

ARTICLE

CONSIDERING THE ROLE OF CLIMATIC COMFORT AT TOURISM ATTRACTION IN MOUNTAINOUS REGION (CASE STUDY: MASAL HEIGHT FROM RAMINEH TO OLESBLANGAH)

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ABSTRACT

Masal city from cities of Guilan province new with primary natural structure and with human structure is severely developing that its natural texture has been saved with variety of vegetation and forest and animal. This city is consisting of three sections of plain, foothill and mountain. The most important capability and ecotouristic power of Masal is existence of mountains and old forest famous to Hirkani forest with favorable climate, river, wild life and variety of plant and animal species and caves. Research method in this research is descriptive-analytic and method of data collection is library-field that in field information section questionnaire of tourist, interview of local society and field visit of countryside of studying area was used. Based on index of human comfort effective temperature and *olegi* in research studying region had favorable condition in June, July, AUG, Sep, Oct and regarding weather condition of countryside and decreasing temperature in height necessary condition for entering tourist was provided in these regions. In the research regarding importance of tourism and because climate is a natural environment factor it has important role at development of tourism industry in different regions of the world it was concluded that climatic comfort can be effective factor at tourism attraction in summer and height with decrease of temperature has effective factor at tourism attraction.

INTRODUCTION

Forest and mountains are the most beautiful lyrics of the great creator of art. Coordinated movement of branches of trees of beech, oak, maple and ... in prayer and spiritual quantum takes intelligent human to the God. Old forest and magnificent pasture and countryside, plant and animal variety has brilliant view for development of tourism industry and ecotourism at the province and country. Nowadays tourism as a dynamic and comprehensive industry encompasses all existential basis of a society and global systems. Development of tourism industry as part of dimension of social and cultural development of any country beside attention to making income and employment is important [1]. Tourism movement is a kind of valuable exchanging free trade that is consist of different geographical atmospheres as origin, direction destination and places for organizing tourism services (fourth dimension). In the era of post-modernism the earth from bottom of ocean to the atmosphere and all humanity and cultural and natural features and artistic works consist tourism atmosphere [2]. Tourism as an important economic section of the world shows significant sensitivity toward weather. Weather plays strong effect on tourism and amusement, as in some regions of the world prediction of tourism situation is done based on weather. Weather as transmitted condition of climate and climate as dominated weather of a region[3] are natural environment factors that in many business, agricultural activities and mostly in tourism were dominating factors and economic output of these activities depends on climate directly[4]. Weather accompanied by geographical situation, topography, viewpoint, flor and foun, consist basis of natural resources for tourism and recreation [5].

MATERIAL AND METHODS

Method of data collection

Method of data collection is based on field observation-using map- questionnaire-documents and statistical analysis and working method in research is in descriptive and analytic with applied goals based on field observation and method of data analysis is by using GIS and SPSS software.

Materials

Climatic and informational data related to resources of water in the region and tourism data and questionnaire in this research have been used, statistics of data of meteorology were collected regarding lack of existence of synoptic station in Masal city from summary of statistics of evaporation of company of regional water in Guilan situated in river of Taskooh in Masal and data related to tourism was collected from tourism organization of the province and natural resources, books and university notes and for analyzing climatic appearance of the regions parameters like: temperature, rain, humidity and radiation were assessed.

KEY WORDS

tourism, mountain,
climatic comfort, Masal

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Studying area

In this research height of masal, case study of countryside of Ramineh to olesblangah have been considered that by having favorable condition regarding climatic comfort especially in warm seasons of the year and ways of proper access is attracting tourist.

Masal city is located at the west of Guilan province and at the area of 37° and 15min to 37° and 29 min of north and length of 48° and 43 min to 49° and 11 min of east. Masal from the north is limited to Rezvanshahr, from northeast and east and southeast to Somesara, from south to Fouman city and from southwest and west to Khalkhal and Ardabil province. Area of city is 622/5km² and its center is Masal city. Masal city has two central sections including surrounding villages and Masal and Shanderman section includes villages of Sheihneshin and Shanderman, and two cities (masal and Shanderman) and has 98 villages that 78 ones have more than 20 families. Number of residential villages of the city consist 3.6% of residential villages of the whole province and villages having 20 families and more consist 3.8% of villages above 20 families. Rural dimension of city was high as rural population of the whole city was 33096 people that are twice of its urban population. Central section of Masal has 42 villages and shanderman section has 56 villages.



Fig.1: Situation of Masal city in Guilan.

Table 1: Features of countryside at studying region

Natural situation	Distance of the section (km)	Height (m)	Longitude	Altitude	Name of region	Name of countryside	Raw
Forest situated in mountain	24.5	650	322161	4131918	Central section	Ramineh	1
Forest situated in mountain	25.5	1150	321521	4130825	Central section	Aridvel	2
Mountainous	28.5	1400	319088	4129415	Central section	Telargah	3
mountainous	28	1500	319158	4129926	Central section	Olesblangah	4

weather

Masal city has humid temperature climate that n height over 2000m is changed to cold mild. Average temperature of the region along year is fluctuation between 7.2 to 27 °c. Average maximum temperature is 11.3 to 32.4 °c and average minimum is 2.7 to 21.7°c. Number of glacial days has estimated 19 days a year averagely. Number of rainy days in the year is 100 days and degree of rain is 1051mm. relative humidity of this city is fluctuating between 67-82%. The whole climatic condition and topographic condition of the city has three plain, foothill and mountainous sections and neighboring Caspian sea and climatology wall of Talesh has changed this city to a countryside region having good weather. Existence of relatively populated forest, pasture in upper sides, domain villages, permanent rivers and fountains and enriched agriculture can be known as effect of favorable condition of Masal city. Plan section of Masal city is located in very humid regions. Average annual rain is 1010mm and average annual relative humidity is 81% due to existence of much steam the weather has mild temperature with short fluctuation daily and during the year. Average annual temperature is 16°c and average minimums and maximums of temperature has become 10.6 and 21.2°c. Studies show that region has mild humid weather and has much climate falls and as we go toward south from the north by increase of height of temperature, relative humidity of changes of temperature and degree of rain is decreased. Glacial happens rarely however the probability of occurrence of humid situation is much.

Regarding agriculture plain and foothill section of the region has a dry season and its severity is low that continues from middle of june to the end of july. Also it lacks very cold season and only four month has cold and moderate weather. Since april to the end of sep the degree of evaporation is more than raining that increases since june. Oct, Nov, Dec is the months that raining is more than evaporation to much degree and is saved in soil to much extent.

Human comfort through effective temperature method or ET in Masal

Much attempt have been done for designing index that affect human temperature comfort in these index it has been tried to present effect of humidity and temperature of environment. These indexes are used in global and local scale method of effective temperature is the index of temperature comfort are the action have been used more than other indexes.

Effective temperature formula: $ET = t - \{ 0.6 (t - 10) (1 - RH / 100) \}$

RH: relative humidity

T: temperature

EF:effective temperature

Then based on result formula of the fallowing talbe has been set.

Effective temperature method: ET(temperature and humidity)

Table 2: Effective temperature method

ET	Temperature coefficient
> 30	Extremely warm
27.5-30	Humid
25.6 - 27.5	Very warm
22.2 - 25.6	Warm
17.8 – 22.2	Comfort
15.5 – 17.8	Cool
-1.67 – 15.5	Very cool
-10 - (-1.67)	Cold
(-20) – (-10)	Very clod
< -20	Extremely cold

Result of formula and [Table 2] adapt wit this quote of Elsort Hantington the algebra oriented climatologist who says "the best temperature for human environment is while average limit of day and night temperature is between 15.5 to 21°c but he also believes that advent of old civilization of Egypt, Iran, Room and main civilizations are seen during periods before history that average annual temperature was between 18-21°c or near to this limit. The best climatic condition for human is that a person without much attempt can make reasonable balance between warmness of body and lost warmness that is don't receive any temperature from outside and don't give temperature to the environment, therefore cold and warm weather isn't proper for life, the least metabolism is done in 18-25°c and less or more that this limit will lead to metabolism [6].

Table3: Effective temperature method of Masal

Month	T	RH	$ET = t - \{ 0.6 (t - 10) (1 - RH / 100) \}$	Temperature coefficient
Oct	20.9	82	19.7	Comfort
Nov	15.6	81	14.9	Very cool
Dec	10.4	80	10.3	Very cool
Jan	7.3	81	7.6	Very cool
Feb	7.2	81	7.5	Very cool
March	9.1	80	9.2	Very cool
April	12.3	78	11.9	Very cool
May	17	78	16	cool
June	23.3	71	20.9	comfort
July	25.9	75	23.5	warm
Aug	27	67	23.6	warm
sep	24	75	21.9	comfort

Based on above method humanity comfort in June, Sep and Oct is completely favorable and regarding decrease of temperature in height of the region July and Aug can be placed in comfort condition and are stated as semi-favorable. It is necessary to mention that other months are unfavorable for human comfort.

Human comfort through olgi method in Masal

Based on used methods it seems that in our country any experiment and research that distinguishes favorable condition of weather regarding temperature and humidity hasn't been done so for determining limit of comfort region in Iran suggestive method of Olgi has been used, olgi has suggested temperature 70-80°F (1.1-27.8°C) for summer and 68-76°F (20°C) for winter and relative humidity of 30-65% as the favorable condition of weather. Of course this limitation has been suggested for mild regions of America with height less than 1000 foot (330m) from sea surface and for people who have activity in sitting condition and wear usual cloth in the house has been suggested. In his opinion these tables can be used by changes in other regions and for each 5 degree of reducing geographical altitude toward 40 degree of north it increased summer comfort about 3.4°F at the bottom of region but this limit shouldn't exceed 85°F. Therefore we can place limit of comfort region for Iran between 25-40 degree of altitude regarding temperature in summer between 1.5 to 9 and in winter between 20-7.5°C, range of relative humidity in these two seasons is supposed between 30-65%. Of course we can't determine exact limit for comfort region due to favorable temperature for weather in different regions because favorable temperature of weather in a distinct region for people with different ages differs it depends on the degree of activity and type of cloth of people [6].

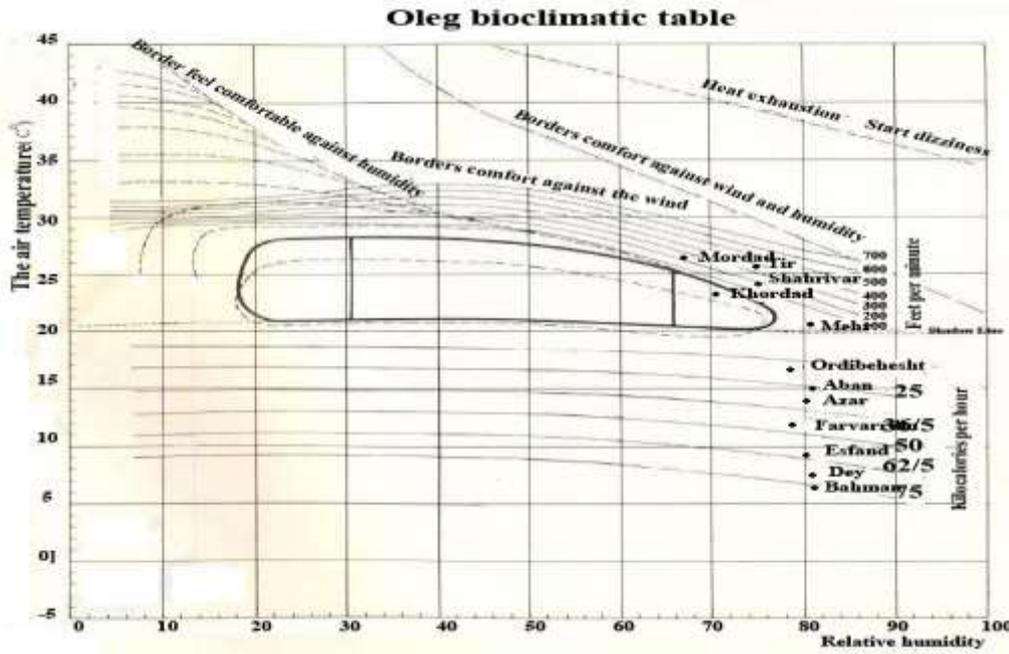


Fig. 2: Bioclimatic olgi of Masal city.

Based on this method human comfort was favorable in June and regarding especial condition of weather of countryside's and decrease of temperature in heights of region in month July, Aug, Sep and Oct there is climatology comfort condition and is semi-favorable. In other month condition of temperature and humidity is unfavorable for human comfort.

Questionnaire result

1-existence of forest and good weather condition and its effect on tourist attraction of the region
 Attractiveness of forest of Masal and Shanderman is in variety of tree and vegetation specious of forest lands. Mixture of three factors of favorable climate, river and pasture in these forests has created beautiful combination of the kinds of natural colors and viewpoints. However lack of access to these natural mixtures is lack of ways and the main condition of connection of forest with activities of tourism is development of ways that passes forest regions. Forest with all natural features and ecologies in the world beside economic values has especial importance regarding tourism and recreation.
 Respondent to identified questionnaires in this case has claimed their opinion as below:

Table 4: Degree of effect of height at decreasing temperature and existence of forest at tourism attraction

Total		Low		Much		Extreme		Explanation	Raw
Percent	Number	Percent	Number	Percent	Number	Percent	Number		
100	374	2.1	8	33.3	125	64.6	241	respondent	1
100	374	2.1	8	33.3	125	64.6	241		sum

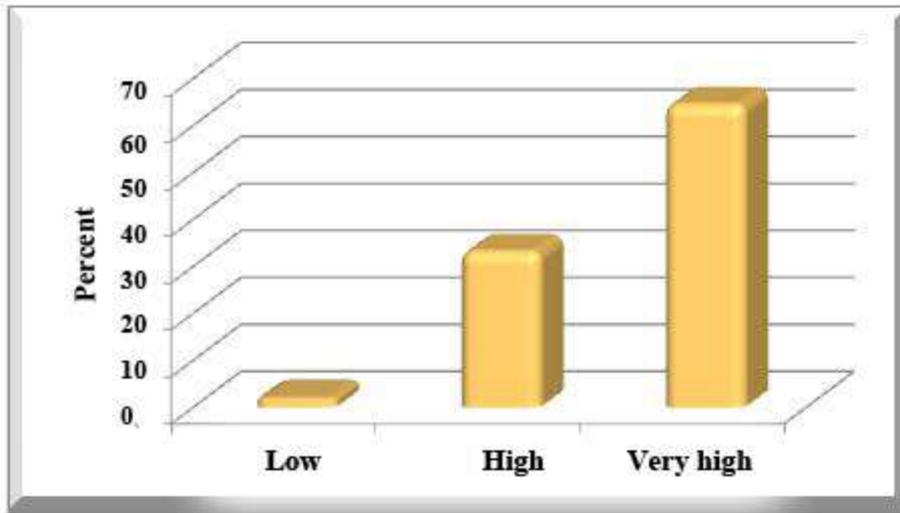


Fig. 3: Degree of effect of the factor of height n decreasing temperature and existence of forest at tourism attraction.

Mountains and countryside

Countryside of the city has been consisting of three sections regarding natural viewpoint. Forest countryside that is used more by nomadic farmers. Countryside's situated at the border between forest and pasture that were used temporary and countryside situating in height and ridge of mountains that are used by nomadic farmers. Mountains and countryside of Olesblangah are counted as the most beautiful weather of visiting regions.

Table 5: Degree of existence of good weather of countryside at tourism attraction

Total		Total		Low		Much		Extreme		Explanation	Raw
percent	Number										
100	374	2.1	7	4.2	16	31.2	117	62.5	234	respondents	1
100	374	2.1	7	4.2	16	31.2	117	62.5	234		sum

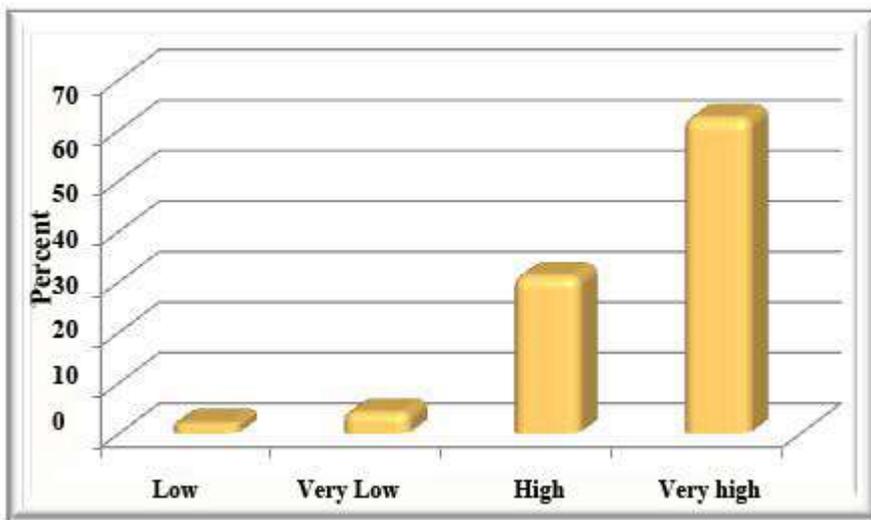


Fig. 4: Degree of effect of good weather of countryside in tourist attraction.

Winter tourism in Guilan

Lands that have good mountainous situation can create ideal situation for winter tourism by making specific strategies, Masal countryside region and cold heights of the regions in winter provide possibility of doing winter exercises and can cause promotion of tourism regarding different factors.

Table 6: Degree of effect of providing facilities of winter sport at tourist attraction

Total		Not climed		Not at all		Very low		Low		Much		Extreme		Explan ation	Raw
Per cent	Num ber	Per cent	Nu mbr	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber		
100	374	4.2	15	4.2	15	2.1	8	22.4	86	39.6	148	27.1	102	respon dent	1
100	374	4.2	15	4.2	15	2.1	8	22.4	86	39.6	148	27.1	102	sum	

Fig5: degree of effect of providing possibility of winter sport at tourism attraction

Table 7: table of distribution of percent of goals of respondent about travelling to the region

Total		Not claimed		All cases		Proper weather/spo rt		Natural viewpoints/w eather		Weather		Nature		Explan ation	Raw
per cent	num ber	perce nt	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	num ber	per cent	Num ber		
100	374	2.1	8	8.3	41	2.1	8	10.4	49	31.2	117	45.8	171	respon dents	1
100	374	2.1	8	8.3	41	2.1	8	10.4	49	31.2	117	45.8	171	sum	

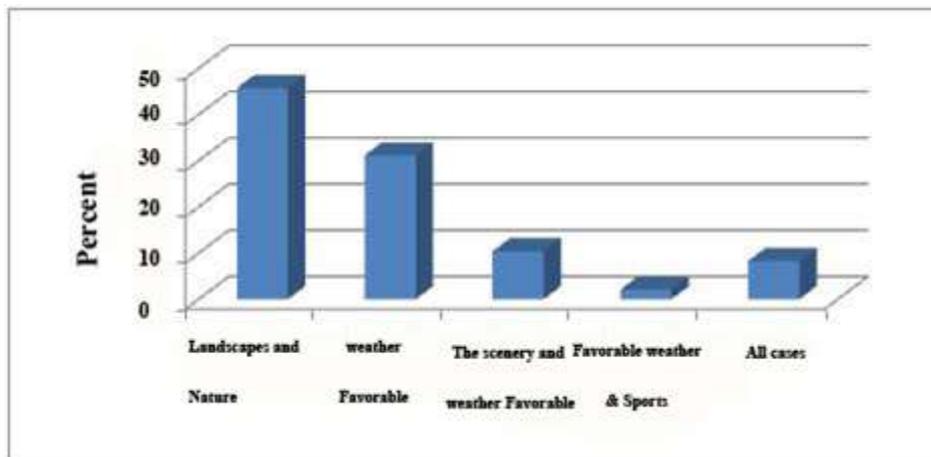


Fig. 5: Distribution of percent of goals of respondent about travel to the region.

sig 95%

Table 8: Tested variables at X2 test for first hypothesis

Rejected or approved	df	choices					Statistic χ^2	variables	raw
		H_1	H_0	Not at all	Very low	Low			
*	3	✓	-	7	16	117	234	1.385	good weather and coolness of these region to urban points warmness of weather and high humidity at warm seasons causes tourism attraction existence of favorable weather and unique regions at thinking and mental comfort
*	4	✓	8	8	8	132	218	1.923	
*	4	✓	-	8	8	101	257	1.710	

H₀: climatic comfort can be effective factor at tourism attraction (there is relationship between climatic comfort and tourism attraction).

H₁: climatic comfort can't be effective factors at tourism attraction (there isn't relationship between climatic comfort and tourism attraction) Sig at 95%

Table 9: Tested variables at X2 test for second hypothesis

Rejected proved <i>H</i> ₁	or		Choices					Statistic <i>X</i> ²	variables
	<i>H</i> ₀	df	Not at all	Very low	Low	Much	Extreme		
x	✓	2	-	-	8	125	241	84.37	effectiveness of height at decreasing temperature and existence of forest at tourist attraction
x	✓	4	15	8	86	148	102	75.91	providing winter sport facilities at tourist attraction
x	✓	3	-	8	8	163	195	1.230	existence of countryside at tourist attraction

H₀= the factor of height is effective at tourism attraction with temperature decrease

H₁= factor of height isn't effective at tourism attraction with decrease of height.

CONCLUSION

Attraction and tourism capabilities of Masala ns Shanderman is dispersed in its geographical dimension this city that is consist of three plan, foothill and mountainous sections each has especial attraction for tourist that the most important one is natural attraction that in recent years has been paid attention by travelers, The most important capability and Eco touristic power of Masal and Shanderman is existence of mountains and old forest famous to Hirkani forest with favorable climate, rivers, wild life and variety of vegetation and animal specious and caves. Existence of god weather as the most important physical parameters plays significant role at planning of recreation and tourism. By identification of these environmental capabilities we can provide the field for tourism development and attract many tourist at national and transnational levels to this city. Climatology of tourism as a applied branch of meteorology in recent years has achieve considerable promotions about searching capability and climatic power of touristic regions. In this direction and based on obtained index in this research human comfort of studying regions was favorable in june, july, Aug sep and oct and regarding weather condition of countryside and decrease of temperature in height of the region necessary conditions is provided for enter of tourism into these regions. However existence of all natural and historical and cultural attractions of Masal couldn't be successful at attraction and development of tourism that this action is due to lack of infrastructural constructional factors in this city that in the research and by using people's viewpoint was done. Because olesblangah and Masal regarding natural attraction(ecotouristic) is one unchanging region of the province and even country and by proper planning and by creating installations and infrastructural equipment's we can promote tourism industry in the city and people of the region observe positive effect of tourism in their personal and social life.

SUGGESTIONS

By seeming environmental barriers and capabilities of countryside of the region the following suggestions is identified as below:

- modifying infrastructural foundation like road improvement-transportation-welfare facilities such as increasing recreation facilities and making hygiene services
- attraction of organizations and public organizations like organization of preserving environment, natural resources, organization of cultural heritage and tourism and for management and optimized use of region
- empowering local niceties
- advertisement and supplying informational brochure for informing tourism
- equipping and creating long barbecues in countryside of the region and renting them to tourist for cooking prevent making fire at the forest and countryside
- providing plays and winter sport
- investment in natural attraction including caves and natural fridges and waterfall

CONFLICT OF INTEREST
There is no conflict of interest.

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None

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