Regional Assessment of Iran's Potential for Solar Farms by TOPSIS, Fuzzy TOPSIS and Sugeno-type Fuzzy Inference Methods

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Introduction

Iran is located on the world's Sun Belt; therefore the required energy of many parts of the country can be generated through photovoltaic systems. Nowadays, with the increasing growth of energy consumption, the tendency to use renewable energy and specifically solar powers is rising. Within 2000 to 2007, world energy production increased 10.3 percent per capita (Department of Energy, Iran).This consumption increase in 2030 reaches over 48% and even 60% in 2000. However, disadvantages of fossil energy led international community to use new types of renewable energy. Among the renewable energy forms, solar energy tends to be the cleanest energy and considering potentials of the selected sites, is can be deemed economical, as well.

Theoretical Basis: One of the most salient characteristic of renewable energy with regard to its conversion and usage is its dependency on geographical location as well as numerous contradicting factors. Location is one of the factors that are affecting the efficient use of solar farms. Installation, operation, maintenance and security of solar farms have a strong relationship with cost. Generally, assessing areas' priority from economic, environmental, industrial, social and climatic views is considered. In other words, a suitable site for solar farm must fulfill a series of economic, conservational, climatic, geographic and demographic considerations simultaneously. Effective factors and methods of locating solar farms have been studied and are used in various researches. Various questionnaires used to analyze optimal location of wind and solar farms, in this research solar radiation potential and transmission lines is highlighted as effective elements. Greatest amount of available solar energy in large terrains based on slope [300,750] and aspect [900, 2700] is tested. With the conclusion of the researches, known factors classified in the category of

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Environmental, Geographic, Climatic, Demographic and Facilities. These criteria are described in detail in the input data section. According to the extent of the study area, 21 impressive criteria were selected and included in the study.

Materials and Methods: Location is considered to be one of the key components of the planning. In order to select suitable locations for solar farms, multi criteria decision making methods are commonly used. In MCDM several factors are considered and this, gives comprehensive view of the topic. Iran's northwestern provinces in terms of potential solar radiation are unfavorable for solar farm; while in another country (Fujian Province of China) which has similar conditions, solar projects have been implemented. On the other hand, there is always a contradiction between the involved elements in the decision-making. The use of MCDM, considering conflicting criteria, causes greatest suitability) for selected solar farm's location. This research uses multi-criteria decision making (MCDM), fuzzy principles and GIS tools to evaluate the optimized place of photovoltaic solar power plants in Iran. To achieve this objective, three approaches are considered, namely: TOPSIS (Technique for Order Preference by Similarity to Ideal Solution), Sugeno-type Fuzzy inference system and fuzzy TOPSIS. After obtaining experts' opinions, site selection steps have been taken in two main steps: first, the deduction of impossible points (constrained); second, the calculation of location's potential using raster analysis.

Findings and Discussion: The comparison of the above methods showed that Fuzzy TOPSIS： from the perspective of continuity and involving elements： had better performance. TOPSIS Method 14.71% and fuzzy TOPSIS 18.33% and Sugeno 20.52% of the total area are considered as suitable area for the construction of solar power plants. All three methods had similar results. The priority of country's sections for locating solar farm locations are estimated as, Narimanshir, Nobandegan, Farajhiand, Bahmanpour, Shibkoh and Gavbandi through all methods with subtle variations.

Keywords: Site selection, Solar Energy Frams, TOPSIS, Fuzzy TOPSIS, Sugeno-type Fuzzy.

Synoptic-thermodynamic Analysis of Cloud Mechanism in Azerbaijan

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Introduction

All the phenomena called air changes, from a very gentle breeze to severe storms, or from a clear sky to cloudy and rainy, have different patterns due to the uneven distribution of heat in the atmosphere. Most of the movements of the air and the changes in it are based on the simple principle that the warm and humid warmth of the ascending upward, and vice versa, the cold weather goes down due to heavy load (Alizadeh et al., 2005: 66).

In different seasons, rainfall in the Azeri region has a significant difference in intensity and intensity, which is mild and persistent in winter and severe and heavy in spring and autumn seasons. This feature of rainy weather can somehow be a good guide for identifying different mechanisms of rainfall in the affected area. According to a study by Alijani (2002: 212), local coexistence factors influenced by the topographic conditions of the region together form clouds and spring precipitation in the region of Azerbaijan, while in this season, the clouds have grown suddenly and caused The incidence of heavy rainfall is a heavy rainfall, which sometimes entails a lot of financial losses to the ecosystem. In this regard, if according to the mechanism of cloud performance and its moisture source it can predict the premature rainfall (even short-term), the severity of the damage to human and natural resources can be reduced.

In general, the aim of this study is to investigate the thermodynamic compatibility of the cloud-forming mechanism in the Azerbaijani region, in order to identify the functioning of integrated systems that enter the area causing rainfall of more than 15 millimeters

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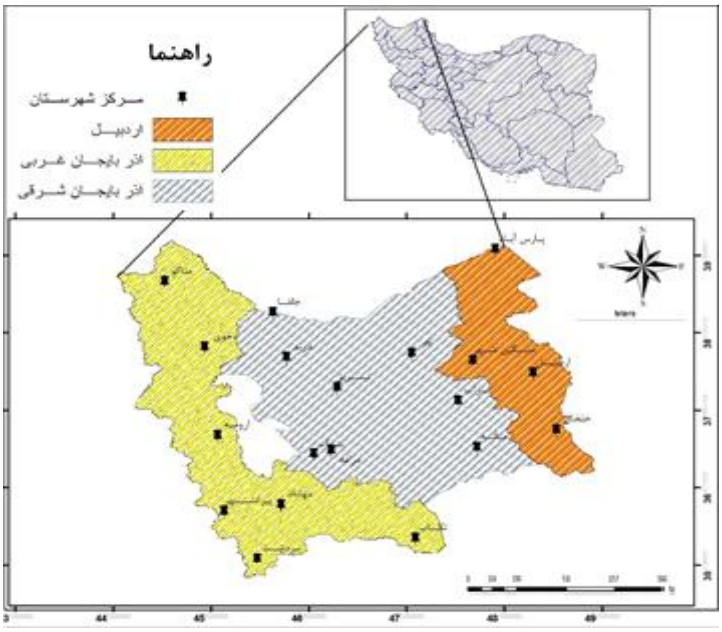
Materials and Methods

The study area in the study area is Azerbaijan, which extends between 35 degrees 58 minutes to 39 degrees and 49 minutes north latitude and 44 degrees 3 minutes to 48 degrees and 59 minutes longitude. The region includes politically the provinces of East Azerbaijan, West Azerbaijan and Ardebil. Figure 1 shows the location of the study area and the distribution range of the studied stations.



Considering that the main approach of this research is based on the study of the coherence of the thermodynamics of the cloud formation mechanism during the rainy days of the Azerbaijani region. Therefore, the rainfall data of 19 stations in the Azerbaijan region, which had continuous statistics from 2000 to 2009, were collected. Then, by adopting two parameters of precipitation and daily rainfall, the rainfall index days were used to analyze the temperature and thermodynamics. In this study, the average rainfall is considered to be a rainfall that the precipitation of each station is equal to or greater than 15 mm over a period of 24 hours, and rainfall is a predominant rainfall of which at

least 50% of the stations surveyed on that day are loaded equal to or greater than the average precipitation (15 mm or more).

Then, after determining the precipitation index days, the simulated thermodynamic mechanism of the clouds formed in these days is studied. For this purpose, information on the characteristics of the clouds (cloud height, cloud type, cloud and current and past weather conditions) are extracted manually from the synoptic offices of the Meteorological Organization, and the specification of the sea level pressure level and geo-potential elevation is 850 and 500 hectares The study of how the functioning and development of active systems in these days of the index and the maps of the special altitudes of 850 and 700 hPa are used to study how the steam is transported to the region. In order to study the upward movements that cause the formation and growth of vertical growth or the thickness of the convective clouds, the vertical component Wind speed on the device Khtsat pressure of 500 hPa. Is used. It should be noted that these data are available in a regular network with spatial steps of 2.5 degrees in the posterior orbit of the meridian, with a 6-hour time coverage of the NCEP / NCAR Web site. The conditions of stability and unsaturation of barley were also analyzed based on Tabriz skive-board diagram.

Findings and Discussion

In this study, in order to analyze the thermodynamic equilibrium of the cloud mechanism in the Azerbaijan region,

The analysis of the wind and wind field maps of the 700 and 850 is indicative of the highest moisture content of the Red Sea along the Southwest and the Northeast on the region. In terms of humidity from the Arabian Sea and the Sea of Oman by clock movement, which is then on the Arabian Sea and the Arabian Peninsula, it is transmitted to the Red Sea, through which the Naveh is located on the Red Sea to the northeast The study area is being transmitted. It was also found that the moisture content of the Red Sea convergence area at 850 hectares has been the highest. At 700 hPa, a significant amount of moisture has also gone from the Red Sea to the Mediterranean Sea. In addition, different levels of altitude are used to check the amount of water used. In the spring, the moisture content required for some precipitation

from the area itself is obtained from the moisture content of the previous flood opening.

On the other hand, Saudi high pressure indicates the direction of wind flow on the Arabian Sea at a low level, and causes the transfer of moisture from the Arabian Sea to the Red Sea and the southwestern region of Iran, the patron saint (1370), the army (1996). Regarding the role of Saudi high pressure in transmitting moisture on the front of the low-pressure system, the Red Sea convergence region has done some research that confirms their findings. Fakhary Unit (1391) has come to the same conclusions about the transfer of moisture from the Arabian Sea to the Red Sea and the transfer of this moisture to the front of the low-pressure system in the north-west of Iran.

For simulation of northwest clouds of Iran, maps of pressure systems of levels equal to 850, 1000 and 500 hPa were used. In the nautical index days, the low-pressure systems were located along the northern south, where the study area was located in the front of the nave, and the core of the lagoons is closed between the latitudes at approximately 33 degrees to 55 degrees, when, during the days of the nave index, the depth is usually deeper in the front of the nave Omega was intense but did not increase with increasing depth of rainfall. In other words, the depth of omega is directly related but does not showing a specific relationship with the amount of precipitation, but the specificity and humidity within the system determines the severity of the precipitation. In fact, if there is enough humidity in the area, small caverns will cause heavy rainfall. Dynamic equations show that the depth of the waves is high, the intensity of the compressive systems intensively increases. If there is a special mineral in the area for precipitation, then increasing the depth of the lake will increase the amount of precipitation. When the humidity is low and the conditions for precipitation are not provided, the energy of the system is evaporated as kinetic energy. In this case, the wind speed will increase.

The thermodynamic study of precipitation type clouds in the northwest with the presumption that convective clouds produce the highest precipitation showed that the probability of precipitation from

convective clouds in spring and autumn is due to instability indices in the region, but these indices are not so high, but with The entry of cold and hot fronts and also the location of the study area under the high divergence area could exacerbate instability, but in the winter the precipitations were dynamic and caused by the arrival of the fronts.

Keywords: Cloud mechanism, Azerbaijan, Synoptic - thermodynamic analysis.

A Survey of Fennoj City Physical Development Based on Strategy Smart Growth

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Abstract

Urban development caused by improper use of urban land and urban development has been sporadic. This issue cause approach formation as urban smart growth which aims giving regulate the development of cities. Accordingly in the present research to study how to develop physical in Fennoj city be discussed. In fact main objective of the research, growth determination strategies to prevent the "sprawl" of Fennoj and thus reduce economic costs due it is. The method of the present study, was a descriptive analytical based on a library study, documents and review of the field. In this context, data requirements regarding city development, distribution land use and increased costs economic development of the dispersed city, from authentic documents of the questionnaires were prepared and by the software Arc GIS and SPSS can be analyzed. The results of the review of the relationship between smart growth and reduce development costs, Based on t-test Showed that significant amount (Sig 0/000) with Less than the 0/01 is, can be safely 0/99 acknowledged that smart growth strategies on reduction of the cost of development Fennoj city will be effective. In case implementation smart growth strategies based on neighborhood conditions in Fennoj, costs economic and environmental destruction is reduced and causing increase environmental quality of life and citizens satisfaction his life environment will be.

Introduction

Urban growth and urbanization began in the broad sense of the nineteenth century with the industrial revolution in England. With the location of industrial factories in the countryside, due to the lack of

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space and land in the city center and the pollution that these industries created, the good and fertile land of agriculture around towns went into urban infrastructure and cities were scattered horizontally. The urban sprawl or horizontal expansion and new construction around the city, causing damage to the socio-economic and environmental degradation in surrounding towns and cities have been. The dominant figure of the twentieth century is the widespread or horizontal expansion of the city, which is known for its adverse effects as the most unstable urban form. In Iran, since the 40s, the physical expansion of cities has taken place without any oversight and control by government agencies. Between urban land use balance and imbalance and much of the infrastructure of cities dedicated to residential buildings and road networks. In this regard, strategies such as "Smart Growth", "Smart Management, Green Belts" and "Land Use Planning" have been considered as solutions to the problem of dispersion. Smart growth has emerged as a response to the continuing dispersion of developmental problems and its negative outcomes. Based on this, the author focuses on the importance of urban growth and planning to manage and control urban sprawl, and has studied the city of Fennoj as an exemplary model.

Research background

Pour Ezat and Firoozpur (2012),In a study entitled "Future prospects in Iran in 1404," it stated that the visions twenty-year milestone in the planning and development of the country and the idea of smart urban growth, swept round the realization of the goals and visions and achieve sustainable development studied city.

Saeedi Rezvani, Davoud Pour, Foadi and Server (2013),In his research entitled "Application of the principles of intermediate development in the improvement of spatial-functional urban fabric, a case study of the 17th District of Tehran", have stated that as a result of the extensive and uncontrolled expansion of cities, there has been a great deal of damage to the city's texture, Considering the importance of preserving natural resources and reducing the environmental impacts of urban extermination, it is considered as one of the urbanization approaches.

Grant and Tsenkova (2012), in an article entitled "Evaluation of new urbanism and smart growth movement" came to the conclusion that the development of new urbanism and smart growth strategy, and their impact on the organization's approach to managing urban growth in recent decades has led.

Yama Tag & Three Or (2013),In a study entitled "Simulation of a smart city of the future", it concluded that the design of a smart city is one of the most urgent tasks in the next 20 years, one of the ways to achieve smart city of the future, combining land usage Convenient transportation and energy systems.

Research Purposes

The development of the city of Fennoj is identified.

Efforts to reduce economic costs due to urban development and environmental protection is determined.

Question and research hypothesis

How does Smart Growth Strategy Reduce Economic Costs Caused by Fennoj Physical Development?

By creating smart growth strategy in Fennoj we can reduce economic costs due to its physical development.

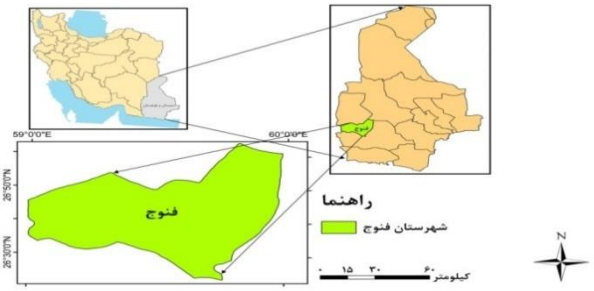
Importance and necessity of research

Urban Sprawl one of the main challenges in the twenty-first century is spatial planning. The main feature of the new mothers' urban growth around the world, especially in developed countries, is the dispersion of low density.

The city of Fennoj has been formed discontinuously due to natural features such as rivers, numerous coves, heights and dams. The existence of gardens and agricultural lands is also due to the abovementioned factors and the dispersion and dispersion of the city Added.

Introducing the scope of the study

The city of Fennoj has been located around the geographical coordinates of 26 degrees and 34 minutes north and 59 degrees and 38 degrees east, northwest of the city of Nikshahr and south of Sistan and Baluchestan province. According to the latest divisions of Figure 1 is shown in Fennoj Location city.



Materials and Method

The research method in this research is descriptive-analytical and based on documentary studies, library and field studies in Fennoj city. In this regard, Shannon entropy model has been used to measure the distribution of urban development. Also, in order to provide the city of Fennoj development, according to the results of the data and information obtained, ArcGIS software has been used. In order to prove or reject the research hypothesis, SPSS software for linking the development of Fennoj city based on the growth strategy smart and reduce economic costs due to its development, has been used.

Findings and Discussion

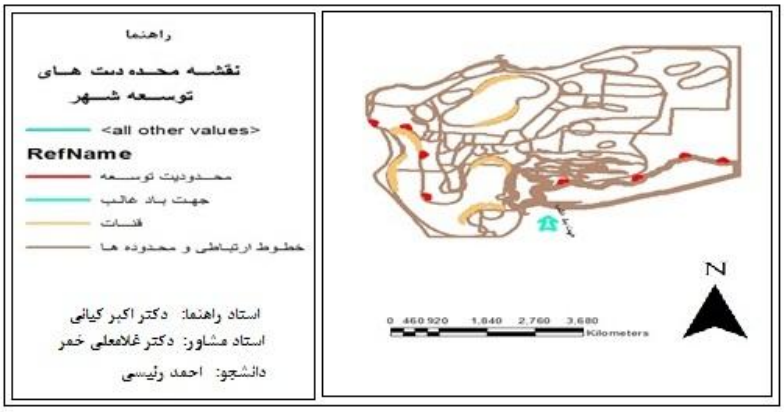
Statistical Society

The statistical population in this study is the residents of Fennoj. Due to the frequency of the statistical community, the Cochran formula has been used to select the sample so that the sample population can be better studied. According to the latest census in 2011, 11527 people and 2829 households have been announced.

Results and discussion

The study of physical development of the city of Fennoj

The city of Fennoj has been shaped in a discontinuous manner due to its special natural features, including rivers, numerous cannons, heights and ditches. The existence of agricultural lands, gardens and rivers from the west, south and north of the city is an obstacle to the development and expansion of the city in these directions (Figure 2), and the only opportunity for the development of the city is the relatively suitable forests in the eastern and northeastern parts of the city. It should be noted that the existence of major service utilities on the city scale and in the district such as the municipality and various departments.



Measuring the distribution of Fennoj development using Shannon entropy model

One of the ways to measure irregular urban growth is to use the Shannon entropy model. The general structure is described in relation (1):

$$H = -\sum_{i=1}^{n} pi * Ln(Pi)$$

In relation (1):

H: Shannon entropy rate,

Pi: ratio of built area (total residential density) of area i to total area of the total area,

N: Total areas.

The value of the Shannon entropy value is from zero to Ln (n). The zero value represents the city's very compact physical expansion. While the value of Ln (n) represents the urban dispersal of physical development. When the entropy value is greater than Ln (n), urban sprawl growth has occurred.

Calculating the entropy value of the city of Fennoj from 1996 to 2006

Table (1) Calculating Shannon Entropy for the year 1997 in the city of Fennoj

Area	Build Area (ha)	Pi	Ln(Pi)	Pi*Ln(Pi)
1	150	$\frac{150}{390} = 0/3846$	-0/9555	-0/3674
2	130	$\frac{130}{390} = 0/3333$	-1/0987	-0/3661
3	110	$\frac{110}{390} = 0/2820$	-1/2658	-0/3569
total	۳۹۰	Pi=1∑	Pi*Ln(Pi)=∑	-1/0904

Table (2) Calculating Shannon Entropy for the year 2007 in the city of Fennoj

Arae	Build Area (ha)	Pi	Ln(Pi)	Pi*Ln(Pi)
1	300	$\frac{300}{740} = 0/4054$	-0.9028	-0.3659
2	230	$\frac{230}{740} = 0/3108$	-1.1686	-0.3632
3	210	$\frac{210}{740} = 0/2837$	-1.2598	-0.3574
total	740	Pi=1∑	Pi*Ln(Pi)=∑	-1.0865

Tables (1) and (2) show that the amount of entropy in 1375 was equal to 0904/1, while the maximum value of Ln (3) = 1/099. Being close to the maximum value represents the amount of entropy is Fennoj sprawl

physical development. This figure was 1,865 in 2006, indicating that the physical development of the city has been sporadic and irregular over the course of ten years.

Smart Growth and Economic Costs of City Development

Based on the study of the effect of intelligent growth strategy on the economic cost of developing our city, we used two types of variables: intelligent growth indicators as independent variables, economic variables, access, land use and physical variables with different subcategories .As an associate variable, we use SPSS to analyze the data. A total of 391 questionnaires were distributed among the people of Fennoj city (experts). The questionnaire questionnaires were prepared based on the research hypothesis in 12 sub-indicators in economic, access, land use and physical collections. Based on the Cronbach's alpha, 0.883 had a good reliability they were:

Table (3): The Effect of Intelligent Growth Indicators on Reducing Economic Costs of Fennoj City Development

Priority	Coefficient of variation	Standard deviation	Middle	Average	Indicator
1	0.32	1.27	4.00	3.96	Reduce development costs
2	0.33	1.28	4.00	3.93	Reduce public service costs
3	0.33	1.32	4.00	3.91	Reduce shipping costs
4	0.34	1.33	4.00	3.87	Conservative savings
5	0.33	1.27	4.00	3.87	Limiting city development
6	0.36	1.38	4.00	3.86	Protection of agricultural lands and gardens
7	0.34	1.30	4.00	3.80	Reducing Household Economic Costs
8	0.38	1.42	4.00	3.75	Renewable energy use
9	0.36	1.36	4.00	3.74	Urban land use planning
10	0.38	1.40	4.00	3.70	Prioritize investment in urban deserted areas
11	0.36	1.34	4.00	3.96	Increasing the density of neighborhoods according to the amount of services and infrastructure
12	0.39	1.44	4.00	3.68	Support for high environmental quality industries

As shown in Table 3, among the 12 indicators in the subset of the Economic Development Indicators, the highest average for the development cost reduction index is equal to (3.96), due to the orientation of the smart growth strategy towards Sustainable urban economics and the lowest performance related to supporting the high environmental quality industry with an average of 3.68. Also, among the indicators used in this research, it can be said that all indicators have a significant relationship.

Table (4): The Effect of Smart Growth Strategy on Reducing Development Costs of Fennoj City Using T Test

Confidence interval 95/0		**Numerical utility tested**				
Maximum	Minimum	Average difference	Meaningful	Degrees of freedom	T value	Indicator
4.0887	3.8346	3.96164	0.000	390	61.323	Reduce development costs
4.0582	3.8037	3.93095	0.000	390	60.719	Reduce public service charges
4.0372	3.7736	3.90537	0.000	390	58.248	Reduce shipping costs
4.0053	3.7390	3.87212	0.000	390	57.167	Conservative savings
3.9941	3.7399	3.86701	0.000	390	59.827	Limiting city development
3.9971	3.7215	3.85934	0.000	390	55.057	Protection of agricultural lands and gardens
3.9301	3.6709	3.80051	0.000	390	57.662	Reducing Household Economic Costs
3.8881	3.6055	3.74680	0.000	390	52.12	Renewable energy use
3.8799	3.6085	3.74425	0.000	390	54.249	Urban land use planning

3.8349	3.5564	3.69565	0.000	390	52.185	Prioritize investment in the abandoned sections of the city
3.8196	3.5512	3.68542	0.000	390	53.999	Raising the density of neighborhoods according to the amount of services and infrastructure
3.8192	3.5312	3.67519	0.000	390	50.187	Support for high environmental quality industries

In order to measure the effect of intelligent growth strategy on reducing economic development costs of the city, one-sample T test, Table 4 was used. Since the questionnaire has been prepared based on the Likert range of 5 options and ratings 1 to 5 are assigned to responses, the number 3 is obtained as the intermediate theoretical response and the average score of intelligent growth and economic costs obtained with the number 3, the smaller the calculated value is from 3, indicating a lack of utility, and as much as 3, indicates a more favorable situation. The significance level is 0 000 with a level less than 0.01, so it can be concluded with 0.99 confidences that the intelligent growth strategy will reduce the development costs of the Fennoj city, therefore, given that the difference of other variables with numerical desirability the test case is in the positive form. Accordingly, it can be claimed that smart growth will reduce the cost of Fenway development.

Table 5 Chi-square test the Effect of Smart Growth on Reducing Economic Expenditures of the City

P. value	Degrees of freedom	Chi-square	Indicator
0.000	4	225.94	Reduce development costs
0.000	4	212.18	Reduce public service costs
0.000	5	324.65	Reduce shipping costs
0.000	4	197.88	Savings from aggregation
0.000	4	177.88	Limiting city development
0.000	4	211.51	Protection of agricultural lands and gardens
0.000	5	261.09	Reducing Household Economic Costs
0.000	4	169.42	Use of renewable energy
0.000	4	142.44	Urban land use planning
0.000	4	141.34	Prioritizing investment in deprived urban areas
0.000	4	126.14	Increasing the density of neighborhoods according to the amount of services and infrastructure
0.000	4	245.41	Support for high environmental quality industries
0.000	4	225.94	Reduce development costs
0.000	4	212.18	Reduce public service costs
0.000	5	324.65	Reduce shipping costs
0.000	4	197.88	Savings from aggregation
0.000	4	177.88	Limiting city development
0.000	4	211.51	Protection of agricultural lands and gardens
0.000	4	261.09	Reducing Household Economic Costs
0.000	4	169.42	Use of renewable energy

The output of the chi-square test shown in Table 5 includes chi-square statistics with a degree of freedom 4 and a value of P.value. Given that the value of P.value is smaller than 0.05, based on this test the impact of the Smart Growth Strategy on reducing the city's economic development costs is confirmed.

According to hypothesis and questionnaire of researches and opinions of experts related to the subject in Fennoj city, which is analyzed by T test, the research hypothesis is confirmed.

Conclusion

-Based on the Shannon entropy model, the entropy value of the Fennoj city in 1375 was equal to 0904/1, while the maximum value of Ln

(3) was 1: 0. The closeness of the entropy value to the maximum is indicative of the dispersed growth of Fenway's physical development. This figure was 1,865 in 2006, indicating that the physical development of the city has been sporadic and irregular over the course of ten years.

-According to the map number (2), the growth of the city of Fennoj is considered to be uneven and sporadic due to the special natural characteristics of rivers, numerous coves, heights and ditches, and the existence of gardens and agricultural lands is also an advantage over these factors. Has increased the discontinuity and dispersion of the city and increased the economic costs of developing the city for the provision of services to citizens, and this led to research about planning for city development to research that intelligent growth is the best option. It is considered in this field.

-Based on the T-test, Table 3 shows a significant amount (SIG <0.01) with a level less than 0.01, so it can be concluded with 0.99 confidence that the Smart Growth Strategy will reduce the development costs of the Fennoj city.

-In this study, we also concluded that city development should be based on intelligent growth indicators in order to improve the quality of life and citizens' satisfaction from their living environment.

Keywords: City and urban growth, Smart growth strategy, Growth sprawl, Fennoj City.

The Role of Global Land-oceans Mean Temperature on Minimum Temperatures in Iran

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Introduction

Although it is questionable whether there is climate change, but almost all climatologists agree global warming is a problem and that climate hazard. In Earth's history before the Industrial Revolution, Earth's climate changed due to natural causes not related to human activity. Most often, global climate has changed because of variations in sunlight. Tiny wobbles in Earth's orbit altered when and where sunlight falls on Earth's surface. Variations in the Sun itself have alternately increased and decreased the amount of solar energy reaching Earth. Volcanic eruptions have generated particles that reflect sunlight, brightening the planet and cooling the climate. Volcanic activity has also, in the deep past, increased greenhouse gases over millions of years, contributing to episodes of global warming. "Global warming" refers to the global-average temperature increase that has been observed over the last one hundred years or more. But to many politicians and the public, the term carries the implication that mankind is responsible for that warming. Global warming occurs when water vapors and other greenhouse gasses collect in the atmosphere and absorb sunlight and solar radiation that have bounced off the earth's surface. Normally, this radiation would escape into space—but these pollutants, which can last for years to centuries in the atmosphere, trap the heat and cause the planet to get hotter. That's what's known as the greenhouse effect. The impacts of global warming are being felt across the globe. Extreme heat waves have caused tens of thousands of deaths around the world in recent

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years. And in an alarming sign of events to come, Antarctica has been losing about 134 billion metric tons of ice per year since 2002.

Over the past 50 years, the average global temperature has increased at the fastest rate in recorded history. And experts see the trend is accelerating: All but one of the 16 hottest years in NASA's 134-year record have occurred since 2000.

Each year, scientists learn more about the consequences of global warming, and many agree that environmental, economic, and health consequences are likely to occur if current trends continue. Here's just a smattering of what we can look forward to:

- Melting glaciers, early snowmelt, and severe droughts will cause more dramatic water shortages and increase the risk of wildfires in the American West.
- Rising sea levels will lead to coastal flooding on the Eastern Seaboard, especially in Florida, and in other areas such as the Gulf of Mexico.
- Forests, farms, and cities will face troublesome new pests, heat waves, heavy downpours, and increased flooding. All those factors will damage or destroy agriculture and fisheries.
- Disruption of habitats such as coral reefs and Alpine meadows could drive many plant and animal species to extinction.
- Allergies, asthma, and infectious disease outbreaks will become more common due to increased growth of pollen-producing ragweed, higher levels of air pollution, and the spread of conditions favorable to pathogens and mosquitoes.

Air temperature is the most sensitive meteorological element to global warming. Because of this, the research ahead is done for the detection of global warming on minimum temperatures in monthly and periodic (cold) time scales.

Data and Methods

For this study, two groups of data, monthly average temperatures data of 17 synoptic stations and corresponding amounts of data in global

land and oceans temperature anomalies were figured out over 60 years' period of time (1951 to 2010). Goals, the Pearson correlation method for detecting relationships between data's, and linear trend for trend analysis time series data, to illustrate the correlation between the spatial distribution of temperature data with global warming stations nationwide Geostatistical model Finally, non-parametric test for detecting significant temperature changes Man - Kendall method were used.

Discussion of Results

According to the results, all studies stations apart from Urmia and Khorramabad experience increasing trend in the average of minimum temperature. The most influence over global warming observed from April to October is the month of the summer than other months of the relationship that has a significant high than the average winter temperature is going up. This process in the analysis of time-series and temperature trends has been quite evident. Change in trend occurred been a significant in most months and changes in the minimum temperature trend has been confirmed. The results obtained from the analysis periodic minimum (cold) temperatures average, indicating a strong relation to the hot period than the cold periods. The change in temperature trend occurred in both studies period, According to the results obtained are quite significant.

Conclusions

This study investigated the statistical characteristics and spatiotemporal distribution and trends of average temperatures events and its relationships to global land ocean anomalies in Iran. According to obtained results in summer months and hot period relationships between average temperatures of stations and global land ocean anomalies are significant than other seasons and months. Therefore global warming is affected on average monthly temperatures of Iran.

Keywords: Sensitivity, Global warming, Average temperature, Man - Kendall, Iran.

The Strategies of Urban Transportation Sustainable Development Using Network Analysis Process (ANP) (Case study: The Structure of Management in Urban Transport of Tabriz Metropolis)

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Introduction

In planning for the city from the perspective sustainable development, transportation system also had to be designed in such a way that matches with sustainable development criteria. The application of modern systems and new methods of urban transport has a special and significance status in cities which have traffic and high contamination of air. In this regard, identifying and prioritizing the effective factors on sustainable urban transport and prioritizing the strategies are very important to achieve this type of development; nowadays, the inefficiency of urban transport improved by using some smart modern technologies and these technologies and solutions offer to upgrading the transport system. These solutions are introduced under the Intelligent Transportation System. In the meantime Tabriz metropolis is one of the population centers of country which faces to multitude of problems by inefficient transport and required to use the intelligent systems for urban transport; but the necessity of entering to this type of development requires to strategies that play a role as road map and the directory management structure of Tabriz city. Implementing this road map is an undeniable requirement to identify the effective factors on development of intelligent transportation and providing the strategies and prioritizing them. In this paper, network analysis process has been used as a very robust and strong process for weighting the effective factors and prioritizing the resulted solutions of them.

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Theoretical Bases

Nowadays, to organize and conduct the cities should be followed the creative approach, flexible and comprehensive operating and thoughtful; while the concept of "comprehensive" uses the rational approach ,conservative, long-term and sustainable approach with the optimistic forecasts of future conditions to organize and guide the city, It is a matter that the dynamic nature of complicated societies has no relevance in waves of contemporary urban transformation or in other words, uncertainty and unpredictable critical situation has no theoretical and practical relevance. Urban issues requires a strategic approach and sweeping operations in terms of unpredictable situation, that on one hand require to be smart, creative, active, skilled managers and program-makers, and on the other hand involves the participation and collective wisdom and democratic approach. The strategic planning approach has found a common currency by more emphasis on social and democratic content in most countries of the world and have been implemented by forms and various titles which based on the variety patterns of urban development projects; although there is no one and the same procedure to use of these patterns in different countries; but the main content and the ultimate goals of them is to avoid the centralized planning of structural comprehensive plans and emphasize to the goals of sustainable development (environmental, social, economic and cultural) and strange the organization of executive management and focused on supervision.

In relation to sustainable transportation; according to the definition of sustainable transportation, a sustainable transportation system is a system which having the below characteristics: make possible to access the basic needs of individuals and communities as a safe and undamaged, and also provide inter-generational and in-generational observance of justice.

Materials and Methods

This research is applied researches that use the descriptive - analytical method. The method of this study were identified the weaknesses, strengths, opportunities and threats existing in this area of urban management by using the liberality studies and questionnaires and

interviews with experts in the field transportation of Tabriz metropolis, and The development of intelligent transportation strategies of Tabriz city were prepared in the process of SWOT, and then the internal relationship and the external effective factors was investigated on the development intelligent transportation of Tabriz by using the analytic network process (ANP) and finally, each of the presented solutions was propounded by calculating the weight and rating of each factors involved in this analysis of executive priority.

Findings and Discussion

The strategy SO1 (utilizing the experiences of the Pilot implemented projects in Tabriz and other Iranian metropolises in the field of intelligent transportation for the improvement and development of intelligent transportation systems) has highest score with (0.395) point according to the results of analysis AHP so the implementation of this strategy is in first priority.

Strategic research priority 2

Strategy SO2 has final score with (0.390) point (Converting the center of Tabriz city to the range of walking system (Sidewalk) by sensing measures and consider the previous experience in different cities)

Strategic research priority 3

Strategy SO4 has final score with (0.377) point (focus on the improving of metro and BRT performance by using the practical experience of external and internal).

Strategic research priority 4

Strategy SO3 has final score with (0.235) point (using the correct and efficient of domestic and foreign investors to improve the public and private transport of services lines)

Strategic research priority 5

Strategy SO7 has final score with (0.229) point (Negotiations and consultations with World Bank about the development of intelligent transport systems for the realization sustainable development of transportation in Tabriz to allocate the budget)

Strategic research priority 6

Strategy SO5 has final score with (0.194) point (holding the meetings and technical sessions to meet officials in management structure of urban transport by attracting the foreign investment approach and take advantage of domestic and foreign practical experience in the field of intelligent transportation)

And finally, Strategic research priority 7

Strategy So6 has final score with (0.169) point (using the potential of the presence Aras Free Zone's cars as an modern cars which has facilities in Implementation of intelligent transportation in Tabriz).

One of the main limitations exists in the SWOT analysis is that the executive priority solutions of this method are prepared without taking the effective factors on subjects of internal relations in different levels. To prioritize and ensure the effectiveness of presented solutions which is based on the analysis of weaknesses, Strengths, opportunities and threats is used the model process of network analysis in the completion of this process. In this model, the deep connections of main and secondary effective factors are scrutinized on development of intelligent transportation in Tabriz. Can be concluded, the structure of transport management of Tabriz metropolis should focus on the SO1 strategies (utilizing the experiences of the Pilot implemented projects in Tabriz and other Iranian metropolises in the field of intelligent transportation for the improvement and development of intelligent transportation systems) which based on the performed analysis. In fact, the involvement of the relationships and dependencies in groups of various SWOT factors lead to the elimination of uncertainty in impacting of various factors on the object of study and somehow obtained the confidence of analysis and the proposed strategies, so put definitive answer in regarding to the management structures and executable programs.

Keywords: SWOT, Network Analysis, The Intelligent Transportation, Development Strategies.

Spatial Analysis and Prioritization of Iran Provinces for ICT Planning and Development

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Abstract

Nowadays ICT (Information and Communication Technology) as a new dominant paradigm of development has become the focus of all the aspects of development and progress by influencing the way of thinking and acting and changing life and work patterns and in fact it is considered as both the reason and the sign of development. Due to the growing benefits of adopting this technology in order to achieve economic, social and political goals and sustainable development, following appropriate strategies and approaches for using ICT in our country is a must. Due to the fundamental and key role of ICT in achieving sustainable development and knowing that digital divide between regions has overshadowed the spatial and geographical justice and has provoked the uneven and unbalanced development of the regions of the country, any plan or program in developing ICT in the country should be based on the studying and understanding the current situation of ICT in the regions of the country and should be used to remove or eliminate the digital divide.

In this research the development of the provinces of the country in terms of ICT was examined and these provinces were rated and ranked. In order to do so, we made use of 40 indicators and unique soft wares and models like GIS, SPSS, TOPSIS, scattering coefficient, weight rating technique, linear scale-up method, Pearson coefficient and so on. The findings of the study indicated that the provinces of the

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country are not in a good situation in terms of ICT and Tehran province as the first rank in terms of ICT was semi-developed. There are imbalances and disparities to some extent among the provinces of the country in terms of ICT development or in other words digital divide in such a way that Tehran province as the first rank was 2.5 times more developed than the last rank (Northern- Khorasan) and in general the first rank provinces were nearly twice times more developed than the fifth rank provinces. Also, ICT development correlated with population and especially with urban percentage; meaning that generally speaking, the most facilities and usages of ICT are focused in the provinces with more population and urban percentage. At last in order to eliminate or remove digital divide and balancing long-term development, the provinces of the country were ranked for achieving ICT development.

Keywords: Information and communication technology, Development, Spatial Justice, Digital divide, Iranian provinces.

Prediction of Initiation and End Dates of Light and Severe Frosts in Kermanshah Province Based on the Output of Bcm2 and Hadcm3 Climatic Models Using LARS-WG Downscaling

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Introduction

Today, estimates of changes trend in some agricultural climate indices such as temperature and precipitation changes, changes during the growing season, occurrence time of the first and last frost in spring and autumn in the coming years are considered in environmental planning. Development of climate models has made it easier to achieve this goal. In these models, climatic variables influenced by stress -induced greenhouse gases are simulated. The purpose of this study is prediction of light and heavy frost at three stations (Kermanshah, Kangavar and Sarpolezahab) using output of Lars-wg downscaling model in the next two decades.

Theoretical Basis

There are various methods for downscaling of general circulation models data. These methods include dynamical (RCM) and statistical cases. Dynamical methods have high expenses and they are not available at Iran. The most confident tools for GCM downscaling in Iran are using statistical methods. Weather generator models have two statistical approaches: Richardson's model for precipitation simulation by using Markov chain model and serial models that uses semi-experimental distribution and the most famous case of them is LARS-WG model. HadCM3 (Hadley Coupled Atmosphere-Ocean General Circulation Model) is type of paired atmosphere-ocean (AOGCM)

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model and it was designed and developed in Hardley meteorological organization at England.

Materials and Method

The study areas for this research are synoptic stations of Kermanshah, Kangavar and Sarpolezahab. Kermanshah Province which can be divided into two regions, warm and cold. Sarpolezahab County in the West of the province is warm and Kangavar County in the East Province is cold region are considered. Kermanshah County because of the centrality and the alignment between these two regions is a transition region. Input data used in this study includes precipitation, minimum temperature, maximum temperature and radiation in daily scale during the period 1992 - 2012 which according to research and the output data is used from the minimum temperature at three stations. In the present study, using the output of two climate models, HADCM3 and BCM2 Under A1B Scenario, beginning and end of the light and heavy frost occurred early or late in the period 2030 - 2011, 2065 - 2046 and 2099 - 2080 have been evaluated. In this research, first based on the simulation of study period at each station and investigation the values of the Kolmogorov-Smirnov test and P-value statistic, the accuracy of the model was estimated then modeling future behavior of climate stations were studied during three periods. Based on the data generated for future climate periods, at first the start and end dates the early fall and late spring frost occurrence were extracted for the two light frost (temperatures drop below zero degrees Celsius) and heavy frost (temperature drop below -2 ºC). For doing statistical operations, the dates of occurrence of each frost were converted to Julius date. Finally, based on derived models for each of the three periodic times, the initiation and the ends of the frosts changes are shown in chart.

Findings and Discussion

The results of processing the LARS-WG model for estimating the minimum temperature stations and values of R^2 and Kolmogorov Smirnov tests show that the simulations were carried out at three stations have an acceptable accuracy. Most of the results of the Kolmogorov Smirnov test closer to 0.05 and encompass 1. Also the R^2

values were estimated for each of the three stations is higher than 0.99. Analysis and comparison of predicted and observed graphs of average temperatures at all three stations indicating very high model accuracy in the estimation of the stations observational value. The results of the LARS-WG model is processed by two Bcm2 and Hadcm3 models indicates that this stations in the coming years will be warmer. Over time, the station light frost began to desire to April. Between the stations studied, Kangavar and Kermanshah stations have similar behavior but the Sarpolezahab station because of its warm nature, showed different behavior rather than the two stations in the coming years, warming trend in this station was more than the other two stations and the number of frost days in this station has decreased. On the other hand, with respect to the results obtained end of the light frost these stations , with time going, back to the beginning of the winter season and the number of light frost days of these stations is reduced. Trend of the change of begin and end of heavy frosts in the three stations are as light frost. These stations beginning heavy frost delayed with over time and precedes toward spring and the other side, end time of the last heavy frost over time and at nearing the end of the forecast period, toward beginning of winter and even at the Sarpolezahab station are until February. According to the results of the processing of these models in the coming years, the number of days with light and heavy frost of these stations has been decreased and the temperature in these stations will be increased. Accordingly in the coming years, the number of days with light and heavy frost will decrease and the temperature in this station will increase. With forming such trend, possibility of seasons displacement in this station in the coming years not unexpected and winter season is expected to retreat to benefit the fall season and spring season to find more similarity in terms of climatic characteristics to summer that can to be followed consequences inappropriate in terms of environmental for these areas.

Keywords: Light frost, Heavy frost, LARS-WG model, Kermanshah Province.

Investigating the Status of Factors Affecting the Empowerment of Tourism Development (Case Study: West Azerbaijan Province)

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Introduction

Tourism is a social activity that involves human behavior, resource use, and interaction with others, the economy and the environment (Holden, 2000: 3). Tourism is one of the most developed industries in the second half of the 20th century and is often used as a key to economic growth both in developed and developing countries (Font and Ahjem, 1999: 63). Considering the importance of tourism and its role in the economic and cultural development of the countries, the need to pay attention to this activity and efforts to empower it and to identify tourist attractions with an emphasis on regional development is essential.

Theoretical Basis

Empowerment can be described as a tool for empowerment decisions (Bowen & Lawler, 1992: 32) or as a personal experience that makes people responsible for their actions (Pastor, 1996: 6). Without empowerment at the local and local levels, national efforts to develop tourism in practice will fail (H.B.Sofield, 2003: 100). Because local community development has often been recognized as a process for empowerment and social change. The focus of local community development is on identifying and solving social, physical and political problems that exist in a community in such a way that it improves or changes from the point of view of local members (Rezvani, 84: 2008). In order to develop tourism, it is suggested that empowerment be considered as a multidimensional process, in order to provide a consultative process with the characteristics (such as the

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ability to make decisions, the capacity to implement and use these decisions, to accept responsibility for decisions, actions and their consequences, etc.) It is known to provide for communities (H.B.Soffield, 2003: 112).

Materials and Methods

The present research is a descriptive-analytical research and is "applied" in purpose. The statistical population of this study is 100 experts from the Cultural Heritage, Handicrafts and Tourism Organization of West Azerbaijan province. Using cluster and random sampling methods, was selected. Data gathering method was library and field questionnaire (questionnaire) and Cronbach's alpha coefficient was used to determine the validity of the questionnaire. Based on the empirical rule, the alpha value should be at least 0.7. In the present study, the alpha value indicates the high internal consistency and integrity of the items. After collecting and analyzing the data using SPSS19 and Excel2007, descriptive statistics and inferential statistics were used to test the components of the study. Chi-square test was used.

In the descriptive statistics section, the total sample is 73.7% male and 26.3% female. Frequency distribution and percentage of experts in terms of level of literacy include: diploma and sub-diploma 1/9, diploma 19.4, bachelor degree 60/3, master's degree and doctorate 11.2%, and in the inferential statistics, after identifying the main variables The research is to analyze them to determine which of the independent variables have a meaningful relationship with the dependent variable.

Results and Discussion

To test and evaluate the effects of the components of "Participation of local communities, empowerment of human resources (decision makers and planners) and competitiveness of tourism destinations" in its empowerment and its link with the development of tourism in West Azerbaijan Province; Regarding the classification of the data and the nominal and ranking of the measurements scale They have been used for non-parametric test (X-square).

The result of empowerment is the development of a local community that is a kind of developmental perspective from the bottom. Therefore, considering the principle of "ownership and sense of belonging", which is the key to the sustainability and continuity of social responsibility, paying attention to the local people as the main beneficiary of the development of tourism is a point that should always be like a guide lamp, Be in the mind of the planners.

Local community-based tourism is aimed at increasing people's participation in the decision-making and distribution of tourism income, following the empowerment of the people; in particular, regional and local financial resources should be used to create a self-sufficient community, and planning and management on the most effective way of deploying local human capital and Other sources, along with the use of indigenous local knowledge and informal tools in planning with the support of regional and national authorities.

According to the articles presented in this paper, it can be concluded that empowerment is one of the important factors for the presence and survival of the tourism competition market itself influenced by the empowerment of the components of the organizational human resources (tourism officials and decision-makers), local communities (after participation) and Competitiveness of tourism destinations (upgrading the quality of services and products); there is a significant relationship between the empowerment of tourism development of the province and these three variables. Among the proposed components, the empowerment of organizational human resources (officials and decision makers) has the most impact on empowerment of tourism development in the province.

Keywords: Tourism, Empowerment, Development, West Azarbaijan.

Study the Effect of Housing Ownership on the Independence of Decision-making and Role of Women in the City (Case: Sanandaj)

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Introduction

Housing is the greatest asset in the lifetime of many families and housing ownership leads to an increase in the quantity of residential units, accelerates economic growth, security and family identity, increases in the happiness and welfare of the family, household wealth accumulation and vertical mobility, improvement of household participation in social and political activities etc. (Askari and Ghadery, 2003:5). When home ownership importance as clear shown that we want this issue check for the women because Housing is a potentially significant economic resource (indeed, a source of capital) for women (Yeates, 1999:2).

Women make up half the world's population, perform two-thirds of the world's working hours, receive one-tenth of the world's income and own only one-hundredth of the world's property (Baruah, 2010: 1). The UN Special Reporter on Adequate Housing confirms the dire situation of millions of women across the world: "In almost all countries, whether 'developed' or 'developing', legal security of tenure for women is almost entirely dependent on the men they are associated with. Women headed households and women in general are far less secure than men. Very few women own land. A separated or divorced woman with no land and a family to care for often ends up in an urban slum, where her security of tenure is at best questionable" (Benschop, 2004: 2). Despite the importance of housing and property, women in most countries of the world, especially in Asian, African and Latin America, are deprived of their rights to land and housing, this deprivation of assets is largely due to gender inequalities in such countries. Gender-based inequalities are still more likely to create a lower status in income, decision-making power, access to education,

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services and resources, including land and housing for women. In fact, housing is a necessary place to live, it is both consumption good and a form of investment, and it can be rented, built or purchased (Angelini et al, 2012:2). As a result, housing ownership according power that it gives to the owners can brings make decision and participation power in the community. Indeed, women's property ownership can largely enhance their ability to travel alone and independently make decisions about processes that play a significant role in their lives (Swaminathan et al, 2012:16). Since land is a fundamental resource for improving living conditions and economic empowerment, the lack of land rights for women undermines efforts to promote gender equity and equality within a patriarchal society and this exclusion denies women the social, economic and political autonomy that is vital for full membership in a given society (Baruah, 2007: 5). Therefore, lack of women's access to adequate housing and land and the property rights has economic, social, cultural, legal and political consequences for women (Morgan, 2010: 28). In this context, considering to women low participation, strengthening the presence of such a large amount of the population requires to structural changes in economic, social and cultural conditions in the community (Mahmodyan, 2005:1).

The French utopian socialist Charles Fourier asserted that the status of women reflects progress within a given society (Attwood, 2010: 5). It explains the value of women and the need for more attention to them. So, in our property review, we are dealing with women holding housing in the city of Sanandaj, who have not previously been owners of housing, but who have become owners in the past few years. So, by reviewing the urban community in Sanandaj, we want to find out if women who have had housing ownership in Sanandaj in the past few years. Is this property effective on their decision-making autonomy in urban society? Has housing ownership been effective for women in Sanandaj in their role in the city? And so, is women's decision-making autonomy effective in their role in the city?

Theoretical Basis

There are many views on the issue of housing ownership and its impact on the potential of women's participation. It is believed

because ownership is a source of wealth, so when economic power exists, it also brings social and political power to itself, and as a result, the combination of these three powers can bring about the power of decision making and role play in society. Boll believes in a paper titled Women and Land Rights: land also gives social prestige and access to political power. Land has long been recognized as key to advancing the socio-economic rights and wellbeing of women and their position in society (Boll, 2013: 5). In other words, while it creates the wealth needed to finance the urban economy, property can also be a source of disenfranchisement (Midheme, Moulaert, 2013: 1). To justify this matter, the United Nations Population Fund (UNFPA) announced in 2005: Since the ownership of housing gives the owners the necessary economic, social and political power, when the woman has an income-generating job and controls economic resources, the income and standard of living of the household will improve, and women's political participation have transformed the process of public policy priorities and led the government towards greater equality and equality (United Nations Population Fund,2005). Even the definition urban planners and economists own more often relate to assets that are located in urban communities and not only to the origin of economic power, but also to social power for those who hold it (Huberty, 2011: 1). Bina Agrawal is one of the largest researchers in the field of land and housing that believes there can still be social barriers to individual women's participation in public decision-making bodies, even for women endowed with land, but land rights could facilitate such participation (Agarwal, 1994: 10). Researchers from Iran, Ali Asgari and Jafar Ghaderi, are investigating the ownership of housing and express: Housing ownership will improve the participation of households in social and political and so on activities (Asgari and Ghaderi, 2004:1). Swaminathan also believes that what is important in relation to housing ownership and its impact on the role of women in urban areas is that women who own some property have greater mobility and can travel independently to facilities outside their home (Swaminathan, et al, 2012: 14). The mobility of women and their presence outside the home will further increase their presence and participation in the outdoors (Baruah, 2007: 7). In addition to the

impact of housing ownership on the role of women, it has an impact on ownership of women's autonomy. One of the most important areas of independence is independence in decision making which believes Yates in this regard, since housing ownership gives people the necessary economic power, especially women, housing is a key economic resource, and access to, and control over it, is central to women's economic independence (Yeates, 1999: 1). Another important issue with regard to the issue of ownership of housing is how the property is acquired for women, in this regard, there are several ideas that, in addition to the cultural, social and political developments that are underpin any equality and gender equity, each has expressed a variety of ways to achieve women's ownership. One of the most famous ideas in this regard is Engels's theory, Engels believes abolition of private property, the socialization of housework and childcare, and the full participation of women in the labor force is necessary to obtain ownership (Agarwal, 1994: 3). With the influence of Engels's ideas, Countries that were governed by a communist approach, such as China and Vietnam saw radical land reforms and the abolition of private property. This was one way of improving women's status (Rao, 2011: 3). Also Chinese Communist Party promulgated the Agrarian Reform law in 1947, which entitled women to hold separate land deeds for the first time (Agarwal, 1994: 10). Equity security theory or paradigm in countries that are under the welfare state's approach performs legitimate goals and functions and redistributes wealth to achieve security and equality between men and women. So in this regard, provided equality of opportunities, income distribution, and income redistribution through welfare benefits, public presence and public representation of various groups of the population e.g: female labor-force participation; female representation in the political sphere (Neyer, 2003: 2). In countries governed by Islamic law, Islamic law (sharia) is an important factor affecting land rights and property systems in Islamic societies and there are empowerment strategies for women through Islamic law that can increase women's access to land and enforce property rights (Augustinus, 2005: 6). In this regard, Sayyid Qutb believes that Islam, in terms of gender and human rights, has established a complete

equality between men and women, and if superiority for one to the other is made, it is only natural talents that do not affect the reality of the gendered status of the two sexes (Pezeshki,2009,47). According to the Islamic approach, a Muslim woman has independent rights, moral and economic identity and independence, and Islamic law protects women's property rights in various areas, such as family law, property law, and economic and public law (Augustinus, 2005: 10). The socialist approach was used in the European socialist countries, in this way, the influence of Engels's analysis led to a similar concern to the employment of women as the primary means of eliminating gender cruelty (Agarwal, 1994: 18). Because of this influence of Engels's views, state socialist regimes increase gender equality in employment and public life, and women's employment, which produces high levels of participation, is effectively supported, and this is the position of women in employment, which may be the legacy of state socialism, seems to give them better access to decision-making in government sectors in many Western countries (Pascall, 2008: 5). The Marxist approach believes that the position of the female class is defined by the man. To the extent that women, even from owner families, they do not own real estate and it's difficult to determine their class position. Based on this approach, Women economically and socially is gaining class status of their husbands (Agarwal, 1994: 4).

Materials and Methods

This study in terms of nature is Descriptive-Analytical and in terms of target is an applied research. The data collection method has been used by documentary and library methods as well as by scrolling. The statistical population is 8676 women in city of Sanandaj which 300 were selected randomly in accordance with the Cochran formula. The tool used was a closed response questionnaire. In this research, content validity was used to measure the validity of the measuring instrument and for reliability estimation, Cronbach's alpha coefficient was used. The alpha value obtained for the Items related to each of the variables is higher than 0.7, which indicates that the internal correlations of the related terms to each of the structures were acceptable. Also, the statistical method used was, including the

Kendall Tao C correlation test (due to the fact that the number of rows and columns is not equal in number from type C Kendal) and path analysis.

Findings and Discussion

According to the results of the research, housing ownership variable has been able to directly affect women's decision-making autonomy and their role-play. The direct effect of housing ownership on women's decision-making autonomy was 0.401 which shows that for a unit of change in the housing ownership variable, the autonomy of women's decision will be changed to 0.401 units, also, the direct effect of housing ownership on women's participation was 0.675 Which shows that for a unit of change in the housing ownership variable, women's roles will change by 0.675 units. Regarding the results of regression analysis, the ownership variable of the housing both directly and indirectly, and through the independent decision making variable on the female role of the women has affected. The direct and indirect effects of housing ownership variables on the women's role-play variable are 0.675 and 0.248, respectively. According to the results of the research, it can be concluded that the housing ownership variable has a greater impact on the role variable with a beta of 0/675 which affects directly and indirectly and total of these effects is 0.923.

Keywords: Housing ownership, Women, Participation, Decision Independence, Sanandaj.

Analysis of Factors Influencing Villagers to Receive Credits for Housing Amelioration (Case Study: Mehrooye District, Fariab County)

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Introduction

The purpose of this study is to investigate the factors affecting the tendency of villagers in the village of Mehrooye to receive rural improvement facilities. Following these basic questions, what factors have influenced the villagers' tendency to receive rural housing improvement facilities? What developments has occurred with housing rehabilitation in the housing structure of the Mehrooyeh village? And what are the main problems and bottlenecks of villagers to receive rural housing improvement facilities? In order to answer these questions, the research background has been investigated which shows that internal and external studies related to the category of rural renovation improvement credits have focused on its objectives, its role and its effects on rural development; However, factors affecting the tendency of villagers to receive improvement facilities have not been considered, which added to the importance of research.

Theoretical Basis

Understanding of housing and its position in the spatial planning and settlement system with a sustainability approach requires an immersive approach. In other words, all the symbolic, institutional, material, aesthetic, and cognitive aspects and ... are the dimensions of the rural housing, which turns it into an interdisciplinary and transversal issue. The most important feature of rural housing that distinguishes it from urban housing, is coordination with biological and livelihoods. In rural areas, housing is also responding to the need

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for housing, and productive functions are also produced. A significant part of the household living needs of the home, so it includes a ring of rural production system. Therefore, given the importance of villages and the decisive role played by economic, social and national development, it is important to provide adequate rural housing and to solve the problems in this area. The Housing Foundation of the Islamic Revolution has been developing various activities and activities for the development of rural dwellings in the country. The comprehensive plan for the renovation (upgrading) of rural housing, implemented since 1995 in the country, and goals such as preventing the destruction of rural housing in the events, The focus of government investment in prone villages, the fair distribution of housing loans in the city and village, and the possibility of studying and seeking to achieve efficient and suitable rural housing technology. One can mention the special project for improvement of rural housing with the aim of improving the quality of housing and rural texture and promoting the level of safety, health, welfare and comfort of rural housing, which was adopted and approved by the government in 2005, and entered the operational phase since 2006 Has been executed.

Materials and Methods

According to the research questions, the study method was documentary, analytical and survey based on the questionnaire. The type of research is applied-development. In this study, in order to investigate the factors affecting people's tendency to receive rural housing improvement facilities, they have been evaluated and evaluated by objective criteria that can be categorized in three components: social, economic, administrative-executive. The reliability level of the questionnaire was also obtained by Cronbach's alpha of 0.73, which indicates the confidence coefficient. The statistical population of this study consists of 1078 households in the villages of Mehroyeh rural district, which used between 2013 and 2013, from housing improvement facilities. In this research, after calculating the sample size of 200 families with Cochran formula by proportional allocation method, the share of each village in the village of Mehroyeh from each of the 24 villages of the rural population who

received the permit for the improvement of rural housing was made. Accordingly, 200 families, about 18.5% of households were selected and the questionnaire was filled out with direct reference to households. Finally, in order to determine the share of effective components in the tendency to receive rural housing improvement facilities and hypothesis testing, regression tests, Chi-square, Pearson correlation and T-test were used in SPSS software. The study area consists of Mahrooyeh district of Faryab city of Kerman province. The village of Mehroyeh has 24 rural areas with a population of 7412 people and 1,797 households. The village is 57 ° 24 'longitude and 28 ° 6' latitude longitude and its average elevation is 649 meters. The shape and texture of villages in this region are plain and have scattered villages. According to the Kahnouj Housing Foundation in May 13, 1992, 1,607 households have requested housing facilities in the village of Mehroyeh. Of these, households have been approached by 1078 households and they have been able to receive facilities that have already completed construction of 886 residential units, while others are under construction.

Findings and Discussion

This research was conducted with the aim of investigating the factors affecting the tendency of villagers to receive housing improvement facilities. The findings of the research showed that there is a significant and positive correlation between receiving improvement facilities and lack of civilian housing in Mehroyeh village with a correlation coefficient of 0.177 and a significant level of 0.122. As far as rural housing facilities increase in this village, the increase in the number of households in the villages (civilian houses) is also increased, but this intensity of home owning of villagers is at a low level, but the direction of it is positive and to rise. Also, the findings show that the variable "Mortgage is effective in facilitating the construction and resistance of new housing", with the beta value of 388/0, is the most important factor in creating incentives for housing improvement facilities in the municipality of Mahrooyeh. The incentive to receive rural housing facilities is within the scope of the study and the variable "Major home builders do not have sufficient

capacity to build housing independently" with the lowest beta of 178.0. Also, the research findings indicate that there is a problem in obtaining rural housing facilities in the area under investigation, the most important of which is the "non-documentary land tenure", using the Chi-square test. Also, the findings show that in creating the tendency of villagers to receive housing improvement facilities, a set of social, administrative, administrative, and economic factors is affected that each share varies depending on the conditions and the villages. Among the factors affecting the tendency of villagers to receive housing improvement facilities, there are also differences between the effective factors in the tendency to receive housing facilities and the social component with 95% confidence level and with a mean of 2.73 is considered most important. . But since the average of all three social components is 2.73, administrative-executive 2.67 and economic 2.2, they are less than the desired number 3, indicating their unfavorable conditions among the factors affecting the tendency of villagers to receive the facilities for improving rural housing in the village of Mehrooye.

Keywords: Rural housing, Housing facilities, Housing amelioration, Faryab County.

Application of Artificial Neural Network in the Evaluation and Landslide Hazard

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Introduction

Landslide is considered as one of the natural hazards ever occurring throughout the world and is of great importance. This phenomenon is one of the major geomorphic processes affecting the evolutionary landscape in mountainous regions, causing catastrophic accidents. During this process, soil and surface materials are affected by gravity, heavy rainfall, earthquakes, soil saturation from water and activities Human beings such as vegetation destruction and inadequate engineering operations are located in different shapes downstream of the domain. Due to the special climate conditions, physiography and change of the country, Iran has always faced with the problem of mass movements, and it is necessary to pay attention to this natural limitation. Lorestan province also has diverse geological features such as petrography, land management, seismicity and special climate conditions, including areas with slip potential. On the other hand, on the Alpine Himalayas earthquake belt, the passing of the great Zagros fault, the rotation of the calcareous layers and the layers of the Chilean Sistamarni on the great azimuths across the province created favorable conditions for the instability of large parts of the natural slopes. Conditions The topography and geology of the studied area (the Du Ab-al-Shater Basin) is such that the slip of rock and soil fragments from small to large scale has been provided.

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Theoretical Basis

In the importance of landslide phenomena, many studies have been carried out in the scientific texts of the world and Iran. Including Malcior et al. (2008), by providing a landslide zoning map using artificial neural network and rupture analysis concluded that artificial neural network method is a suitable method for landslide zoning. Kongong et al. (2006) weighted the factors affecting the landslide by using bachelor, fuzzy, and artificial neural networks, and found that if the values of classes in the neural network were used, this network would bring the best results. Biswad (2010) assessed the landslide hazard in Malaysian Selangor using the artificial neural network method. Yalmaz (2009) in a study comparing frequency ratios, logistic regression and artificial neural network in the assessment of landslide hazard in the Turkish city of Kut, it was concluded that the artificial neural network model is more reliable than the other two methods. Rackie et al. (2007) evaluated the application of artificial neural network system in landslide zoning in Sayyarargle area in Semnan province. Fatemi Aqda and colleagues (2003) used the artificial neural network method with multi-layered perceptron structure and error propagation learning algorithm for zoning the risk of landslide. Moradi et al. (2010) examined the efficiency of artificial neural network for landslide hazard zoning in part of the Haraz watershed.

Materials and Methods

In this research, topographic maps of the 1: 50000 scale of the Geographic Organization of the Armed Forces, OLI satellite images of Landsat 8 pass 166 rows 36 and 37 of June 15, 2013, data on the climate of the region, including temperature and precipitation, which are provided by the Meteorological Organization of Lorestan province A 30-metric SR of SRTM was downloaded and geological maps were scaled to 1: 100,000 geological organizations .ArcGIS 10.2 software was also used to create a database, spatial analysis, and finally to implement the model, ENVI 4.8 for satellite imagery processing and MATLAB 2011 to design a neural network model. In this research, eight slope, gradient, altitudes, occupation, petrology, fault distance,

distance from the waterway and rainfall were investigated for zoning hazard. The mapping of these factors is provided using ArcGIS software and is used for zoning in the artificial neural network. In order to approach this study, we first investigate and study the available scientific data to determine all the criteria and factors affecting landslide occurrence. Then the available information included maps and satellite images needed to collect, and after making maps, corrections were made to maps and satellite imagery. The maps were compiled in a digital GIS environment, and after the digitization, Raster modeling of the layers was performed. In the model of the neural network for preparing the network from the layers, along with a number of actual landslides, the inputs were entered into the network, and with this method the pattern between the input parameters (network input) and the areas where there is landslip (network output) Was trained by the network. Then, for the input parameters of the basin to the trained neural network, the corresponding output, which is the area prone to landslide, is predicted. In order to form the input matrix of the nerve networks, first, some points were selected on a regular basis from the basin, and all the layers were discontinued and their value extracted. Further, due to the time and severity of the training process, a number of samples were randomly created And network training were selected for all extractives. In order to form the target matrix (desirable output), real samples of landslides are needed. For this purpose, GPS field sampling was performed on landslides in the basin, and then some of these samples were used to evaluate the results of prediction of the model and some of them to form the target matrix. After preparing the input matrix and the target matrix, this information was entered into the MATLAB software and the neural network was designed, and after the network training, prediction and simulation were done.

Findings and Discussion

For training and network testing, we used 420 pixel slip and non-slip information, of which 336 pixels for training and 84 pixels for network testing. The results of the artificial neural network outcomes at the testing stage indicate that the created neural network is capable

of correctly reporting 38 cases out of 42 sliding pixels, which indicates a sensitivity of 90.4%. Also, with 42 pixels of non-slipping, the network was able to detect 40 test samples, which indicates a diagnostic value of 95.23%. Therefore, the accuracy of the entire network was calculated to be 92.85%. Repeat number changed from 1000 to 15000. The lowest error value was calculated with a repeat number of 10,000. Typically, the low-return algorithm bestows the answer with low learning ratios (Kia, 1389: 229). Considering that the ratio of the penalty for the error-back propagation algorithm is usually 0.9, the learning ratio was changed from 0.1 to 0.7, which was achieved with a ratio of 0.1 of the best answer. The number of hidden layer neurons was changed from 3 to 35, with 11 neurons in the hidden layer having the lowest error rate. Also, a neuron was used in the output layer, which is based on the active function used in the network designed between zero and one variable. The final structure of the grid is 1-11-8, 8 neurons in the input layer, 11 neurons in the hidden layer and 1 neuron in the appropriate output layer (Fig. 12) and based on this final zoning structure.

Keywords: Landslides, Artificial neural network, Alashtar Doab watershed, Geographic information systems.

Urban Land Use Changes and Their Impacts on Public Rrban land Use in Tabriz

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1. Introduction

Land is considered as a basic need in urban and rural communities and as a main factor of production and the vital elements of social-economic development in economy and society. Growth and development of villages in past periods has created urban centers and metropolitan areas and it creates diverse demands of land for various purposes competitively. The needs and compete for the efficient use of land for different uses are needed for proper planning and control of land for urban development and settlement functions. With the development of urbanization, urban has been the economic, social and cultural connecting. In the labor market, technology platform emergence, local social services, educational institutions, business, industry, finance and investment funds were provided. So, the city is not just for housing, but was provided the supply of urban services, employment and etc.

In recent decades, urban land use change study is devoted to the main attention in land changes crisis. Because, the land uses change is one of the basic factors in the world changes. So, urban land use change study has Special attention to land and natural crises and global warming. For the reason the urban land use change has interaction with climate change, ecosystem processes, and biochemical cycles, changes in the diversity and life forms and other important activities related to human activities. In recent decade, Due to rapid urbanization, special attention has to change land use. The ecosystems in urban areas, is strongly influenced by human activities and half of the world's population lives, intimately associated with human activities in urban areas. One of the most important tools of governments in urban economic are arranged urban policies that related to the optimal use of resources. Urban Land Use change and

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Public especially Land Use Change to profit land use are as a result of increasing in residential and commercial land prices and not optimally managed of urban management. The most cities, especially big cities are facing with these changes. Made 5 commissions are the factor of change from Public Land use to profitable Land use.

The objective in this paper, is survives and analyses the urban expansion and it roles in public land use change to profitable land use and lock of public land use in zone and city level and the reason of this changes. Methodology in this paper is practical and the surviving method is based on descriptive–analytical method. In surviving and analyzing of public land uses, we used per capita method. For necessary surviving, we used statistical blocks information in 1385 and urban land use map for Tabriz city.

2. Methodology

Methodology in this paper is practical and the surviving method is based on descriptive – analytical method. In surviving and analyzing of public land uses, we used per capita and Taxonomy methods. For necessary surviving, we used statistical blocks information in 1385 and urban land use map for Tabriz city.

3. Results and Discussion

Tabriz city is fourth populous city in Iran and the rapid spatial-physical expansion in Tabriz city started in several past decade. As the Tabriz area from 1335 to 1385 became respectively 1770 and 25000 hectare. Lock of suitable policy in urban development controls and land management, caused that the urban problems are complicated. One of these problems is the lock of public land use. Results show that the seven public land uses are not suitable in Tabriz, as the public land use per capita is less than 8 meters, while in master plan of Tabriz, this per capita proposed 16.71 meters, this show that the availability of public land use has critical condition. Green space in all of Tabriz zone is faced with shortages and that the reason of these shortages is the lock of suitable planning for urban expansion. This matter caused that the gardens and green spaces in the periphery of Tabriz city are demolished. For compensate of public land use shortage, we can used

the wasteland and Recyclable urban land use such as worn out textures and discordant land use in Tabriz city. For analyzing of urban public land use allocation in this paper, Numerical Taxonomy is used. The results of Numerical Taxonomy show that district of number one is the best degree (0.30) and district on nine is the worst degree (0.83) for accessibility to public land use.

4. Conclusion

Urban capitalization and changing of public land use to profitable land use caused that the Tabriz city are faced with shortages in public urban land uses access. The map is produced in results, show that the crises condition in access to public land uses. Based on the land use planning and the other plans, Tabriz will be social- economic and political power in northwest and will become a transnational city that the global and transnational character of a city is developing a high level of municipal services. This city, not only the city and its surrounding, but also it offers services to the surrounding county and neighboring countries. The Tabriz city, which not only cannot provide urban services to its residents but also it cannot the high level of urban services is irrelevance. Therefore, the provincial and national decision makers, urban managers should be has serious attention and optimal planning and efficient research in this matter.

Keywords: Urban land use, Land use change, Public land use, Spatial expansion, Tabriz city.

Assessment of Geotourism Capabilities of Geomorphic Sites of Varkaneh Village by Pereira Method

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Abstract

The geomorphological features and their existence on geomorphic sites are one of the main components of the geotourism. The focus of study in this branch of science is to determine the special tourism landforms and combining it with cultural heritages, historical and ecological tourism in order to achieve long lasting development in a region. Therefore geomorpho sites are defined as the geomorphological forms and processes to get the scenic, scientific, cultural, historical and social effects of these places. Varkaneh village because of its geological characteristics and the geomorphological features in architecture has a high and important potential in attracting tourist. Therefore, it's of vital importance to provide ways to evaluate scientific, cultural and economic values of this village. In this work it has been tried to evaluate the capability of geomorphological places of Varkaneh using Periera method and local researches. In this method, on the one hand the geomorphological values of the sites will be distinguished by combining both scientific and supplementary criteria and on the hand the management value will be achieved by combining protection and usage criteria. The final value of geomorphological sites will be determined by combining these two main values. The results determine the highest point of the geomorphological sector among the investigated geomorphosites belongs to stone house (7/62) and the highest point of the management sector (6/02) belongs to this site as well. It indicates the remarkable capability of under the study geomorphological places to attract tourists and to develop the tourism of the region. According to the achieved results, in order to prepare these geomorphic places for visitors and tourists it's necessary to turn this place into touring productions. Above all, turning into tourism

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attractions and places needs investment and preparation to obtain a sustainable development especially in rural communities.

Keywords: Geotourism, Geomorphosite, Rural tourism, Varkaneh village, Pereira method.

Identify Synoptic Patterns of Heavy Rainfall in the summer on the Southern Shores of the Caspian Sea

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1. Introduction

Understanding the climate of a region in many human activities can be considered as a first step and necessary action studies. Among the various climatic phenomena, rainfall is one of the most important atmospheric phenomena that play an important role in people's lives. The importance of studying this climatic element becomes more evident when a place is witnessing a slight, significant or sudden drop in the amount of precipitation. In fact, severe and sometimes rigorous floods during the summer season for a country like Iran have always been a hazardous factor in the incidence Natural disasters such as floods. Therefore, a complete study of its systems can play an important role in timely detection and control of flood, urban waterlogging, watershed management and reduction of waste and degradation. The southern shores of the Caspian Sea are very different from other parts of the country. The existence of the Caspian Sea, the complex topography and the impact of this region on the large-scale cycling patterns of the extra-terrestrial area throughout the year have provided a very complex and prominent climatic feature for the region. Because of extreme rainfall as a result of the formation of specific synoptic patterns, studying how these patterns are shaped and effects in predicting similar patterns and planning to reduce the damage caused by the effects of these patterns is helpful and this study has been tried. Identify and analyze atmospheric weather patterns that are effective in causing severe summer rainfall.

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2. Theoretical Basis

Due to these environmental and climatic characteristics, the impact of complex atmospheric patterns on rainfall in this area is not expected. In recent decades, the effects of Siberian high pressure have been considered to be effective in the occurrence of severe rainfall in this region. However, in more detailed studies over the past few years, factors such as migratory anticyclones, blocking systems in Europe as well as northern Atlas oscillations are also effective in rainfall in the Caspian region. In recent years, the occurrence of severe summer rainfall on the southern shores of the Caspian Sea has caused problems in various parts of the region (agriculture, industry, public transport, etc.). Researchers have found that extreme rainfall in the region results from the formation of three patterns of high pressure, low pressure and paired in different patterns. As a result, it can be said that in most regions of Iran and the world, the influence of low-pressure systems and the presence of moisture at the lower levels of the atmosphere are responsible for the formation of extreme rainfall. The favorable conditions in the middle level of the atmosphere and the presence of trough in the proper position relative to the region is also significant in the occurrence of rainfall.

3. Materials and Methods

In the present study, it has been attempted to identify the patterns of severe summer rainfall occurring on the southern shores of the Caspian Sea using a circular environmental approach. In order to reach the goal of this study, in the first step, the rainfall data of the summer months for 40 synoptic and climatic stations of Gilan, Mazandaran and Golestan provinces were obtained from the Meteorological Organization for a period of 20 years (1991-1991). Then, using the percentile index, which is mainly used to determine the number of days of heavy rainfall, is very severe and limited, and based on the 95th percentile of sorted precipitation data, the threshold of severe precipitation in the region of 15 mm was determined. Also, in order to increase the reliability of the patterns and their generalizability to the entire region, one day, it was considered as severe, in which at least 30% of the stations recorded a loading

volume equal to or greater than 15 mm. Then, sea surface pressure values (Slp) were extracted from the NCEP / NCAR site in the range of 10 to 80 degrees east longitude and 20 to 70 degrees north latitude, and were arranged in an S-shaped matrix of 609 by 29. In order to reduce the amount of data and create a basic understanding of the patterns in the data, using SPSS software, a Varimax variance analysis was performed on the data and their factor scores were obtained. In the next step, by using the Minitab software, using the obtained factor scores, cluster analysis was introduced with the method and different classes of patterns were identified. Then, the correlation of the members of each cluster with the mean of that cluster was calculated and the days with the highest correlation with the mean as representative of each pattern were determined. Finally, using the sea level pressure maps (Slp), the 500 hPa level, the vorticity of 850 hPa level, The advection of humidity at 850 hPa and the vertical velocity map (omega) of the 850 hPa related to two days before any precipitation until the day of precipitation examined the characteristics of each pattern. It is worth noting that in order to better distinguish patterns, besides the main maps, maps of 1000 and 500 hPa of the mentioned parameters were also considered.

4. Findings and Discussion

In general, the main cause of severe summer rainfall on the southern shores of the Caspian Sea is the creation of a high-pressure pattern on the surface of the earth and the occurrence of convection in the lower layers of the atmosphere, which has been amplified by poorly unstable waves of the middle atmosphere. All three identified patterns confirm this, and the only difference between these patterns was the location of the high pressure system and the direction of the air flow, which contributed to the difference in feeding rainfall moisture and the frequency of occurrence of each of the patterns. In these patterns, the formation of the northern cold flows on the Caspian Sea caused by the movements of high pressure systems, as well as the passage of this cool air from relatively warm seawater, has caused these flows to become humid and unstable, and with the occurrence of convection in layers the bottom of the southern shores of the sea cause heavy

rainfall. The inconsistency between the vertical movements with different vorticity is confirmed by the confirmation of the convergence of the cause of the occurrence of these rainfall in the region. Comparison of the results of this study with the results of researches by Ghobadi, Mofidi and Zarrin (2008 and 2012) showed that in summer alone, the only factor causing heavy rainfall in the region, migratory high pressure passing through the Caspian Sea and the occurrence of convection on the southern shores of the sea on the autumn, empowering of Siberian high pressure, as a result of the intensification of the concentration of water, as well as the passage of low pressure and high-pressure migrants from the area, cause severe precipitation. In the winter, in the wake of the spread of western winds, various systems, such as high-pressure migratory, low-pressure Mediterranean and, to some extent, the South Precipitator systems, are causing severe rainfall.

Keywords: Heavy Precipitation, Cluster Analysis, Atmospheric Pattern, Omega index, Relative Vorticity, southern coast of the Caspian Sea.

Analysis of the Bioclimatic Condition and Require Cooling and Heating Degree Days in Islam Abade-Gharb City

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1. Introduction

One of the climatic applications in environmental planning is the recognition of potential bioclimatic in different region. Today, human bioclimatic studies are the foundation of many regional developmental plans. The study of climate conditions and the number of days of heating and cooling needs of urban settlements is important for urban management and optimal use of resources. Today, studies on human biopsy are the basis of many urban and residential programs. Regarding the role of climate in environmental planning, the present study intends to calculate, based on climatic data in monthly scale and daily temperature, comfort and non-comfort conditions, as well as the degree days of heating and cooling requirements of the study area in order to plan the city and it also evaluates energy efficiency.

2. Theoretical Basis

Bioclimatic or critical climatology is the science of studying and evaluating the effects of air and climate on living organisms, both plant and animal. The condition of human comfort is a set of conditions that is suitable for at least 80% of people in terms of heat. Human biochemistry is a set of conditions that humans feel comfortable in terms of environmental conditions at 80%. Today, human comfort and behavior are studied in the form of one of the branches of science known as Human Biomedicine. Builders and builders can have the right design and equipment of air conditioning

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and air conditioning, knowing the daily cooling and heating of a district. By combining the degree of cooling and heating daily, a practical indicator of annual energy can be obtained. Heating and cooling requirements in buildings can be determined by the degree of day. The study of heat demand can be a useful tool for engineers to estimate the thermal energy consumption in homes and in applied climate studies, such as urban air pollution.

3. Materials and Methods

In this research, climatic data of parameters, mean maximum temperature, average minimum temperature, average relative humidity, average relative humidity, precipitation, wind speed and sunny hours of Islamabad Station, in the monthly time scale for the statistical period of 25 years from 1366 to 2011, as well as minimum, maximum and average daily temperature data for the period of 20 years from 1992 to 2011, was prepared by the Iranian Meteorological Organization Comfort and discomfort throughout the year were assessed based on the climate parameters (Baker, Tarjong, Nervous pressure, Olgay and wind chill) based on the monthly statistics of climate parameters. In order to estimate the degree of day, heating and cooling requirements were initially calculated based on the minimum and average daily temperature using the GDD, the thermal potential of the study area at 0 ° C and 10 ° C thresholds, The first occurrence of the target threshold is specified, and then the average daily temperature is calculated cumulatively until the last occurrence of that threshold.

4.Findings and Discussion

The results showed that human biochemistry based on indicators such as Baker, Tarjong, Nervous pressure, Olgay and wind chill, showed that the March, April, May and November months in the studied region are in conditions of comfort biopsy, human comfort in terms of Physiological conditions are available in these months due to the climatic conditions of the study area. The heat conditions governing the warm months of the year from June to September require the use of cooling equipment to adjust the temperature of the environment. In the months of December to March, it is necessary to use thermal

devices to adjust the temperature of the environment in order to provide human comfort. Among the studied biochemical indicators, the Tarjong index, burns and nerve stress are more consistent with the climatic reality of the region. Based on the threshold of 10 ° C, the thermal potential of the studied area reaches the highest level from mid June to late September, due to the thermal potential of this time period, human biochemistry is outside the comfort zone, cooling requirements are necessary to adjust the temperature of the environment. Due to the fact that the region is in a semi-cold climate, it is 207 degrees Celsius and 2273 degrees Celsius, the need for planning for climate design that results in lower energy consumption. The highest deviation from the optimal thermal conditions occurs between November and December, which makes it necessary to use the heating requirement to adjust the ambient temperature. The results of these achievements in optimizing energy consumption are also important in managing heating and cooling systems in residential areas.

Keywords: Thermal threshold, Bioclimatic indices, Degree Day, Heating and cooling requirement.