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DETERMINING ECOTOURISM STRATEGIES: THE CASE STUDY OF GREEK FORESTVILLAGES

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Abstract: *This paper presents a combination of SWOT and AHP analyses of forest recreation destinations. Recreation is one of the numerous services provided by forest ecosystems. In Greece, the Ministry of Rural Development and Food created seven forest environmental settlements called "Forest Villages" in order to facilitate the short-term residence in forest ecosystems. In each Forest Village, there are about twenty wood frame homes or log homes adapted to the natural environment. This project was successful and many individuals built their private wooden lodges in areas close to forests or areas of ecotouristic interest. In this paper, 32 "Forest Villages" are studied as a network, the –Forest Village Network–, in order to evaluate the factors for strategic planning and to utilise them in developing effective strategies for the growth of the network.*

Key words: *Eco-friendly tourism, forest recreation, forest policy, forest planning, SWOT, AHP, wooden lodges.*

1. Introduction

Ecotourism, a unique subset of the tourism industry, is focused on the enhancement or maintenance of natural systems through tourism. Ecotourism means different things to different people. To some, it is the general term that encompasses nature-based adventure, soft adventure, and cultural tourism. Ecotourism is defined as: "Environmentally responsible travel and visitation to relatively undisturbed natural areas, to enjoy and appreciate nature (and any accompanying cultural features both past and present) that promotes conservation, has low negative visitor impacts, and provides for beneficially active socio-economic involvement of local people" [9], [14], [28]. Ecotourism

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tries to raise environmental consciousness by exploring ecology and ecosystems, and by providing environmental type experiences. It is taking actively part in ecology and it is getting first-hand impressions of how ecosystems work influence people's ways of thinking, which finally raises awareness of conservation and protection [24]. Rural areas that contain a combination of natural and cultural resource assets are often preferred for ecotourism practices. These areas attract great attention as ecotourism destinations and are visited by eco-tourists [6], [8]. The Official Greek State recognised the potential of ecotourism in Greek rural and forest areas and tried to make a plan to develop ecotourism activities in areas with a rich diversity of natural and cultural resources.

It is a fact that the residents of rural and peri-forest areas in Greece did not have enough knowledge and experience to start an independent business and promote it to potential visitors [2]. The development of ecotourism by the Greek State was vital because ecotourism takes into consideration a location-specific activity. Ecotourism in Greek forests was initiated by the Ministry of Rural Development and Food which financed six forest villages in selected forest areas of the country and supported the development of ecotourism in Greek forests. The names and technical data of all the forest villages are shown in Table 1 and Figure 1 illustrates the location of each forest village. The figure label refers to the forest village code in Table 1.

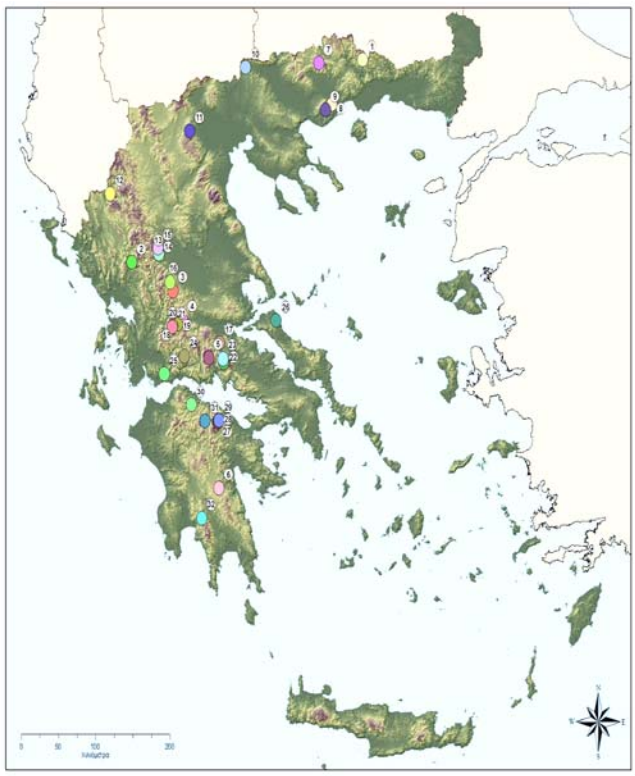

Fig. 1. *The location of each forest village in Greece, the figure label refers to the forest village code in Table 1*

Table 1

Name, code number, and accommodation data of each Forest village

Forest village code	Forest village name	Number of log homes	Number of beds
1	Erymanthos	12	60
2	Kedros	20	104
3	Dryades	20	80
4	Livadaki	20	80
5	Kapsitsa	20	80
6	AnoDoliana	20	80
7	Petalo resort center	5	37
8	Paggaio	2	50
9	Dionysus village resort	10	50
10	Dimitra palace	10	80
11	Sfendamos wood village	7	30
12	Villa rustica	8	32
13	Forest village the myth	12	48
14	Mountain inn	5	40
15	Wooden village	6	48
16	Wildlife	8	48
17	Tetrapolis guest house	4	18
18	Llikouresi village	9	36
19	Kedros	5	14
20	Agrotel Harmony	4	16
21	Natura chalet	5	20
22	Pliades village 1403m	8	40
23	Elatos resort & health club	40	200
24	Challetsxenios	11	50
25	Agrote Pinakades	8	32
26	Papades village	21	100
27	Ermis shelter	16	70
28	Naiades guesthouse	9	18
29	Hyades mountain resort	7	28
30	Agroville	4	32
31	Nymfes mountain resort	5	20
32	Alagonia country homes	6	24

The public forest villages are Erymanthos, Kedros, Dryades, Livadaki, Kapsitsa, and AnoDoliana. In each forest village there are about twenty wood frame homes or log homes which can accommodate up to eighty people, adapted to the natural environment and equipped with the necessary tools for the convenience of guests. Another issue regarding the areas where the forest villages are located is the poor infrastructure that does not meet the needs of visitors, and for this reason, significant investments were made for the improvement of access roads to the villages and of connections to the

electrical and water grid. At first, the forest villages were managed by the local Forest Service, but now they have been granted to the local Municipality. The local Municipality realized that the management of the forest villages should be placed in private hands, and especially in businessmen's hands that operate within the tourist industry. For that reason, several business people who wanted the management of a forest village were invited to an auction. This first implementation of forest ecotourism was successful because after many years since the first operation of the forest villages, many similar businesses were started in rural or forest areas. In Greece, we also admit that ecotourism as a sustainable form of tourism is experiencing a trend of rapid growth in the tourism industry [11], [25], [26], [29], [31], [33]. The forestry service with the forest villages were the beginning for the development of alternative tourism in the forests of Greece, offering accommodation in wooden lodges in the forest. In 20 years of operation, forest villages have acquired many competitors, as many individuals built their private wooden villages in areas close to forests or areas of ecotouristic interest. Researchers nowadays propose that government must make efforts to promote rural ecotourism, carry out reasonable planning and arrangements, and establish specialized organizations to support the development of rural ecotourism [21]. We believe that it is time to unite the public and private efforts of the forest villages into one network in order to have a common policy in a country for the development of eco-tourism. Table 1 shows the 32 public and private forest villages of Greece that make up the forest village network. Also in Table 1 is the number of lodges in each forest village with the number of visitors that can be accommodated. The promotion of alternative tourism in the forests of Greece and the promotion of Greece as an ecotourism destination in the international tourism market will offer employment opportunities for the local population and will change the perception that Greece is only sun and sea. Of course, as numerous researchers dealing with this issue have noticed, the tension arises between tourists' need for various recreational activities in protected natural areas and the need to preserve the environment [3], [5], [22]. In this study, we propose a new approach to strategic decision-making of ecotourism in Greece. We introduce the concept of forest village network for the planning and sustainable development of ecotourism in Greece. Also, the study contributes to the expansion of methodology in the field of ecotourism taking into account general trends and impacts on the use of forests for recreation.

2. Materials and Methods

SWOT (the acronym stands for Strengths, Weaknesses, Opportunities, and Threats) is a widely applied tool in the analysis of internal and external environments in order to achieve a systematic approach and support for strategic decision situations [10, 15]. The internal and external factors most important for the enterprise's future are referred to as strategic factors. In SWOT, these factors (called SWOT factors) are grouped into four categories called SWOT groups: strengths, weaknesses, opportunities, and threats. By applying

SWOT in a strategic planning process, the aim usually is to develop and adopt a strategy resulting in a good fit between the internal and external factors. SWOT can also be used when a strategy alternative suddenly emerges and the decision context relevant to it has to be analysed. SWOT is a qualitative (verbal-subjective) analysis technique. It is a field-based technique derived from observations and used to evaluate verbal data as well as to define problems and provide solutions for both internal and external issues [16], [23, 34].

The analytic hierarchy process (AHP) was initially developed by Saaty [27] and has been widely used for solving multiple criteria decision making (MCDM) problems. The basic formula of AHP has paired comparisons among each criterion, and the results of paired comparisons demonstrate the overall ranking in the decision task. Within this context, the DM´s preferences are established by following a "pair wise" comparison format with the help of a fundamental verbal scale. The verbal scale is presented in Table 3. The preferential weights at each level of the hierarchy are elicited from the mentioned pair wise comparison matrices. In this way, a final ranking of alternatives is obtained. AHP is based on the structure of the model, the comparative judgment of the alternatives and the criteria and the synthesis of the priorities [12]. One of the main advantages of this method is the relative ease with which it handles multiple criteria. The AHP approach includes three stages. First, a multi-attribute hierarchical structure is designed for the decision problem in hand. In the second stage, relative preferences of the decision, alternatives consideration are elicited by means of pair wise comparison. The input values should be checked for acceptable consistency. In the third stage, the output is a ranking which is prioritized indicating the overall preference of each of the decision alternatives [19]. Consequently, AHP can provide a quantitative measure of the importance of SWOT factors for this study.

The integration of SWOT and AHP methods, known as the A'WOT, was utilized in this study. The SWOT analysis has technical limitations due to its impreciseness and lack of a quantitative examination [20]. Thus, the SWOT-AHP hybrid method introduced with a SWOT analysis can improve its usability. When applying AHP, a hierarchical decision scheme is constructed by decomposing the decision problem into its decision elements. The structure of SWOT offers quite a natural decision hierarchy to be used.

The above definitions help to get a grasp of our application: SWOT groups refer to four entities (i.e., strengths, weaknesses, opportunities, and threats) and SWOT factors refer to the individual factors underlying these groups.

The analysis based on the SWOT–AHP hybrid method has been used in various areas such as energy, agriculture, and the machine-tool industry, but not in many cases for the tourism industry [18]. This study was carried out in 2017 and 2018 and it covered the 32 Forest villages Greece presented in Figure 1, all of which are in mountainous areas. The study followed specific steps that are presented. The first step was to locate and record the public and private forest villages in Greece. The second step was to record the location of each forest village (Figure 1), the number of log houses in each one, and the number of guests that can be

accommodated. The results are shown in Table 1. The third step was to interview the managers of all 32 forest villages in order to record the SWOT factors of each forest village and then find the common factors that all the forest villages have. The common SWOT factors are presented in Table 2. The fourth step was the application of the AHP comparison between the SWOT factors and the four SWOT groups. For this procedure, we used the forest village managers again to pair comparison the factors and the SWOT groups. The forest village managers evaluated the elements based on the values and definitions that are presented in Table 3. This procedure builds a pair-wise comparison matrix in a way that determines the relative priorities of the elements at a level to those in the following level. With eigen value–eigenvector calculations carried out in this matrix, the weights of the groups and factors were calculated. Also, the consistency ratio (CR) was calculated for the pair wise comparison and it was under 0.10. The CR is a critical value for the analysis, because if the CR is <0.10, then the ratio indicates a reasonable level of consistency in the pair wise comparison; if, however, CR is >=0.10, then the values of the ratio are indicative of inconsistent judgments [7].

Table 2

SWOT factors of the Forest Villages

	Strengths		**Weaknesses**
S1	Natural environment	W1	Distance from urban centres
S2	Forest Village Facilities	W2	Proximity to settlements
S3	Forest Village facilities equipment	W3	Inability to access by public transportation
S4	Proximity to tourist spots	W4	Not expandable
S5	View	W5	Bad winter weather conditions
S6	Hospitality / Friendly staff	W6	Inadequate awareness in the local community
S7	Open all year round	W7	Operating costs
S8	Unique experience		

	Opportunities		**Threats**
O1	Increasing interest in nature	T1	Economic recession
O2	Improving Forest Village Facilities	T2	Possible environmental degradations
O3	Better management	T3	Weak perception of Greece as an ecotourism destination
O4	Agreements with tour operators	T4	Increased in fixed costs
O5	Advertising	T5	Competition with similar business
O6	Positive consideration of ecotourism activities		

Table 3

The scale of relative importance

Intensity of importance	Definition	Explanation
1	Equal importance	Two factors contribute equally to the objective.
3	Weak importance of one over another	Experience and judgment slightly favour one over another.
5	Essential or strong importance	Experience and judgment strongly favour one over another.
7	Very strong or demonstrated importance	Experience and judgment very strongly favour one over another.
9	Absolute importance	The evidence favouring one over the other is of the highest possible validity.
2,4,6,8	Intermediate values	When compromise is needed

Finally, the calculation of the general scores of SWOT factors was made by multiplying the score of each SWOT factor by the weight score of the SWOT group in which the factor was included. By carrying out this procedure, one by one for all SWOT factors, the general weight score of each SWOT factor was calculated [13]. The above analysis was conducted for each forest village and then for the final table of the results (Table 4). The average value was calculated in order to have an aggregate table for the whole forest village network. Also, the percentages of each SWOT group and for every forest village are presented in Figure 2.

The TOWS analysis has been widely applied to identify strategies. Hence, according to the specific TOWS matrix, strategies can be developed, based on the identified strengths, weaknesses, opportunities, and threats [30-34]. Indeed, these strategies are created by maximizing the strengths and opportunities while minimizing the weaknesses and threats of the respective stakeholders. By applying each strength, weakness, opportunity, and threat together, development strategies were identified in four modes: SO, ST, WO, and WT.

3. Results and Discussion

The results of the pair wise comparison are presented in Table 4. Examining the weights of SWOT factors for each group shows that the factors related to the natural environment with 17.8% and the forest village facilities with 17.6% score are most important in the Strengths group. In the Weaknesses group the factors distance from urban centres with 17.8% and operating costs with 25.0% score are the most important in this group. In the Opportunities group, the highest priority factors are the increasing interest in nature with 26.0% and the positive consideration of ecotourism activities with 21.3%. The economic recession with 37.7% and weak perception of Greece as an ecotourism destination with 25.6% score are the most important factors in the Threats group.

The most significant factor in global weight is economic recession scoring in the global factor weight 9.1%. The strength group is the most important

among the four groups because it scored the highest fourteen times, with the second most crucial group, the opportunities, scoring thirteen times first. The threats group scored first only five times and none the weaknesses.

Table 4

Weight of SWOT groups and factors

SWOT group	Group weight	SWOT factors	Factor weight within group	Global factor weight
Strengths	**0.304**	S1	Natural environment	0.176
		S2	Forest Village Facilities	**0.178**
		S3	Forest Village facilities equipment	0.148
		S4	Proximity to tourist spots	0.109
		S5	View	0.150
		S6	Hospitality / Friendly staff	0.083
		S7	Open all year round	0.077
		S8	Unique experience	0.079
Weaknesses	0.169	W1	Distance from urban centres	0.178
		W2	Proximity to settlements	0.100
		W3	Inability to access by public transportation	0.092
		W4	Not expandable	0.162
		W5	Bad winter weather conditions	0.134
		W6	Inadequate awareness in the local community	0.082
		W7	Operating costs	**0.250**
Opportunities	0.287	O1	Increasing interest in nature	**0.260**
		O2	Improving forest village facilities	0.147
		O3	Better management	0.069
		O4	Agreements with tour operators	0.145
		O5	Advertising	0.164
		O6	Positive consideration of ecotourism activities	0.213
Threats	0.238	T1	Economic recession	**0.377**
		T2	Possible environmental degradations	0.050
		T3	Weak perception of Greece as an ecotourism destination	0.256
		T4	Increased in fixed costs	0.192
		T5	Competition with similar business	0.122

In the SWOT strengths group, the forestry facility indicator is the first among the hierarchical indicators of the possibilities with the second natural environment, the fourth is the fourth area equipment of the forest village facilities. Then in fifth place is the proximity indicator of tourist spots, in the sixth place the hospitable staff, in the seventh the unique experience of living in nature in a wooden house and finally the indicator function all year round. The facilities of tourist businesses with wooden houses are their great asset.

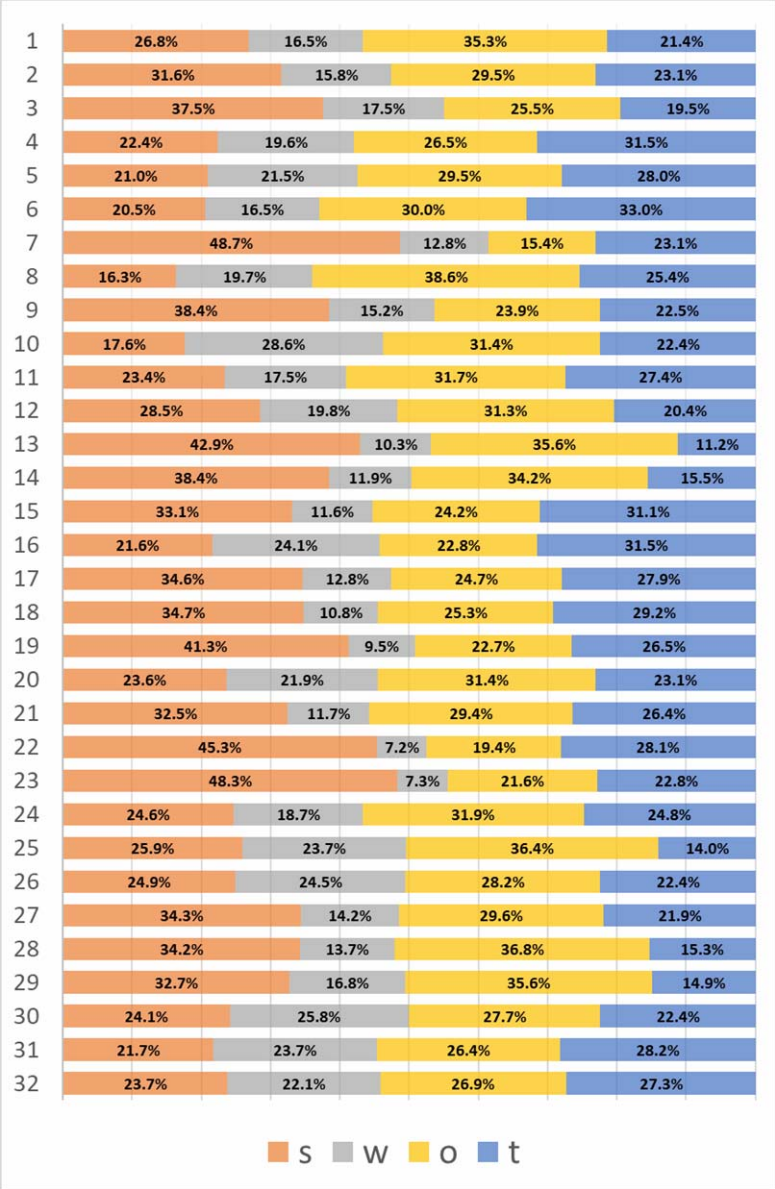

Fig. 2. *Percentages of SWOT groups for each forest village, the figure label refers to the forest village code in Table 1*

This is due to the maintenance of the facilities by the managers so that the visitors can always find them as new and enjoy their stay in nature. For the SWOT group of weaknesses, the operating cost of the forest village is first in the hierarchy among the weakness indicators. Second is the distance from urban centres and third the fact that it is not expandable. The fourth factor in the hierarchy is bad weather prevailing in the area in the winter, and the fifth factor is the proximity to settlements, the sixth is the impossibility of access by public transport, and at the end the indicator of insufficient awareness of the local community. High

operating costs are the major weakness of tourism businesses with wooden houses as the maintenance and heating costs due to the environment and the weather conditions exposed are increased.

In the SWOT group of opportunities, the indicator of increasing interest in nature is the first in the hierarchy, and the second, the positive view of ecotourism activities, while the third is advertising. The fourth is the improvement of the forest villages facilities, the fifth is the possibility of making agreements with travel agents, and finally of better management. The indicator of increasing interest in nature, that is ranked first by our group of opportunities, shows that there is an increased interest of visitors in their contact with nature and the relaxation and tranquillity that it offers them. Particularly notable is the fact that the indicator's second position is the positive consideration of ecotourism activities, as activities near nature attract more and more people who want to experience the unique experiences it offers.

In the SWOT threat group, the economic crisis indicator is the first among the threat indicators, the second is the weaker perception of Greece as an ecotourism destination, and the third, the increased fixed costs. The fourth hierarchical indicator is competition with similar businesses, and finally the potential for environmental degradation. The economic crisis is the most important of the threats, as it reduces the number of visitors to the forest villages and also the number of overnight stays in the forest, thus reducing the income of the forest villages. In overall weight, the most important indicator is the financial crisis of the threat group. The top five positions in the ranking are two indicators of threats, two of the opportunities, and one of the possibilities.

In Figure 2, we can point out that the positive elements (strengths and opportunities) outweigh the negative ones (weaknesses and threats) in most of the forest villages. Only in three forest villages with the code numbers 4, 16, and 31 (Livadaki, Wildlife, and Nymfes mountain resort), the negative elements prevail over the positive ones. Moreover, from Figure 2 we discern that in some forest villages the range of the difference between the positive and negative elements is very close in favour of the positive ones. But overall in the forest village network, the possibilities are the most important group and the opportunities are the second. It is clear that forest villages have the potential to attract visitors and opportunities for their future development with the creation of new forest villages.

The TOWS analysis in Table 5 helps us better understand the available strategic options and which options we could adopt.

Table 5

TOWS analysis

TOWS		**External factors**	
		Threats	Opportunities
Internal factors	Strengths	0,543	**0,592**
	Weaknesses	0,408	0,457

The matrix shows that the combination of opportunities and strengths has the largest sum, so the proposed strategies are ambitious. It is therefore easy to see that the ambitious strategies to be followed for the development of the forest village network should be based on the most important indicators emerging from the strengths and opportunities. Strategies should be based on increasing interest in nature and the positive consideration of ecotourism activities through media campaigns of the strengths of forest villages. The strengths of the forest villages are their facilities, as most of them are new, well maintained, and equipped with all the modern comforts of a tourist unit. The point that makes the difference in forest villages is the natural environment and the view to its visitors. In previous studies, researchers have applied the same methods to find the best policies for sustainable ecotourism development. As such studies could be found in which the SWOT analysis was applied to ecotourism problems. The study of Asadpourian et al. at (2020) evaluated the ecotourism strategies in Best Area in Iran by using SWOT-AHP-TOWS [30], the study of Akbulak and Cengiz (2014) evaluated the ecotourism strategy of the historical national park by using SWOT and AHP methods in Turkey [13]. The study of Demir et al. (2016) used SWOT and AHP for prioritizing ecotourism-planning decisions in protected areas in Turkey [32], the study of Akbulak and Cengiz (2014) attempted to set up ecotourism strategies using the A'WOT hybrid method in Turkey [13]. The study of Yeong-Ae Jeon (2011) used SWOT and AHP to develop strategic planning for a tourist destination in South Korea. The study of Arsić et al. (2017) used SWOT-ANP-FANP for prioritization strategies of sustainable development of ecotourism in a National Park in Serbia [3]. According to the literature, we found that many researchers used the same methods that we used in this study. Ecotourism is a type of tourism that considers many factors from all the components of tourism which includes tourists, hosts, environment, and even environmental conditions for future tourists and future hosts. These factors are identified and evaluated specifically for the areas that are appropriate for sustainable ecotourism development.

4. Conclusions

If developed sustainably and managed more effectively, ecotourism can have fewer negative environmental effects and lead to earnings for all the involved parts. The hybrid SWOT-AHP method improves the usability of the SWOT analysis and provides a quantitative measurement of the importance of SWOT factors. In this study, which calculated a composite index, it was revealed that the forest village network has great potential for further sustainable development despite the economic recession. The principles of sustainable ecotourism are promoted with this study, especially the holistic planning and strategy making. With the promotion of the forest village network and of a national policy, it is easier to confront the common problems that forest villages have. This new approach makes forest villages stronger to face the challenges as one. In forest villages, the positive elements outweigh the negative ones, with their potential, being the most important group of strengths and opportunities; it is clear that forest villages have the potential to attract visitors and

prospects for their development in the future by creating new forest villages. In a country with limited economic resources due to economic recession such as Greece, the development of sustainable ecotourism through a forest village network requires a strategic approach based on the principles of sustainable ecotourism that can lead to the continuous improvement of the economic sustainability concept. The SWOT analysis is a method commonly used in the development of ecotourism strategies and since the AHP technique handles quantitative criteria as well as qualitative criteria, the factors in the SWOT analysis can be assessed more reliably and in more detail. In addition, the A'WOT hybrid method obtained from the integration of AHP and SWOT enables decision-makers to scrutinize factors and examine the matter in depth. Strategic planning for a forest destination such as a forest village could be a challenging process since there are many possible strategies derived from the evaluation of the environmental, socioeconomic and institutional factors. Decision making without systematic approaches will result in less effective strategies for a destination. Furthermore, it is considered that the A'WOT hybrid technique combining the SWOT and AHP analyses is a useful and effective method for developing ecotourism strategies in forest and rural areas. Development of proper ecotourism strategies for the Forest Villages network is important in order to utilize them appropriately. The methodological achievement of this research will help other researchers select the indicators for determining the appropriate areas for sustainable ecotourism development of a new forest village, and its conceptual framework can help determine the stages for similar studies. We hope that forest village managers will use our results and understand that they have common problems, and create an organization. The proposed strategies are clear and we hope that researchers will use the research methodology and the extracted criteria in future research.

Certainly, future research should address strengthening the conceptual framework of the present research and the forest village network. Finally, the results of this study will help planners and the local people of these areas to plan appropriate policies, to improve the situation in those areas and to reduce the effect of their weaknesses.

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