Assessment of ecotourism and geo-tourism potentials the Chahardangeh region (In the Mazandaran province) using the SWOT model

Mojgan Entezarei NAJAFABADEI, Ehsan Ataei KIA*, Seyed Javad ALIZADEH,

Omidreza KEFAYATMOTLAGH

Assistant Professor, Faculty of Geomorphology, University of Isfahan, Isfahan, Iran

M.Sc. Student of Geomorphology, University of Isfahan, Isfahan, Iran

M.Sc. Student of Tourism Planning, University of Isfahan, Isfahan, Iran

M.Sc. Student of Climatology, University of Isfahan, Isfahan, Iran

Abstract. Today, tourism industry is one of the main sources of income, employment and infrastructure to achieve sustainable development. Therefore, the development of the tourism industry requires knowledge and adequate awareness of the issues and factors of economic, social and cultural of each region. Chahardangeh area is one of the beautiful areas of between the Mazandaran and Semnan province. This study is an analytical – survey. To collect data and the required information, library studies and documents were used, using the viewpoint of experts and field research, including interviews and questionnaires and by the use of SWOT technique weaknesses, strengths, opportunities and threats to tourism development in the region of Chahardangeh were discussed. The results showed that according to the tourists' opinion, tourism opportunities in the region are more than weaknesses, threats and strengthen. That shows the necessity to study the tourism industry in the study area. The results of the assessment of SWOT method indicate that invasive strategy (SO), is the main strategy to develop ecotourism. Finally, the strategy introduced Geo-tourism and ecotourism potentials to authorities and investors to enhance investment in infrastructure in the field of tourism with 20.179 points was recognized as the best strategy.

Keywords: Geo-tourism, ecotourism, SWOT model, Chahardangeh region

INTRODUCTION

PRESENTING THE QUESTION

Today, tourism is known as one of the most important sources of income of many countries. Limited resources such as oil, gas, and minerals, forcing the governments to exploit from more sustainable sources such as the of their cultural and natural heritage and with a variety of planning, the heritage and charm that it has become a source of economic income, in addition to this method to protect their cultural and natural heritage [1]. According to the World Tourism Organization research, the value of a dollar income from the tourism increased 4.3% compared with industry and jobs created in the tourism, will increase to 5% Job opportunities [2]. World Tourism Organization (UNWTO) estimated the number of tourists in 2000, nearly 700 million people and according to the organization's annual statistics, the number reached one billion in 2010 and expects the number of tourists in 2020 to reach more than 1.6 billion. The causes of this phenomenon were mentioned as increasing population, rising living standards, longer rest period and ease of displacement [3]. The natural environment is one of the sectors of tourism, which attracts tourists. Nature in general is divided into two parts, animate and inanimate. Tourism related to the protection and use of animate nature, called ecotourism, and tourism related to conservation and use of inanimate nature is called Geo-tourism [4]. Aggregation of Geo-

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*Corresponding author. *Email: ehsanataykiya@yahoo.com*

tourism and ecotourism industry is called as nature-oriented tourism [4]. Although Iran in terms of historical and cultural centers is among the top ten countries of the world, but we must remember that it also has territorial features with many attractions and simply cannot be overlook its Geo-tourism and ecotourism. Chahardangeh area has many ecotourism and Geo-tourism capabilities that if be properly and appropriately planned, using this capability can provide economic and social development of the region, but the region in terms of advertising and amenities have weakness and serious problems.

IMPORTANCE AND NECESSITY OF RESEARCH

The tourism industry is one of the world's most important economic sectors that has been increasing in recent years. Today, tourism is recognized as a growing industry that can create jobs and revives the local economy and raises the living standards, In other words, tourism now plays the same role that the industrial revolution has played in the social and economic development [5]. Nevertheless, one thing that should always be considered in this context is the scientific understanding of the capacities and limitations of each region of the country to implement efficient planning and properly management to achieve the desired objectives [6]. Chahardangeh region is one of the touristy areas in the Mazandaran province that has great potential for ecotourism and Geo-tourism and is less known, and its capabilities have not been properly exploited. Phenomenons of the region include Shirin River, Tajan River and its landscapes, Kiasar natural park, KuterKali natural cave and Badam-e-sort spring. Among the necessary actions in the fields of tourism planning, is the understanding of the capabilities and limitations of areas. In this study, we have tried to investigate them using the SWOT technique.

RESEARCH OBJECTIVES

The main purpose of this study is to recognize the potential of tourism in the Chahardangeh region in the Mazandaran province with SWOT model.
Sub-goals are:
1. Identifying the Chahardangeh region as an important tourism territory in the north of the country.
2. Survey ecotourism and Geo-tourism phenomena in the region.
3. Precise planning in tourism development and the proper use of them, to solve economic and social problems in the region.

BACKGROUND RESEARCH

Sporadic studies in the field of research objective have taken place in the Iran and the world. Ray Buckley [7] in a study in one of the tourist areas of Mexico (Yakata) with standard and survey method using a questionnaire has investigated the effect of the presence of tourists in the region. He concluded that the presence of tourists in the creation of culture and new patterns in the region has been effective. Hong [8] in a study has studied the ecotourism aspects of Penang natural Parks using SWOT techniques and has investigated social, economic, and environmental factors of the areas. Ilinca et al. [9] in a study evaluated geomorphic phenomena and their relationship to increase tourism in the area of Walesa in Ukraine and have concluded that in the study area there are approximately 30 geosites for tourist attraction. Varesi et al. [10] in a study assessed the tourism capabilities of the Ardebil

province using the SWOT model and have concluded that the Ardebil province could become one of the comprehensive poles of the country's ecotourism and strongly felt the need to develop tourism in the province with a focus on ecotourism in order to shape sustainable development of endogenous. Entezari et al. [11] in a study have evaluated geo-tourism and ecotourism aspects in the Bistoon tourism region using the SWOT model and have concluded that Bistoon region has the highest potential in the field of ecotourism and geo-tourism. Taghvai et al [12] in a study using the SWOT technique identified weaknesses, strengths, opportunities and threats of Kaftar lake and have concluded that private and public investment strategies of major cities around the lake is the best strategy in order to strengthen the health and residential-recreational infrastructures for tourism development of the Kaftar Lake. Zarrabi et al. [13] Studied strengths, weaknesses, opportunities and threats of Band-e-uromie village using the SWOT model and have concluded that the study area has 35 weaknesses and threats and 25 strengths and opportunities that require serious attention from administrators.

RESEARCH QUESTIONS

1. What are the capabilities and limitations of ecotourism and geo-tourism development in Chahardangeh region?
2. What are strategies for development of ecotourism and geo-tourism in Chahardangeh region?

METHODOLOGY

McMillan and Schumacher classified research based on the purpose into three categories: application, fundamental, and research and development. This research is an applied study. In terms of data collection, the research project classified into pilot projects and non-experimental projects or descriptive and of the subsets of descriptive projects, survey research, correlation research, After events associated research, action research, and case study research can be noted [14] That in this case the model and study design is descriptive and is a form of survey type. The sample of the research are tourists who has been visited the Chahardangeh region in spring and summer of 2014. To validate the ideas of experts in the fields of tourism planning, rural planning, geomorphology were used to test the research reliability, so that number of 30 questionnaires were completed and Cronbach's alpha for each one of the main indicators were calculated (table 1). The sample size was calculated 316 questionnaires using Cochran formula and sampling were randomly selected and responded to the questionnaire. In the next step, to analyze the information and provide the appropriate strategy for the development of geo-tourism and ecotourism, SWOT method was used, and using the results of a questionnaire survey was conducted to measure weight and SWOT matrix completed, and the priorities were determined and finally, strategies related to the development of ecotourism and geo-tourism of the region were introduced.

Table 1. Calculation of Cronbach's alpha.

| Cronbach's alpha	Index Name	Purpose
0.72	Ecological Indicators	
0.83	Economic -infrastructure indicators	Geo-tourism and ecotourism
0.76	Socio-cultural indicators	

SWOT TECHNIQUE

SWOT is formed by the first letters of four English word Strength (S), weakness (W), Opportunity (O) and Threats (T) [15] The purpose of SWOT analysis is to identify systemic factors that strategy must have the best compatibility with them. The logic of the approach is that effective strategies maximize the strengths and opportunities of the system and minimize the weaknesses and threats. If this logic gets used properly, it will have excellent results for the selection and design of an effective strategy [16]. In this method for making the matrix of threats, opportunities, weaknesses and strengths, there are four stages: prepare a list of internal weaknesses the region, make a list of opportunities that exist in the external environment of the region, make a list of existing threats in the external environment of the region. Finally, to remove or reduce threats and weaknesses and to improve the strengths and opportunities related to the development of ecotourism, ecotourism development strategies were determined by integration of internal and external factors as follows: 1. Integration of strengths and opportunities (SO) .2- Integration of strengths and threats (ST). 3. Integration of weaknesses and opportunities (WO). 4. Integration of weaknesses and threats (WT). (Table 2).

Table 2. SWOT matrix and determine strategies (source: authors).

SWOT matrix		The external environment	
		Strengths (S)	Weaknesses
The external environment	Opportunities (O)	Invasive strategy (SO)	Strategy review (WO)
	Threats (T)	Diversity Strategy (ST)	Defensive strategy (WT)

LOCATION OF THE STUDY AREA

Chahardangeh region is an area with 1445 square kilometers in the north of the Semnan province and the southern city of Sari (Mazandaran province), according to the 2011 census the population is 15797 people. This area is located in the geographical coordinates 36 degrees 5 minutes to 36 degrees 25 minutes north latitude and 53 degrees 25 minutes to 53 degrees 59 minutes east longitude (Figure 1). Kaiser city is the center and has three villages named Chardangh, Garmab and Poshtkuh [17]. In terms of climate, this region has mild spring and autumn with rain and hot summer and cold winter and snow. Diverse vegetation and dense forests of Hyrcanian period. and because of the mountainous conditions, have rare ecotourism and geo-tourism attractions such as Shahdezh Mount, Kuterkali cave, Shirinrood and Tajan River, Kiasar and Badam-e-sort national parks.
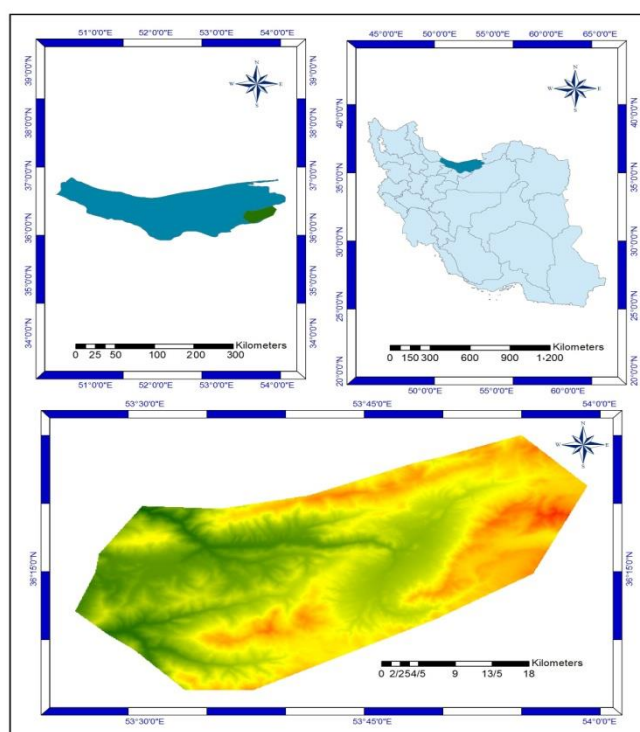
Figure 1. The location of Chahardangeh region.

PRINCIPLES AND THEORETICAL FRAMEWORK

DEFINITIONS AND CONCEPTS

Arthur Broman (1931) has defined tourism as "tourism is a combination travel in order to rest and leisure, trade and other business activities, or to participate in special events and the absence of people during the trip from their permanent residence is temporary. Obviously, those who attempted to travel between home and work is their regular job are not included in this definition." From the perspective

of marketing, tourism is the set of activities which happen during the traveler's trip. This process involves any activity that happens during a tourist trip. This process includes any process such as travel planning, travel destination, accommodation, return and also recalling memories. Also, it covers part of the activities which tourists do during their visit and the interaction between host and guest, such as the purchase of various commodities. In general, any activity and interaction that can occur during a tourist trip as a tourism [18].

In Webster dictionary, tourist is a person who for entertainment or cultural purposes. Tourist is a person who travels for at least one night and less than a year in the country other than their country or ordinary residence and purpose of travel is not to work and earn money [19].

Nature is divided into two parts: animate and inanimate. Studying animate nature and its attractions include its unique plants and local animals and its integration with the tourism industry, eco-tourism industry appears. This field in case of development can be divided into different sub-sectors such as, insects' tourism, medicinal plants tourism, rare plants tourism, wildlife tourism, hunting and fishing tourism, native birds' tourism, migratory birds and semi-migratory birds' tourism, and reptiles' and amphibians' tourism. On the other hand, by study of inanimate nature attractions, combining it with the tourism industry, the industry of geo-tourism appears. This field is divided to mining tourism, geology tourism, geomorphology tourism, such as, desert tourism, cave tourism, and inanimate nature photography tourism [6].

THE VIEWS AND OPINIONS

Today, due to extensive changes in many aspects of development, the tourism industry is one of the basic pillars of economic development of countries, particularly developing countries, in a way that attention to constitutes an economic activity and, consequently, an industry [15]. One of the sectors of tourism and tourist attraction is the natural environment. Nature in general is divided into two parts, animate and inanimate. Tourism related to the protection and use of animate nature is called ecotourism, and tourism related to conservation and use of inanimate nature is called Geo-tourism [4]. Aggregation of geo-tourism and ecotourism industry is called eco-tourism industry or nature-oriented tourism [5]. In nature, what will attract tourists to his side, is the beauty of the natural heritage and beauty of nature. Countries which have, the more natural diversity, are important destinations of natural tourism [20]. Natural diversity is divided into two parts: land biodiversity and geological diversity. If biodiversity is high in the area, it will be converted into ecotourism destination. If the geological diversity of the region or country and its unique ability is high, this region or country has the ability to become a geo-tourism destination. Also, according to Nekoyee Sadri (2009) geo-tourism destinations, are more flexible compared to ecotourism destinations, in addition to nature, even if there is potential, urban environment are also applicable of being a geo-tourism destination (same).

FINDINGS

The findings of two parts: a description of the individual variables and analysis within the framework of SWOT are respectively expressed:

DESCRIPTIVE FINDINGS

Questionnaire respondents ranged in age from 20 to 51 years. The lowest percentage of tourists between 40 and 50 years. Most tourists are between the ages of 25 to 40 years. In terms of tourists education, 39.2 percent of tourists MA and above, 25.1% BA, 12.6 percent diploma and 23.1 percent of the tourists degree diploma is lower than it is. These data indicate a high level of education of the respondents to the questionnaire. The Purpose of 37.5% of tourists who came to the area is its beautiful and unique nature. The second reason for tourists to visit Chahardangeh area is its natural attractions with about 23.5% and the third reason of the tourists with 12.2% is pleasant climate in the study area.

SWOTANALYSIS

This step seeks to identify and evaluate the strengths and weaknesses of internal and external opportunities and threats of the study. The aspects which are preventing the favorable in the achievement of planned targets are desired. To investigate the influence of tourism on performance and analysis, the following steps were done: First, the three main indicators of ecological, economic and social and cultural infrastructure needed items were identified by experts. After recognition of items in the index, the needed questionnaire was designed and number of 317 questionnaires were answered by tourists in the area under study survey and results were categorized into four classes of strengths (Table 3), weakness (Table 4), opportunities (Table 5) and threats (Table 6). In the first column of the table, after evaluating factors, the most important strengths, weaknesses, opportunities, and threats are listed. In the second column for each of these internal and external factors on the basis of their potential impact on the current strategic situation, system of zero (insignificant) to 1 (very) weight ratio was given, the total weight of the factors must be equal to one. In the third column weight of each factor (rating), according to experts and researcher surveys has been achieved, the intended weight range for the factor is five to one, which five has the most rating and one has the least rating in this range. The fourth column is the result of multiplying weight of each column in rank of each column.

ANALYSIS OF INTERNAL FACTORS MATRIX EFFECTIVE ON GEO-TOURISM AND ECOTOURISM

The most important strengths of the tourist area Chahardangeh in the field of geo-tourism and ecotourism is mentioned in (Table 3), beautiful landscapes with 0.29 points as the strength, the spirit of hospitality of the people and kuterkali caves, Badam-e-sort spring and Shahdezh mountain with a score of 0.26 as the second point of strength, good weather with a score of 0.25 as the third strength and scenic mountains as fourth with a score of 0.2 are the strengths of the region. Other strengths respectively include protected area between Semnan –Kisasr and Kiasar natural park, Shirin river and Tajan river and their landscapes, proximity to the center of the province, and convenient transportation network.

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Table 3. Analysis of internal factors matrix (strengths) in Chahardangeh.

Weighted Score	Rating	Weight	strengths (S)
0.29	5	0.058	Beautiful landscape
0.2	4	0.051	beautiful mountains
0.19	4	0.048	protected area between Semnan –Kiasr and Kiasar natural Park
0.26	5	0.053	Kuterkali caves, Badam-e-sort springs, and Shahdezh mountain
0.25	5	0.051	Good weather during the hot season
0.1	2	0.050	Convenient transportation network
0.1	2	0.055	Near the provincial capital
0.15	3	0.050	There are many cultural and historical monuments
0.26	5	0.052	Spirit of hospitality of the people
0.15	3	0.051	Shirin River and Tajan river and their landscape

In the analysis of internal weaknesses, the most important weaknesses in the field of geo-tourism and ecotourism of Chahardangeh region is shortage of health facilities and health services in first place with a score of 0.26, lack of familiarity of people and government with ecotourism and geo-tourism with score of 0.25 in the second place, poor management and planning of tourism with a score of 0.24 in the third and Turkam factory, old and unsuitable buildings and poor services to tourists guidance with a score of 0.19 in the fourth.

Table 4. Analysis of internal factors matrix (weaknesses) in Chahardangeh.

Weighted Score	Rating	Weight	Weaknesses (W)
0.11	2	0.055	Lack of accommodation for tourists
0.14	3	0.047	Personal properties around tourist areas
0.19	4	0.048	Inappropriate and old buildings
0.26	5	0.052	Lack of health facilities and health services
0.09	2	0.045	Lack of good advertising
0.19	4	0.049	Lack of guidance services for tourists
0.16	4	0.041	Inadequate distribution of tourists in different seasons
0.25	5	0.051	Lack of familiarity of people and government with ecotourism and geo-tourism concepts
0.24	5	0.049	Weak management and planning of tourism
0.19	4	0.048	cement factory pollution

ANALYSIS EXTERNAL FACTORS MATRIX AFFECTING THE GEOTOURISM AND ECOTOURISM

The most important opportunities in the tourism area of Chahardangeh in terms of geo-tourism and ecotourism (Table 5) include: improving infrastructure and facilities with a score of 0.31 as the most important opportunity, presentation of cultural and tourism products with a score of 0.26 as the second opportunity, and improving welfare and quality of life of people with a score of 0.23 is known as the third opportunity. Among other opportunities in the region (according to the scores earned by them), can be referred to promote local arts and culture by 0.21 points, introduce geo-tourism and ecotourism attractions to tourists with 0.18 points, there are investors interested in investment in tourism and the

possibility and ability to be recognized in the country and the world with 0.17 points and organize the land around the river with 0.12 points.

Table 5. Matrix analysis of external factors (opportunities) in Chahardangeh.

| Weighted Score	Rating	Weight	Opportunities (O)
0.12	2	0.062	Regulation of land around the river
0.18	3	0.063	Introducing tourist attractions and geo-area to tourists
0.3	5	0.060	The effect of increasing jobs in ecotourism and Geo-tourism
0.23	4	0.059	Improve the welfare and quality of life
0.31	5	0.063	Improve infrastructure and facilities
0.17	3	0.057	There are investors interested in investing in tourism
0.035	1	0.035	The use of specialists in the field of Geo-tourism and ecotourism
0.21	4	0.054	Promote indigenous art and culture
0.26	5	0.053	Cultural and tourism products
0.17	3	0.057	The possibility and ability to be recognized in the country and the world

In the analysis of external factors that are most important threat in Chahardangeh region in geo-tourism and ecotourism include: lack of knowledge of people and government about importance of tourism as the most important threat with a score of 0.31, not taking advantage of all geo-tourism and ecotourism attractions of the region with a score of 0.24 as the second threat, destruction and damage to the natural environment and historical monuments with a score of 0.23 as the third threat and misobserving the health issues by tourists with a score of 0.18 as the fourth threat.

Table 6. Matrix analysis of external factors (threats) in Chahardangeh.

Weighted Score	Rating	Weight	Threats (T)
0.24	4	0.060	Do not use all geo-tourism and ecotourism attractions of the region
0.16	3	0.056	Low investment in the region
0.1	2	0.052	Deprivation area
0.23	4	0.059	Destruction and damage to the natural environment and historical monuments
0.18	3	0.061	Misobserving health issues by tourists
0.31	5	0.063	Lack of sufficient awareness of the importance of tourism by the public and authorities.
0.039	1	0.039	The loss of indigenous cultures and local customs
0.076	2	0.038	Increased crime and violence

Analyzing comments of tourists in relation to the development of geo-tourism and ecotourism of Chahardangeh area using SWOT, reflects the fact that the tourism opportunities in Chahardangeh area are more than weaknesses and threats. This shows the high potential of tourism development in Chahardangeh. Based on Figure 2, respondent's primarily distinguish that tourism opportunities in this area more than any other factors, and after that strengths, weaknesses and threatened come respectively.

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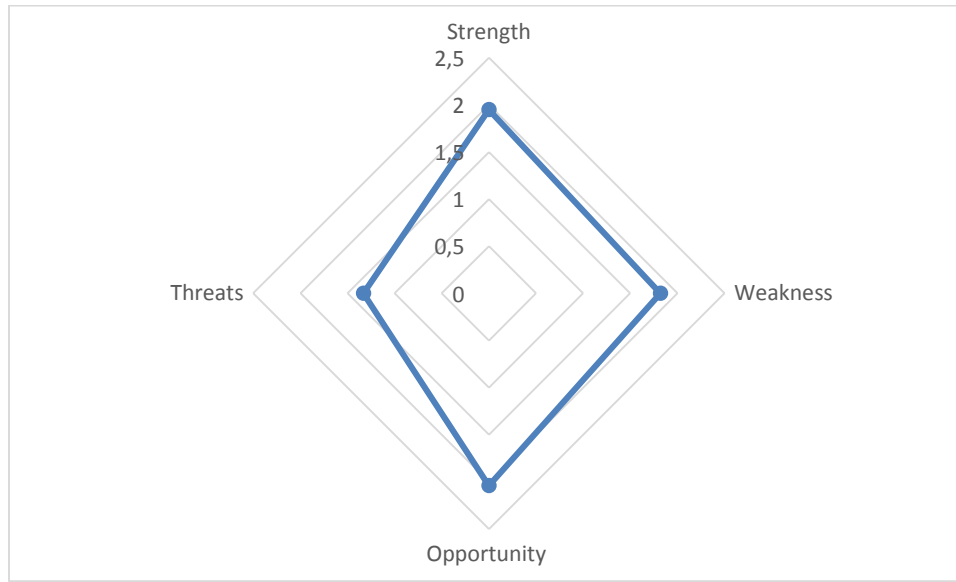
Figure 2. The position of internal and external factors SWOT model from the perspective of tourists.

PROVIDE STRATEGIES AND SOLUTIONS FOR THE DEVELOPMENT OF ECOTOURISM AND GEOTOURISM

Among the advantages of the SWOT model in the planning is the formulation of development strategies. In this model, development strategies are in four types: aggressive (SO), diversity (ST), Reload (WO) and defensive (WT) is presented below.

Strategy (SO): are the strategies based on a study of the ways in which it can take advantage of their strengths to take advantage of opportunities.
Strategy (ST): strengths as a way to avoid major threats.
Strategy (WO): to take advantage of opportunities to overcome the weaknesses.
Strategy (WT): Basically has defensive nature and emphasizes on minimizing weaknesses and avoiding major threats [21]

Table 7. Invasive strategy (SO).

SO1-The introduction of ecotourism and geo-tourism area attractions such as beautiful landscapes (caves, mountains, river and forest park) in order to attract tourists
SO2- using products with the introduction of various historical, cultural and natural attractions to create jobs and earn money
SO4- public and private investment in the region to identify potential
SO5- introduce local customs to tourists in order to increase local revenues by settlers in the region

Table 8. Strategies Overview (WO).

WO1-Training experts in field of tourist guides and tourism planning
WO2-Training experts in field of pollution control and reduction of pollution
WO3-Strengthen and improve communicating roads in order to enter more tourists to the region
WO4-Development of health and welfare infrastructures through public and private investment

Table 9. Diversification strategy (ST).

ST1- Training local people and tourists to protect nature and historical and cultural monuments in the region
ST2- Use historical and cultural monuments in the ecotourism and geo-tourism areas to enhance the period of tourists settlement
ST3- Introduction of geo-tourism and ecotourism capabilities to officials and investors to increase investment in infrastructure in the field of tourism

Table 10. Defensive strategies (WT).

WT1- reconstruction of residents houses and nature conservation
WT2- using media to introduce new features and capabilities in ecotourism and geo-tourism aspects of the area
WT3- attract public and private funding's in order to reduce pollution, recycle and eliminate waste caused by tourists in the region

STRATEGY ANALYSIS AND SELECTION OF THE OPTIMAL STRATEGY

In order to prioritize strategies for growth and development of the tourism industry, each of the strategies individually were compared to weaknesses, strengths, opportunities and threat factors and the points obtained by each strategy was compared to prioritize the strategies to achieve the final strategy [22]. In following table in the first column the criteria, in the second column the weight gain is by each criteria in the last step, in AS column weight of each criterion with respect to the role it plays in the strategy is mentioned. The Range of these points is 1 as the lowest score and 5 the highest points. Column TAS, is also the result of multiplying the weight-points column in AS column, which shows the points earned by each strategy.

Table 11. Points earned by strategy (SO).

SO								Weighted rating	Factors
SO4		SO3		SO2		SO1			
TAS	AS	TAS	AS	TAS	AS	TAS	AS		
0.24	2	0.24	2	0.36	3	0.36	3	0.12	O1
…	…	…	…	…	…	…	…	…	…
0.51	3	0.51	3	0.34	2	0.68	4	0.17	O10
0.48	2	0.72	3	0.48	2	0.72	3	0.24	T1
…	…	…	…	…	…	…	…	…	…
0.152	2	0.152	2	0.076	1	0.152	2	0.076	T8
0.87	3	1.16	4	0.87	3	1.45	5	0.29	S1
…	…	…	…	…	…	…	…	…	…
0.3	2	0.45	3	0.3	2	0.752	5	0.15	S10
0.22	2	0.11	1	0.22	2	0.33	3	0.11	W1
…	…	…	…	…	…	…	…	…	…
0.19	1	0.38	2	0.19	1	0.19	1	0.19	W10
19.93	…	18.24	…	20.12	…	19.206	…	…	sum

Table 12. Points earned by strategy (WO).

WO								Weighted rating	Factors
WO4		WO3		WO2		WO1			
TAS	AS	TAS	AS	TAS	AS	TAS	AS		
0.12	1	0.36	3	0.24	2	0.12	1	0.12	O1
…	…	…	…	…	…	…	…	…	…
0.34	2	0.34	2	0.17	1	0.17	1	0.17	O10
0.48	2	0.72	3	0.24	1	0.48	2	0.24	T1
…	…	…	…	…	…	…	…	…	…
0.076	1	0.076	1	0.076	1	0.152	2	0.076	T8
0.29	1	0.87	3	0.29	1	0.58	2	0.29	S1
…	…	…	…	…	…	…	…	…	…
0.15	1	0.3	2	0.3	2	0.15	1	0.15	S10
0.22	2	0.22	2	0.11	1	0.33	3	0.11	W1
…	…	…	…	…	…	…	…	…	…
0.76	4	0.19	1	0.95	5	0.19	1	0.19	W10
14.28	…	16.191	…	13.569	…	15.385	…	…	sum

Table 13. Points earned by strategy (ST).

ST						Weighted rating	Factors
ST3		ST2		ST1			
TAS	AS	TAS	AS	TAS	AS		
0.12	1	0.12	1	0.24	2	0.12	O1
…	…	…	…	…	…	…	…
0.34	2	0.34	2	0.17	1	0.17	O10
0.96	4	0.96	4	0.48	2	0.24	T1
…	…	…	…	…	…	…	…
0.076	1	0.076	1	0.152	2	0.076	T8
1.16	4	0.58	2	0.58	2	0.29	S1
…	…	…	…	…	…	…	…
0.6	4	0.30	2	0.30	2	0.15	S10
0.22	2	0.44	4	.0.11	1	0.11	W1
…	…	…	…	…	…	…	…
0.19	1	0.19	1	0.57	3	0.19	W10
20.179	…	17.3	…	16.149	…	…	sum

Table 14. Points earned by strategy (WT).

WT						Weighted rating	Factors
WT3		WT2		WT1			
TAS	AS	TAS	AS	TAS	AS		
0.24	2	0.12	1	0.36	3	0.12	O1
…	…	…	…	…	…	…	…
0.17	1	0.68	4	0.17	1	0.17	O10
0.48	2	0.96	4	0.48	2	0.24	T1
…	…	…	…	…	…	…	…
0.076	1	0.076	1	0.076	1	0.076	T8
0.29	1	0.87	3	0.58	2	0.29	S1
…	…	…	…	…	…	…	…
0.15	1	3.45	3	0.45	3	0.15	S10
0.22	2	0.11	1	0.44	4	0.11	W1
…	…	…	…	…	…	…	…
0.95	5	0.19	1	0.57	3	0.19	W10
17.011	…	18.321	…	17.801	…	…	sum

SELECTING OPTIMAL STRATEGY

At this stage, in order to choose the best strategy to develop the tourism industry in the study area, the results of each strategy were compared. Since the number of strategies from each strategy is not equal, so in order to determine the most appropriate strategy, mean scores of strategies were compared [22]. As can be seen in Table 15, an invasive strategy (SO) with highest average is known as the best strategy.

**Table 15.** Points earned by development strategies.

Type of strategy	WT	ST	WO	SO
Average	17.71	17.87	14.85	19.37

SELECTING THE MOST APPROPRIATE STRATEGY

After selecting the best strategy, in order to choose the best strategy for development of the tourism industry, scores obtained by each of our strategies were compared. The results of this comparison show that ST3 strategy with 20.179 points is the best strategy to develop the tourism industry in the field of geo-tourism and ecotourism in Chahardangeh region.

Table 16. Points earned by development strategies.

Strategy	WO3	WO2	WO1	SO4	SO3	SO2	SO1
Score	16.191	13.569	15.385	19.93	18.24	20.12	19.206
Priority	10	14	12	3	6	2	4
Strategy	ST3	ST2	ST1	WT3	WT2	WT1	WO4
Score	20.179	17.3	16.149	17.011	18.321	17.801	14.28
Priority	1	8	11	9	5	7	13
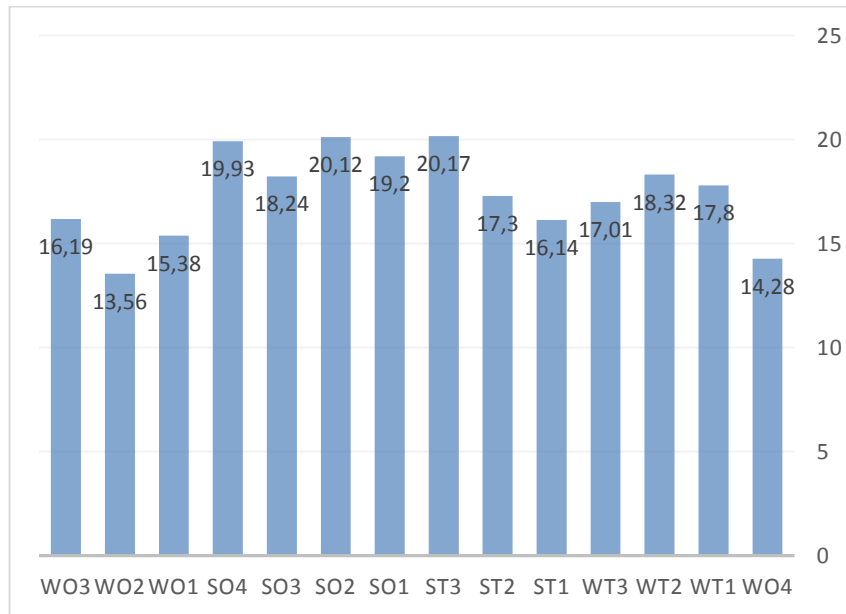
Figure 3. Comparison of points earned by each strategy.

CONCLUSIONS

Because of the varied and attractive of geo-tourism and ecotourism potentials and historical monuments and cultural industries, Chahardangeh region has high ability in attracting many tourists as a model for regional development. In the present study, SWOT technique was used to identify and understand the capabilities, abilities, and weaknesses of the Chahardangeh region. The results obtained from the points show that beautiful landscapes, Kauterkally cave, Badam sort springs, Shahdezh Mountain and the spirit of hospitality of the people are as the most important strengths of the Chahardangeh region. In addition, according to the results the most important weaknesses of the region are lack of health facilities and health services, lack of familiarity of people and government with of ecotourism and geo-tourism concepts, and poor management of tourism planning. Among the opportunities outside the region, the most important opportunities are: improvement of infrastructure and facilities and the supply of cultural and tourism products. The most important external threat to the region is: lack of awareness about the importance of tourism by the people and government and not using all geo-tourism and ecotourism potentials. According to the results of the evaluation SWOT method, attack Strategy (SO) was recognized as the main strategy for the development of ecotourism. Finally, in order to determine the most appropriate development strategy, the final scores were compared with each other, that ST3 approach with 20.179 points was as the best strategy. This strategy insists on increasing governmental and private investment in tourism infrastructure, through the introduction of geo-touristic and eco-touristic potentials.

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