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An Analysis on the Rate of Realization of Sustainable Urban Development Indicators in Middle the Cities Case Study: Iranshahr City

Dr. Issa Ebrahimzadeh
Professor of Geography & Urban Planning
University of Sistan & Baluchestan

Dr. Maasume Barari
Ph.D of Geography & Urban Planning
University of Shahid Beheshti

Ebrahim Dehani
M.Sc of Geography & Urban Planning
University of Sistan & Baluchestan

Introduction

The rapid growth of urbanization and the expansion of industrial activities over the past few decades has reduced urban infrastructure and increased environmental waste (Ebrahimzadeh, 2009: 29). The growing urban community, driven by the extraordinary growth of population and migration, has led to unplanned and unsustainable urban development, creating many changes in their spatial development. (Bartonet, 2003: 18). At the same time, one of the factors influencing on the problems of urbanization and urbanism is the lack of attention to the spatial effects of economic policies in the countries; the lack of a logical connection between the distribution and allocation of investments with the factor of space and location on the one hand and Distribution of resources, on the other hand, involves unwanted spatial effects, including imbalances in the distribution of facilities and inequalities of income between regions and the tendency to focus on one or more limited points. Due to the importance of the role that middle cities can play, the need for research around it is felt more and more. In this research Iranshahr has been studied in Sistan and Baluchestan, the city has a heterogeneous development. In fact, due to its location among agricultural lands, its development has generally been associated with the degradation of agricultural lands, but due to rapid population development and the physical development of the city, the urgency of planned development is highly felt. So, the direction of physical development with regard to the factors influencing this development should be such that, along with the favorable physical development of the city, the least damage to the agricultural lands should be made and it can be achieved by preserving the environment for sustainable development of the city. ; A development in which economic, social, and physical goals are linked.

Methods and material

In this research, using a cross sectional descriptive approach, sought to evaluate the country's condition in terms of the sustainability of human development. Then , the economic, social, environmental and physical (architectural) features of Iranshahr city in terms of development indicators were evaluated and analyzed and were compared with the average urban system in Iran using the Wilcoxon test, the results of which were presented and explained in this study. Compared to the average urban system. Therefore, consistent with the applied and developmental nature of the study, for the optimal planning and moving towards sustainable urban development in Iranshahr, the most significant and effective variables were selected, accordingly. Then, based on the existing conditions, each variable was assessed and weighed using Analytical Hierarchy Process (AHP) and then were analyzed by Wilcoxon Test and Expert Choice software.

Results and Discussion

The results of Wilcoxon test analysis and the use of the AHP model and Expert Choice software indicate that in total, According to the analytical results of the Wilcoxon test, "Iranshahr City does not have a better performance than the average urban system in terms of sustainable urban development indicators." Of the four factors examined, the physical factor with a score of 0.468 is the most influential factor and in the first priority. As well as economic, socio-cultural and biological indicators, with the score of 0.266 , 0.189 and0.078 , the priorities of the second, third and fourth ranking are in the indicators of sustainable urban development. At the same time, among the indicators of physical, residential, health and educational per capita are the top priority for planning. And among the economic indicators, minimizing unemployment, facilitating investment and employment are the highest priority. Among the socio-cultural indicators, poverty reduction and social disparities, change in behavior and change in consumption patterns are most important. Finally, among the indicators of biology, providing safe drinking water and providing comprehensive transportation plans are most important in the planning and sustainability of the city of Iranshahr.

Conclusion

The city of Iranshahr has had Extensive physical development in recent decades. At the same time, lack of proper development in terms of urban sustainability is clearly visible. Therefore, in order to analyze the level of stability of the city of Iranshahr, this study firstly compares the indicators of sustainability of this city with the urban system of the country. The results of the comparative study show that in general, the stability of this city is not significantly different from the urban average of the country.

The results of Wilcoxon test analysis and the use of AHP model and Expert Choice software indicate that in total According to the analytical results of the Wilcoxon test, "Iranshahr City does not have a better performance than the average urban system in terms of sustainable urban development indicators." Of the four factors examined the physical factor and most influential factor in the first priority. As well as economic, socio-cultural and biological indicators, the priorities of the second,

third and fourth ranking are in the indicators of sustainable urban development. At the same time, among the indicators of physical, residential, health and educational per capita are the top priority for planning. And among the economic indicators, minimizing unemployment, facilitating investment and employment are the highest priority. Among the socio-cultural indicators, poverty reduction and social disparities, change in behavior and change in consumption patterns are most important. Finally, among the indicators of biology, providing safe drinking water and providing a comprehensive transportation plan are most important in the planning and sustainability of the city of Iranshahr. In general, and given the priorities, the natural, climatic, economic, and social characteristics of the city of Iranshahr and the existing challenges, planning in the field of physical, socio-cultural and economic is very necessary.

Keywords: Development indicators, Sustainable urban development, Medium-sized cities, Iranshahr.

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Place Differences in Productivity and Exploitation Rate in Rural Economy in Buin and Miandasht County (Isfahan Province)

Hassan Momeni
M.Sc of Geography & Rural Planning
Space Economy Course
University of kharazmi, Tehran

Dr. Vahid Riahi
Associate Professor of Rural Planning
University of kharazmi, Tehran

Introduction

The development of new ways to extract and use resources is one of the factors in the transformation of the earth. In spite of the large reserves of resources, the ability to utilize these resources is essential. On the other hand, numerous economic, political and social problems limit the availability of available resources to many societies. The availability of materials is not only a function of resources, but also if the earth was homogeneous (the distribution of materials was the same), apart from the two solid ice and stone, there are no other sources (to the great extent) we currently use, The materials needed for health, well-being and survival of the community are dependent on the land resources, the productivity of the amount of the product obtained from the unit of production resources, namely labor, capital and land. Productivity refers to the degree of efficiency of an agent or a set of factors of production in the production of a product or a set of products. Today, the issue of increasing productivity is a serious concern in most countries, one of the most important economic features in rural areas of Iran, The low productivity of production factors. A look at poverty statistics in developing countries shows that although poverty is seen in both urban and rural communities, most poor people live in rural areas, and the severity of poverty in rural areas is often higher, therefore, the study of the spatial difference between the rate of utilization and productivity in the rural economy is inevitable.

Methodlogy and material

The method of this research is descriptive-analytical, which has been written with sustainable rural development approach. The statistical population of the study consisted of farmers living in the villages of Buin and Miandasht. In order to collect data accurately and easily, the sample size of the research was selected from five villages in 46 villages of the city. Five sample village villages have been selected with characteristics such as proper dispersal at the village level, a suitable population, selection of different types of rural and one sample from each village. The samples were moderated by the Cochran formula, making up 110 questionnaires. The research indicators were derived from social, economic and environmental dimensions, which totally include 30 indicators. Data analysis method is performed using ELECTRE technique.

Results and Discussion

Based on this, five sample villages in three villages have the least (more desirable) difference "in different indices, not one indicator", and two other sample villages in this study have a greater (less desirable) difference, but the results are fixed definitely The weaknesses of these villages are not in all indices. If a research in this area and sample villages of this study was carried out as Rural Water Resources Valuation in autumn of 2015 by Wicker ranking method, which indicates the less capacity of Dashkasan and Masum Abad villages in the index Other (water resources capability), so there is no rating, but in terms of privileges The analysis can be done with the differences in villages with varying degrees of varying degrees. The phenomena in the city as a whole, based on the findings of the active organizations in the city and the views of the authorities, are summarized in four groups of factors Less attention has been paid to this, existing capacities in the environment, progress barriers and some of the available resources in the geographical area of the city are divided. In analytical studies, the differences in productivity and utilization of crops It can be stated that the amount, area and quality of agricultural land, the amount of water resources suitable for the environment, and the use of suitable and compatible equipment for cultivation are three key factors in the efficiency of production.

Conclusion

According to the results of the study, there is a significant difference in the rate of utilization and productivity among the villages. These differences, due to the natural and social conditions of each village, have different degrees in which the scattering of rural areas in the city is one of the factors of this difference. On the other hand, border divisions have been effective in obtaining financial and natural resources and creating a spatial difference, and creating social and human factors creates a different way. Therefore, the proper pattern of the exploiters is the maximum productivity of agricultural production, avoiding waste of resources, which is not available due to the environmental capabilities of the area and considering the natural and human resources available with proper planning to improve the overall level of the area. It should be noted that the major contribution of spatial differences among the villages of Buin and Miandasht is due to environmental factors, which change is not practically possible, but by changing the attitude and proper setting in the use or utilization of efficient equipment and on-going spatial differences to the minimum It has been achieved and will increase productivity.

Keywords: Optimal Utilization, Productivity Product, Economic Disputes, Buin and Miandasht.

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Earthquake Hazard Zoning by Fuzzy Logic in Dehek Area (South Khorasan)

Mohtaram Ghahramani
M.Sc of Geology
University of Birjand

Dr. Seyed Morteza Mousavi
Assistant Professor of Geology
University of Birjand

Dr. MohamadMahdi Khatib
Professor of Geology
University of Birjand

Hashem Mansouri
Ph.D Student of Geology
University of Birjand

Introduction

In Southern Khorasan Province (East of Iran), due to the operation of active faults (North-South, East-West and North-West-South-east faults), we see earthquakes with different magnitudes. To reduce damage, it is important to determine areas with high seismic potential. Although accurate prediction of this great natural hazard is not possible definitively, it is possible to determine the probable location of the occurrence of an earthquake so the zoning necessity is apparent. The reliability of this map largely depends on the quality of available data, the scale of the study, the choice of a method and the proper modeling. Examples of these methods are using the AHP method and fuzzy logic. The study area is located in the Sistan structural province, which studies the active faults in this area along with the earthquakes that occurred, indicating that the area is tectonically active. Dehek fault with the northwest-southeastern direction is one of the branches of the western Neh fault and continue to southeast and reaches at Ismail Abad dextral. Investigation of seismotectonic maps (Porkermani, 1997) suggests that this area has high seismic potential and there have been many earthquakes in this area. Based on studies on earthquake density, length of faults in the region, magnitude of earthquakes and earthquakes acceleration, East of Iran has high seismic potential.

Methods and Methodology

In this study, six parameters were used including: seismic moment, seismic acceleration, iso-intensity of fractures, distance from faults, strength of units and depth of alluvium maps. Zoning studies indicate that seismic moment and seismic iso acceleration play the most important role in the occurrence of earthquakes in the region. Then the resets were examined by fuzzy logic method and finally the results of the study were analyzed in most seismic hazard maps.

Results and Discuss

In the classic logic, for weighting each factor, parts that are approximately similar in terms of other features and change the agent are considered, and by observing changes in this factor and according to expert opinion, the effect of this on the occurrence of earthquake is compared to the region of factors exclusively.

Weighting is based on knowledge and judgment of the undergraduate. The results of these comparisons were introduced as a matrix to the Expert selection software. At the outlet, the weight of each parameter was determined. Among the factors, the seismic Moment parameter of the highest weight and the lowest absolute weight of the alluvial depth parameter were determined.

In the fuzzy method, the normalization of the frequency ratio of each map using the Expert selection software then the degree of fuzzy membership was determined based on the normalized frequency ratios in the Idrisi software environment. Then, the maps prepared on the basis of fuzzy operators were overlapped in ARC GIS software and final output was prepared as zoning map. Output maps obtained on the basis of fuzzy operators show that . Output maps based on fuzzy algebraic (sum) is highly adapted to the fact that 20, 28, 26, 16 and 10 percent of the region is of very low, low, medium, high, and very high risk classes.

Conclusion

In this zoning, firstly, the factors influencing the creation of earthquakes were provisioned and prioritized. Among the factors, the seismic torque parameter had the highest weight, the erosion parameter, and the depth of alluvium. The low weight of the erosion and alluvial factors is due to the fact that most of the high-seismic focus area in the region at a focal depth of less than 12 km is due to the performance of the underlying faults, so the impact of these factors is low. Based on the seismic acceleration parameter, the acceleration that the Dehek fault enters the villages of that area is 0.58 gravitational gravity. According to the Fuzzy algebraic operator function, about 70% of the decay area is in a very high risk area. Also according to the community map, 100% and according to the fuzzy share map, 15% of the district is in high and very high risk classes. Finally, in the fuzzy zoning map to a radius of 150 km, the greatest risk of earthquakes around the Nehbandan, Sahl Abad, Dehek, Chahar Farsakh, Ardakoul and Mazhan faults is at high risk.

Keywords: Seismic moment,Fuzzy Logic, Fuzzy Operators, Dehek Fault,South Khorasan.

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Erosion Intensity Zoning by Using SWAT Model in Gheshlagh Dam Basin

Dr. Golaleh Ghaffari
Assistant Professor of Watershed Management
Collage of Agriculture and Natural Resources, Sanandaj Branch
Islamic Azad University

Introduction

Erosion and sediment are one of the most important problems in the watershed management of Iran. In order to carry out the conservation programs, soil erosion control and sediment yield decreasing, estimating the total of the sediment volume, erosion intensity in watershed and determined the sensitive areas are necessary. In this research, the study area is located in the mountainous watershed in Gheshlagh Dam. Before the arrival of Gheshlagh river to the city of Sanandaj, Gheshlagh dam has been constructed over it, which is the source of drinking water of Kurdish citizens and also water supply for agriculture, industry and services of the area . One of the problems in this reservoir is organic load with upstream sediments through surface currents in the tanks. This issue that is caused by road construction, dry farming on the steep slope, use unprincipled upstream land and the excessive use of chemical fertilizers, in addition to reduce the capacity of the reservoir and raising the costs of cleaning tanks, can cause other side effects such as algal bloom in the water tank which is followed by stink and aversive water. So the aim of this study is modeling and estimating the amount of erosion in Gheshlagh basin and then erosion intensity mapping and identify sensitive areas to control erosion and sediment in these sub basins.

Methods and Material

In this research for estimating the amount of erosion in Gheshlagh dam basin, the Soil and Water Assessment Tool (SWAT) and Geographic Information System (GIS), were used. After preparing and present hydrological data and the required basin plans, model was ruined for 1987 to 2007 years. In order to calibrate and validate the results, SWAT-CUP programs and SUFI2 algorithms were used and sediment discharge data of Chehelgazi and Khalifetarkhan hydrometric stations were applied.

Results and Discussion

In the calibration and validation of the runoff and sediment, R2, NS, p-factor and r-factor coefficients in outlet of two main rivers have good results. The R^2, NS, r-factor and p-factor coefficients for monthly runoff calibration in Chehelgazi station were estimated 0.80, 0.72, 0.78 and 0.52 respectively and in Khalyfetarkhan station 0.82, 0.74, 0.80 and 0.54. Also the R^2, NS, r-factor and p-

factor coefficients for monthly sediment yield calibration in Chehelgazi station were estimated 0.71, 0.69, 0.60 and 0.55 and in Khalyfetarkhan station 0.74, 0.70, 0.63 and 0.60 respectively. Based on the results, SWAT model has the suitable potential to identify critical areas. Based on the intensity erosion map, the basin was divided in to five classes of erosion with very high, high, medium, low and very low intensity and in general the results of this study showed that from 102 sub basins that have been considered, fifteen sub basins create 55% of the total sediment yield in watershed. The most critical areas are in northern and northeastern of basin and have rangeland and dry farming on sloping lands.

Conclusion

The results of the sensitivity analysis test, calibration and validation of the model using SUFI-2 model showed that using this model, the time it takes to optimize parameters and calibration model is reduced from a few months to a few weeks and the ability to achieve maximum calibrated parameters is more certainty. The model has evaluated erosion condition of basin with the 16.2 ton per hectare for especially amount of sediment. One of the significant results of this study was identification of 15 sedimentation sub basins; therefore management of these sub basins can play significant roles in reduction of imported sediments into Gheshlagh dam. By compliance of land use and slope maps it seems that the erosion in that watersheds affected by soil erodibility due to farmland use and slope of these sub-basins. Based on the results, SWAT model has the suitable potential to identify critical areas. The results of this study can be used in management of sediment in sub basins that are susceptible to erosion.

Kaywords: Simulation, Sediment, Calibration, Validation, SWAT.

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Role of Hydrodynamic Parameters in Origination and Revolution of Karstic Phenomena "Ashkout Mountain, Mahmoudabad, Northwest of Iran"

Dr. Mohamd Reza Ghadri
Assistant Professor of Geomorphology
School of Earth Sciences
University of Damghan

Dr. GholamReza Maghami Moghim
Assistant Professor of Geomorphology
School of Earth Sciences
University of Damghan

Introduction

Karstification is a complex process which is controlled by parameters, related to soluble rocks and water. It is affected strongly by surface and underground hydrology. in dense limestone areas, there are pitted formations superficially. Holes, fissures, fractures and conduits have been made a complex hydro geological circumstances for the underground currents. Relationship of fissures and fractures with groundwater make a Karstic morphology. There are lots of studies about Karsts, due to their importance in human life, for example Baomin (2009), Luhmann and Hung Chak (2012), Mostafa (2015) in addition to Iranian researches such as Rezaei Moghaddam and Ghadri (2005), Behnia Far (2009) and Maghami Moghim (2016). The study area has not been studied yet in spite of its various Karstic features. In this study it has been tried to study the role of hydrodynamic factors in Ashkout mountain karstic morphologies' origination. This mountain located at the northeast of Mahmoudabad, in southeast of western Azerbaijan and the northwest of Iran. Its climate is cold and semi-arid, upon to Amberger climate scale. The average amounts of precipitation and temperature are about 338.3 mm and its average temperature is 9.4 C° respectively.

Methods and Material

In this research, after extensive library studies, more works have been done on field studies. Due to the climatic conditions and topography, field studies took the most time. Accordingly, after identifying the karst forms, measurements of their physical dimensions were performed. Subsequently, the position of each of them was taken using Gps and marked in the map of the region. Recording of the karst formations to adapt them to karst phenomena and to more accurately identify them. They took place. Also, the graphic design was provided for those karstic phenomena in the area, such as dissolved tubes that could not be taken on the ground. The study of the region's climate was carried out based on the data of the weather station. The maps of this study were mapped with Arc GIS software.

Results and Discussion

Some morphological features of Ashkout mountain resulted from surface water action, which Karen is the most important one. Grik Karen is one of the most substantial ones, which generated because of the structural phenomena, weathering and solution at the southwest and northeast of Ashkout mountain limes. Dissolution corridors are another features which generated due to structural fracturing over the study area's limestone. They can be mostly observed at western slope. In this section, the inter bedded limestone, light limestone and lime conglomerate located in beneath, middle and upper beds respectively. Some layers have been overturned, which caused that the Karstic layer bedding can be obvious superficially and expose to dissolution factor. In western slope, which bedding has been disturbed by faulting, the lime conglomerate turned in to abyssal sides with sharp banks. Other limestone has been dissolved and formed fovea which called solution- bedding corridor. Karstic street is another feature that developed on some parts of southern slope, parallel to road plunge. It has 20, 5 and 200 meter, width, deep and long respectively.

Some other morphologies, originated due to surface water accumulating in fissures, fractures and holes. solution pipes are the most important ones. there are cylindrical holes on Ashkout surface. They are not dead-end form and vertical, but, they have a horizontal pipe at the end of vertical hole, with about 90 ° angle. Vertical wells are another forms of morphologies in Ashkout mountain area which located in light limes in western slope over a carbonate rock bonnet. This bonnet has vertical walls and has 1.5 meter and 7-meter diameter and deep respectively. Dissolution Dolin is also another feature, generated because of the same phenomenon in southeast of Ashkout on light lime, containing chert. It has about 10-meter diameter and more than 1 meter deep. Caves are the other features, generated by groundwater. 20 caves were determined in field survey in the study area. Underground conduits are another phenomenon which originated in rock walls of Ashkout mountain. These conduits got observable due to faulting and fracturing. Some of them are springs that have come out of the steep slopes.

They called Karstic conduits, because they have some special size, form and path. These conduits are divided into 3 branches, include abyssal, cascading and natural. Karstic bridge is also another phenomenon, generated due to same process. Water erosion has made a natural bridge shape rock body, called natural bridge. There is a limestone body at north of the mountain, which its upper part disturbed and its base remained. In this body there are two Karstic bridges in southeast and northeast directions.

Conclusion

Although, the structural properties have significant role in karstification, rock sensitivity to dissolution processes and hydrodynamic forces have more major quota. Some portion of waters, originated of precipitation, run off superficially along the slope or entered the fissures, fractures and joints. They made Karstic morphologies such as Grik, dissolution conduits, dissolution-bedding conduits and Karstic streets. Other portion made some features such as Pan, Dolin, Dissolution pipe and vertical well, through the deep penetration into the lower layers. Finally, the other portion of waters, flow beneath the layers like a river or canal current and made some other features such as caves, underground conduits, natural tunnels and Karstic bridges. Considering the currents diversity and Karstic water location, various dissolution morphologies have been originated. Underground conduits have been made by kinetic-dissolution force of groundwater through the joints, fissures and

fractures. Limestone is the main host of these phenomena. Surface water, in some cases, penetrated towards the limes bedding and has made some dissolution structures such as pipe form tunnels. Natural tunnels and lime bridge were at the first of groundwater conduits which generated by northwest faulting in Ashkout mountain. External phenomena, separated some parts of mountain main body during the time, via surface erosion and slopes collapse, to make natural tunnels and Karstic bridges. The overall result of these study is that climate of this area is not enough contemporaneously, for the Karstic morphologies. Therefore, the past eras can be considered as the main forming factor.

Keywords: Ashkavt mount, Karst landform, Solution, Hydrodynamic factors, Tectonic phenomena.

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Sustainable Development Strategies in the Rural Areas by AHP Technique (Case study: Rural Areas of Aran-Bidgol, Kashan and Natanz)

Masoud Asadi Mahal Chali
Ph.D Student of Islamic Urbanism
University of Tabriz Islamic Art

Dr. Mohammad Taghi Pirbabaei
Associate Professor of Islamic Urbanism
University of Tabriz Islamic Art

Introduction

Rural area as system rule and national activity has a great place in national development, because the land sustainable development is related to the sustainability of rural system as an ingredient of land system and the sustainability of rural spaces in all aspects can has a great deal with regional and national development. If this trend experiences an interruption during its development, its results and effects not only will consist of the rural areas, but also consists the urban districts and finally the whole land (Rezvani, 2004: 2). In economics structures of rural area in different countries, the agriculture is the most important part of the livelihood and is one of the main part of development plans and the only economics base of the village (Taherkhani, 2000: 21). The most important feature of this structure is the lack of diversity in economics' bed and business opportunity even for the human forces that comes out of the special point of view to the village and public policy and some of its internal facts. Such economics and business structure make lots of problems that some of them are: less flexibility in contrast to the weather oscillation, price changes in the time of harvesting, dependence of beneficiary to the external environment of village and foreign markets, existence of reveal and hidden unemployment, decreasing the returns of investment, explosion of base resources of environment, vulnerability of rural economy and instability of income resources, weakening the economy and culture in village, rural migration, suburbanization, and city's problems (Javan, Alavizade, and Kermani, 2011: 19).

Methods and Material

The research method is Explanatory-Analytical and the way which collect data is the questionnaire that the experts make it completed. The other techniques are document-library and survey. Sustainable development strategies based on north western of Isfahan are extracted through Delphi technique. By the way, there are different kinds of strategies in order to help Isfahan villages, but through lack of resources and the principle of the best choice of using resources, it is necessary to find out the strategy that make sustainable development executive through the best option. So Delphi is used to find the best strategy. So, 30 panelists through their experiment were chosen to have the best judge and choose the 10 strategies out of 18 which are in priority.

Results and Discussion

The indexes which are used in this research are 19 indexes that are classifies in four classes: Economical, Social, Physical-Spatial, and Environment. In order to evaluate the importance of each criteria and indexes, the material comparison is used. The environment criteria has the most and the social criteria has the least point. Each criteria has some indexes in its route that should be compared with the other indexes in different classes. Finally the better strategy is extracted in north western of Isfahan. By maternal comparison of economic criteria in AHP technique, the experts show that the index of implementation of prices of the plan by value 0.198 has the most valuable index. In social criteria, the index of development of new jobs by value 0.270 has the most value; in physical-spatial criteria, the index of infrastructure by value 0.280 has the most value; and finally in environment criteria, index of coincident to the regional talent by value 0.310 is chosen as the most valuable index. In the last pace, the value of criteria and the indexes are multiplied each other in order to attain the final value of each features. So, the AHP technique and the priorities in Promethee software, the positive and negative trends are evaluated firstly, and then the pure trend is gained. So, based on the ranking, the strategies are listed and through the Promthee technique, the strategy of tourism planning is extracted which the people participation is next to it.

Conclusion

Through this study, it can be mentioned that the index of making changes in the natural environment, index of infrastructure, and index of coincident to the regional talent are the most indexes. It means that in every kind of planning foe rural development foe this region, these three indexes must be in priority. In fact, through the research in north western of Isfahan area, can find lots of potentials in order to develop and recovery the situation of the villages that these priorities can help to make it possible. Through the indexes and strategies which the experts determined here, I shows that the development of tourism planning and the people participation strategy are the most valuable place in rural development. So, tourism and making good infrastructure principles besides to be helped by people participation can make sustainability in Isfahan villages executive. This region because of the great potentials for tourism (like different weather, cultural and ancient heritage, pure nature, and …) and also special situation as climate change and lacking enough water during the last decade that make lots of problems for agriculture and the farmers are finding solutions to vivify their economics, tourism can help them in order to accelerate the rural sustainable development.

Keywords: Strategy, Rural Areas, Tourism, Impact Factor, Sustainable development.

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The Modeling of Interaction Between NGOs Function and Rural Optimal Governance Case: Plain of Hossein-Abad Ghinab in Sarbisheh County

Dr. Seyed Hasan Motiee Langroudi
Profesoor of Geography and Member of Center of Excellent in Rural Studies and Planning
University of Tehran

Dr. Mohamad Hajipour
Ph. D in Geography and Rural Planning
University of Birjand

Introduction

Analyzing experiences and ideas of local management suggests that to keep a balance between social, economical and environmental demands of the present and future generation through personal sustainable development has lead to a paradigm shift in affairs' administration.

The paradigm shift means to use some concepts like citizenship participation, civil society, transparency, liability, justice and equality in parallel with efficiency of the local government, so the local government is introduced as a prerequisite for the sustainable development and a good pattern for the rural and urban management. The good governance is one important issue considered in the development literature from 1980's and afterwards. Governance as a modern idea is a substitute for the government concept. International institutions of the economical policy like the World Bank, the United Nations Development Program and the International Monetary Fund introduce the governance as the key to development puzzle. As the good governance of the local management may lead to much more efficient usage of resources and it provides the background for economical, social and urban development in local regions. Accordingly, it is of the utmost important in developed countries so as to establish and institutionalize the civil society.

It is possible to identify and apply several approaches and mechanisms to provide a basis for rural participation in the good governance process. Among them, development of non-governmental organizations (NGO) not only is considered as the most important and efficient systems of enjoying active and comprehensive participation of local society but also it acts as the third section concurrent with the private and public sections, market and government, respectively. Accordingly, NGO's are enumerated as a participant of local governments for decision making and developing geographical position.

The propagation of rural development teams as a kind of NGO's in the Hussein Abad plain, Sarbisheh, Iran, was began in 2005 concurrent with the international program of carbon sequestration. The present research aims to assess the communication paradigm between the efficiency of NGO's with the rural good governance in the Hussein Abad Plain.

Methodology

The present study is an applied research in terms of objectives and the design of this descriptive-analytical study is correlation. Data was collected by field and library studies. The questionnaire technique was applied in the library method. Questionnaire or the research tool was designed in two levels as follow:

- The first level was the "village" questionnaire by which the rural good governance was investigated in the framework of 8 issues and 24 indices. Rural municipalities and councilors of villages in the Hussein Abad Plain were asked to answer questions in the framework of a numeric norm (9, 1, 3, 5, 7) in which 1 and 9 suggest the lowest and highest performance, respectively.
- The second level was the questionnaire of "families belong to rural development teams" through which social and economical influences of NGO's performance (rural development teams) were investigated by 26 indices. Answers were also collected by the Likret scale including, very low, low, intermediate, high, very high. The SPSS software was applied to analyze collected data for the descriptive statistics; moreover, the communication model between the efficiency of NGO's (rural development teams) and the rural good governance in the Hussein Abad Plain was analyzed by the LISREL8.5 software.

Discussion and results

- According to conducted studies in Hussein Abad Plain, Sarbisheh, Iran, it is suggested that, rural development teams provide villagers with access to credits, so employment and entrepreneurship in the under studied region seems to thrive and consequently the family income, permanent and temporary, is significantly raised.
- Studying the social affects levels of rural development teams (table 2) suggests that, in parallel with development and permanence of the teams, the highest level of its influence on supplying solar energy was 3.9.
- The average score of the rural good governance in the under studied region was 5.1. Moreover, components of the rural good governance, collectivity and participation had the highest average score (5.7).
- According to results, it can be said that, there is a significant relationship between the performance of NGO's and the rural good governance in the Hussein Abad plain, Ghinab.
- Moreover, based on conducted studies and obtained structural model it could be said that evolution in economical circumstances provides a good situation for reformations of the social aspect of NGO's performance in villages of the Hussein Abad plain, Ghinab.

Conclusion

The level of rural good governance in the understudied region was intermediate. Among components of the rural good governance, collectivity and participation were at the highest level. Then, components like transparency, efficiency, liability, legislation governance, responsibility and consensus would be mentioned, respectively. The main reason for the low level of consensus is almost related to adhere to the belief of previous tribalism; consequently some believe that women have not the same position like men for decision making and governance.

In the paradigm related to the influence of the NGO's performance (rural development teams) on rural good governance in the Hussein Abad plain, Ghinab, it is obvious that a significant amount of variation shifts of the rural good governance (48%) could be specified through the performance of rural development teams.

Again, according to the model, it can be concluded that the economical aspect of the NGO's performance not only have direct consequences on good governance, but also by affecting the social aspect of rural habitations, have an indirect effect on the quality of good governance in rural regions.

Keywords: Sustainable Rural Development, Optimal Governance, Non-Governmental Organizations, plain of Hossein-Abad Ghinab.

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The Analysis and Prediction of Land Use Changes Using Multi-Temporal Satellite Data in Shandiz City (Between 2000-2015)

Foruzan Taheri
Ph.D Student of Geography & Urban Planning
University of Mashhad Ferdowsi

Dr. Mohamadrahim Rahnama
Professor of Geography & Urban Planning
University of Mashhad Ferdowsi

Dr. Omidali Kharazmi
Assistant Professor of (National Development)
University of Mashhad Ferdowsi

Dr. Baratali Khakpoor
Associate Professor of Geography & Urban Planning
University of Mashhad Ferdowsi

Introduction

The world that we are living in is a world of cities that has unfortunately resulted in the estrangement of the natural environment and unwanted acceptance of imbalances that come from inharmonic relationships of humans and city space (Farid, 1996:8). Moreover, city expansion and manmade applications in nature have caused fundamental modifications in the structure and applications of landscape ecology (Foreman and Gordon, 1986:136). Daily population increase has also resulted in more pressure on the environment and unlimited and unprincipled usage of lands and usage modifications have caused different ecosystem effects (Lu and Weng, 2001). Therefore, failure to locate properly and corresponding to the functional properties of land uses and characteristics of the urban environment studied in each functional scale will be finally resulted in skewed distribution of land uses in the city and heterogeneous and unbalanced spatial structures which in turn will lead to the vulnerabilities in the existing spatial structure (Athari and Najian, 2006: 45). In fact, equitable access to land and efficient use of it is one of the major components of sustainable development (Mehdizadeh, 2000: 7).The city of Shandiz within the last decade has faced significant population growth and physical development. The close distance of Shandiz to the metropolis of Mashhad and its own particular natural conditions have resulted in Shandiz becoming a center for leisure activities for Mashhad residents and its many pilgrims, which in turn has caused major changes in the internal make-up of Shandiz. Since this city is important in respect to tourism, there is a high demand for modifications in land usage and zoning, and to create residential complexes in the form of residential estates and temporary residential complexes; although the placing and designing of those complexes are not based on environmental considerations. Unfortunately, all of these mentioned developments do not consider environmental factors and do not provide adequate infrastructures to services related to them

and causes wide spread manipulation of the basic characteristics of the environment of the land and destruction of vegetation and agricultural fields.

In recent decades, rapid changes in land use and land cover in the touristic city of Shandiz, located at west of Mashhad Metropolis, has been accompanied with important consequences such as the destruction of natural resources, environmental pollution and improper growth of the city .

Methods and Material

The purpose of this investigation is the analysis and prediction of land use changes using multi-temporal satellite data for Shandiz (between 2000-2015). In this study, land cover changes in gardens and farms and constructed zones, wastelands and pastures land uses has been investigated using Landsat satellite imagery during the timeline between 2000 -2015 with the use of maximum likelihood algorithm, supervised method and Markov chain model. In Markov chain model, cover classes are used as pawns or chain status (transfer area matrix representing the number of pixels that converts from one class to other classes) or the area that has been changed from any use to other uses between 2000-2015. According to Markov CA model, area prediction for 4 land cover categories of land in the mentioned land uses were determined for the 2021 horizon.

Results and Discussion

It has been observed in the research findings section that the Amount of gardens and agricultural lands in 2000 at Shandiz was 16.47 %. In 2011, with an area of 13955400 square meters, it has been increased into 24.22 percent. But in 2015, it was significantly reduced into 13.34%.The constructed sites in 2000was 6.08% that has been increased into 10.24 in 20 ،۹and The increase into 25,55 % in 2015 indicating an unconstructive construction at this period of time. Pristine lands in 20000 was 31.08 % that has been increased into 33.31% in 2011 but decreased into 32.18% in 2015. The area of rangelands in 2000 was 46.35 percent, which has been decreased into 32.21 in 2011. However, the significant increase in rangelands was 28.81 percent in 2015 indicating the destruction of the natural ecosystem in Shandiz. Land use areas in the same in 2021 horizon in comparison to 2015.

Conclusion

Depending on output data, it was found that during years 2000, 2009 and 2015, areas of constructed zones and wastelands land uses has increased greatly and whereas that of gardens, farms and pastures has decreased. Land use areas in the same in 2021 horizon in comparison to 2015. Areas of gardens and agriculture lands (%63), constructed zones (%126), wastelands (%97) and pastures (%96) will change accordingly. Will the trend of inappropriate and illegal constructions and encroachments and the destruction of orchards, farms and farmlands continues, more and more changes of land use towards instability of environment and problems in harmonious and sustainable development and negative effect on the quality of life will be observed in this touristic city.

Keywords: Land use changes, Landsat satellite imagery, Markov chain model and Markov CA, Shandiz.

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Structural Equation Modeling of the Impact of Agricultural Status on the Jointly Utility System Before and After Drought on the Rural Population Survival (Case Study: Fasa County)

Dr. Yousef Ghanbari
Associate Professor of Geography & Rural Planning
University of Isfahan

Vajihe Arianfar
M.Sc of Geography & Rural Planning
University of Isfahan

Zeinab Mahroei
M.Sc of Geography & Rural Planning
University of Isfahan

Introduction

Considering the importance of natural resources particularly in national lands, some strategies have been considered and used for organizing the various parts of natural resources including its conservation, reclamation, development and use, one of which is the assignment of national lands to Mosha (joint ownership) cooperatives.The Mosha Cooperative System was approved and implemented in 1980 with the aim of optimal use of the factors of production, performing the basic operations, integrated cultivation, increasing the crop yields and farmers' income, improving the farmers' living standards, and preventing the migration of villagers to cities. A large part of Iran's soil is in the arid and semi-arid regions of the world due to geographical conditions. Life in these areas necessarily relies on water and water resources, and the existence of water resources has always played a major role in the formation of human communities. Since the formation of human communities with the agricultural economy and the exploitation of land without water have always been impossible whether in the past or at present, people's livelihood in developing countries like Iran, where a significant part of the lives of a large part of the rural population is dependent on agriculture, is vulnerable to climate changes including drought. A total of 248 Mosha cooperatives were developed in Fasa between 1980 and 2006, which were initially successful due to the potential of the region for agriculture, but the lands assigned to Mosha cooperatives have not recently been used in some villages due to droughts and severe drops of groundwater.

Methods and material

This is a descriptive - analytical research, the data of which were collected using a survey as well as library study, and which has been conducted in 51 villages of the region under study where the project of national land transfer to joint cooperatives had been implemented. The study population

includes all of the 248 joint cooperatives existing in the township under study. The sampling was done using complete enumeration method and the representatives of the joint cooperatives were surveyed. The data have been analyzed using the structural equation modeling and the AMOS software..Moreover, content validity has been used to assess the measurement tool, the validity of which was confirmed by some experts in this field. Cronbach's alpha coefficient was also used for testing the internal consistency of the questionnaire. The results showed that all of the components had good reliability, because the alpha value was greater than 0.7 in all of them.

Results and Discussion

The results of the structural equation modeling about the effect of agricultural status in Mosha cooperatives before and after drought on population survival indicate that agricultural status affects the migration of rural population to cities or their survival in their villages, and drought is one of the factors that determines the agricultural status in Mosha cooperative and acts as an economic factor affecting the survival of the population in rural areas. In developing countries such as Iran, where a significant part of the rural population is dependent on agriculture, people's livelihood is particularly vulnerable to climate changes such as drought. Drought has recently resulted in the reduced air and soil moisture, thirst of the environment, lower crop yields of agricultural lands, lower productivity and product quality, higher food prices and food insecurity, higher unemployment, soil erosion and fragility, and higher levels of the villagers' poverty and migration to cities. According to the results obtained In fact, the villagers' migration to cities increases after the drought and its consequent unfavorable agricultural conditions in Mosha cooperatives. In fact, before the drought, the agricultural status in Mosha cooperative has had a positive effect on the villagers' survival. Considering these results, In fact, the villagers' migration to cities increases after the drought and its consequent unfavorable agricultural conditions in Mosha cooperatives.

Conclusion

The data have been analyzed using the structural equation modeling and the AMOS software the regression coefficients obtained in the first model show that the pre-drought effect of the agriculture status in Mosha Cooperatives on the variable population maintenance and migration reduction is 0.487 and its effect on the variable the rural migrants' return from cities is 0.255, both showing a positive and significant effect at the error level of less than 0.05, and the direct and positive effect of agriculture status on the rural population's survival in their villages. However, beta coefficients in the second model for the post-drought effect of agriculture status in the cooperatives on these two variables with the values -0.360 and -0.28 at a level of significance less than 0.05 shows a reverse and significant effect, indicating agricultural stagnation in Mosha Cooperatives and its negative effect on migration. Considering these results, it can be said that drought has led to agricultural stagnation, which in turn has increased the rural-urban migration.

Keywords: Mosha Cooperatives, Drought, Migration, Structural Equation Modeling, Fasa Township.

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Analyzing the Level of Risk in Urban Areas for Crisis Management After Earthquake Using FAHP Method in GIS (Case study: 1th District of Ahvaz)

Farhad Kavoosi
M.Sc Student of Remote Sensing and GIS
Faculty of Earth Sciences
University of Shahid Chamran, Ahwaz

Azim Saberi
Instructor Remote Sensing and GIS
Faculty of Earth Sciences
University of Shahid Chamran, Ahwaz

Dr. Kazem Rangzan
Associate Professor of Remote Sensing and GIS
Faculty of Earth Sciences
University of Shahid Chamran, Ahwaz

Maryam Hoseinzadeh
Remote Sensing and
M.Sc of Remote Sensing and GIS, Dam Operation Company, Power Plant and Zohre and Jarahi Irrigation Networks

Introduction

Natural hazards are a natural phenomenon that, in the immediate vicinity of human settlements, pose a threat to people, structures, or capital, and may lead to a crisis. (Ahanchi, ۱۹۹۷: 8). These natural disasters and natural disasters are usually considered to be the most catastrophic events that affect the basic structures of a particular system (Rosenthal & Charles, 1989 ؛ Ponis & Ntalla, 2016:669). In the meantime, the most important issue that can create natural hazards in a country is the death toll that the mortality and severity of injuries, as well as financial losses, are due to the magnitude of the incidents (Borna et al., 2011: 82). Cities as a gathering place for the human population are not excluded from the occurrence of these natural hazards (Khakpour et al., 2011: 2) and In particular, metropolitan areas are more vulnerable to potential hazards due to their high density of buildings, their infrastructure and their human population (Hashemi & Alesheikh, 2011: 1607 ; Montoya & Masser, 2005). The purpose of this study is to use the GIS as one of the top sciences in decision-making, identification, assessment, analysis and presentation of correct approaches in the analysis of the urban land risk profile in order to manage the post-earthquake crisis using The FAHP method is.

Methods and Methodology

This research is an applied and descriptive-analytical method. This is a logical and systematic sequence of related steps. These steps or phases are: 1) Data collection 2) Data evaluation 3) Data analysis 4) Prediction based on analysis . In the present study, firstly, according to library studies, the information was collected and according to their importance, the criteria and indicators needed for use in the next stages were classified. In Figure 4, the conceptual model of the entire research is shown.

Discussion and results

After the production of the required layers, the analysis of the data was done by fuzzy hierarchical analysis method. The vague data from triangular judgments turned into fuzzy numbers and, with operations on fuzzy sets, the priority of the elements was determined at each level of the hierarchy. After the formation of the pair comparison matrix and the calculation of each matrix row as well as the magnitude of each of them, the weight of the criteria and options in the paired matrix were also calculated. After normalizing the results, the final weight vector was obtained. In the final stage, the layers were normalized after standardization, based on the results of the paired comparison matrix using the FAHP method. Finally, the model has been modeled and the final map of Ahvaz area 1 has been obtained.

The outline map is divided into nine classes, highly unfavorable, very undesirable, undesirable, relatively unfavorable, moderate, relatively desirable, desirable, highly desirable and desirable and the coverage of 9 classes was taken from the total area of blocks and construction areas of the region. Based on the results obtained from this study, in the central and central part of the region, the classes were severely undesirable to the unfavorable.

Conclusion

Crisis management is one of the key issues in the country and it requires a special attitude of officials to address this issue. Among them, GIS can be used as one of the most advanced spatial analysis techniques and technologies for saving time (especially when incident) and cost, as well as proper management and optimal decision making. The main objective is to enable computers as much as possible to solve very complex scientific problems with the same ease and simplicity that the human mind is capable of understanding and making decisions quickly and appropriately. Therefore, the use of fuzzy concepts in decision making is very important. Therefore, in this paper, we have tried to provide a comprehensive approach in order to select the sensitive and sensitive points of the study area using fuzzy standardization methods as well as fuzzy multi-criteria decision making (FAHP). Therefore, after determining the risk map of Ahwaz area 1 in order to more accurately, better and more accurately show the hazardous areas, the final map is divided into nine classes. According to the results of this research in Ahvaz, one of the oldest and one of the metropolitan areas of the country, the core and central core of Ahwaz is in many ways highly risky at the time of the incident.

Keywords: Crisis management, Natural disasters, 1th district of Ahvaz, FAHP Method, GIS

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The Study of Social Effects of Dams on Sustainability of Rural Settlements (Case Study: Karun-3 Dam-Izeh County)

Hojat Allah Sadeghi
Ph.D of Geography & Rural Planning
& Young Researchers and Elite Club
Member of Islamic Azad University, Izeh

Dr. Skandar Seidaiy
Associate Professo of Geography & Rural Planning
University of Isfahan

Dr. Mohamadreza Rezvani
Professo of Geography & Rural Planning
University of Tehran

Introduction

Dam as one of the regional and national developmental infrastructure of each country has different impacts on its surroundings, including rural settlements. These effects are effective in a variety of dimensions, including the social component and the sustainability process. In this article, the case of Karun dam is emphasized. This dam has had various effects on its surroundings, including rural areas, because by creating this dam the spatial-location dimensions and the development process of villages and urban areas in the area has been effected. In addition to the 11-years period, the project has provided some beds for villagers in terms of employment and activities, but the social structures of the villages have also been affected. In order to find out how Karun 3 Dam as one of the water resources development projects in Iran has had social impacts since its inception (since 1994) on the rural areas of the region and has worked in the direction of social sustainability, a systematic review of this issue can be used in this area to be generalized to other areas and dam construction samples.

Methods and Materials

The research method is based on the nature is of the descriptive-analytical and based on the purpose is functional. Out of 63 villages around Karun III Dam, 38 villages were selected based on specific geographical features. The statistical population of the study was 2531 households. The sample was computed using the Cochran formula of 334 households and, in order to increase the reliability of the sample, the number was increased to 350 households.

Results and discussion

The results showed that due to the significance level obtained for the studied variables equal to 0.000, there is a significant difference in the field of social sustainability of rural areas before and after the creation of the dam. This difference can be seen in the variables of housing structure, development of amenities and services. The survey also showed that the three variables of population changes, location and spatial dependence and socio-cultural structure with respect to the presented values, the

situation before and after the creation of the dam for each of them was better and more favorable and by creating dam, their situation is unstable. In general, of the total of 5 variables studied in the social sector, the three variables have become unstable after the creation of the dam, and the other two variables are more appropriate than before the creation, their position is more appropriate. However, this improvement was not much different from the section before the dam was constructed. Thus, it can be stated that the dam emphasizes social variables, although it has some desirable and positive effects in some cases, but these effects are very low and in fact its negative and unstable effects are more. In addition, the results indicate that there is a significant difference between the type of villages (unmodified villages, displaced villages and villages of land ownership) due to the impact of the dam. In fact, the dam has different effects on social development in terms of social variables on the surrounding villages. At least one of the listed villages is different from the other two in terms of the impact of the dam in terms of social sustainability. Therefore, before the dam, except for the development of facilities and services, other variables are defined in terms of the level of stability among the homogeneous rural groups, with at least one difference. This situation is true for all variables after the dam has been created. Also, the analysis of qualitative studies shows that the most important social impacts of dam on rural settlements can be unbalanced development, destruction of ancient works, increasing crime and suicide, increasing population aging, reducing trust, reducing participation, weakness in services, Increasing immigration and so on. Most of these effects will lead to rural instability.

Conclusion

The results showed that the dam has a significant impact on variables such as development of amenities, services, population changes, spatial dependency, housing structure and socio-cultural structure of rural settlements. The process of these effects, both before and after the creation of the dam, has led to social instability. It has played an important role in the process of indicators such as the lack of development of facilities and the acceleration of rural migration. In addition, there is a significant difference between the rural groups defined as the effect of the dam, for each of the social variables. The effects created by the creation of a dam in reality undermine the social sustainability of the countryside, which has negative effects as well as social instability. If this can be prevented, a systematic planning based on the sustainability of rural settlements should be emphasized.

Keywords: Social Impacts, Sustainability, Villages, Dam, Karun 3.

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Determination of Psychological Factors Affecting Climate Change Risk Perception Among Agricultural Extension Experts and Agents of Khuzestan Province

Masoud Yazdanpanah
Associate Professors of Agriculture Extension
University of Khuzestan, Ahvaz

Tahereh Zobeidi
Ph.D Student of Agricultural Extension
University of Zanjan

Hajar Zaery
Ph.D Student of Agricultural Extension
University of Khuzestan, Ahvaz

Introduction

Climate change is expected to have serious economic and social impacts, particularly on rural farmers .Agricultural production and access to food could be severely compromised by climate change. Climate change results in an increase in extreme weather events such as floods and droughts and increased global temperature, as well. In addition, Potential increase in droughts disturbs not only the water resources but also agriculture and consequently, food security. Adaptation is a viable option to reducing vulnerability towards negative impacts of Climate Change. Studies show that without adaptation, climate change may create considerable problems related to agricultural production and agricultural economies and communities in many areas; but with adaptation, vulnerability can be reduced .Access to agricultural extension as a source of information affects adaptation to climate change. The agricultural extension workers are expected to be the principal stakeholders to teach farmers how to adaptation with climate change. it is also to be expected that public perceptions of the threat posed by climate change, and support for adaptation policies, will vary across countries. Therefore, this work explores risk perception of extension experts and agents and factors influencing it, regarding climate change.

Methods and material

This research in terms of purpose is applied and in terms of data collection is survey. Statistical population was 400 farmers of agricultural extension experts and agents of Khuzestan province that among them, a sample size of 240 person's whit sampling method of Cluster randomly selected. Data were collected through a questionnaire based on the conceptual model. The face and content validity of the questionnaire was confirmed by a panel of experts. The questionnaire's internal reliability was investigated using the Cronbach's alpha coefficient. All scales indicated a good-to excellent reliability index (0.67-0.87).

Results and Discussion

The results of correlations indicate, perceived risk of climate change was significantly related to the trust in media, environmental attitude, responsibility, self-efficacy, environmental values and psychological distance variables. Also The results showed that, the risk salience and psychological distance did not have a significant effect on risk perception. Environmental attitudes were, in aggregate, the largest determinant of risk perception. These findings affirm prior research showing that environmental risk perception is related to environmental attitudes (Carlton & Jacobson, 2013). Responsibility also was an important driver of risk perception. As expected, respondents who believe they have the responsibility and ability to mitigate the potential adverse impacts of climate change appear to be more perceived about the climate change risks. Prior research has shown that people with high Responsibility tend to perceive climate risks as high (Kellstedt et al., 2008). The negative relationship between self-efficacy and perceived risks is noteworthy. Media and experts trust variables also significantly predict climate change risk perceptions. Our regression model explains approximately 60% of the variance in the dependent variable, which is consistent with other studies predicting environmental and natural hazards perceptions.

Conclusion

Agriculture is vulnerable to global climate change and Adaptation is a viable option to reducing vulnerability towards negative impacts of Climate Change. Agricultural extension experts play a significant role in modern agriculture and work with farmers on numerous decisions ranging from financial to agronomic to conservation-oriented. An understanding of experts' beliefs about climate change risk and adaptation is required to inform effective strategies to adaptation. In this study, the factors influencing the risk perceptions of Agricultural extension agents toward the increasing problem of climate change and global warming have been identified. The results showed, Climate change risk perception has been explained by factors such as environmental attitudes, Responsibility, efficacy and media trust and experts trust. This study confirms prior findings in the risk analysis literature that risk perception is influenced by Psychological Factors. Based on these results, it is suggested, by providing more accurate and more up-to-date information for agricultural experts on climate change, its impacts and consequences and about methods of adaptation to it through research organizations or media increased their trust and consequently risk perception.

Keywords: Climate Change, Adaptation, Extension Agents, Agricultural Extension Experts, Risk Perception, Khuzestan Province.

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Seasonal and Monthly Identification of Cloudiness in Iran Using Cloud Product of MODIS/Terra Satellite

Khodakaram Hatami bahmanbeiglou
Ph.D Student of Climatology
Faculty of Geographical Sciences and Planning
University of Isfahan

Dr. Movahedi Saied
Associate Professor of Climatology
Faculty of Geographical Sciences and Planning
University of Isfahan

Introduction

A cloud is a hydrometeor consisting of minute particles of liquid water or ice, or of both, suspended in the free air and usually not touching the ground. It may also include larger particles of liquid water or ice as well as on-aqueous liquid or solid particles such as those present in fumes, smoke or dust (WMO, 1975). Clouds, which display great variability in space and time, as well as in type, can influence climate through many complex interactions involving the hydrological cycle; however, their dominant role is in controlling the 3-dimensional field of radiative fluxes in the atmosphere. In turn, these radiative fluxes drive the thermally forced general circulations of the earth's atmosphere and oceans. These circulations then form clouds and a major climate feedback loop is joined (Rossow and Schiffer, 1983). Many researches have been done about sky conditions classifications abroad of Iran such as, Nakumura (1985), Qian et al (2012), Stove et al (1989) and Filipiak et al (2009). Bannayan et al, 2012 classified sky condition in northeast of Iran, they classified cloud amounts of synoptic meteorology stations in cloudy day (7-8 octas), partly cloudy (3-6 octas) and clear sky (0-2 octas).

Methods and Material

We have applied Cloud Fraction Parameter from Cloud product of MODIS sensor on board Terra satellite (MOD06). Data were downloaded from site of ftp://ladsweb.nascom.nasa.gov/allData/6/MOD06_L2. Statistical period is from 2000 to 2013 solar year (2000 to 2014), so, the research has been done based on solar year. Cloud products of MODIS (MOD06) do not have neatly geographic data network on daily, so, we have used new method for gridding of data, At first, a network of geographical coordinates with the spatial resolution arrays of 5 × 5 km, based on the framework of Iran (25-40 degrees north latitude and 44-64 degrees east longitude) was prepared as a regular network or reference with dimensions of 618 × 353 (618 columns and 353 rows). Using geographic coordinates latitude and longitude of each cell in regular network, a framework was prepared 1.5 times the distance between each pixel dimensions (a radius of less than 7.5 km) and was spread on the granules geographical coordinates and the CF data within the framework of the granules were

transferred to target cells in terms of latitude closest to the regular network. To transfer CF data parameters in each path to a regular network on a daily basis, this process was carried out for each individual cell in a regular network. So, CF data were ready for statistical computing and As a new database, next steps of research was carried out based on this database. Then, Sky conditions classified based on clear sky days (0 - 25%), partly cloudy days (25% - 62.5%) and cloudy days (>62.5% to 100%). Daily data composite to sessional and monthly data. Then, spatial distribution and long-term average of sky condition classifications were identified in monthly and seasonal scales on Iran.

Results and Discussion

In Current research, the sky condition has been investigated based on Cloud Fraction parameter in cloud product of MODIS Terra satellite, at first, sky condition was classified to clear sky, partly cloudy and cloudy days based on thresholds considered. After calculating the long-term average and spatial distribution of sky condition classifications were analyzed. Due to the irregular geographical coordinate of daily granules of MODIS on country, first, the Cloud Fraction (CF) data were transferred to a 5× 5 km regular network to be able to analyze long term climatology of cloud cover. The findings of this study reveal that the highest frequency of cloudy days is in winter with 36 days and the lowest is seen in summer with 7.8 days. The highest (lowest) frequency of clear sky days is seen in summer season with 79.6 (45.2) days. On monthly time scale, the highest (lowest) frequency of cloudy days is in the February (September) with 12.8 (1.8) days and the highest (lowest) frequency of clear days is in the September (February) with 27.9 (14.1) days. The spatial distribution of cloudiness indicated that the maximum of cloudy days in spring, summer and fall is seen over the south and west parts of the Caspian shores, however, in winter the maximum of cloudy days is over mountainous regions of the north. The minimum of cloudy days in spring, fall and winter is seen over south-east of the country but in spring it is far away from the south and south-east areas of the country and it is seen over central parts of Iran. The maximum of partly cloudy days is seen over mountainous areas and the minimum is over southern, central areas and also the hills and the plains. In general, the frequency of cloudy (clear) days decreases (increases) from north to the south-east but in summer it increases over south-east and in the north of Hormuz Strait and in winter over the mountainous regions of the north it has an increasing tendency and the decreasing (increasing) of cloudy (clear) days is no longer seen.

Conclusion

The aim of this research is identification of spatial distribution and frequency monthly and seasonal sky condition classifications on Iran, according to this, it was found that the spatial distribution obtained from the study method showed that the maximum frequent cloudy days is seen in the southern and western shores of the Caspian Sea in the Summer, Spring, and Autumn, and its minimum is seen in the southeast of country in spring, winter, autumn. these results are correspond with Rasooli et al (2014), but the maximum (minimum) territory of cloudy days and clear sky days vary over Iran in summer and Winter Compared with other seasons and this situation have also seen

in some months that it differ with Rasooli et al (2014) results. Generally, the frequency cloudy days (clear sky days) decrease (increase) from north to south of country, but, this path is impaired in north of Strait of Hormuz and southeast of country in summer (July, August, September) and over the mountain heights of north of country in winter (December, January, February). The most frequent cloudy days occur in the winter and the lowest it occur in the summer. The most frequent clear sky days occur in the summer and the lowest it occur in the winter. In the monthly scale, the most frequent cloudy days occur in the February and the lowest it occur in the September.

Keywords: Sky condition, Cloudy day, MODIS, MOD06, Cloud Fraction, Iran.

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Evaluation of Sustainability of Development in Zone 22 of Tehran by Ecological Footprint Method

Dr. Farhad Qaderi
Assistant Professor of Environmental Engineering Division, Faculty of Civil Engineering
Babol Noshirvani University of Technology

Pariya Asadi
M.Sc Student of Civil and Environmental Engineering, Faculty of Civil Engineering
Babol Noshirvani University of Technology

Amin Tamadoni
M.Sc Student of Civil Engineering,
Faculty of Civil Engineering
Babol Noshirvani University of Technology

Morteza Azizi
M.Sc Student of Civil Engineering,
Faculty of Civil Engineering
Babol Noshirvani University of Technology

Introduction

Humankind's demands on the biosphere were in a balance with the Earth natural resources, until the middle of 20th century. Ever since the natural resources increasingly exceeded the supply, and caused environmental destruction and ecological unsustainability (Szigetia et al, 2017). These environmental issues raised the concerns and made the sustainable development concept (He et al, 2016). Sustainable development states a long term development strategy, which considers the future generation needs for development. This kind of development should be the foundation of every region development, thus the protection of environment will be insured. Unsustainable development in a region will reduce biocapacity, jeopardize the environment, and it will cause a number of irrecoverable damages (Sardarabadi et al., 2014). Sustainable development could be assessed through various methods. The presented approach, evaluate the sustainable development of zone 22 of Tehran by calculation of Ecological Footprint. The Ecological Footprint is an accounting tool used to measure mankind's demand for natural services and biocapacity is the natural ability of an ecosystem to regenerate those services (Wackerngel and Rees., 1996). Since 1961 the balance between biocapacity and Ecological Footprint of Earth has been lost (Ecological Footprint Atlas, 2016). Moreover, with the climate change caused by massive carbon emission (CO_2 concentration changed from 270ppm to 400ppm since the industrial revolution), biocapacity is reducing more than before. Global consumption trends reduced the Earth biocapacity to 1.8 Global Hectares[1] and raised the average Ecological Footprint to 2.7 Global Hectares. This peculiar situation leads the world to unbearable ecological condition (Ecological Footprint Atlas, 2016).

Methods and material

1-An average hectare of biologically productive land or sea area with world average bioproductivity in a given year

Study of sustainable development in Tehran zone 22 is the main aim in this research. The assessment is based on the calculation of Ecological Footprint and biocapacity metrics. Ecological Footprint is the overall usage of natural resources and the generate waste. EF is equivalent to consumption of water, land and all the use of other environmental services, in addition to released carbon and generated waste caused by this consumption. According to the assumptions and as the initial definition, the Ecological Footprint is obtained by dividing the annual demand of one product into its annual efficiency. Also, the Ecological Footprint unit is the Global Hectare. To obtain the world hectare, which depends on the efficiency coefficient (the average national efficiency of each hectare of land to the average global efficiency of that type of land) and the equilibrium coefficient (representing the relative productivity between water and land types), the amount of consumption of each person, Per ton per year, is divided into the final limit of the earth or the water zone, then the amount that is consumed or contaminated is the desire amount, which is called the world hectare. The biocapacity means the ability of the fertile land, which includes natural biotic areas that are used to produce consumable resources, and also to receive waste and residues from their consumption. To calculate the biocapacity, the efficiency coefficient and the equilibrium coefficient for each type of region of the earth is multiplied by its area. It should be noted that each of the zones of forest, pasture, farmland, built and sea, has it specific efficiency coefficient and equilibrium coefficients. Scientifically, when the two parameters are equal, the development of a region is stable. To calculate the biocapacity, two Google Earth and Arc GIS software were used and the area of available regions was calculated for each land use.

Results and Discussion

The difference between the amount of Ecological Footprint and biocapacity determines the level of instability in the area; so, if this difference is high, the development of the region is an acute and very concerning. According to the results obtained in this study, carbon footprint with a total amount of 2.57 units per world hectare, compared to land, forest, pasture products, agricultural products and seafood, which were 0.09, 0.11, 0.41, 0.83, and 0.1 world hectares respectively, are significant. Also, according to the results obtained in region 22 of Tehran, the distribution of carbon in the commodity sector is the highest in terms of the area and type of use per unit of world hectare. It is approximately 0.8 and this is a threatening. In transportation sector, the services and construction, which include the next higher values, are 0.62, 0.6 and 0.43 world hectares respectively, all of which can't be ignored. Finally, the carbon footprint in the food sector is considered to be 0.12 world hectare, and has less rank and actually less vulnerable than the other factors mentioned, but it needs to be considered fairly. In the following, comparing the Ecological Footprints of This region with other major parts of the world, the location of Tehran's 22nd region, after Kyoto with 2.38, Campo Grande with 3.14 and Hong Kong with a value of 4 world hectares, which is equal to 4.11 world hectares, Sao Paulo, New York, San Francisco, Ontario and Calgary have values of 4.38, 6.1, 7.1, 8.4 and 9.86 world hectares, respectively, have a higher Ecological Footprint than Tehran's 22nd area, and the Ecological Footprint of all cases are higher than the acceptable global limit for the Ecological Footprint of the

world, and this is a threat, and it is required to take action to reduce and perhaps eliminate the damages. Biocapacity of Tehran's 22nd district, which includes the total capacity of all areas, was estimated at 5549 world hectares. By dividing this amount into the population of the region in 2015 (equal to one million and one hundred thousand), biocapacity was estimated at 0.005 world hectares per capita. By comparing it with Iran, Asia and the world, it was determined that Tehran's 22nd region has a much lower capacity than the mentioned ones. To estimate the Ecological Footprint of the 22nd district of Tehran, population density and information related to lifestyle were used and the rate of this parameter was 4.1 world hectare per capita. Comparing the Ecological Footprint of the 22nd district of Tehran with the average of this index in Iran (2.67), Asia (1.8) and also in the world (2.7), it was determined that the 22nd district of Tehran has a more Ecological Footprint amount than all these. There is a need to reduce the Ecological Footprint by changing the pattern of life and reducing population in the region.

Conclusion

Cause of immoderate difference between Ecological Footprint and biocapacity in this region it's accurate to assess the development, in an unsustainable situation. The main reason of this difference is lack of infrastructures in zone 22. With two times more population than master plan, biocapacity is less than half of the predicted amount. As a region with high mid-income level, in case of mismanagement Ecological Footprint of Tehran zone 22 could reach to 6.2 Global Hectares. Zone 22 needs an immediate management on population density with decrease in urban construction, especially near the Chitgar artificial lake. It worth mentioning that Ecological Footprint decrease is an achievable goal. Germany was successful to change the people Ecological Footprint from 6.8 Global Hectares in 1990 to 5.2 Global Hectares in 2012.

Keywords: Sustainable Development, Ecological Footprint, Biocapacity, Zone 22 of Tehran.

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