the groundwater aquifer of Mahabad plain is completely saturated and changes in the reservoir volume during the water balance period are negligible.

Considering the hydrogeological characteristics of the aquifer of Mahabad plain such as aquifer thickness, flow direction, recharge and drainage areas and other hydraulic features, suitable areas for drilling extraction wells for utilization of groundwater are along the flow basin of the Mahabad River from the south to the north part of the plain.

The change in the volume of the reservoir was calculated according to the water budget equation and with regard to the parameter's unit was calculated to be + 0.37million cubic meters. Water balance in the plain can be calculated considering different climatic conditions and extraction of the network .

In this study, the state of the situation was chosen which has the most adaptation conditions of the existing situation and there is a high degree of certainty of continuous extraction without any particular changes.

Conclusions

According to hydrogeological studies, the most permeability and aquifer recharge of Mahabad plain is due to the Ruteh, Qom and Quaternary formations. Also, the results of exploratory drilling and field surveys in Mahabad plain led to the identification of two hidden faults, which caused sudden changes in the depth of the bedrock and the formation of depression and abrupt changes in the flow path of the Mahabad River bed.

Identification of suitable areas for determining extracting areas, depth of wells, the rate of extracting from the well, the optimal use of groundwater with regarding to the minimum capacity of the aquifer extraction, are an appropriate guarantee for preventing any adverse effects, keeping the drainage volume down and producing the crop.

The optimal use of groundwater and taking into account the minimum volume to be removed from the table, the guarantee necessary to prevent any adverse events, keeping down the drainage volume forms and producing the appropriate product.

According to the results of the studies, considering the actual area of the aquifer of Mahabad plain (250km²) and the average depth of the water table in the water balance period (4m), the permissible annual allowable extraction water in the aquifer area is equivalent to 30Millions of cubic meters per year. And to prevent mixing of brine and fresh water the value of groundwater table is 1279meters.

The results indicate the aquifer balance state. In this way, optimal aquifer management and continuous development of groundwater are necessary in order to prevent adverse conditions in the aquifer area.

Considering the reduction of rainfall in recent years and in order to fulfilling the Water requirement of the area such as agriculture, optimal management of irrigation and reduction of groundwater use should be considered, in order to preserve the water resources of the plain.

Keywords: Groundwater, Hydrogeological characteristics, Mahabad Plain, Sustainable development, Water balance.

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Evaluation of Agritourism Development Capabilities and Determination of Its Adoption in the Target Population (Farmers and Tourists) in Lenjan

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Introduction

Rural development and the acute problems of rural areas are increasing day by day and even moving to the city. Other agricultural activities and traditional activities can not meet the needs of rural communities. Nevertheless, the agricultural sector has a multi-functional character, and it can not be evaluated solely on the basis of production, income and employment. But agriculture, in addition to product production, should be evaluated on the basis of concepts such as conservation, recreational activities and leisure.

In this regard, agricultural tourism is one of the strategies that has been proposed in the last few decades to diversify the rural economy and sustainable rural development. Lenjan is one of the most prone and active sectors of immigration and other socio-economic problems. Therefore, this research intends to identify some of the existing capabilities in the agricultural tourism sector and to analyze the level of attitude and acceptance of farmers and tourists towards the development of agricultural tourism, provide solutions for the development of agricultural tourism, in accordance with the conditions agriculture in Isfahan province, which, having the potential, resources and attractions of agricultural tourism, with due attention and planning, has the capacity to expand agricultural tourism and use its benefits to promote the economic level of farmers and villagers.

Methods and material

The present research from the view point of objective is an applied one and in terms of type, is descriptive-analytical one. The statistical population includes farmers and tourists in Lenjan. Sample size was selected based on the number of employed in the agricultural sector and tourists entering in to the city. The sample number is based on the Cochran formula, 192 farmers and 192 tourists. Cluster random sampling method and two types of completed questionnaires have been used by field study. Chi-square and Friedman tests were used to examine the significance, comparison and response leveling from the viewpoints of the two groups of participants. Also, to investigate the correlation between the acceptance of respondents and agricultural tourism capabilities of the region, Spearman's correlation coefficient has been used.

Results and Discussion

The results of this study indicated that from the perspective of farmer respondents, 41.7% of farmers selected the agricultural sector to develop as "very high", 29.7% as "high" and 29.7% as "middle" agriculture tourism. From the perspective of 53.1% of tourist respondents, Lenjan has the "very high" capability, 21.9% as "high" and 20.8% as "middle" to develop the agritourism. Friedman's test for ranking the attitude and acceptance of the farmers indicated that the ranking 1 was related to set up recreational services like horse riding for tourists and rank 5 was equivalent to the lowest one related to the allocation of part of the house of farmers and additional rooms for accommodating the tourists "among the items in general. Among the exclusive items the ranking 1 was related to "farmers" training and exchange of experiences in the field of farming and gardening activities to tourists and the grading 18 which was equivalent to the lowest rank among the specific items was related to "entering the tourists into the livestock of the farmers participate in keeping the various activities of livestock ."

It was observed that in the tourism group, the ranking 1 was related to "Harvest Festival" which was equivalent to the lowest ranking 5 as overall rating among the items on the "accepting the farmers to rent a part of house or room for accommodation". Among the exclusive items the ranking 1 was related to "the tourists pay to buy the farm and garden crops" and the ranking 15 which was equivalent to the lowest rank in the specific items related to "the tourists enter in to the location and admission dairy cattle breeding, and participated in various activities."

The calculation of Spearman Coefficient also represented the correlation between the performance of the agricultural sector and the acceptance of both agriculture and tourism at the significance level of 0.000. (Sig=0.000)

Conclusion

The basis of statistical results taken from surveying the tourist and farmer respondents in the studied area indicated the "medium to high" capabilities for developing the agritourism. Also, from the viewpoints of agriculture and tourism, the relationship between the agricultural sector and the adoption of agriculture and tourism for agritourism development it can be said that Lenjan has the capability of developing tourism agriculture. Based on the results, the high attitude and acceptance of farmers and tourists are positive for developing agritourism in Lenjan.

Keywords: Evaluation, Tourism, Agritourism, Lenjan.

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Comparative Analysis and Evaluation of the Views of Residents and Local Managers on the Issue of Viability in the Villages Around the City of Varamin

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Introduction

Today, peri urban villages have many opportunities, constraints, opportunities and challenges due to the spatial proximity and spatial-physical dependence to the city which these factors are not so severe in other villages. Establishment around the city and the use of appropriate communication networks will allow the use of urban infrastructure and services in the economic and cultural-social fields for these villages. Job vacancies, mainly in the service sector, provide a source of income and work for villagers located around towns, so that a group of these villages have found a "dormitory" function. The set of these factors makes the living conditions, or, in other words, the viability of the urban villages, have a unique and status. The purpose of this research is to identify the key factors affecting the livability of peri urban villages from the people's and local manager's point of view and a comparative study of the attitudes of the two groups. The study area in this study is peri urban villages in Varamin Township. Awareness of the extent of the differences between the attitudes of people living in villages with the existing attitudes of Dehyars as local government custodians in villages can provide a clear vision for recognizing the priorities of people and authorities and bringing them closer to the extent possible .

Methods and Material

The research methodology in this study. With respect to the nature and objectives of the topic "Explanation the livability of peri urban villages" and in relation to the research hypothesis test, is descriptive-analytical method. In this research, Cochran method is used for sampling. The statistical population of this research is households living in peri urban villages in Varamin Township. Based on the number of households in these villages, 400rural household questionnaires completed and their results were entered into SPSS software. What has always been considered in this research is attention to the criteria that have been specific and cause differentiation of peri urban villages from other villages in the study area. The method of data collection according to the nature of the study was in both library and field, and according to the necessity in each stage of the research, either of these two methods or both have been used.

Results and Discussion

The results of employment and income, housing, public transportation and infrastructure services from the viewpoint of tenants indicate a significant difference between the economic criteria and the average of the items. Economically, the difference between the views of the people and local managers is very slight and deniable. The results of the social criteria of public education, health, participation and solidarity, continuity and sense of place, personal and social security, recreation and leisure indicate a significant difference between the economic indicators and the average of the items. But the findings indicate a significant difference between the average level of social criteria and Dehyars viewpoint. The environmental dimension of habitat includes three criteria for green and open spaces, pollution and landscape. The findings indicate a significant difference between the economic indicators and the average of the items. But the findings indicate a significant difference between the economic indicators and the average of the items from the viewpoint of the tenants. From the perspective of the environmental capability of living in peri urban villages, as well as the economic criterion, there is no significant difference between people and local management, which reflects the depth and breadth of the environmental problems of villages.

Conclusions

Dehayari, as the main organization of rural management in Iran, plays an important role in providing public services and organizing rural life. Whether rural dwellers have different views from people on the livability of villages may not be a big problem in their own right, it can be a warning sign for institutions and oversight bodies to continuously evaluate the performance of their tasks in carrying out their duties. Peri urban villages are the backyard of urban perpetrators because of their proximity to cities, and they host a lot of urban problems. Those Dehraris which conduct surveys and awareness of villagers' views and tendencies toward their performance, they become acquainted with issues and problems and can work to solve or reduce these issues. Without continuous knowledge of the extent to which progress is being made and the achievement of goals, and without identifying the challenges faced by the local management and gaining feedback, and being aware of the extent to which policies are being implemented and identifying those areas that require serious improvement, continuous improvement will not be possible.

Keywords: Explanation of livability, Varamin township, Peri urban villages, Dwellers, Locam managers.

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