Regional Assessment of Solar Radiation Potential by Evaluation and Optimization of Interpolation Methods in Iran

N. Hoshangi*

M.A in Geography Information System (GIS), University of Khaje Nasiroddin Tosi, Tehran, Iran

A.A. Alle Sheikh

Associate Professor of Geography Information System (GIS), University of Khaje Nasiroddin Tosi, Tehran, Iran

H. Helali

Assistant Professor of Geography Information System (GIS), University of Tabriz, Tabriz, Iran

Abstract

Optimal placement of solar power plants is an influential factor in increasing its productivity that leads to the accuracy of the solar radiation potential. The use of spatial relationships among data interpolation techniques increases the precision estimating of solar radiation potentials for different regions of the country. The study of variety interpolation methods is vitally tangible because of significant differences in their results. In this study, interpolation methods; such as Inverse Distance Weighting (IDW), Radial Basis Function (RBF), Diffusion Interpolation (DI), Kriging and Cokriging were implemented and their results compared with one-leave-out cross validation. Cokriging, solar radiation map of SolarGIS model- as secondary data- was combined to data from ground-based observations for increasing its accuracy.The results show that optimization the influencing factors in interpolation methods contribute to 8.3% increase of result's convergence. Eventually, Cokriging with the aid of DEM and temperature of 4.91w/m^2 RMSE estimates the optimal surface. The accuracy of solar radiation map from Solar GIS model, which derived from satellite imagery, recovered 4.1% by Cokriging method. According to the Cokriging performance, most parts of the country and particularly the southern part located at lower latitudes, have a high potentially for solar renewable energy use. With a slight difference, Meymand, SadatAbad, Kovar, Sarvestan, Bavi, NokAbad respectively were identified as high potential areas with radiation.

Keywords: *Solar power plants, Cokriging, Solar radiation potentials, Iran.*

* . *Corresponding author: navid.hooshangi@yahoo.com, Tel: +989147379397*

Methodology for Selecting Sustainability Indicators of Small cites With an Emphasis on the Mazandaran Province

A.A. Divsalar
Assistant Professor of Geography and Urban Planning, Payam Noor University, Tehran, Iran
Z. Fanni
Associate Professor of Geography and Urban Planning, Shahid Beheshti University, Tehran, Iran
R.A. Farhoodi
Assistant Professor of Geography and Urban Planning, Tehran University, Tehran, Iran
S. Barzegar [*]
Ph.D Student of Geography and Urban Planning, Payam Noor University, Tehran, Iran

Abstract

One of the most outstanding issues that have recently been discussed in urban planning is considering the status and straits of developmental area in terms of sustainability and sustainable urban development. Sustainable urban development indicators- in terms of economic, social, physical and environmental dimensions- could be an appropriate criterion to delineate the incompetence of cities status in providing- economic prosperity and socio-cultural- welfare for residents to reach sustainable urban development. In this regard, the object of this Cross - sectional study based on Delphi method refers to identify and articulate the appropriate indicators and indices for assessing their sustainability and applying in small cities of Mazandaran. Analytical-descriptive and survey methods were applied in the study. From among 159 indicators, 68 indicators were extracted: 24 indicators to assess environmental sustainability, 15 indicators to assess socio- cultural sustainability, 14 indicators to assess economical sustainability, and 14 indicators to evaluate physical-infrastructural sustainability of small cities of Mazandaran. Compared to the other indicators, socio-cultural indicators of scoring 7.62 are more reliable and valid for sustainability analysis. Economic indicators with 7.69, Physical-infrastructural with 7.6 and environmental indicator with 7.47 points are placed in the second, third and fourth rank respectively.

Keywords: *Sustainability, Sustainability indicators, Small cites, Mazandaran Province.*

[*] . *Corresponding author: s_barzegar1386@yahoo.com, Tel: +989111268173*

Analyzing the Capability of Synergic Development in Polycentric Urban Regions Case Study: Metropolitan Area; The Central Mazandaran (Amol, Baboul, Ghaemshahr, Sari)

E. Zebardast
Professor of Urban Planning, Unoversity of Tehran, Tehran, Iran
M. Shahabi Shahmiri*
M.A in Urban Planning, Unoversity of Tehran, Tehran, Iran

Abstract

Polycentric urban regions are the result of current process in spatial structure of post-industrial developed societies. Geographical centralization, mutual economic tendency, sharing challenges and opportunities are the characteristics that make cities ready to accept the framework of non-hierarchical linkages and fortify their basis to apply network pattern. From this viewpoint, these regions, upon synergic relations provide proper competitive field against mono-centric metropolitan areas. Thus, polycentric urban regions improve the economic performance of whole region rather than every individual city in itself. The aim of this study refers to an effort to measure the possibility formation of synergic relationships, based on the mentioned assumptions in metropolitan area of the Central Mazandaran and investigate the application of synergic development. The analysis focuses on the co-operation mechanism and particularly on complementarity. The results indicate that the case study has gained more synergy in terms of co-operative linkage within recent years, while reduction of economic complementary roles in cities has created reverse impacts on the region. The main reasons can be related to the wide range of public administration, historical competition between cities, lack of regional perspective and no commitment for its implementation. Furthermore, reduction of regional relevance toward external supply and demand resources can also been added to this explorations.

Keywords: *Polycentric urban region, Network, Synergy, Complementarity, Organizing capacity.*

* . *Corresponding author: Sam.shahabi@gmail.com, Tel: +989111175714*

Modeling Tehran Land use Changes by using the Moland Model

H. Dadashpour*
Assistant Professor of Urban Planning, University of Tarbiyat Modares, Tehran, Iran
R. Kheirodin
Assistant Professor of Urban Planning, University of Elmosanat, Tehran, Iran
M. Yaghobkhani
M.A in Urban Planning, University of Tarbiyat Modares, Tehran, Iran
B. Chamani
M.A in Geography Information System, University of Khaje Nasiroddin Tosi, Tehran, Iran

Abstract

In cities, land is considered as scarce and precious facility. Thus, any unplanned growth in urban areas or any changes in land use has significant effect on the people business and more generally, the urban morphology. Two main aims of this planning study are forecasting the effectiveness as well as the indirect consequences of changing land use. Modeling and prediction of any changes in urban land use to understand urban dynamics is effective and can be used as an efficient tool for planners to predict the consequences of urban policies. The main goal of this research refers to analyze and modeling any changes in land use of Tehran metropolis by using the Moland model. Socio-economic, biophysical and management factors are identified as three main drivers of land use change in urban areas. At first, Moland model was simulating to consider the land use change based on socio-economic data such as population and employment. Then by taking into account biophysical and management factors, the Cellular Automata (CA) model was used to satisfy the balance between land use scenario demands and supply. Consequently, the modeling result after increasing its validation has high capability to predict land use changes in a period of 20 years. The main changes predicted in the South, the South-west and the West of Tehran metropolis by changing barren land and agricultural land to residential and industrial use.

Keywords: *Land use change modeling, Cellular Automata, Tehran metropolis, Moland model.*

* . *Corresponding author: dadashpour@modares.ac.ir, Tel: +989123540290*

Impact of Income from Sales Density on Urban Spatial Structure by Emphasizing on Density For Metropolitan Tehran

M. Ghadami
Assistant Professor of Geography and Urban Planning, University of Mazandaran, Baboulsar, Iran
K. Khaleghnia*
M.A Student in Geography and Urban Planning, University of Mazandaran, Baboulsar, Iran

Abstract

Spatial structure can seriously affect the different aspects of city development like socio-economic dimension. This study has attracted urban planners' attention due to the environmental problems such as air pollution, traffic congestion and land use changes in the cities especially in developing countries like Iran. The main purpose of this analytical-descriptive research is investigating the impact of spatial policies on the structure of Tehran by regarding building density. The research used Shannon entropy density and the model of hot-spot for data analysis in eight geographical directions of Tehran. The results indicated that the spatial structure of Tehran has expanded in the form of sprawl due to the different spatial policies. However, some evidences show that the city has been tended toward a compact structure in the recent years.

Keywords: *Spatial structure, Income, Building density, Tehran.*

* . *Corresponding author: k.khalghnia@yahoo.com, Tel: +989112122848*

Assessment of Mountainous Texture Geoclimate in order to Identifying the Position of Winter Geotourism (Case Study: LORESTAN Province)

M.Yamani*
Associate Professor of Geography and Geomorphology, University Tehran, Tehran, Iran
A.A. Gorabi
Assistant Professor of Geography and Geomorphology, University Tehran, Tehran, Iran
A.A. Shamsipour
Assistant Professor of Geography and Climatology, University Tehran, Tehran, Iran
F. Moradipour
M.A in Geography and Geomorphology, University Tehran, Tehran, Iran

Abstract

Mountain regions, because of the special topographic characteristics and specific climatic conditions, for stabilizing its population need to strengthen and develop activities related to their specific geomorphological and climatic conditions. Skiing, as a symbol of winter geo-tourism in snowy mountain areas, can be attracted tourists in many developed countries. In this study by using multi-criteria techniques, Lorestan province; because of unique mountainous texture and the existence heights and peaks above 4000 meters; is identified one of the most capable provinces in terms of geomorphological phenomena. The main objective of this research is considering the geomorphologic and climatic conditions of region to identify winter geo-tourism areas (ski places) in the LORESTAN province. In this study, maps after being built in GIS and ENVI software, by (ANP) and (AHP) models, determined and used TOPSIS model in ARC GIS software to identify the final map prone areas of winter tourism. The results show that the northern slopes of the Oshtorankuh heights located in the Azna region is suitable in term of winter geo-tourism (ski places) and respectively the northern slopes of Ghaliehkuh of Aligoudarz region and Gareen heights located in the border of Borujerd and Selseleh, are the most suitable areas of for winter geo tourism in the province.

Keywords: *Geo-climate, Mountainous texture, Winter geo-tourism, Lorestan province.*

* . *Corresponding author: myamani@ut.ac.ir, Tel: +989123197682*

Identifying the Strengths and Attractions of Amlash Township for Attracting Foreign and Domestic Tourists

N.A. Molaei Hashjin*

Professor of Geography and Rural Planning, Islamic Azad University, Rasht Branch, Rasht, Iran

H. Ebrahimi

M.A in Urban Management, Islamic Azad University, science and Research Branch,Tehran, Iran

Abstract

The township of Amlash, because of its rich and picturesque landscapes and ancient monuments, has outstanding privilege in term of attraction tourism in Guilan. However, due to deadlock locating and lack of attention of local authorities to increase its infrastructure development and introduce its attractions to tourists consequently caused to not know much about attractions and potentials of Amlash region. Thus, tourism industry has lost its affinity. The present research has been done to identify the tourism attractions of Amlash to thrive its tourism industry. This descriptive-analytic study has been proposed based on the Amlash's ability to develop tourism attractions. Hypotheses were tested with 95 percent of confidence by using P-test and analyzing questionnaire results. Based on findings, natural and cultural capability of Amlash in foreign and domestic tourist attraction is confirmed to increase its infrastructure development for flourishing tourism industry. The mountainous and up-country status of Amlash township and its natural resources and historical status has this ability to improve its economic region condition by attracting tourists.

Keywords*: Tourism attractions, Tourism, Foreign tourists, Domestic tourists, Amlash township.*

* . *Corresponding author: nmolaeih@iaurasht.ac.ir, Tel: +989111311751*

Analysis of Effective Factors, on Rural Settlements Distribution in Sirjan County

Gh. Fazelniya*

Associate professor of Geography and Rural Planning, University of Zabol, Zabol, Iran

S.Y. Hakimdust

Ph.D Student in Geography and Rural Planning, University of Payam Noor, Tehran, Iran

M. Pourjafarabadi

M.A of Geography and Rural Planning, University of Zabol, Zabol, Iran

Abstract

Human settlements have always been based on the appearance of natural factors such as soil and water. Villages, as the earliest form of human collective life in a natural area features, have been affected by numerous natural factors such as altitude, slope, temperature and precipitation that played major roles in dispersion and distribution of rural settlements. This study has been done to investigate the situation of rural settlements of Sirjan County. In order to achieve the objectives of the study, 5 natural criteria such as height, slope, slope aspect and climate factors (precipitation and temperature) as contributing factors to the establishment of settlements have been analyzed in GIS and Moran index Analysis. The results suggest that the %48/5 villages of Sirjan county are placed in the height of 1581 to 1800 meters, which provide the basis for agricultural regional and diversity economic activities, and the livelihoods residents. Also, due to orientation tendency in rural location with adequate slope, 95 percent of the villages in this city are located on the slope of 0-10 percent. Due to the particularly fertile soil and environmental conditions, pistachio is regarded as the major production crop in this region. Consequently, due to the lack of significant correlation between environmental factors in switching places in rural areas, Moran's index of spatial autocorrelation functions is distributed for extracting model. It should be mentioned spatial distribution in rural areas is a cluster type. The Moran coefficient is positive and equal to about 35/0 which is significant at 1% level of critical value.

Keywords*: Analysis, Factors, Distribution, Rural Settlements, Sirjan County.*

* *. Corresponding author: Fazelniya@uoz.ac.ir, Tel: +989153421017*

Evaluation the Impacts of Physical-Spatial Relocation on Rural Settlements (Case Study: Mallavy District, Pol Dokhtar Township)

H. Gharagozloo
Ph.D Student in Geography and Rural Planning, University of Kharazmi, Tehran, Iran
A.A. Isalou*
M.A in Geography and Rural Planning, University of Kharazmi, Tehran, Iran
F. Geravand
Ph.D Student in Geography and Rural Planning, University of Kharazmi, Tehran, Iran

Abstract

Seasonal flood of rivers is a natural disaster that imposes damages on human societies each year. In recent decades, Iran's rural settlements have been the victims of natural disasters like devastating floods that lead to their homeless. New policies adopted to deal with these disasters like relocation and resettlement of villagers. Babazyd, vareh Zard and Khrsdr Olia are three villages that repeatedly were exposed to great flooding because of being placed near Kashkan River. However in order to prevent the occurrence of these sorts of incidents, several dealings have been considered in 1385 that the relocation of three villages was the most important decision. Thus, the present study has been administered to consider the consequences of the physical-spatial displacement of the villages due to relocation. This descriptive-analytic study was used questionnaires as methodology instrument based on library studies. The 20 percent sample size was comprised of households inhabited in villages that equaled to 117 households. The Collected data were analyzed by using SPSS software and nonparametric Wilcoxon and T-tests. Results of this study indicated that most important impact of rural resettlement had been on physical and environmental dimensions. The minimal consequent impact of displacement had been on rural economy and there was no significant difference in this aspect before and after displacement.

Keywords: *Relocation, Resettlement, Physical-spatial displacement, Rural settlements.*

* . *Corresponding author: Isalou@yahoo.com, Tel: +989199565263*

Political Geography Dimensions of the Placing and Transferring of Capitals in Iran

A. Mottaghi Dastanayi
Assistant Professor of Polotical Geography, University of Kharazmi, Tehran, Iran
H. Lotfi
Assistant Professor of Polotical Geography, Islamic Azad University, Garmsar Branch, Garmsar, Iran
M. Sadeghi*
M.A in Polotical Geography, University of Kharazmi, Tehran, Iran

Abstract

Capital has a basic role in economic, political, geopolitical, cultural and social affairs and mainly the structure and administrative systems of a country. Although some cities have the potentiality for becoming capital in terms of structure and administrative system, but governments play the main role in selection, development and construction of capital. Iran, as an ancient territory, repeatedly changed its capital from the Achaemenid era until now. From Susa to Tehran, the capital city was transferred for 39 times and 30 cities were chosen as capital. This descriptive-analytical study is trying to answer the question that which factors play major roles in determining capital and which demanded indicators were raised for transferring the capital of Iran? The results show that a number factors involved in choosing and placing capital from geopolitics perspective such as kernel capability of the place, geographical gravity position, access to internal communication and transportation, spiritual validity, create unity and cultural homogeneity or control of cultural differences, its strategic and defensive position, environmental position, optimum management and security issues of the place. On the other hand, the most significant demand factors in transferring Iran capital refers to high concentration of population in one place and its place in seismological faults

Keywords: *Placing of Capital, Transferring of Capital, Megalopolises, Iran Capital.*

* . *Corresponding author: mousa.sadeghi85@yahoo.com, Tel: +989385471699*

Monitoring Drought by Using DI index and Zoning by Using Geostatistical Methods

M. Beheshti rad*

Assistant Professor of Natural Resource, Islamic Azad University, Sirjan Branch, Sirjan, Iran

Abstract

Drought is a climatic phenomenon that there is probability of its occurrence in all parts of the planet and every climate. Drought Phenomenon is one of the most important disasters that affected many countries in terms of economic, social, political and cultural. Monitoring systems are important in developing plans for coping with drought and its management. Awareness of drought locations, prediction and zoning of drought severity can greatly be decreased the damages of this phenomena. The aim of this study is the accuracy evaluation of Kriging, Co-kriging and Inverse Distance Weights methods in providing maps of severity drought in Kerman province as case study by DI Index. In this respect, 44 meteorological stations that have 20-year long statistics are selected. Drought zoning maps are recognized by three methods of Kriging, Co-kriging and Inverse Distance Weights from 1367, 1372, 1378, 1379, 1381 to 1384. Between of three methods of zoning, Kriging and Co-kriging methods ,having the lowest error RMSE, were selected as the most appropriate method. The results showed the most severe drought occurred from 1378 to 1379.

Keywords: *DI, Drought, Zoning, Kriging, Co-kriging, Inverse Distance Weights.*

* . *Corresponding author: M_beheshtirad@yahoo.com, Tel: +989131455874*