Environmental strategies of nature tourism in biosphere reserves: A case study of Miankaleh, Iran

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ABSTRACT

In Biosphere Reserves of many countries, nature tourism is seen as a tool for sustainable development which naturally has its own environmental impacts. The application of strategic management methods such as SWOT can ensure long term viability of sensitive environments of Biosphere Reserve. The focuses of this study was the application of SWOT in identification of internal and external strategic factors and develop strategies for Miankaleh Biosphere Reserve in Iran. Thirty one factors of strengths, weaknesses, opportunities, and threats were identified using IFE and EFE matrices and 20 SO, ST, WO, and WT strategies were developed. These strategies can be used in present and future management and planning of nature tourism. For better results, all strategies should be reviewed periodically.

Key words: Biosphere Reserve, Miankaleh, Nature tourism, Strategic planning, SWOT
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INTRODUCTION

Biosphere reserves are designated and managed with the objective of promoting and combining biodiversity conservation with sustainable development based on community participation and science [1]. Today, in many areas tourism is seen as an answer to economic development, particularly areas of natural beauty [2]. In many countries, authorities responsible for protected areas have taken a strong interest in tourism, seeing it as a source of income, an opportunity for a sustainable livelihood for park-based communities, and as an activity that needs careful management [3].

According to UNESCO definition, Biosphere Reserves are places that seek to reconcile conservation of biological and cultural diversity and economic and social development through partnerships between people and nature [4]. It seems this definition is appropriate for development of types of tourism especially nature tourism and ecotourism. In fact in many countries, Biosphere Reserves, like other types of protected areas, are considered as appropriate regions for tourism development.

However, many of these protected areas have been designed for species and habitat protection, with limited or no consideration for tourism access or accommodation [5]. Hence Biosphere Reserves authorities may prefer tourism activities which are compatible with environmental concerns, i.e. sustainable nature tourism or generally, Sustainable Tourism.

In Biosphere Reserves it is important to develop nature tourism in a sustainable way because despite its name and existence of 'nature' concept, nature tourism may cause negative impacts on characteristics of such area, i.e. the

176

increasing numbers of tourists bring with themselves a range of sociocultural and environmental issues for host communities [6]. Hence, successful and sustainable nature tourism in such areas requires long term and methods of strategic management.

The fact that nature-based tourism can only survive when the resources on which it depends are protected; resource conservation is not a core element in its conduct [7].

It seems strategic management has been an important issue in environmental management of nature tourism (EMNT) especially in different types of protected areas including Biosphere Reserves. Tourism activities can have long-term environmental impacts on Biosphere Reserves, thus planning and management of such activities should be a strategic and long-term process [8].

It is important when tourism takes place, management frameworks and strategies are put in place to ensure that it supports and maintains protected area natural and cultural values [9]. Hence some strategies should be formulated and this step which is called "strategy formulation" is a part of strategic management process. The process consists of three stages: strategy formulation, strategy implementation, and strategy evaluation [10].

SWOT is a well-known method for identification of internal and external strategic factors that leads to strategy formulation. It is an acronym for Strengths, Weaknesses, Opportunities, and Threats. As a simple technique, which helps to focus activities into areas of strengths and where the greatest opportunities lie, SWOT can be used in formulating strategies and policies for managers [8]. It is a strategic planning tool used to evaluate the strengths, weaknesses, opportunities, and threats involved in a project or in a business venture [11]. Since SWOT has been widely discussed in similar papers, we shall not elaborate much on it.

There are many papers on the application of SWOT in tourism and environmental science. Many of them have used SWOT in different fields of tourism in Iran which is the country of case study[12-30].

The above papers suggest that the application of strategic planning and management methods is extensive in tourism and environmental studies. Hence, it seems SWOT as a well-known method is a suitable choice in EMNT in sensitive environments such as Biosphere Reserves. The focus of this study is the use of SWOT method in identification of strategic factors and formulating environmental strategies for nature tourism in a famous and popular Biosphere Reserve in northern Iran.

MATERIALS AND METHODS

Study area
Iran has many natural attractions for tourists and many parts of the country are identified as nature tourism destinations, particularly the northern coastlines. These areas consist of many national parks and protected areas that attract many tourists from all over the country [24]. Biosphere Reserves are important part of a protected areas network of this country and there are 10 of them [31]. Three of Iranian Biosphere Reserves are situated in the northern region of the country which among them Miankaleh is a well-known Biosphere Reserve [32].

With the area nearly 15000 hectares, Miankaleh Biosphere Reserve (MBR) is a peninsula in the south east of the Caspian Sea and north of Gorgan Bay on a longitude of 53°, 25' to 54°, 05' E and latitude of 36°, 45' to 36°, 55' N [33]. The total area of Miankaleh peninsula and Gorgan Bay, which consists of marine and terrestrial ecosystems, is designate as a UNESCO Biosphere Reserve in 1976, Ramsar Sites, and Iranian Wildlife Refuge [24]. Its climate ranges from warm semi–humid to temperate [34] and major habitats include wetlands, inter-tidal mud with a sandy shore, shallow marine waters, forested peat lands, raspberry shrub forests, Tamarix forests and agricultural areas [35].

Some popular attractions in and adjacent to the area such as rich fauna and flora, landscapes, pleasant climate, and easy access make MBR a popular regional tourist destination. It attracts many visitors from adjacent provinces including Tehran, Semnan, Mazandaran, and Golestan [36]. In other studies, it was shown that soil characteristics and soil texture condition would not be good criteria for proposing of cut and fill slope [37]. Department of the Environment (DOE) of Mazdandaran province officially manage MBR is faced with poaching, overgrazing, mass tourism, and change of land use pattern, etc. [36].

SWOT analysis
A full methodology is described by Moharramnejad, Rahnamai, & Dorbeiki (2013). According to them, the methodology is as follows:

Step one: EMNT in MBR was considered as a system which had its internal and external environment. All plans and projects outside of the system were considered as external strategic factors, i.e. opportunities (O) and threats (T). Internal environment included strengths (S) and weaknesses (W) which were related to EMNT of MBR.

Step two: 8 experts of tourism and environmental management participated in a survey in year 2012 and determined strategic factors using an activity worksheet. Each activity worksheet was emailed to them and gathered after two weeks for analyzing. The questions were:

-What strengths are there for EMNT in MBR?
-Which internal factors prevent good EMNT in MBR?
-Which external factors provide opportunities for EMNT in MBR?
-What threats are there for EMNT in MBR?

For evaluation of internal and external factors, 2 matrices were used: Internal Factor Evaluation Matrix (IFEM) and External Factor Evaluation Matrix (EFEM). At the process, some factors were determined as strengths, weaknesses, opportunities, and threats. They were weighted in a way that the sum of the weighs was equal to one. Since it was difficult to weigh between zero and one, it was easier to use another scoring system (e.g. One to 20, or 100). Hence, the resulted weighs should be normalized.

Afterwards and according to Table 1, "score of current status" was allocated to each factor. As a result, there were a weight and score for each factor. Weights were multiplied by the score that led to weighted score. The total weighted score was between 1 and 5 with an average of 3. If the sum of weighted score was above 3, strengths (or opportunities) were over weaknesses (or threats). If it was below 3, then weaknesses (or threats) were over strengths (or opportunities).

Step three: Matrix of SWOT analysis was used with internal and external factors from IFEM and EFEM. As a result, four categories of strategies were developed:

▪ SO: combination of Strengths and Opportunities which is called Max-Max
▪ ST: combination of Strengths and Threats which is called Max-Min
▪ WO: combination of and Threats which is called Min-Max
▪ WT: combination of Weaknesses and Threats which is called Min-Min

Table 1: Score of IFEM and EFEM

Score	Description
1	The status of factor (S, W, O, or T) is weak
2	This means the status of factor is below average
3	This indicates for average
4	This denotes above average
5	The status of factor shows very good
Based on Moharramnejad, Rahnamai, & Dorbeiki (2013).	

Table 2: IFEM of EMNT in MBR

		Internal factors	Normalized weight	Score of current status	Weighted score
Strengths	S1	Pleasant climate	0.07	4	<u>0.28</u>
	S2	High biodiversity and scenic beauty	0.07	4	<u>0.28</u>
	S3	Designated as BR, RS, and WR	0.05	3	0.15
	S4	Nearness to protected areas of Golestan and Mazandaran provinces	0.02	2	0.04
	S5	High cultural diversity	0.05	4	0.2
	S6	Infrastructure such as transportation and accommodations	0.06	4	0.24
	S7	Primary regulations of nature tourism	0.09	2	0.18
	S8	Existence of Master Plan	0.08	2	0.16
Weaknesses	W1	Ecological sensitivity	0.09	4	<u>0.36</u>
	W2	Bad and separate management	0.08	2	0.16
	W3	Conflicts between land use patterns	0.05	2	0.1
	W4	Lack of definite regulations of nature tourism	0.09	3	0.27
	W5	Master Plan has not been started yet	0.08	3	0.24
	W6	Inadequacy of sustainable facilities	0.06	2	0.12
	W7	Inadequacy of marketing and communication	0.06	3	0.18
Total			**1**		**2.96**

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RESULTS

Strengths, Weaknesses, Opportunities, and Threatens factors were identified using IFEM and EFEM, respectively and tables 2 and 3 show the results. At each table, underlined numbers present the highest score in each group. All factors are referred to the state of EMNT in the study area, e.g. infrastructure in the area or high cultural diversity. According to the methodology, four types of strategies were developed using the SWOT matrix which are presented in table 4.

Table 3: EFEM of EMNT in MBR

		External factors	Normalized weight	Score of current status	Weighted score
Opportunities	O1	Emphasis on nature tourism in Iranian goals and policies	0.08	4	0.32
	O2	Tourism plans in northern coastlines of Iran	0.07	3	0.21
	O3	Financial and technical aid from international programs and organizations such as Caspian Environment Programme (CEP)	0.04	1	0.04
	O4	Emphasis of local governments on tourism development	0.07	2	0.14
	O5	Designated as a typical tourism area	0.06	2	0.12
	O6	Great national demand for nature tourism	0.08	2	0.16
	O7	Existence of Environmental Non-Governmental Organizations (ENGOs) and experts	0.02	1	0.02
	O8	Nearness to foreign countries	0.05	1	0.05
	O9	Sufficient infrastructures in surrounding areas	0.06	2	0.12
Threats	T1	Unsustainable nature tourism	0.08	2	*0.16*
	T2	Environmental pollution	0.07	1	0.07
	T3	Over exploitation of natural resources	0.06	1	0.06
	T4	Change of land use patterns	0.05	2	0.1
	T5	Low level of income, literacy and environmental awareness of local people	0.04	2	0.08
	T6	Natural disasters such as rising sea level	0.07	1	0.07
	T7	Low level of environmental awareness and education of decision makers	0.07	1	0.07
	T8	No NBT tour operators	0.03	1	0.03
Total			**1**		**1.82**

Table 4: SWOT strategies of MBR

		Opportunities		Threats
Strengths	**SO1**	Utilization of Iranian tourism goals, policies, and plans to implement and strengthen regulations of MBR and set new ones, if necessary	**ST1**	Utilization of natural and cultural attraction can provide a basis for sustainable development of nature tourism
	SO2	Utilization of financial and technical aid from international organizations to implement and strengthen nature tourism regulations of MBR	**ST2**	Utilization of regulations of MBR to improve environmental quality of the area
	SO3	Utilization of Iranian tourism goals, policies, plans, and demands to form an nature tourism network	**ST3**	Establishment of a protected areas network can improve environmental quality of the area and raising environmental awareness of decision makers
	SO4	Utilization of Iranian tourism goals, policies, plans, and demands to establish new sustainable infrastructure and strengthen existing ones	**ST4**	The establishment of sustainable infrastructure of nature tourism in degraded lands can organize use patterns wisely
	SO5	Utilization of local ENGOs and experts to strengthen regulation of nature tourism and set new ones	**ST5**	Developing Regulations of nature tourism and Master Plan of the area can help capacity building for local nature tourism tour operators
	SO6	Utilization of Iranian tourism goals, policies, and plans to ensure implementation of the Master Plan of the area	**ST6**	Implementation of Master Plan can improve environmental quality; raise environmental awareness of decision makers; and prepare for natural disasters
Weaknesses	**WO1**	Utilization of nature tourism goals, policies, and plans to strengthen environmental management of the area	**WT1**	Preparing a conservation plan which prevents factors that have negative and significant impacts on environmental quality of the area such as development of unsustainable nature tourism; environmental pollution and over exploitation; change of land use patterns; and natural disasters
	WO2	Utilization of Iranian goals, policies, and plans to set definite regulations of nature tourism in the area		
	WO3	Utilization of Iranian goals, policies, plans and local ENGOs and experts to help the effective management of the area	**WT2**	Preparing an integrated management plan which prevents factors that have negative impacts on the management of the area such as incorrect policies and decisions
	WO4	Utilization of Iranian goals, policies, plans and local ENGOs and experts to emphasize sustainable development of infrastructure in the area; Also nearness to foreign countries can provide an opportunity to develop sustainable infrastructure up to high standards	**WT3**	Preparing an integrated land use management which prevents conflicts between land use patterns
	WO5	Utilization of Iranian goals, policies, plans and local ENGOs and experts to develop effective marketing and channels of communication		

DISCUSSION

According to the results (Table 2), the best strengths of EMNT of MBR are pleasant climate (S1), and high biodiversity and scenic beauty (S2). Since MBR has suitable climate and rich biodiversity and attractive landscapes, these factors have an important role in EMNT of the area. On the other hand, there are some protected areas in the

179

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adjacent provinces (Golestan and Mazandaran) such as Gomishan Wetland. This factor (S4) has the least score in the Strengths which means it can slightly help EMNT of the area.

Ecological sensitivity (W1) has the most score in the Weaknesses group which means tourism management in the area should be sustainable and environmentally sound. Conflict between land use patterns in MBR (W3) is another weakness which has the least score in this group.

In Table 3, emphasis on nature tourism in Iranian goals and policies is the best opportunity (O1). EMNT of the area can use this opportunity to improve its performance. O7 relates to local ENGOs and experts which has the least score in the Opportunities group.

Since there is no sustainable nature tourism in MBR, unstable NBR (T1) has the most score in the Threatens group. There is no nature tourism tour operator in MBR hence this factor can be a threat which has the least score in the group (T8).

According to Tables 2 and 3, the total score of the IFE is the below 3. This means EMNT in MBR has a weak performance in reducing weaknesses and increasing strengths. Similarly, the total score of EFE is the below 3 which present weak performance of EMNT in benefit of opportunities and neutralizing threats. Generally the total score of IFE and EFE show that EMNT in MBR has more difficulty with external factors rather than internal ones.

Twenty environmental strategies in four categories were developed for MBR which are shown in Table 4. They are as follows:

Group 1-SO: There are 6 strategies in this group (SO1 to SO6). This group of strategies means that EMNT of MBR uses opportunities (as external factors) by using the existing strengths (as internal ones). For instance, in SO2 in Table 4, EMNT of MBR tries to utilize financial and technical aid from international organizations to implement and strengthen regulations in the area. Some international organizations such as CEP and UNEP provide budgets for different projects in the area. EMNT of MBR can define some projects to improve regulation of nature tourism in the area.

Group 2-ST: In this group there are 6 strategies, i.e. ST1 to ST6. An example of this group is ST6 (Table 4). Since the area has a Master Plan, implementation of such important plans can improve environmental quality of the area. In addition it can raise environmental awareness of decision makers of MBR, and prepare for natural disasters. All of these items are important factors in successful management and planning of nature tourism in MBR. Generally, in this type of strategies EMNT of MBR uses the system's strengths (internal factors) to minimize the threats (external ones).

Group 3-WO: This group consists of 5 strategies (WO1 to WO5). The aim of this type of strategies is to gain external opportunities to reduce the internal weaknesses. An example of such strategy is WO3 in Table 4. In this strategy, EMNT of MBR tries to utilize some good opportunities such as policies, plans, local ENGOs and experts to help the management of the area effectively.

Group 4-WT: WT1, WT2, and WT3 are environmental strategies of this group. All of the strategies of this group try to minimize the effects of external threats by the use of internal weaknesses. An example is WT (Table 4). In this strategy, EMNT of MBR should provide an integrated land use plan. This plan prevents conflicts between land use patterns.

Based on identification of internal and external strategic factors, this paper proposes four types of environmental strategies for MBR. Since these strategies are extracted from strengths, weaknesses, opportunities, and threats, each strategy has a close relationship with others. In fact, each strategy should be considered with the others and their priorities.

In the case of the MBR, many conflicts exist between nature conservation and capitalization of natural resources for nature tourism. These types of problems exist at present but In the future, nature tourism trends will certainly change and SWOT factors should be identified again. In addition, such process should be done for strategy formulation. However, nature tourism development should be regulating to obtain its sustainability.

CONCLUSION

SWOT analysis is well suited to support decision-making in complex environments such as MBR. Because of its simplicity, experts of EMNT can easily use it for analysing the current state of nature tourism. In addition, strategies can be deriving from internal and external factors. Hence, strategic management with emphasis on environmental issues seems to be a necessary tool in sustainable tourism of national parks [8].For sustainable utilization of the land ecosystems, it is essential to know the natural characteristics, extent and location, its quality, productivity, suitability and limitations of various land uses [38]. This study provides a contribution to EMNT by suggesting an applied approach to help decision makers of nature tourism. The authors suggest that SWOT method is an appropriate method for planning and management of nature tourism in Biosphere Reserves of Iran, because it is not a sophisticated method and do not need to advanced knowledge.

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