Available online at www.ijapas.org

IJAPAS

International Journal of Applied Arts Studies

IJAPAS 4(4) (2019) 67–78

Rehabilitation and Evaluation of Chaharmahal and Bakhtiari Land Use to Centralized Tourism Attraction

Seyed Ali Almodaresi[a]*

[a]*Associate Professor, Department of GIS & RS, Yazd Branch, Islamic Azad University, Yazd, Iran*

Received 22 November 2019; revised 20 December 2019; accepted 13 January 2020

Abstract

Today, tourism as a large industry is a phenomenon highly motivated by economic, political, changes and has attractive developments in the region. Chaharmahal and Bakhtiari province has beautiful nature. With planning and investment in this area and proper utilization of this capability can improve the progress of the province. Therefore, in this study, an attempt has been made by using Dr. Makhdoom ecological model and GIS software to assess and rehabilitate the province in attracting centralized tourists and finally to identify the tourist hotspots in these areas for investment, so that in future to attract more tourism to the province. The results show that 20 hotspots among the tourist centers in the province have high capability and 5 hotspots are located on medium-level land.

Keywords: Tourism; Centralized Tourism; Evaluation and Rehabilitation; Dr. Makhdoom Ecological Model

1. Introduction

Based on the ancient and historical data, travelling and excursions dates back to human history and civilization, but the necessities of time and tourism expansion has brought a new knowledge and concept to the tourism industry and making it an effective tool for the service to world peace and friendship, the exchange of nations cultures, international understanding, economic, social and cultural development of countries and businesses, high income, etc. (Hashemi, 2009: 32).

In the present world tourism is a pure industry and third dynamic phenomenon, thriving and developing economic that has outpaced after the oil and automobile industries (Ghaffari, 2007: 55).

* Corresponding author. Tel: +98-3518214815.
E-mail address: almodaresi@iauyazd.ac.ir

Based on the World Tourism Organization estimates, the value of income achieved by tourism and travel in the coming decades will rise to higher level than that of world trade at a faster rate than other exported items in the economic sectors (Master Plan of Sabz Spring area, 2009: 70).

Today, Iran has considered the approach to achieve sustainable development, while the country is facing with more employment problems than ever before. On the other hand, the rising cost of oil has made the economy more relying on itself, and policymakers are seeking for solutions that are out of the way. It seems that tourism, as a complex system of large dimensions, is one of the solutions to this bottleneck. As the tourism industry develops, it will try to replace other non-sustainable sources of income by attracting tourism. Tourism development can prevent the country from being a one-product and contribute to economic development and sustainable development of the country. One of the most important approaches to achieve sustainable development is the society individual participation. But today, the pressure of living and psychological stress has reduced the uniformity and quality of life of individuals, these communities will not achieve sustainable development. It seems that in order to free oneself from tiredness of life, people need to have recreation (Ghafourian and Sadeghi, 2011: 12). One of these recreations is the presence of space with suitable amenities in the nature that causes relaxation for the individuals.

Chaharmahal and Bakhtiari province is located between Isfahan and Khuzestan provinces. Since these provinces are among the industrialized zones of the country, their inhabitants' lives are mostly based on industry and machine life, and this is increasing day by day. In addition, as per ecotourism this province does not have suitable potential, while the people of these provinces prefer to spend their leisure time in a natural environment in order to regain their energy and to gain intellectual peace. On the other hand, Chaharmahal and Bakhtiari province has unique nature in terms of its location and has rich water resources, natural condition, climate, vegetation cover, among which one is the Zardkouh highlands. Most months of the year is covered with snow and provide a suitable environment for winter sports, roaring springs such as Dime, lagoons and basins (Chaghakhor, Sulghan, etc.), wide plains like inverted tulip plain, pasture lands and forests along with diverse wildlife resources with over 294 species of 185 genera related to 90 families (Cultural Heritage Organization, 2009: 125). In this study, attempt has been made to identify areas that are suitable for tourism development and investment. Therefore, in the process of land evaluation and rehabilitation, Dr. Makhdoom's ecological model was used and with the help of GIS software the areas were identified and the tourist hotspots located in these areas were prioritized for investment.

2. Literature Review

The works done in this regard is the article by Daneshvar and Shibani. In the research they aimed to evaluate the ecotourism development of Kalat city, the research variables after hierarchical weighting in AHP, was overlaid in GIS to formulate a zone for ecotourism development in a two class zone. Then the ecological board capacity of the obtained zones and the tourist routes located in them were calculated in three forms of potential, real and effective. In another article by Atai and Hashemi-Nasab evaluated the tourism zoning of Isfahan province using PET index and GIS. To evaluate the climate they used 11 synomptic stations in the range of Isfahan province and using PET index from climatic parameters such as mean dry temperature, mean relative humidity, mean wind speed, mean vapor pressure and cloudiness over a period of fourteen year (1992-2005). To map the tourism climatic conditions of the province in GIS environment, the kriging method was used. Feng Morrison (2003) emphasizes on the application of GIS in tourism development and locating hospitals. Abdul Salam et al. (2000) in a study to protect mangrove sundarban forest resources and life of flora and fauna to develop nature tourism using geographic information

system, satellite imagery and information technology, have tried to use them as useful tools in preventing forest degradation. Gumusay et al. (2004) in their study entitled GIS design and its application in the tourism of Turkey's Ominono region concluded that the above system through the network analysis for saving time and financially could provide the shortest path for tourists to reach tourist destinations. Jamalzad et al. (2002) emphasize about the ecotourism potential along the rivers of Gilan province using native ecological model and studied the application of ecotourism potential in protected areas of Guilan. Molla'i (2004) has also mentioned the potentials and attractions of rural-nomadic tourism in the Talesh area.

One might argue that the first motivation to travel is his curiosity and adolescence. To get away from everyday life and seek for something that has never been seen before. This curiosity has infused in the various domains of human life like seeing, hearing and knowing, and has overshadowed all human ability to interact with its environment. It is curiosity and adolescence and the choice of journey to satisfy the sense that has historically evolved cultures and civilizations. However, traveling to different countries or mother land, besides gaining valuable experiences and acquainted with the customs and traditions and characteristics of the social and economic life of its people, a new attitude towards the world is created in individual. But this attitude is achieved only when one is traveling with prominent thoughts and not merely the superficial travel, recreation and entertainment (Josie et al., 2010: 34).

Tourism: In the Longman dictionary, tourism is defined as travel for leisure and entertainment, and in the dictionary and context tourism is defined as a journey in which the traveler arrives at a destination and then returns to his/her place of residence (Bamanian and Mahmoudinejad, 2010: 20).

According to the definition given by Dr. Makhdoum, tourism in Iran or world, in terms of required development to implement tourism in the environment the following category is necessary:

Extensive tourism: Includes those categories which do not require development or require little development, such as mountaineering, hunting, fishing, wilderness, horse riding and wildlife nature sightseeing (Makhdoum, 1995: 200).

What is needed in this study is to determine the suitable centralized tourism place for investment. In the centralized tourism model, three classes are considered. Class one (suitable quality), class two (medium quality) and class three (unsuitable). The class suitable areas for investment and to create the tourism hotspots are the first and second class and among these two the class one is most suitable. The features of the different classes are as follows:

2.1. Class One

- *Climate and weather*: The average temperature in summer and spring is 21-25°C. The number of sunny days per month is in spring and summer season which exceeds 15 days per month.
- *Water*: 40 to 150 liters/day/person
- *Suitable slope percentage*: 0 to 5%
- *Geographical direction*: summer it is eastern and winter it is southern
- *Soil texture*: loamy
- *Soil drainage conditions*: complete
- *Soil fertility*: medium to good
- *Soil structure*: Semi-evolved to evolved with medium-sized particles
- *Soil depth*: deep
- *Mother rock*: granite, sand dunes (in humid climate), basaltic flows, alluvial (offshore alluvium)

- *Tree density*: 40 to 80 percent
- *Species composition*: Mostly monocotyledons

2.2. Class Two

- *Climate and climate*: The average temperature in summer and spring is 21-30℃. The number of sunny days per month is in spring and summer season which exceeds 7 to 15 days per month.
- *Water*: 12 to 40 liters/day/person
- *Suitable slope percentage*: 5 to 15 percent
- *Geographical direction*: summer it is north and winter it is west
- *Soil texture*: sandy, sandy-loamy, clay, clay-loamy
- *Soil drainage conditions*: poor to moderate
- *Soil structure*: Semi-evolved with medium to coarse-grained aggregation
- *Soil depth*: medium to deep
- *Mother rock*: sandstone, limestone, cleft tuffs, inter-stellar flows, schist, capricious, floodplains, alluvial fan and valley alluviums.
- *Tree density*: 20 to 40 percent
- *Species composition*: monocotyledonous, dicotyledonous with approximately equal composition.

2.3. Unsuitable

- *Water*: Less than 5 liters/day/person
- *Slope percentage*: more than 15%
- *Geographical direction*: summer and spring (south and west) and winter (east and north)
- *Soil texture*: heavy clay and hydromorphic soils
- *Soil drainage conditions*: Incomplete
- *Soil fertility*: very poor
- *Soil structure*: Very fine particles
- *Soil depth*: low to high
- *Mother rock*: granite, sand dunes (in humid climate), basaltic flows, alluvial (offshore alluviums)
- *Tree density:* less than 20%
- *Species composition*: More percentages of two cotyledons with hardwood or thorny bushes, or slow rooting plants.

3. Research Methodology

In this study, the data used is obtained from the Planning and Management Organization of the province and according to Dr. Makhdoum's model and the definitions provide for leisure or tourism is common in Iran or the world, appropriate areas for investment in tourism field were identified. For assessment purpose the ecological potential of the environment for tourism, slope, rock and soil parameters, geographical direction, water, plant, climate and weather have been studied. The parameters mentioned in the model are not of same weights, the priority of parameter is based on importance of 1- Slope, 2- rock and soil, 3- Geographical direction, 4- Water, 5- Plant, 6- Climate and weather (Makhdoom, 1995: 121).

This means that if the slope of environmental unit was not suitable for tourism, it would refrain from comparing the other parameters, and basically the evaluation would be stopped. Also, if the

slope is suitable, and soil does not have the potential for tourism then the comparison of other parameters is avoided. The base of zoning and validation of the province for planning the tourism development is based on the first step of the mentioned model. However, limiting some of the required statistical information, such as the lack of accurate statistics from averages consumption of daily portable water or some soil maps of the province has resulted in elimination of some factors from the final evaluation. In a multi-factor evaluation with the help of available data and resources, the validation of tourism industry development has been carried out in the province. In this regard, the raster maps of these two classes have been prepared and then with overlaying of these maps the suitable area has been determined.

4. Research Findings

Maps of these classes include the slope map, geographical direction, climate, tree density, soil depth, soil drainage conditions, which are separately drawn in the GIS software.

4.1. Ecological Model of Class One Tourism

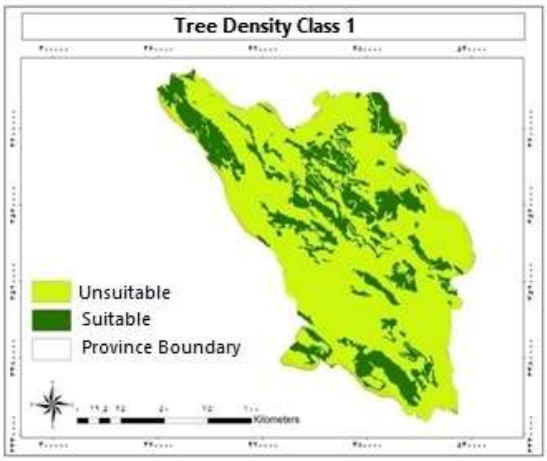


Fig 6 Trees density of class one (Source: Research Findings, 2014)

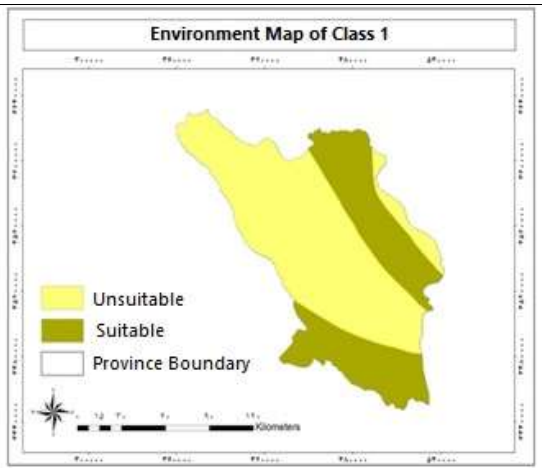


Fig 1 Classification of class one climate (Source: Research Findings, 2014)

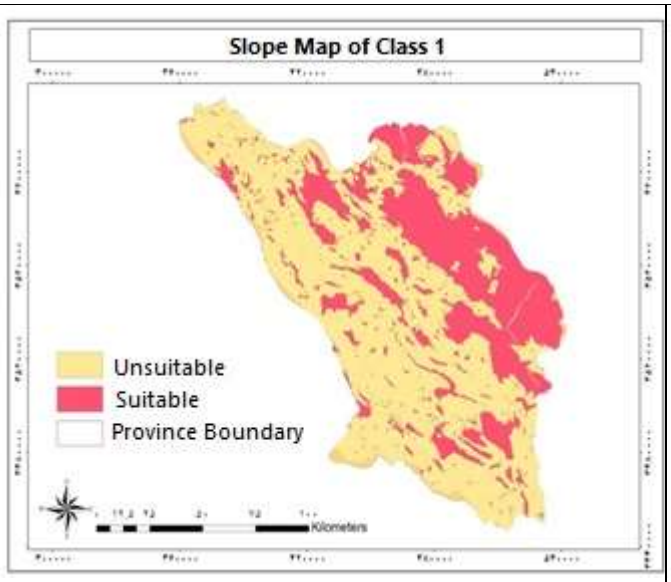


Fig 3 Suitable slope percentage of class one (Source: Research Findings, 2014)

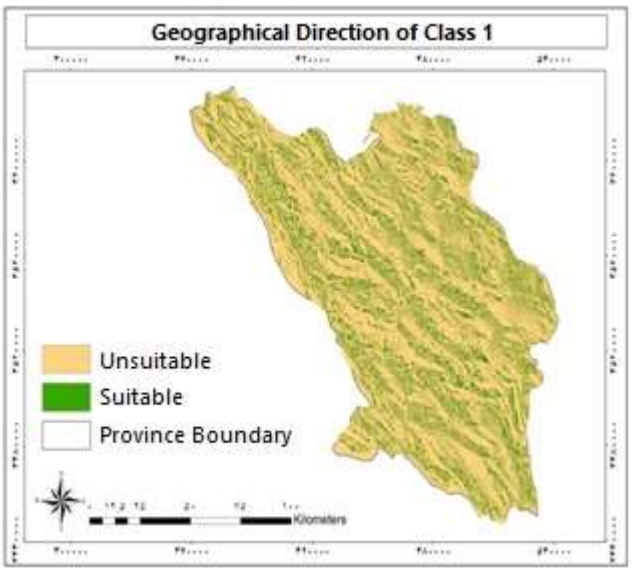


Fig 2 Geographical direction of class one (Source: Research Findings, 2014)

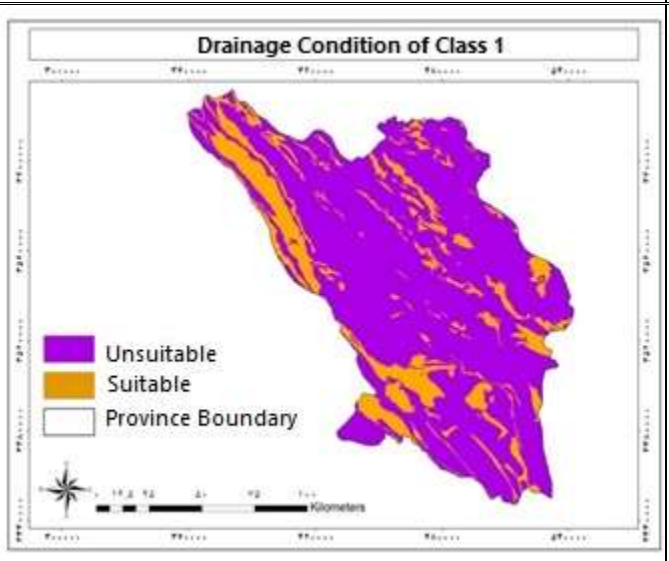


Fig 5 Soil drainage conditions of class one (Source: Research Findings, 2014)

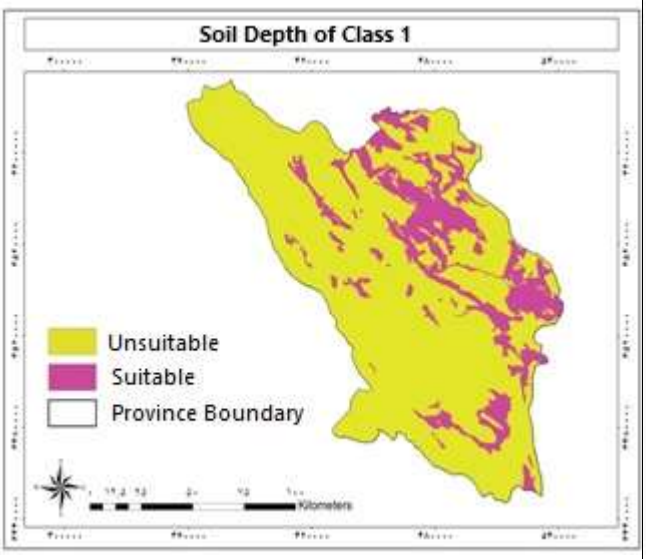


Fig 4 Soil depth of class one (Source: Research Findings, 2014)

4.2. Focused Ecological Model of Class Two

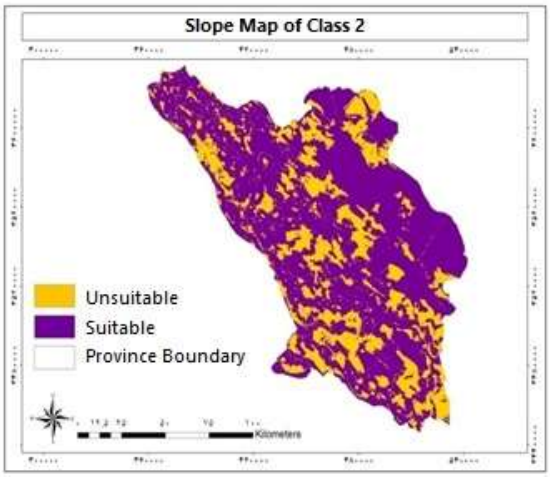


Fig 8 Suitable slope percentage of class two (Source: Research Findings, 2014)

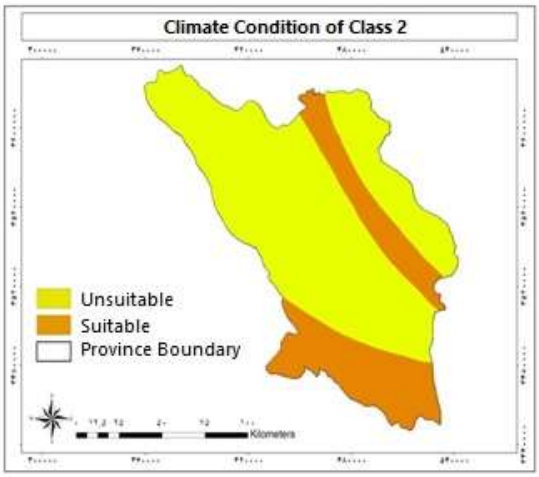


Fig 7 Classification of class two climate (Source: Research Findings, 2014)

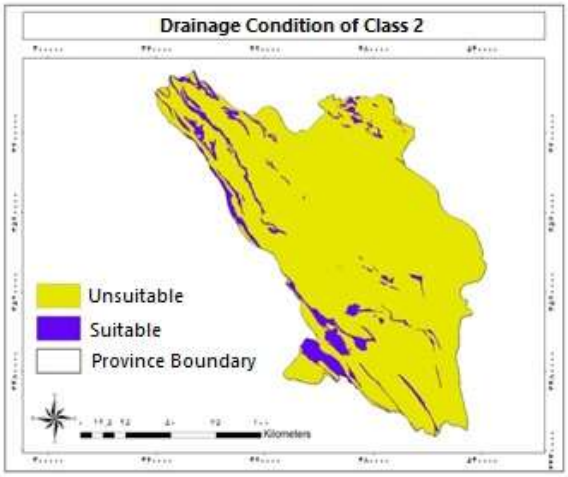


Fig 10 Soil drainage conditions of class two (Sources: Research Findings, 2014)

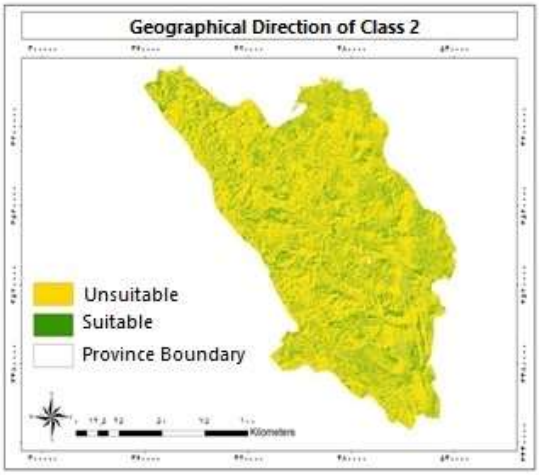


Fig 9 Geographical direction of class two (Source: Research Findings, 2014)

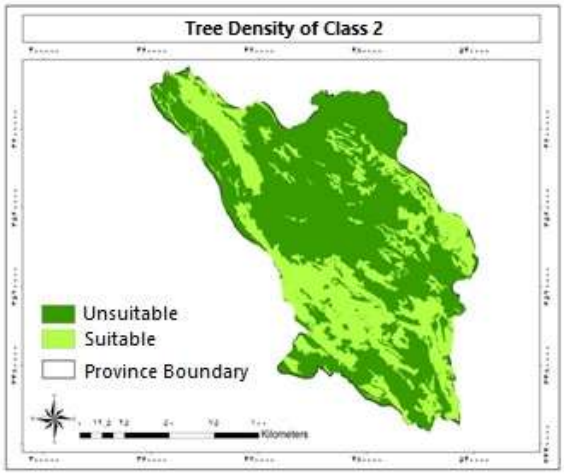


Fig 12 Trees density of class two Source: Research findings, 2014)

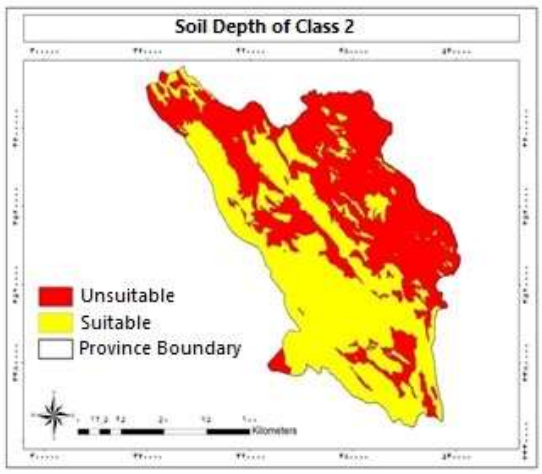


Fig 11 Soil depth of class two (Sources: Research Findings, 2014)

4.3. Distribution of Concentrated Tourism Zones of Class One and Two

At this stage, by overlaying of slope maps, vegetation cover, topography and field type we have obtained the final map for both ecological classes. According to the studies carried out in the process of ecological land validation of the province for the development of centralized tourism industry in order to create and develop new tourism sites and centers has been the investment as the first priority. Hence based on this, the second priority is the hotspots and zones of the class two or zones which have the moderate ecological potential. Thereafter, the last priority is the hotspots and tourism destinations located in class three or unsuitable lands. By adapting the tourist centers map of the province with the distribution map of centralized tourism zones of class one, we have achieved the hotspots that has the priority of investment. Among these, 16 hotspots with high suitability and 5 hotspots with moderate suitability and the rest are unsuitable land.

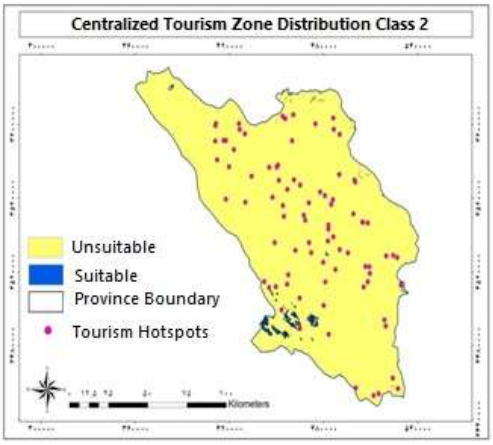


Fig 14 Distribution of Centralized Tourism Zones (Class two) (Source: Research Findings, 2014)

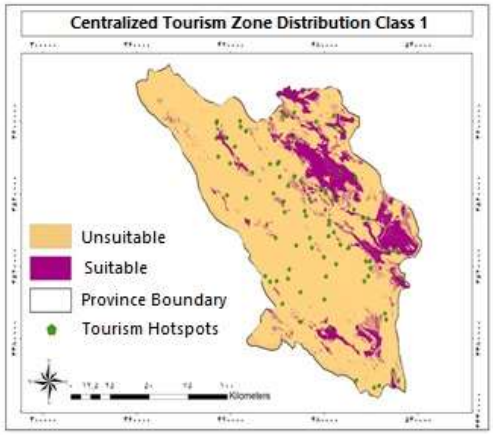


Fig 13 Distribution of Centralized Tourism Zones (Class one) (Source: Research Findings, 2014)

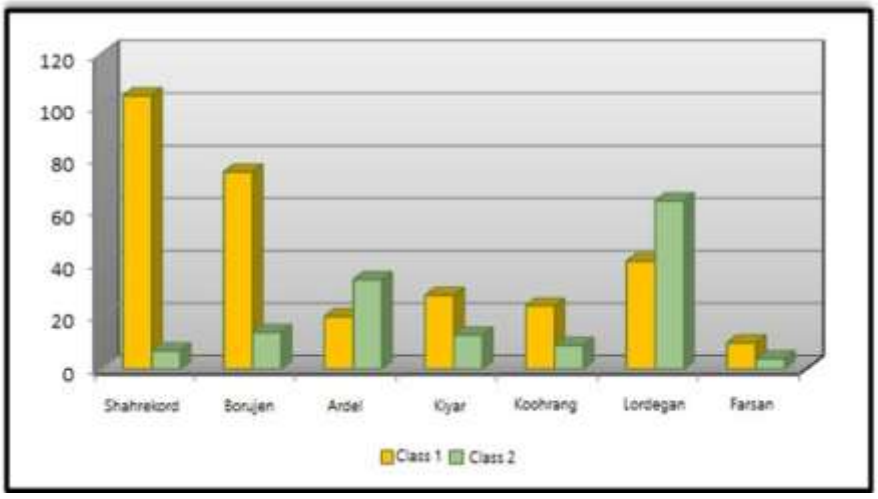
5. Conclusions and Suggestions

In general, since the use of indoor and outdoor tourism is pursued by tourists, followed by local and foreign tourist, therefore, assessing the suitable location for those tourists who travel in the indoor environment is subject to the ecological model of urban development. In other words, the criterion for selecting locations for indoor environments is related to indoor entertainment which is same as the ecological model of urban development. In outdoor environments, the tourists are entertained by numerous entertainment, all of which are referred to as leisure or sightseeing.

Recreation or tourism in terms of the amount of development required to implement tourism in the environment is divided into two groups: centralized tourism and extensive tourism. The centralized tourism is the purpose of this study. Therefore, by identifying the limitation of the class in this group according to Dr. Makhdoom's ecological model, the suitable zones were determined and by integrating the tourism centers map with the tourism lands map, the hotspots of first priority for investment were identified. Identifying these hotspots and prioritizing them in future tourism planning will ensure that the hotspots are environmentally suitable for human comfort. Thus would attract more people and increase the prosperity of tourism. The land areas of class one and two suitable for tourism development are shown in Table 1.

Table 1 Territory area validation of the province in centralized tourism development

No		Land use type 1 (Suitability)					Land use type 2 (Average suitability)				
	City name	Amount of land	Total area (Hec)	Average area (Hec)	Smallest land area (Hec)	Largest land area (Hec)	Amount of land	Total area (m2)	Average area (m2)	Smallest land area (m2)	Largest land area (m2)
1	Shahrekord	104	166	1.6	10.9	2.6	7	3316	473	282	792
2	Borujen	75	81.5	10.8	41 m2	5.5	14	4107	293	109	1678
3	Ardel	20	154	7.7	345 m2	13.9	34	9644	283	137	401
4	Kiyar	28	11.2	4000 m2	263 m2	7948	13	8763	674	18	1772
5	Koohrang	24	129	5.4	330 m2	13.9	9	4.3	244	85	401
6	Lordegan	41	7.6	1867 m2	77 m2	9015	64	1808	282	198	401
7	Farsan	10	18.2	1.8	842 m2	13.96	4	1108	277	254	345



Graph 1 Number of hotspots and tourism zones validated in Mokhaz city (Source: Research findings, 2014)

As can be seen, the area of class one is larger than the class two and this area is towards the eastern part of the province and in the cities of Shahrekord and Borujen. The most suitable hotspots for investment are class one zones which is about 20 hotspots, 5 hotspots in areas with medium suitability and the rest in unsuitable areas. Table 2, shows these hotspots in differentiate location in zone with suitable and moderate suitability.

Table 2 Distribution of tourism hotspots in centralized tourism zones (Source: Research Findings, 2014)

No	City name	Hotspots in class one area (Suitable)	Hotspots in class two area (Moderate suitability)
1	Shahrekord	Zamankhan bridge, Farokhshahr Swimming park, Baba Pir Ahmad Imamzadeh, Azizollah Kiyan Imamzadeh, Seyed Mohammad Imamzadeh, Zeneh spring, Shamsabad castle, Sking Bardeh, Tange Sayad protected zone, Sheyda protected zone	
2	Borujen	Siyah Sard spring, Ghays Imamzadeh	Ghays Imamzadeh
3	Ardel		Shelil caravanserai
4	Kiyar	Shazdeh Abdollah Imamzadeh, Surok castle	
5	Koohrang	Koohrang Sking, Koohrang waterfall	Sandegan spring, Shahsavar Imamzadeh
6	Lordegan	Barm spring	Chartagh wild forest
7	Farsan	Seyed Saeed Imamzadeh, Sardar Asad castle, castle spring	

References

Atai, H., & Hashemi Nasab, S. (2011). Evaluation and zoning of tourism climate of Isfahan Province using the Index (PET) and Geographic Information System (GIS). *First International Conference on Tourism Management and Sustainable Development, Marvdasht*, 1-16.

Abdus salam, M., Lindsay, G. R., & Malcolm, C. M. B. (2000). Ecotourism to protect the Mangrove reserve forests of Sundarbans and its Flora and Fauna, *Anatolia, 11*(1), 56-66.

Boers, B., & Cottrell, S. (2007). Sustainable tourism infrastructure planning: A GIS-supported approach. *Tourism Geographies, 9*(1), 1-21.

Chaharmahal & Bakhtiari Province Cultural Heritage Organization, (2009). Statistical report of tourist entry in Iran. Shahrekord: Statistical information department .

Das Weil, R. (2005). *Tourism management - principles, strategy and works* (Arabi, S. M., & Izadi, D. Trans.). Third Edition, Tehran: Office of Cultural Research.

Daneshvar, M. P., & Shebani, Sh. (2011). Evaluation of GIS based ecotourism zoning using ecological range capacity model (Case study: Kalat city, North of Khorasan Razavi Province). *First International Conference on Tourism Management and Sustainable Development. Marvdasht*, 1-17.

Dolatabadi, F., & Yaghoubzadeh, R. (2009). *Cultural tourism and strategies for its promotion in Iran*. First edition, Tehran: Islamic Azad University Press.

Farajzadeh Asl, M. (2005). *GIS and its application in tourism planning*. First Edition. Tehran: SAMT Publisher.

Ghaffari, R. (2007). Tourism and sustainable urban development. *Quarterly Journal of Sepehr, 16*(63), 29-35.

Ghaffari, R. (2009). *Prioritizing, investing and locating tourism facilities in tourist centers*. Shahrekord, Cultural Heritage and Tourism Organization of Chaharmahal & Bakhtiari Province.

Ghafourian, M., & Sadaghati, A. (2011). Investigating the role of Water Parks in tourism attraction for economic development of cities, Case Study of Mashhad Water Park. *The first conference on urban economy of Iran, Mashhad*, 1-10.

Haji Nejad, A. (2010). The economic impacts of commercial tourism in urban areas (Case Study: Baneh city). *Journal of Geography and Regional Planning, 1*(2), 5-26.

Hashemi, M. (2009). *Design of tourist cultural complex in Shahrekord*. Master thesis in Architecture. Isfahan: Islamic Azad University, Khorasgan Branch.

Kafami, R., & Kousha, K. (2000). *Tourism industry and architecture of Iran*. Master's Degree in Architecture, Isfahan: Islamic Azad University, Khorasgan Branch.

Lee, J. (1999). *Tourism and development in the Third World* (Eftekhari, A. R., & Salehi Ami, M. Trans.). First Edition. Tehran: Trading Publishing Company.

Mahallati, S. (2001). *Income in tourism.* Tehran, Shahid Beheshti University, Tehran.

Makhdoum, M. (1995). *Foundation of Land use planning*. First Edition, Tehran: Tehran University Press.

Ramazanipour, M., Roshani, M., & Purarmazan, A. (2011). Evaluation of suitable places for nature tourism using GIS techniques (Case study: Dehlaman area). *Geographical Perspective (Human Studies), 16*(6), 70-83.

Saghaei, M. (2006). Challenges of tourism industry in Iran and its improvement and development strategies. *Proceedings of Geography and the 21st Century Conference, Najafabad*, 1-18.

Sustainable Environmental Consulting Engineers, (2009). *Sabz spring regional tourism Master Plan. Shahrekord*, Management and Planning Organization of Chaharmahal & Bakhtiari Province .

Tabibi, K., Babaki, R., & Jabari, A. (2008). Investigating the relationship between tourism and economic growth; A Case Study of Iran, OEDC countries plus selected countries. *Journal of Knowledge and Development, 15*(24), 65-87.

World Tourism Organization, (1998). *Collection of tourism articles*. Tehran: Ministry of Culture and Islamic Guidance.

World Tourism Organization, (2005). *National and regional tourism planning*. Tehran: Office of Cultural Research

Yaghafuri, H., & Aghaie, V. (2011). *An Analysis on the attractions of urban tourism and its role in economic development (Case Study: Ardabil city)*. Mashhad, 1-13.