Pol. J. Environ. Stud. Vol. 22, No. 2 (2013), 465-473

Original Research

Delphi-Based Strategic Planning for Tourism Management – a Case Study

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Received: 10 January 2012
Accepted: 25 June 2012

Abstract

Tourism is one of the most dynamic economic activities that currently plays an important role in local sustainable development. The industry, through the combined and simultaneous use of both internal and external resources, presents plenty of social, economic, environmental, and cultural benefits. Hence, it is considered a primary option in the development process. Unfortunately, despite the high potential for tourism development in Iran, the relevant experts believe that it has not developed as appropriate. Lack of a comprehensive approach to managing available strengths and opportunities in order to overcome threats and weaknesses seems to be the main challenge toward achieving sustainable tourism in the country. Accordingly, the current study focuses on presenting an integrated strategic plan for tourism management in a recreation destination near Tehran. Due to the participatory nature of the managerial affairs, to minimize the bias through weighing criteria and finalize the potential offered strategies, an integrated approach that combines analytic hierarchy process (AHP) and strengths, weaknesses/limitations, opportunities, and threats (SWOT) called the SWOT-AHP Hybrid Method was applied. Afterward, a quantitative strategic planning matrix (QSPM) was used to prioritize the suggested strategies. The obtained results indicated that giving priority to tourism projects in the river borders is the foremost priority to rehabilitate tourism activities in a sustainable manner.

Keywords: strategic environmental assessment (SEA), analytical hierarchy process (AHP), strengths, weaknesses, opportunities, and threats (SWOT), quantitative strategic planning matrix (QSPM), Delphi, tourism, Taleghan Basin, Iran

Introduction

The rapid growth of tourism in recent decades has been so sharp that it is quite tangible in most parts of the world. Movements of population and resources are regarded among the factors impressing such an evolution. It can be a scout in the areas of economic and social development. There are few sub-sections that enjoy such flexibility and adaptability with the functional environment. This is the reason for the relationships of tourism with strategic opportunities for local development. Tourism is closely associated with economic factors.

On the other hand, various agents go hand-in-hand to achieve economic prosperity in a country through tourism [1-4]. In the context of employment and investment, tourism also can be an important means of wealth. The positive effects of tourism influence strengthening local values, proving local cultural values, and developing the potential of a territory, which is noteworthy. But the question now is how sustainable tourism can be implemented in a region.

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Providing necessary conditions for tourism in a sustainable manner is a complex process. Therefore, local law enforcement agencies should work toward improving the situation of the socio – economic context. Tourism potentiality for employment is regarded as an important characteristic of this industry. So far, plenty of services have come into existence in the tourism sector, and there is also high potential to provide more new services [5-8]. Moreover, tourism has the potential to attract surplus labor of other economic sectors.

One of the most worrisome problems in this area is uncontrolled and inappropriate recruitment of unskilled workers. The noted issue can lead to a sharp decline in the quality of services provided in this section, desirability, and consequently its long-term market value. There are lots of reasons to provide such a circumstance that can be pointed to dysfunctional economic conditions caused by transmitting a proportion of unskilled workers to the tourism sector as executives of small tours. This sudden change happens so quickly that proper and effective training programs cannot be predicted for it.

Besides, there are enormous challenges toward proper management of tourism. The challenges reveal the importance of taking appropriate strategies to manage tourism in a sustainable manner. In this respect, the current study aims to present a comprehensive plan to manage tourism in a tourism destination near Tehran. The research will show how effective SWOT analysis is in applying opportunities and strengths to overcome weaknesses and threats.

Material and Methods

The Study Area

Taleghan is situated on the extreme northwest of Tehran Province, 140 km from Tehran City [9, 10]. It has an area equal to 1,325 km^2 and includes 76 villages. The easternmost of Taleghan is limited to Gorab Village (between 36º90′107″N latitude and 51º10′57″ longitude, with a height of 3,138 meters above sea level) which leads to the city of Karaj. The most western point is restricted by Pargah Village (between 36º1′25″N latitude and 50º26′34″ longitude, with a height of 2,160 meters above sea level) which leads to the Alamout region in Qazvin province. Taleghan has a length of 61,800 m and a width of 12,700 m [11]. The organization responsible for managing ecosystems in Taleghan is the Department of the Environment. Fig. 1 presents a schema of the study area in Iran.

Research Workflow

The research ahead was conducted through multiple stages, described in the following. The research stages are demonstrated in Fig. 2. It is noteworthy that the dotted line offers upcoming programs that have not been studied here.

Start Point

First of all, four Delphi panels were composed of environmentalists and decision makers in the context of tourism management. Afterward, the internal and external factors, i.e. strengths, weaknesses, opportunities and threats, were identified using a checklist (Table 1), and interviewing with the specialists at the Department of the Environment, Iran Cultural Heritage, Handicrafts, and Tourism Organization (ICHTO).

To get accurate results, the study methodology was described to them. Consequently, the panelists assisted in the research. Finally, the SWOT matrix was provided (Table 2).

In order to test the inter-judge reliability, Kendall's coefficient of so-called concordance was applied. Suppose that object i is given the rank $r_{i,j}$ by judge j, where there are in total n objects and m judges. Then the total rank given to object i is:

$$R_i = \sum_{j=1}^{m} r_{i,j}$$

...and the mean value of these total ranks is defined as:

$$\overline{R} = \frac{1}{2} m(n+1)$$

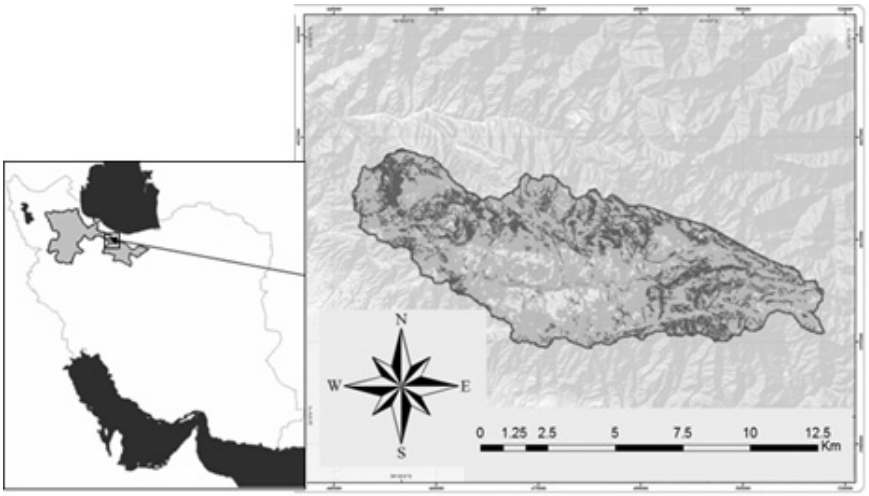

Fig. 1. The situation of Taleghan, Iran.

Table 1. The checklist for determining SWOT components.

Factors	Questions
Strengths	What are the advantages toward sustainable tourism management in Taleghan? What factors support the sustainable implementation of tourism management in Taleghan?
Weaknesses	Which factors avoid implementing sustainable implementation of tourism management in Taleghan?
Opportunities	What are the advantages of other sectors and programs with regard to sustainable tourism management in Taleghan? What factors provide opportunities for sustainable tourism management in Taleghan?
Threats	What are the disadvantages of other sectors and programs toward sustainable tourism management in Taleghan? What are the obstacles to managing tourism in a sustainable manner in Taleghan?

Table 2. SWOT analysis.

Internal factors / External factors	The list of strengths (S)	The list of weaknesses (W)
List of opportunities (O)	List of SO strategies (invasive)	List of WO strategies (conservative)
List of threats (T)	List of ST strategies (competitive)	List of WT strategies (defensive)

The sum of squared deviations, *S*, is obtained through the following equation:

$$S = \sum \left(R_i - \overline{R}\right)^2$$

...and then Kendall's *W* is defined as:

$$W = \frac{12S}{m^2\left(n^3 - n\right)}$$

The amount of *W* varies between 0-1. Zero indicates no overall trend of agreement among the respondents, while one shows all the judges or survey respondents have been unanimous on other words, it reflects a consensus among the respondents [12, 13].

Prioritizing the Internal and External Factors

In this research in order to prioritize the internal and external factors, the analytical hierarchy process (AHP) method was applied. The basis of AHP is pair-wise comparisons [14-16]. It applies a nine-point scale to reveal that out of two factors, which one has a higher strength, opportunity, weakness or threat, and how much of a difference is there between them (Table 3) [17]. WINQSB (Quantitative System for Business) alongside, commercial AHP computer software were applied to determine the local priorities of the factors affected on sustainable tourism management in Taleghhan. The priority numbers indicate the decision-makers' perception of the relative importance of the factors.

Table 3. Scale of relative importance of factors [18, 19].

Numerical rating	Judgment of preferences between alternative *i* and alternative *j*
9	*i* is extremely more important than *j*
7	*i* is very strongly more important than *j*
5	*i* is strongly more important than *j*
3	*i* is slightly more important than *j*
1	*i* is equally important to *j*
2, 4, 6, 8	Intermediate values

Carring out Pair-Wise Comparisons between the Four SWOT Groups

At this step, the priority numbers determined by each Delphi group was gathered to compute their overall relative importance. It is noteworthy that the entire value numbers sum up to one in order to being normalized [20]. Moreover, in order to ensure that the priority ratio is consistent, the consistency index (*CI*) was calculated using equation (2). Based on the *CI* and random index (*RI*), the consistency ratio (*CR*) was computed using equation (3) [21]. In cases where the ratio was higher than 0.1, the weighing was done once again [22].

$$C.I. = \frac{\lambda_{\max} - n}{n - 1} \quad (2)$$

$$C.R. = \frac{C.I.}{R.I.} \quad (3)$$

...where, *n* is the number of items being compared in the matrix; λ_{max} is the largest Eigen value, and *RI* is a random consistency index derived from a large number of simulation runs and varies upon the order of matrix (Table 4) [21].

Applying the Results in Formulation of the Strategy

At this stage, the importance of the internal and external factors was presented in the form of numerical values. Accordingly, the prioritized factors were used in defining the strategies.

Table 4. Random index [21].

N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R.I.	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.57	1.58

Identification of Tourism Management Strategies

The factors owing the greatest importance in each group have an important role in developing regional strategies. If the factors are not regarded as critical criteria in formulating the strategies, the environmental quality of the study area will decline [23]. Consequently, considering the significance and weight of the mentioned factors, suitable strategies for tourism management of Taleghan were identified using the SWOT Matrix.

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Quantification of the Strategies Using QSPM Method

First of all, a weighting factor between zero (no importance) to one (very important) was assigned to the internal and external factors. Then the current status of each factor was determined using a score between 1 and 5 (1 – poor, 2 – below average, 3 – moderate, 4 – above average, 5 – very good) which is called the current status score [24]. The current state refers to the ability to manage the weaknesses, strengths, threats, and opportunities in the region. Afterward, the weighted score of each factor was calculated. For this purpose, the scores of each row of the internal and external factors were multiplied by the normalized weight. The process is performed using the matrices; external factors evaluation (EFE) and internal factors evaluation (IFE). Subsequently, the quantitative strategic planning matrix (QSPM) was provided to prioritize the strategies. In the first column of the matrix, a list of strategic factors including the strengths, weaknesses, opportunities, and threats was brought. In the second column, the weighted score for each strategic factor of the matrix identically extracted from IFE and EFE matrices was inserted. In subsequent columns, a variety of strategies were obtained from the SWOT Matrix, including quadruple strategies of SO, ST, WO, and WT. Each column corresponding to a variety of strategies was divided into two sub-columns: AS and TAS. The attractiveness score is given in the AS sub-column. As such, each strategic factor is gauged with the considered strategy and then it is weighted. In determining the attractiveness score, the question should be answered whether the factor affect on the choice of the mentioned strategy or not? If the answer to this question is positive then the attractiveness score should be done according to the relative attractiveness of each strategy to other strategies. The attractiveness scores include:

1. not attractive
2. somewhat attractive
3. acceptable attractiveness
4. high attractiveness

Scores in the second column are multiplied by the attractiveness score and, subsequently, the total attractiveness score is listed in the TAS sub-column. It reveals the relative attractiveness of each factor toward the considered strategy. The total of the TAS scores is calculated in the bottom row, where this number is the same strategy priority score. Accordingly, the various options of the strategies are prioritized using the numeric values and, subsequently, they will be compared with each other [25].

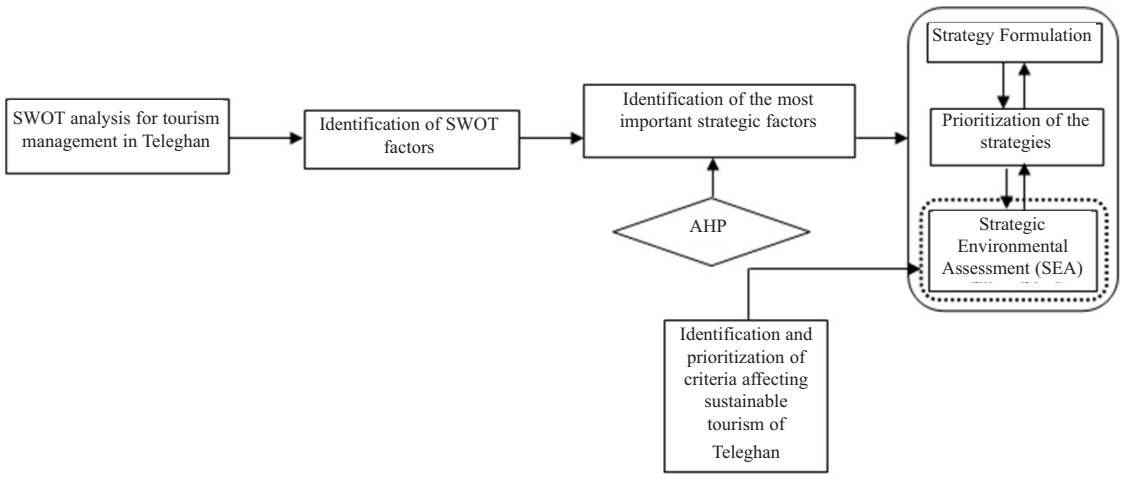

Fig. 2. Research workflow.

Result and Discussion

As has already been mentioned, the Delphi Method was applied to determine opportunities, weaknesses, strengths, and threats toward sustainable tourism management in Taleghan.

In the first round, 30 questionnaires containing sustainable tourism criteria were distributed among 30 people as members of the Delphi panel. 10 out of 30 questionnaires were not assessed due to lack of response or incomplete answers. It should be noted that totally 23 SWOT criteria were included in the questionnaire. At the end of the first round, panel members added six new criteria to the questionnaire. In the second round, 29 criteria (23 criteria already existed in the questionnaire and 6 criteria were derived from the panelists' new idea) were given to 20 individuals who participated in the first round of the interview. In this round, five questionnaires were excluded because of incomplete answers or failure to receive responses, leaving 15 questionnaires were evaluated. In this round, the results of the average scores determined by panelists as well as the considered person in the previous round of surveys were placed at the disposal of a group.

In the third round, 29 criteria were given to 15 members of the panelists who attended the previous round. This time, entire questionnaires were answered. In this round, the results of the average scores determined by panelists as well as the considered person in the previous round of polling were placed at the disposal of each of the members to be compared and finalized. Given that the kendall's coefficient of concordance was computed to be equal to 0.78 (which is higher than 0.5) and the number of panel members were more than 10 people, the coefficient is significant. Therewith, a consensus was created among the panel members and the Delphi was stopped at the third round. The results of the surveys on internal environment reveal that there are 8 strengths toward implementing the sustainable tourism in Taleghan, which are named in the following:

S1: mild climate and pleasant landscape of the region
S2: rich biodiversity, variety of ecosystems
S3: existence of historical and religious places suited tor tourism
S4: proximity to Tehran
S5: strong cultural diversity and hospitable people of the region
S6: existence of special attractions such as the Taleghan Dam, rivers, and so on
S7: comprehensive plan of the region
S8: the existence of some infrastructure such as water pipes, telephone lines, etc.

Alongside the mentioned strengths, eight weaknesses have been identified:

W1: ecological sensitivity of the area
W2: conflict between land use patterns
W3: failure to implement the comprehensive plan
W4: lack of clear laws on nature guides in area
W5: inadequate infrastructure and regional facilities such as sewer systems

Table 5. Priorities of the SWOT groups and factors.

SWOT group	Priority of the group	SWOT Factor	Priority of the factor within the group
Strengths	0.121	**S1**	**0.328**
		S2	0.047
		S3	0.048
		S4	0.096
		S5	0.092
		S6	0.193
		S7	0.166
		S8	0.229
Weaknesses	0.133	W1	0.241
		W2	0.036
		W3	0.109
		W4	0.142
		W5	**0.340**
		W6	0.238
		W7	0.049
		W8	0.044
Opportunities	0.15	O1	0.059
		O2	0.147
		O3	**0.308**
		O4	0.085
Threats	0.15	**T1**	**0.390**
		T2	0.245
		T3	0.171
		T4	0.181
		T5	0.111
		T6	0.084
		T7	0.080
		T8	0.051
		T9	0.035

Inconsistency ratio: o.o6.

W6: inadequate accommodation, catering facilities and travel services
W7: access problems in winter
W8: low local accessibility.

Among the most important opportunities, supporting sustainable development can point to:

O1: Advantage of the profit resulting from the synergistic capability of attractions in the surrounding villages
O2: Ability to attract private investors to implement plans and projects
O3: attraction possibility of government-supported assistance in the cultural-religious field

O4: growth in domestic travel and increased awareness of Taleghan.

Nine significant threats have been recognized in the external environment:

T1: environmental pollution caused by tourism
T2: low-level environmental knowledge among decision makers and local people
T3: lack of tourism agencies and nature guides in the area
T4: lack of financial resources needed in the area
T5: destruction of village traditional texture
T6: degraded orchards and gardens in the area
T7: seismicity and risky nature and high-natural risk of the area in this respect
T8: raising land prices in Taleghan
T9: lack of internet-based tourism information system in the area

Table 5 gives the importance of the internal and external factors calculated twice, once by comparing each factor with other factors in each group separately and again by comparing the factor with all the other components in the SWOT Matrix.

Finally, the highest priority within each SWOT group is presented in bold. It is worth noting that the inconsistency ratio of the SWOT matrix was obtained equal to 0.06. The ratio confirms the judgments (Table 6).

Following determination of the appropriate strategies, a suggestive model was provided using the internal and external (IE) matrix. It is composed of two matrices: IFE and EFE. The total weighted score calculated for the IFE matrix is 3.07, indicating an above-average internal strength. It is noteworthy that the final core of the EFE matrix was calculated tantamount to 2.21, which represents a slightly less than average ability to respond to external factors. Therewith, a competitive strategy is highly recommended to meet the purpose of the research. Fig. 3 illustrates the IE Matrix for sustainable tourism management in Taleghan.

As regards, there are enormous internal and external factors affecting the management and planning of Taleghan tourism destination, the out put of Table 4 would be quite helpful to derive appropriate strategies considering the main factors. In this research, QSPM was used to prioritize the proposed strategies (Table 7).

Conclusion

Taleghan is considered one the most beautiful tourism destinations in Iran. It has outstanding scenery, covered by a variety of ornamental and medicinal plants. Adjacent to Tehran, the crowded capital city of Iran doubles the importance of the destination [26]. The artificial lake created by Taleghan Dam can be a safe resort for leisure of citizens who are tired of urban life. In spite of the forenamed features, the area is not as successful as it should be in attracting and managing tourism. Based on the research findings, low-level environmental knowledge among decision makers and local people, lack of tourism agencies and nature guides in the area, and lack of financial resources needed in the area are three top obstacles toward achieving a sustainable tourism management in Taleghan. Also of note are the inadequate infrastructure and regional facilities such as sewer systems, ecological sensitivity of the area, inadequate accommodation, catering facilities and travel services, all face sustainability with a challenge. Accordingly, giving priority to tourism projects in the border of the rivers, building infrastructure and facilities for the use of tourist attractions, and presenting a conservation plan that prevents the negative effects on the quality of sensitive ecosystems would be helpful. The current study applied SWOT analysis as an early phase of the strategic planning to manage tourism in Taleghan in a sustainable manner. In order to overcome the bias within weighing the internal and external factors, a novel approach was applied. In other words, AHP was used to compare the importance of each SWOT

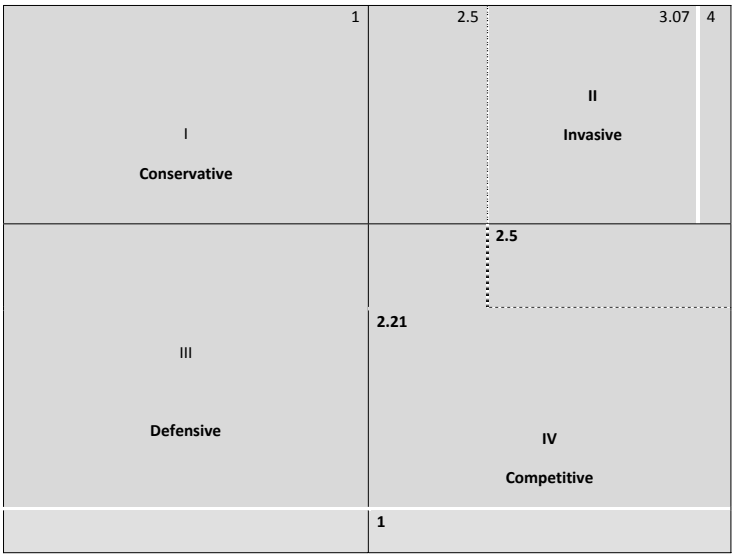

Fig. 3. The IE Matrix for sustainable tourism management in Taleghan.

Table 6. SWOT analysis for implementing sustainable tourism management in Taleghan.

IFE Matrix / EFE Matrix	Mild climate and pleasant landscape of the region	Ecological fragility of the area
	Rich biodiversity, the variety of ecosystems	Conflict between land use patterns
	Existence of historical and religious places suited tor tourism	Failure to implement the comprehensive plan
	Proximity to Tehran	lack of clear laws on nature guides in area
	Strong cultural diversity and hospitable people of the region	Inadequate infrastructure and regional facilities such as sewer systems
	Existence of special attractions such as the Taleghan Dam, rivers and so on	Inadequate accommodation, catering facilities and travel services
	Comprehensive plan of the region	Access problem in winter
	The existence of some infrastructure like water pipes, telephone lines etc.	Low local accessibility
Advantage of the profit resulting from a synergistic capability of attractions in the surrounding villages Ability to attract private investors to implement plans and projects Attraction possibility of government support assistance in the cultural – religious field	Giving priority to tourism projects in the border of the rivers	Construction and Development of affordable accommodation facilities and services including youth houses, tourist homes, and camps at tourism centers
	Building infrastructure and facilities for the use of tourist attractions	
	Construction of health and tourism villages in the area	
Growth in domestic travels and increased awareness of Taleghan	Presenting coordinator programs for utilization of areas with shared eco-systematic values between adjacent sectors increase synergy potential of the attractions	Using tourism goals, policies and plans as a basis for sustainable development of nature guides
Advantage of the profit resulting from a synergistic capability of attractions in the surrounding villages	Designing and implementing special routes in the field of eco-tourism development	Preparation of detailed plans for development of access networks with emphasis on tourism
Ability to attract private investors to implement plans and projects	Holding thematic museum, galleries and exhibitions (art, natural history, carpet) to introduce the traditions and customs of the people	Optimization of terminals
	Informing about natural attractions of Taleghan through TV teasers, manuals, installation of advertising billboards in tourists' entry points and SMS	Protection of rare species and considering special places to visit animals in the natural environment without tourists' extreme closeness to the animals
	Creating a special symbolic elements as a symbol for emphasis on indicator elements in the area	Development of winter recreation facilities (such as skiing) in mountainous areas
	Funding for regeneration and restoration of historic, cultural and religious attractions from provincial credits	Presentation of conservational plan to prevent negative impacts on quality of the fragile ecosystem
Environmental pollution caused by tourism	Providing financial resources and banking facilities through public and private sectors to enhance and expand tourist attractions and projects	Training manpower employed in tourism activities of Taleghan
Low level environmental knowledge among decision makers and local people	Registration of cultural and historical monuments which are ranked in national and international levels	Establishment of wastewater treatment systems and sanitary landfills to prevent environmental pollution
Lack of tourism agencies and nature guides in the area Lack of financial resources needed in the area	Feasibility study and planning for construction of theme parks	Presenting an integrated plan prevented conflicts between various land uses including commercial, historical, agricultural and ecotourism
	Performing promotional and marketing activities to develop tourism services in the area	
Destruction of village traditional texture being degraded the orchards and gardens in the area	Funding advertising and promotional budget independently from funds offered by Cultural Heritage and Tourism Organization	Development of facilities and services for tourists' accommodation
	Introducing and promoting the outstanding aspects of the artistic, handicrafts and architectural attractions of Taleghan	
Seismicity and risky nature and high-natural risk of the area in this respect Raising land prices in Taleghan	Developing ecotourism and travel agencies and offices in the region.	Presenting environmental impact assessment studies for tourism projects in rural areas and planning strategies to mitigate negative impacts and enhance positive outcomes
	Establishment of traditional markets and handicraft workshops for presenting artistic and cultural products	Setting a strategic and operational plan for development of sample tourism villages in Taleghan to adjust tourism project in the region
	Developing the ecotourism regulations in the area	No building permit for the construction of the heterogeneous architecture which is incompatible with the natural and indigenous conditions of the area
Environmental pollution caused by tourism Low level environmental knowledge among decision makers and local people	Implementing the Regional Comprehensive Plan and application of nature guide plans to improve the quality of the environment, increase decision-makers' environmental awareness as well as preparedness against disasters	
Lack of tourism agencies and nature guides in the area	Building websites and databases to introduce Taleghan as well as natural, historical and religious attractions	
Lack of financial resources needed in the area		

Table 7. Priorities for sustainable tourism strategies in Taleghan.

Strategy priority	Strategy score	Strategy code	Description of strategy
1	15.22	SO1	Giving priority to tourism projects in the border of the rivers
2	14.57	SO2	Building infrastructure and facilities for the use of tourist attractions
3	14.5	WO7	Presenting a conservation plan that prevents negative effects on the quality of fragile ecosystems
4	14.39	WT5	Environmental impact assessment studies for tourism projects in rural areas and adjustment of strategies for mitigating negative impacts and enhancing positive outcomes
5	14.03	ST1	Providing financial resources and banking facilities through public and private sectors to enhance and expand tourist attractions and projects
6	13.04	WT4	Offering accommodation and catering services for tourism
7	12.09	WT6	Setting a strategic and operational plan for development of sample tourism villages in Taleghan to adjust tourism projects in the region
8	12.03	SO3	Construction of health and tourism villages in the area
9	11.16	WO5	Protection of rare species and considering special places to visit animals in the natural environment without tourists' extreme proximity to the animals
10	10.11	ST10	Implementing the regional comprehensive plan and applying of nature guide plans to improve the quality of the environment, increase decision-makers' environmental awareness, and preparedness against disasters

factor determined by the Delphi group. The research findings can present a basis for decision-makers in order to implement sustainable tourism in the area.

Acknowledgements

The research presented in this paper has been extracted from a doctoral dissertation titled "Strategic Environmental Assessment of Tourism in Iran (Case Study: Taleghan Region)" at Islamic Azad University in Iran. The authors hereby would like to express their gratitude to the university authorities who have made this research possible and successful.

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