



# The Identification and Spatial Analysis of the Natural Tourism Suitable Zones with a Sustainable Development Approach in the Typical Abardeh Tourism zone

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**Abstract:** *Nowadays, many of the policy-makers and development planners recount tourism as one of the main elements of sustainable development. The extant realities indicate that traveling in nature has incurred irreparable damages to the natural resources. The study model has been formed by making use of factors like favorable tourism resorts, sustainable development of tourism, metropolitan's economical growth as the dependent variable and bioenvironmental, socio-cultural, economical and infrastructural factors as the independent variable. The present study aims at the calculation of the extent to which the bioenvironmental standards, socio-cultural, economical as well as infrastructure factors influence the selection of tourism appropriate zones and also designing plans for sustainable exploitation of the environment and keeping the nature intact as much as possible. To do so, a library research method, interviews with the specialists and Delphi technique have been applied on a sample of 20 individuals including the urban planning experts and environment conservation specialists to gather the required information. The required statistics and information have been made available to the experts in the format of questions posed within questionnaires. The scales obtained through running Delphi method have been assessed and weighted comparatively through taking advantage of analytic hierarchy process (AHP). Then, each of the scales underwent a valuation process by making use of geographical information system (GIS) software within the regional area of concern to the present study. The results of the study, after the obtained layers overlapping analysis, indicate that the bioenvironmental scale takes the first position with the highest effectiveness after which socio-cultural, economical and infrastructure scales are placed in the second priority. Next, after the main scales' overlapping was evaluated, the zones prioritization was offered in line with the development of the facilities and the conveniences. The present study intends to provide guidelines by way of which natural resources sustainable utilization, economical booming and residential stability could be facilitated in such a manner that it will finally positively influence the region's development and prosperity.*

**Keywords:** *ecotourism, spatial analysis, sustainable development, natural tourism, sustainable tourism*

## 1. INTRODUCTION

Nowadays, many of the policy makers and the development planners recount tourism as one of the main pillars of the sustainable development. Adhering to the standards of sustainable development in tourism industry can lead to social justice and ecological stability; but, the existing realities are reflective of the fact that travelling in nature has brought about irreplaceable damages to the natural resources. In the meantime, the villages and the nature at the periphery of them have always been focused on by the urban travelers and

tourists. These spots are mostly ecologically sensitive and disregarding their natural values' significance and the other values covert in them including the cultural, social and historical values have been invaded in the investors and the men of influence.

To achieve sustainable development and make Abardeh Village benefited from the tourism industry, all of the aspects and extensive and complex features of such an industry should be identified within the format of comprehensive development plans and the programs should be designed in such a manner that besides quantitative assessment capabilities via changing the growth indices, the effects of such interventions should be clearly tangible in the local communities' bedding.

Based on this, it is tried to organize all of the processes, which are going to be covered in this study, based on the subjective principles and premises acceptable in the field of tourism and it is also attempted to provide for the preparatory works and grounding resulting in the indigenization through taking advantage of the western theories and theorizations. Also, through getting the unique variables pertaining to Iranian characteristics entered the plans, the decision-makings foundation and their content will be rendered systematic and easily accessible and implementable.

### **The Statement of the Main Study Problem:**

The increasingly high rate of urbanization and most frequent adoption of an approach in line with making optimum use of the leisure times in the recent decades have caused the tourism industry, as one of the largest and most diverse job creating and profitable industries to become the focus of attention by many countries considering it as an attainable objective in the sustainable development process. Also, this industry is particularly considered as an opportunity and a threat for the developing communities. On the one hand, it is a strong propeller instigating social, economical progresses as well as useful cultural interactions between the various societies. On the other hand, it can play an important role in destroying the natural environment, local ecology and the native and historical cultures. Therefore, unplanned, irrational and imbalanced development in such an industry especially natural tourism will give birth to adverse outcomes in the long-term and it will be subsequently followed with gradual degradation of the natural gifts. Thus, tourism development programs, especially natural tourism, should be designing and offering the feasible and attainable scenarios.

The study zone is stretched across the city of Mashhad and it embraces the localities which possess numerous natural resources and attractions some of which are situated in Torghabeh and Shandiz Counties. The typical region of Abardeh is located in the vicinity of the city of Shandiz. It encloses an area of 136 ha and it features unprecedented characteristics including the favorable climate, appropriate accessibility and adjacency to the population centers of interest to the present study. Nowadays, the growth in the tourism industry in the other regions at the periphery of Shandiz has been the cause of some disruptions in the stable system of the city.

Also, at present, the contaminations of the rivers, destruction of the gardens and transforming them into hosting centers and restaurants, the increase in the vehicular traffic into the depth of the valleys and other cases of the like are to be enumerated as parts of the consequences originating from the expansion in the unplanned and non-programmed tourism activities. It is evident that, in case such damages are not harnessed, they will be followed with the demolition of natural values of the region as well as the perturbation of natural and visual and bioenvironmental pollutions in near future.

In line with this, the present study makes use of scales such as bioenvironmental, socio-cultural, economical and infrastructural factors to look for appropriate grounding upon which the foundation of sustainable tourism development of Abardeh region can be laid so as to, on the one hand, the natural tourism needs can be met to some extent and, on the other hand, the existent attractive nature of the region can be enjoyed in a most optimized manner.

### **The Importance and the Necessity of Doing Research:**

Due to the presence of the Holy Shrine of His Highness the Eighth Imam, Mashhad is one of the most important pilgrimage poles hosting the pilgrims from all around the country and it is considered as one of the pilgrimage destinations welcoming the Shiites from inside the country as well as from all around the globe, specially from the neighboring countries. The extant statistics signify that about 15 to 25 million pilgrims and tourists visit the city every year and it is one of the most important pilgrimage-tourism target cities in the country but the average income earned by the people of Mashhad is lower than the average income earned by the people from the other corresponding cities and this is reflective of the idea that the people in this city do not take advantage of all the extant active and passive potentials [1, 2].

In spite of the existence of such unprecedented potentials and the position that the city has earned itself, it has not undergone the expected growth and development in terms of natural tourism. In comparison to the other tourism regions, such as torghabeh and Shandiz which enjoy a comprehensive tourism plan, this region lacks a plan and there is no research effort made in this regard. One of the reasons why the tourists have not been attracted to this region might be the absence of a coherent plan and the improper use of potential competencies.

In case of principled planning in the format of a sustainable development paradigm, such a potential competency can be employed along with the important issue of pilgrimage and, consequently, augment the economical booming of the city and enhance the pilgrimage-tourism services quality in this region.

Providing the grounding for such an issue in the form of typical regions' tourism plans as well as encouraging the inclinations towards investing in this field requires accurate programming and supporting and guiding the managers of this macro-province so as to play purposive roles besides preserving the natural environment qualities, identifying and restoring the historical works, introducing the rites, traditions and ritual ceremonies, offering hand-made artifacts and dried fruits and orchard products and so forth. Such an advantage causes a sustainable exploitation of the natural resources, economic booming and stability of the residence in such a manner that their positive effects can be readily observable in the region's development and prosperity.

Therefore, due to the presence of high natural, cultural and historical potentials in Abardeh typical tourism region, the present article aided by Expert Choice Software and GIS delivers a tourism development plan in line with optimized positioning of the facilities and conveniences so as to take an important step in line with the augmentation of the people's welfare in the region.

### **Study Questions:**

1. How does the sustainable tourism development influence the economical growth of Mashhad as a whole?
2. Do the bioenvironmental, social and cultural, economical and infrastructure factors directly influence the positioning of the suitable tourism zones?
3. Does the positioning of the tourism suitable zones influence the sustainable tourism development?

### **Study Objectives:**

#### **General Objectives:**

1. Calculating the extent to which the bioenvironmental, social-economical and infrastructure scales influence the selection of the tourism suitable zones
2. Sustainable protection and utilization of the environment and intact nature

#### **Specific Objectives:**

1. Responding to the tourism needs of the pilgrims and filling the leisure time of the people from the Holy City of Mashhad

2. Identification of the suitable zones fit to be installed with appropriate tourism facilities and conveniences in typical Abardeh tourism region

**Applied Goals:**

1. Tourism Organization administrating Torghabeh and Shandiz resorts can take the responsibility for implementing “Abardeh Tourism” plan.

**Study Objectives:**

1. It seems that bioenvironmental, socio-cultural, economical and infrastructural scales directly influence the optimized selection of the tourism localities.
2. It appears that the optimum selection of the tourism suitable zones influences the sustainable tourism development.
3. Presumably, sustainable tourism development influences the economical growth of the city of Mashhad as a whole.

**Theoretical**

This section of the present article embraces two parts of theoretical and experimental literature:

Theoretical literature: nowadays, the paradigm of sustainability has emerged as an important and necessary issue and it has drawn the attention of the global communities during the last two decades. Consequent to these global challenges, there are discussions put forth and expanded regarding the relationship between tourism and sustainable development in the past decades [3].

Tourism industry plays a considerable role in the economical growth and exposing the historical and cultural background of the countries. This industry is so much important in the economical and social development of the countries that is called “invisible export” by the economists [4]. In order to sustainably develop the rural tourism, there is a need for taking the effective indices and scales pertaining to economical factors, bioenvironmental considerations and socio-cultural values of the local community collectively into consideration. Therefore, such indices are turned more into instruments which are of use in the local management level. The use of such instruments for the purpose of the determination of the new strategies regarding the rural tourism development can play a significant role in diversification of the rural communities’ economy and it can provide the grounding for the creation of novel opportunities in the rural areas including the creation of profitable employment in non-agricultural sectors, villagers’ income augmentation, villagers’ mutual satisfaction, people participation enhancement and decrease in the income differences between the villagers and the city dwellers, declining the villagers’ emigration to the cities and lowering the problems and challenges of the large cities. Of course, it has to be noted that tourism alone cannot respond to all of the villagers’ needs and it has to be taken into consideration along with the other economical sectors through principled planning so as to be able to be accompanied with appropriate results and outcomes in line with the development and, particularly, sustainable development of the rural areas [5].

In terms of tourism resources, especially ecotourism, our country is very diverse and rich but the identification of all its potentials is still in its infancy and, on the other hand, the regions identified with such potentials have not yet been assessed in their capacities. Generally speaking, it is better to say that Iran’s ecotourism does not yet have a position in the global level; in fact, a responsible and active organization striving in this field is does not exist, though tourists come to Iran every year but the main objective they are in pursue of is visiting the historical-cultural works and the natural works and resorts need to also be organized so as to attract the attention of these tourists [6].

Experimental Literature: The library-documentary studies and investigations and searching in the internet sites indicate that there are numerous studies and researches performed concerning the tourism, planning and programming. Generally, the conducted studies and research can be divided into three substantial categories:

- a) Studies in which it is dealt with the recognition and the introduction of the tourism destinations, tourism attractions and things of the like.
- b) Studies in which it has been dealt with the survey of the tourism effects and the outcomes on the destinations and the hosting communities, the role of tourism in the development of the destinations and things of the like as well as the planning and feasibility evaluation of the tourism development which are predominantly undertaken in a scientific and academic manner.
- c) Scientific and academic studies and research which have been undertaken via the proposition of sustainability-related concepts, in late 1980s, and they incorporate tourism sustainable development, evaluation of tourism sustainability, the relationship between tourism and sustainable development.

Keeping these interpretations in mind, some of the studies and research conducted both inside and outside the country and of relevance to the present study are outlined in the following parts:

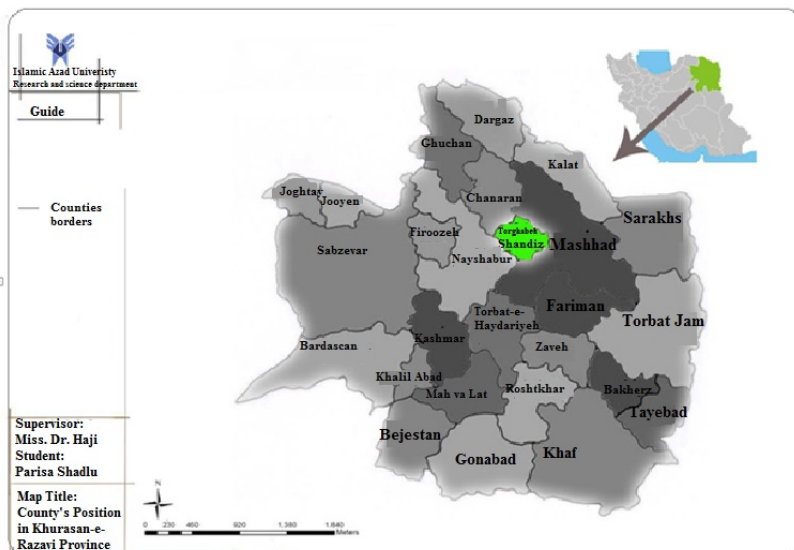
Farel in a book entitled “tourism as one of the sustainable development elements”, in 1992, in the US, Hawaii-Maioii, states his objective of enhancing the life quality level of the residents via developing tourism in the following words: “if a tourism resort cannot ultimately bring about an enhancement in the quality of the local residents’ life then it cannot be regarded as one of the elements of sustainable development” [7].

Killim, in his article, entitled “the importance of getting the public sector, or the private sector, engaged in the development of sustainable development”, released in 1992 in Roussilon, in France, aiming at the identification of the amount of the effect that the public sector might have on the sustainable development, expresses that “developing the sustainable tourism is to be accomplished with a network of programming and inspection exerted by public sector in line with the conservation of the nature and environment so as to make room for responding to an extensive tourism” [8].

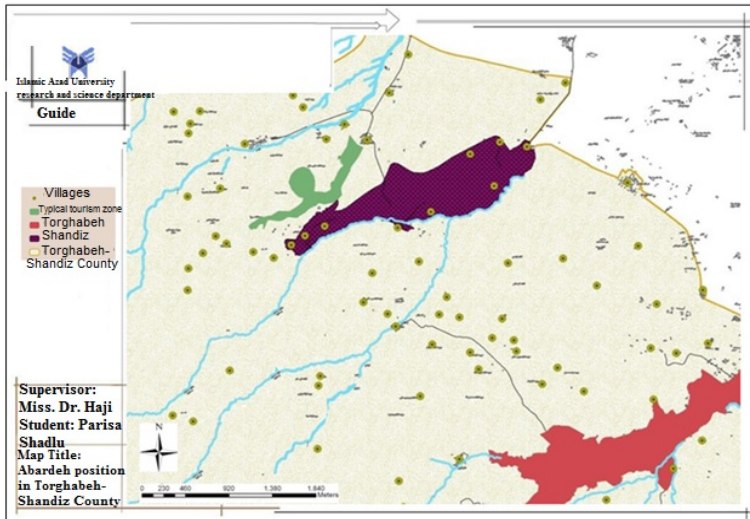
### Study Zone:

Abardeh Zone is stretched in an area of about 136 ha in Torghabeh County –Shandiz, in the western section of the city of Mashhad. Topographically, typical Abardeh tourism resort includes breadth with hills, plains and river. The vast part of the region is consisted of hills and river and the region is topographically uneven. Typical Abardeh tourism resort is located on the kilometer 16 of Mashhad-Shandiz road in the vicinity of the northern rib of Abardeh Oliya. Locally, it is bordered with Grakhk agricultural farms on the north, its northeastern rib is stretched along Sarkhandiz earth dyke and the western rib is bordered by Abardeh and Zoshk elevations. Most of the areas in Abardeh Region, like many spots in Torghabeh and Shandiz Counties, is replete with antural and environmental attractions.

Map (1): Torghabeh-Shandiz County Position in Khurasan-e-Razavi Province



Map (2): Typical Abardeh Tourism Zone's position in Torghabeh and Shandiz County



### Study Methodology:

The present study is an applied research in terms of the objectives it is seeking to accomplish and it is a case study based on the method it applies. The bioenvironmental, social-economical and infrastructural scales are specified through doing library research and, then, interviews with the specialists and Delphi technique are applied to gather the necessary information. The study questions have been provided to the specialists in the form of questionnaires.

- **Study Population:**

The study population includes the city-building specialists and environment conservation practitioners the total number of whom has been considered as ranging between 15 to 20 individuals based on Delphi method.

- **Data Analysis Tools and Methods:**

After the theoretical frameworks were elucidated and the bioenvironmental, socio-cultural and infrastructural scales were determined regarding the selection and the development of optimum tourism auspicious localities the indices assessing them were casted in the mold of questionnaire and finally they were analyzed in SPSS, this is known as the so-called Delphi method. The information obtained will be prioritized via analytic hierarchy process (AHP), then, the favorable resorts suitable for installing tourism facilities and conveniences are located based on geographical information system.

- **Information Collection Method:**

The data can be extracted from the study population or the study sample volume through four general methods each of which have unique specialties. These tools are: questionnaires, interview, observation, the investigation of the documents and evidences (referring to the libraries) [9].

- **The Survey of the Documents and Evidences (Library Research):**

In the present article, there is made use of digital library research (the Latin articles existent in the credible international digital libraries) to recognize the theoretical and subjective bases as well as making use of library research through taking notes for the preparation of the theoretical literature and finding access to the bioenvironmental, socio-cultural, economical and infrastructural scales.

- **Questionnaire:**

The interviews with the experts have taken place through the use of questionnaires in the current research paper. To prepare the questionnaire, there is made use of similar questionnaires and relevant studies. The experts' opinions regarding the 21 questions posited in the questionnaire were scored based on Likert's five-point scale (from very high to very low) and they were applied in the survey of the study hypotheses tests.

Questions 1 to 4 pertain to the tourism auspicious localities, questions 5 to 10 are connected with the bioenvironmental scales, questions 11 to 13 are related to socio-cultural variable, questions 14 and 15 pertain to the tourism and infrastructure; questions 16 to 18 are connected with the ability to attract investment (assessing the economical parameters). Also, questions 19 to 21 are connected with the assessment of the connective roads. These cases are presented in [\[table 1\]](#). Also, [\[table 2\]](#) illustrates the questionnaire designed for interviewing the experts.

**Table 1:** The relationship between the questions and the study variables

Row	Variable name	Questions
1	Tourism auspicious localities	1-4
2	Bioenvironmental	5-10
3	Socio-cultural	11-13
4	Tourism and infrastructure	14 and 15
5	Economical	16-19

**Table 2:** Questionnaire designed for interviewing the experts

Row	Questions	Very high	High	Somehow	Low	Very low
1	How important is the socio-cultural scale as one of the tourism development areas?					
2	How important is the bioenvironmental scale as one of the tourism development areas?					
3	How important are the tourism and infrastructural scales as one of the tourism development areas?					
4	How important is the economical scale as one of the tourism development areas?					
5	How important is the subscale of the intensity of natural dangers as one of the bioenvironmental factors?					
6	How important is the subscale of the slope direction as one of the bioenvironmental factors?					
7	How important is the subscale of the weathering resistance of soil as one of the bioenvironmental factors?					
8	How important is the subscale of the river route as one of the bioenvironmental factors?					
9	How important is the subscale of the land vegetative cover as one of the bioenvironmental factors?					
10	How important is the subscale of slope percentage as one of the bioenvironmental factors?					
11	How important are the subscale of historical works as one of the socio-cultural factors?					
12	How important are the subscale of health care services and facilities as one of the socio-cultural factors?					
13	How important are the subscale of adjacent residential centers as one of the socio-cultural factors?					
14	How important is the subscale of possibility to elevate the services as one of the tourism and					



	infrastructural factors?					
15	How important is the subscale of accessibility in terms of the connective routes as one of the tourism and infrastructural factors?					
16	How important is the subscale of tourism natural route as one of the investment attraction ability indices?					
17	How important are tourism spots as one of the investment attraction ability indices?					
18	How important are the tourism malls and shopping centers as one of the investment attraction ability indices?					
19	How important are the entrances as one of the accessibility indices in terms of the connective routes?					
20	How important are the main routes as one of the accessibility indices in terms of the connective roads?					
21	How important are the accessory routes as one of the accessibility indices in terms of the connective roads?					

**Cronbach’s Alpha Method:**

This method is applied to calculate the internal consistency of the measurement tools including the questionnaires or the tests that evaluate various characteristics. In such an instrument, the answers to each of the questions can be assigned with a different numeral value. To calculate Cronbach’s alpha coefficient, firstly, we need to compute the scores variances pertaining to each sub-question of the questionnaire (or subtest) and then the total variance has to be determined. Next, the Cronbach’s alpha coefficient is obtained by making use of the following formula [10]:

$$r\alpha = [ J / ( J - 1 ) ] \cdot [ 1 - ( \sum S_j^2 ) / S^2 ]$$

Where,

**J** is the number of the sub-questions in the questionnaire or test;

**S<sub>j</sub><sup>2</sup>** is the j-th test variance;

**S<sup>2</sup>** is the total variance of the test.

In the present study, a total of 20 questionnaires were administered to the experts and practitioners and the Cronbach’s alpha was obtained for all of the questionnaires by taking advantage of SPSS software and it is indicative of a value equal to 0.77 which reflects the high reliability of the questionnaires applied in the present study. Cronbach’s alpha value obtained for each variable has been given in [table 3](#).

**Table 3:** Cronbach’s alpha for the independent variable ‘tourism prone localities’

Factor name	Cronbach’s alpha
Bioenvironmental	0.85
Socio-cultural	0.75
Economical	0.70
Tourism-infrastructural	0.80
Total	0.77



**Data Analysis:**

**Data Analysis Tool:**

After the library research was completed and the bioenvironmental, socio-cultural, economical, and infrastructural scales were specified in line with the selection of tourism auspicious localities, the statistics and the information required were presented to the specialists within questions formed into questionnaires in order to be scored. Then, taking advantage of Delphi method (Delphi is an approach or a systematic method used in researches to elicit the ideas and notions from a group of experts regarding a subject matter or a question; the experts' opinions are of great importance in scoring the scales) as well as by using SPSS, the questions were analyzed to calculate the median and the inter-quartile intervals (the intervals between the lowest 25% and the highest 25% of the quantity of interest to the study) for every question. The results of the first questionnaire which has undergone the statistical analyses will be a feedback presented to the experts in the second questionnaire and they are asked to correct their preliminary ideas based on the feedbacks provided by the other experts in order to obtain a final score.

The information obtained based on Delphi method will be analyzed via analytic hierarchy process in Expert Choice software in such a manner that these scales will be assessed and weighted comparatively in the aforesaid model. Then, each of the scales is estimated by means of GIS through Raster's spatial analysis in the area of the region of concern to the current research paper. After the obtained layers' overlapping evaluation, the optimum localities will be obtained in line with the development of tourism facilities and conveniences.

**Scales Selection:**

The scales and the subscales based on the experts' opinions and by making use of the study theoretical principles have been presented in [table 4](#).

**Table 4:** scales, subscales and the effective factors

Objective	Scale	Subscale	Effective factors	
Identification of the development areas	Bioenvironmental	River route	-	
		Slope percentage	-	
		Slope direction	-	
		The intensity of the natural dangers	-	
		Resistance to soil erosion	-	
		Diversity of the land cover	-	
	Socio-cultural	The capability to attract investment	Natural tourism routes	
			Tourism shopping routes	
			Tourism spots	
	Socio-cultural	Historical works <sup>1</sup>	The adjacent residential centers population	-
			Health care services and facilities	-
				-
	Tourism and infrastructures	Accessibility in terms of connective roads	Main route	
			Entrances	
			The accessory routes in the region	
	The possibility to enhance services	-		

<sup>1</sup> By historical works here the closeness to historical remnants is intended

### **Delphi Method-aided scales Analysis:**

Delphi is a systematic approach or method used in the studies to elicit the ideas and notions of the experts in regard of a question or a specific subject matter. Although such a judgment by a group of experts is considered as being more of a subjective nature it is more credible than the individual ideas; that is because the results seem to be more objective. There is no strong and explicit rule regarding the method of the experts' selection as well as concerning the number of the experts. The number of the participants is usually less than 50 individuals and mostly it ranges from 15 to 20 individuals.

The stages of scales analysis is as stated below:

1. The appointment of a group (panel) of experts who have the ability to offer robust ideas regarding the related topic.
2. Designing questionnaires based on the above-mentioned scales;
3. Requesting each of them to present their ideas within the format of designed questionnaires;
4. As soon as all the questionnaires are received, the data are analyzed statistically (by means of SPSS so as to calculate the median and the mean).

After the subjective and theoretical principles were elaborated and the bioenvironmental, socio-cultural, economical and infrastructural scales were specified in line with the development and selection of tourism auspicious localities, the statistics and the information required are presented to 20 experts in the format of questions collectively forming a questionnaire.

In sum, 21 questions were included in the questionnaires to be scored based on Likert's scale from "very high" to "very low".

The mean and the median for each question are calculated by taking advantage of SPSS software.

### **Scales Prioritization based on analytic hierarchy process (AHP) aided by Expert Choice Software:**

Analytic hierarchy process is one of the most widely used multi-criteria decision-making techniques that was first innovated by Al-Saaty, originally from Iraq in 1970 (Izadbakhsh et al, 2009). Analytic hierarchy process is reflective of the natural human behavior and mind. This technique investigates the complex issues based on their mutual effects and transforms them into a simple form and then tries to solve them.

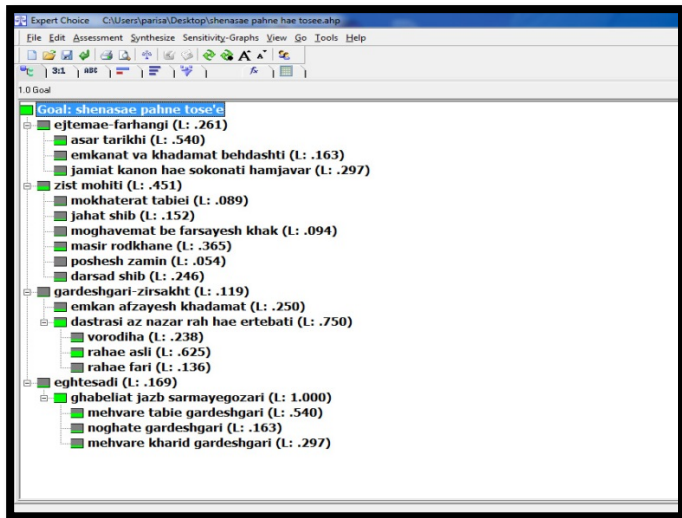
When prioritization operation is faced with several scales and subscales, this technique can be of great use. The proposed scales can be qualitative or quantitative. The method basically relies on pairwise comparisons.

Scales prioritization process is carried out aided by Expert Choice Software, as stated below:

1. The decision maker prepares a decision-making hierarchical tree to begin the analysis. The decision-making objective is placed at zero level and the first level accommodates the indices (scales) and the second level, as well, covers the subscales and the third level the factors influencing the prioritization are located. The number of levels for primary and secondary scales might be larger depending on the type of the problem.
2. Pairwise comparisons between each of the scales' levels is carried out based on the results obtained from the Delphi group members (pairwise matrices are formed)  
And, finally, each of the scales, subscales and the factors influencing them are evaluated in respect to one another and then prioritized and they will be converted to normalized information in the end (the total sum of each of the weights for each group of the scales, subscales and their effective factors should be equal to unity). Then, these normalized weights will be used in GIS software.

- ✓ The final output produced by Expert Choice Software is as below:

Diagram (1): normalized weights of the data



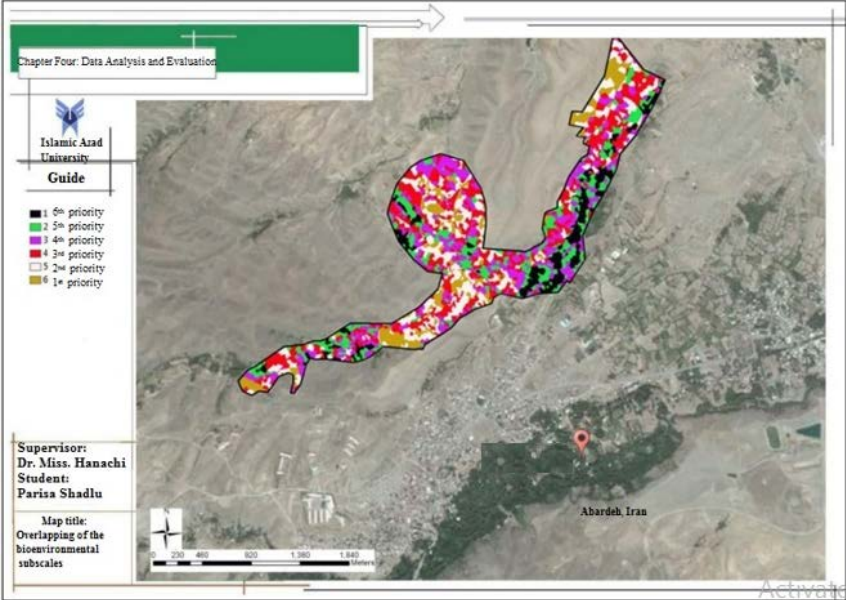
### Blending AHP information in GIS:

In this method, the raster layers existing in GIS will be pooled so as to define the appropriate region and position featuring the entire conditions outlined in the project. The overlaying used in positioning is of the shared type.

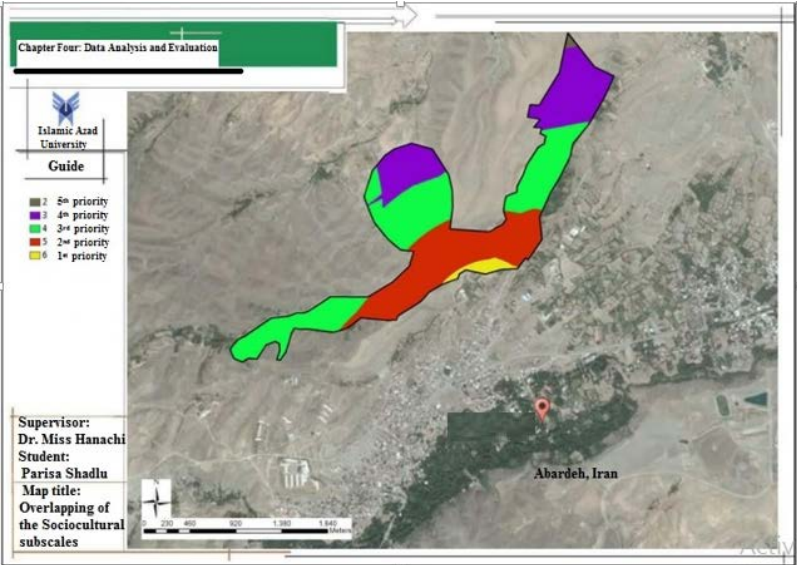
To perform overlay, the scales' weights, the same outputs obtained from Expert Choice Software, should be involved in the calculations. The formula that we intend to use for overlay operation is summing the raster layers by taking into consideration their weight coefficients. The produced map is an overlay of all the subscales belonging to each of the scales proportionately according to the weight value of each of the subscales. In other words, each of the subscales belonging to its respective scale will be given a value by raster calculator and then the results would be summed up in order to demonstrate the overlay map of the subscales belonging to each scale as the final result. Therefore, in the end, we will have 4 maps of the main subscales (bioenvironmental, socio-cultural, economical, tourism and infrastructures) that are yielded through an overlaying of the subscales.

As it is seen in the map, the sixth set indicates the largest weights and the first set is reflective of the lowest weight. To put it differently, the sixth set, is the first priority for positioning in terms of the subscales belonging to each of the main scales.

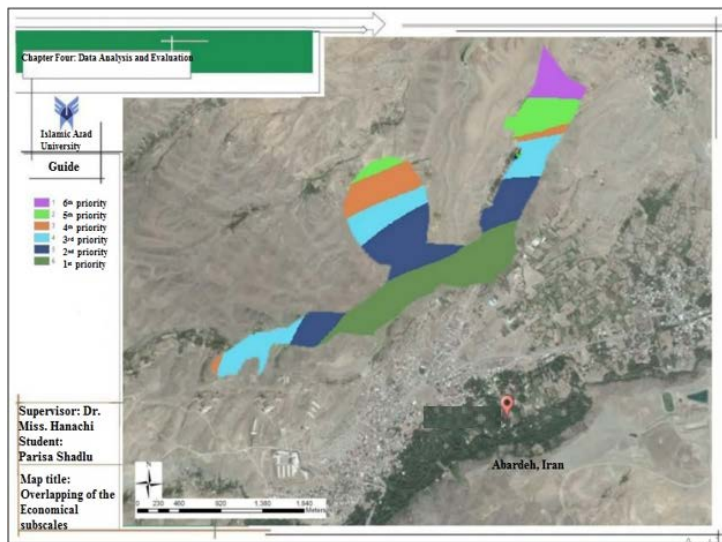
Maps [3 to 6] are illustrative of the overlap maps for the bioenvironmental, socio-cultural, economical and tourism-infrastructureal subscales, respectively.



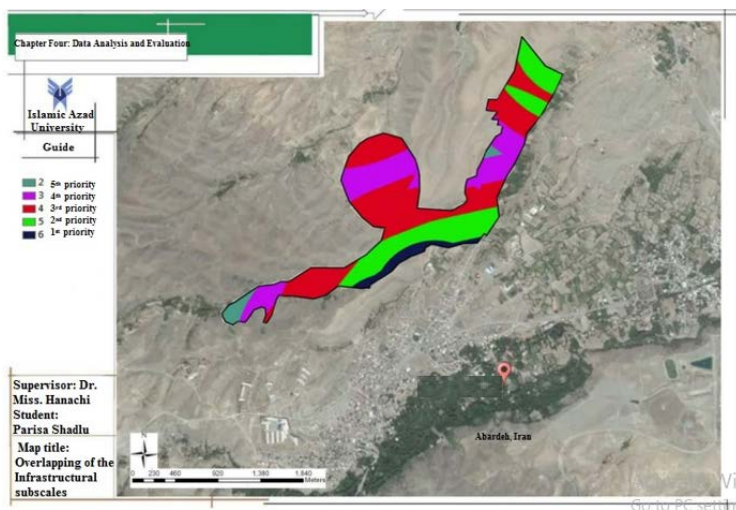
Map 3: Overlap map of the bioenvironmental subscales



Map 4: Overlay map of the socio-cultural subscale



**Map 5 :** Overlap map of the economical subscales



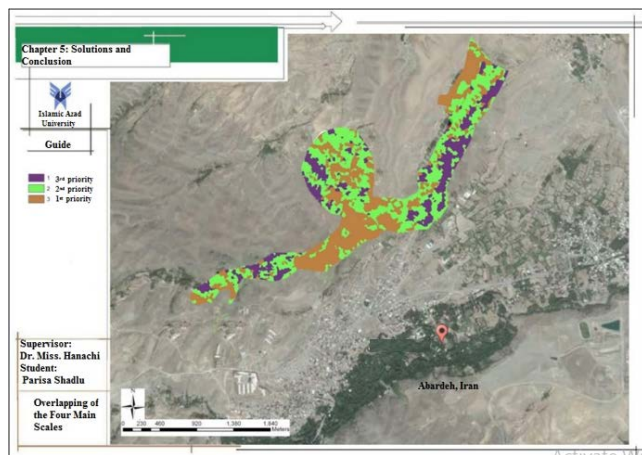
**Map 6:** Overlap map of the tourism-infrastructural subscales

**Summary and Conclusion:**

The present study has been undertaken aiming at the prioritization of the auspicious zones for developing the tourism facilities and services in typical Abardeh tourism region. Due to the same reason, the aforementioned operations and information lead to the acquisition of a final map which is indicative of the degree to which the zones are envisaged as optimum in terms of tourism development.

After the overlapping operations were carried out on all of the scales, the generated map, shown below, is the ultimate goal proportionately fitting the weighted value of each of the scales. In other words, each of the scales pertaining to the final goal are assigned a value through taking advantage of Raster Calculator and they will be summed in order to illustrate a final result in the form of an overlap map regarding each of the scales belonging to that goal. Naturally, the areas having higher weights in terms of bioenvironmental, socio-cultural, economical, tourism and infrastructural scales are identified, thus the final map which has been generated through valuating the overlapping between the bioenvironmental, socio-cultural, economical, tourism and infrastructural scales takes the form as depicted in **Map [7]**.





Map 7: Overlapping between the four main scales (bioenvironmental, socio-cultural, economical, tourism and infrastructural) and the development zones prioritization

As it is observed in map 5, value 3 denotes the first priority for tourism development because it embraces the greatest weights pertaining to the scales; then second in priority is 2 and then 1 which are given the secondary and tertiary priorities. The identification of these zones can contribute to the sensible expectations and logical treating of the tourism regions so as to be planned and invested in proportionately according to their capabilities and capacities by way of which an optimized programming can be made qualitatively and quantitatively feasible in line with the enhancement of the tourism zones in Abardeh typical tourism region and, on the other hand, spatial patterns of the tourism services can be delivered in parallel to a balanced development plan. Therefore, the optimized distribution of the facilities and the services appropriately allocated according to the region’s tourism potentials brings about an optimum satisfaction of the tourists needs and the unnecessary mobilization and displacement of the tourists will be prevented and this, in turn, will be followed with savings in the tourists’ time and costs. Put it differently, more tourist attractions can be constructed and made in the zones with primary priority as a result of which more favorable services can be delivered and, consequently, it is expected that a greater number of tourists and travelers will be attracted to these regions and this, per se, is followed with the region’s economical booming and the creation of new vocational opportunities as well as the improvement in the foundational structures of the region.

**Area Analysis:**

To analyze the area of the typical tourism zones in Abardeh, the above map has been converted from its raster-format to a polygon which will be subsequently dissolved based on the assigned codes. These codes are indicative of the zones’ priorities. The results are illustrated in [table 5](#) and diagram (2).

**Table 5:** area of each zone

Percentage of the area	Area	Priorities
18.8	54.9	548698
43.3	126.5	1264858
38.0	111.0	1110093
	292.4	



Diagram (2): Zones' area comparison diagram

### Hypothesis Test:

Parallel to finding answers to the study questions, several hypotheses were proposed. The questions posited herein are to be replied through hypotheses and their relevant tests.

1. It seems that bioenvironmental, socio-cultural, economical and infrastructural scales directly influence the selection of the tourism auspicious resorts.
2. It appears that the optimum selection of the tourism auspicious zones is effective on the sustainable tourism development.
3. Presumably, sustainable tourism development is effective on the economical growth of the city of Mashhad as a whole.

The inferences derived from the main study hypotheses:

- **First Hypothesis Test:**  
According to the idea that the questionnaires were completed by the experts and the specialists of the related fields, also, based on the fact that the questions were analyzed using Delphi technique as well as taking advantage of AHP method in the present study, the following rankings were obtained: Bioenvironmental scale took the first rank followed by socio-cultural scales and then economical and finally infrastructural scales. Therefore, it was made clear that the scales taken into consideration in the present study directly influence the optimum selection of tourism auspicious zones.
- **Second Hypothesis test:**  
Stability has been widely accepted as an underlying approach to any type of development including tourism development. In this way, tourism should be conceptualized in such a way that it incorporates the social, economical and bioenvironmental aspects so as to be considered as a sustainable tourism. Due to the same reason, because the identification of the zones through aforesaid scales is deemed as feasible so it will be followed with sustainable tourism.
- **Third Hypothesis Test:**  
As it was mentioned in the conclusion, the identification of the zones in terms of the bioenvironmental, social, economical (sustainable development dimensions) brings about a possibility for us to enjoy a sustainable tourism and, subsequently, the offering of the services will be rendered more optimum and this will lead to the tourists' attraction to a certain region and it will be somehow followed with economical growth in an urban system.

Also, the followings are some of the objectives accomplished in the present study:



1. The extent to which the bioenvironmental, socio-cultural and infrastructural scales influence the selection of tourism auspicious zones;
2. Sustainable protection and exploitation of the environment and intact nature;
3. Fulfillment of the pilgrims' tourism needs and filling the Holy Mashhad residents' leisure time;
4. Identification of the appropriate zones for the development of the tourism facilities and the conveniences in the typical Abardeh tourism region;
5. The Tourism Organization, in Torghabeh and Shandiz, can take the responsibility of implementing "Abardeh Tourism" plan.

#### **Offering Solutions and Suggestions:**

- **Economical Solutions:**
  1. Taking necessary measures regarding preparation of localities for shopping along the connective roads;
  2. Identification of the tourism potential markets in line with the presentation of the types of rural tourism in the region;
  3. Preparing roadmaps and the quality of accessing the attractions;
  4. Informing the people and attracting the local people's participation in terms of making investments in rural tourism
- **Bioenvironmental Solutions:**
  1. Paying attention to the protection of the vegetative cover against rain-cultivation, unmanaged grazing, tree cuttings through exerting criteria and determining land uses based on the environment's capacity and potentials;
  2. Developing the infrastructure, services and the installations based on the land potentials and the region's being of an accident-prone nature or not;
  3. Educating people regarding tourism development and protection of the local resources and capitals;
  4. Preventing from the destruction of the mountainous ecosystems and ecological systems.
- **Socio-Cultural Solutions:**
  1. Preserving the historical remnants and cultural heritage in the region;
  2. Paying particular attention to the hand-made artifacts;
  3. Holding exhibitions, carnivals, conferences, alive music shows, local malls, local cuisine and so forth to attract tourists;
  4. Empowering human workforce structures in various tourism sectors;
  5. Preparation and publication of outer-city comprehensive tourism guidelines for the city of Mashhad to make the people acquainted with the region.
- **Managerial-Institutional Solutions:**
  1. The existence of the rules and appropriate formalities regarding easy entrance to and from the region;
  2. Providing for advertisement and marketing of the tourism activities;
  3. The presence of specialized, trained and entrepreneur human workforce;
  4. The existence of organizational structure proportionate to the region's conditions;
  5. The use of local people participation and applying local knowledge in them for the creation of cooperative formations;
  6. Holding various debriefing-instructional classes for the officials from different tourism servicing sectors;
  7. Supplying financial aids and granting bank loans with low to normal return rates.
- **Infrastructural Solutions:**
  1. The creation and the development of residential facilities in a macro-level in the studied area;
  2. Construction of parking and developing it to the entire area and in the proximity of the tourism attractions;
  3. Making utility and facility services available including potable water, electricity and garbage dumping;

4. The creation and development of the restaurants, serving local foods, on the inter-village roads;
5. The development of the connective routes and transportation means for the creation of an appropriate links on the tourism routes;
6. Establishment recreation camps in the sample region.

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