IMPORTANCE OF ZEYTINTAŞI CAVE (SERİK-ANTALYA) IN TERMS OF ECOTOURISM

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Abstract

The rapid change in the world affects tourism sector as well as it does the others. As known, tourism activities carried out in Turkey are densely observed in Mediterranean and Aegean Coasts and they have been developed in accordance with mass tourism. However, attendance to mass tourism activities have been going down tourism has turned out to be a natural activity which is away from customary tourism centers and in which authentic values related to learning about new cultures. In this sense, caves have become the mostly interested ecosystems that can easily be demolished unless they are well administered. Moreover, most negatively affected caves are the ones which are near to the coastal regions and where the transportation facilities are easy. As a matter of fact, Insuyu and Damlatas caves have had these harms and they have lost their beauty as a result of dense visits and a cave administration which has not been planned carefully. In this sense, Zeytintaşı cave has a typical feature. Zeytintaşı Cave takes place in the 16 km north of the center of Serik—a town of Antalya; in the southeast of Akbaş Village and in the south slope of Zeytintaşı (Zeytintişi) Hill. Zeytintaşı Cave, opened to tourism in 2001, has been run by Serik Administrative District, Union of Service for Villages. It is satisfactory that Zeytintaşı cave sediments have not been destroyed (apart from a small part during the application of electrification project). However, location of the cave near Antalya-one of the world’s popular tourism region,-, convenient position and transportation indicate that it will take dense visits in the future. In this sense, sustaining Zeytintaşı cave to future generations without corruption of it in terms of ecotourism; preparing a well-designed administration plan and application of it have a great importance besides attendance and training of the local people.

Key Words: Zeytintaşı cave, ecotourism, local people

Introduction

The rapid change that the world has been experiencing is affecting the tourism sector, as it is affecting all other sectors. Attributing only economic meaning to the term development, the world set out on a journey, especially in the 18th century, by entering into a rapid development process with the Industrial Revolution today it has developed to such an extent that it threatens the future of all living things on a global scale. Countries consumed natural resources regardless of the environment and this process continued up to the 1970s, which were the years when the term “sustainable development” was first put forward. For the management of the tourism industry, which bases its existence totally on physical and cultural resources, the term “sustainable development” has been a necessity for all countries rather than an approach (Çavuş & Tanrisevi, 2000).

The recently growing argument about the potential and existing dangers of the tourism industry has resulted in the requirement for research into a tourism approach which is sensitive to the environment. Because of this issue, the term “sustainable economy” has arisen. “Sustainable Development”, which is gaining importance as the main agenda of today, became a major issue especially with the Brundtland Report which arose out of the Environment and Development World Commission in 1987. In the report, “sustainable development” is defined as “the development to provide today’s generation with their needs without putting the future generation’s own need into risk” (WTO, 1998).

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The United Nations Sustainable Development Commission declared 2002 as “International Eco-Tourism Year”, and within the activities of “2002 International Eco-Tourism Year”, the World Eco-Tourism Summit assembled in Quebec from May 19-22, 2002 under the leadership of the United Nations Environment Program. During the summit, a preparatory atmosphere oriented towards the development of eco-tourism activities within sustainable tourism was targeted, and focusing on the necessity of handling eco-tourism as a part of sustainable development, it was proposed as a solution for the development of and struggle against poverty in underdeveloped regions (Lee, Lee & Han, 1998).

Sustainable Tourism is defined as a development model in which cultural integrity, ecological processes, biological diversity and the systems which support life are maintained, and at the same time, one in which all the resources are managed so as to meet the economic, social and aesthetic needs of the residents and tourists of the region (Dinçer, 1996). It’s an experience of a journey into nature which requires responsibility and which is carried out in a way that is at least harmonious with the eco-system, by contributing to the conservation of the eco-system, being respectful of the existence and wholeness of native societies (Butler, Botd & Seeing, 1996). When we say “sustainable tourism”, the first type of tourism we consider is eco-tourism. Eco-tourism is a small-scale tourism model which doesn’t damage natural and cultural resources and is in fact based on them, while rejecting mass tourism (Soykan, 2002). However, the maintenance of eco-tourism is important in terms of supporting local development and bringing local people, authorities, tourism companies and tourists together (Björk, 2000).

The favorable changes experienced in the search for and understanding of tourism in developed countries has also affected Turkey in a positive way. Western tourists, who were influenced by the destruction of coasts in Mediterranean countries such as Italy, France and Spain and who became bored with the traditional sun-sand-sea holidays, have headed towards Turkey which has the same conditions, except for the spoiled coasts. Meanwhile, some tourists interested in new trends in tourism travel, and who like adventure tourism, eco-tourism, heritage tourism and so on, are coming to Turkey (Özgüç, 1998).

As is generally known, tourism activities carried out in Turkey are usually concentrated on the Aegean and Mediterranean coasts and have developed as mass tourism. As a result, an excessive amount of construction caused by tourism investments has developed along the coasts. This situation not only lessens the attractiveness of the coasts for tourists, it also makes the problems resulting from inadequate infrastructure a current issue. Furthermore, excessive construction and high population density have greatly damaged the natural environment of touristic places. Undoubtedly, this situation emphasizes the existing potential danger for the current and future success of tourism in these areas, as well as the obligation for managing the country’s tourism through new approaches (Çavuş & Tanrısevi, 2000).

The requirement of a tourism Model sensitive to the environment, has brought new types with it called: “Alternative Tourism”, compared to today’s traditional tourism type; “Soft Tourism”, compared to mass tourism; “Eco-tourism”, due to its sensitivity to the environment and “Conscious Tourism” owing to its particular characteristics (Doğaner, 1995). The Eco-tourism concept, which should be considered as a whole, is an activity that covers social and cultural activities and that also covers a broad range of other activities. The Ministry of Tourism evaluates eco-tourism under such headings as “plateau tourism”, “ornithology tourism” (bird-watching), “photo-safari”, “river sports” (canoeing-rafting), “farming tourism”, “botanic tourism” (plant observation), “cycling tours”, “horse-riding in nature”, “camping tourism”, “cave tourism”, “mountain climbing tourism” and “hiking”. In recent years, participation in mass tourism types has declined and has turned into an activity where you can be absorbed in nature in intact areas, meet different cultures and give importance to authentic values. Cave tourism is one of the sub-areas of eco-tourism.

**Cave Tourism**

The most important rock that creates the condition for a cave to form is limestone. The chemical compounds and the crack structure of this rock prepare a suitable environment for a cave to develop. Caves are usually formed along a fault, as a result of the chemically dissolving effects of acidic carbonate water on limestone (calcium carbonate) (Aygen, 1971).
There are many caves in Turkey because of its geologic structure. It's estimated that there are about 35,000-40,000 caves in Turkey (Nazi, 1989). The caves, mostly concentrated in Southern Anatolia, are scattered in different places in Turkey. Two-fifths of Turkey is formed by the dissolvable rocks suitable for the formation of a cave. It's thought that there may be more than 20,000 caves extending along these rocks lying in the shape of a mountain zone. Turkey, where only 1,200 of these caves have been examined, is listed as one of the top places in terms of its cave density, and is called “the country of cave paradise”(www.kultur.gov.tr). In this context, under “The Project of Archeological Settlements in Turkey” (TAY), an inventory of 2,327 caves in Turkey has been obtained.

Caves are used for two different purposes in tourism—visually and for sports. In Turkey, the first caves opened for tourism are located in the Mediterranean Region. The fact that limestone constitutes widely on Toros Mountains creates a great potential in terms of caves. In addition, it's presented as an alternative to sea tourism, as it's a touristic area with many tourists (Doğaner, 2001). The caves, especially the ones close to the touristic regions in terms of both time and economy, are very attractive to tourists because of their convenient locations (Ceylan and Demirkaya, 2006). Likewise, The Ministry of Tourism presents tourism as one of the primary purposes for cave use. However, in Turkey the effort to have caves gain touristic value is very new; therefore, their geo-economic potential have only been evaluated recently and they have been opened to tourism (Doğaner, 2001). In Turkey, with the opening of Insuyu Cave and Damlataş Cave in the mid-1960s, cave tourism began and today 16 caves are open to tourism. However, the number of caves available for tourist visits is greater.

Karst caves - with their air, fauna, inner-water, and most significantly uniquely beautiful variety of stalactites - are considered among the natural tourism attractions (Uzun & Zeybek, 1996). However, some of our caves have greatly lost their attractiveness for reasons such as misuse, excessive number of visitors, and lighting problems. Those caves located particularly close to touristic centers in terms of their travel time and economic distance are prone to (“the”) more damage. As an example, Damlataş Cave in Alanya is the most visited cave in Turkey due to its attractive features. This situation has brought the use of cave air for ‘speleo therapy’ to an impossible point (Doğaner, 2001). The same situation is true for the Insuyu Cave which is about 10 km from Burdur. The destruction of sediments in the cave, the arrangements in the cave and the drainage of the lakes in the cave (except for one), are all results of human activities and so, the cave has to a great extent lost its attractiveness.

Research carried out among those areas with natural touristic value and which have been damaged intensely, shows caves as being at the top (Ceylan & Demirkaya, 2006). In that study, our goal was to present some proposals about what should be done for sustainable cave tourism in Zeytintaşı Cave and for its importance in eco-tourism, by learning a lesson from the other caves which have greatly lost their charm due to human activities.

**Zeytintaşı Cave**

Caves have an important place among the touristic attractions of Antalya. One such cave is Zeytintaşı Cave, which is situated 16 km away from the Serik town center. The cave, which was accidentally discovered as a result of a gallery being opened artificially to open a stone quarry and which is formed as two storeys linked to each other. It has a total length of 233 meters.

1. **Location of the Cave**

Zeytintaşı Cave is located in the southeast of the Gökçeler District of Akbaş Village and is about 16 km north of Serik town center (Figure 1). Having been formed on the fault which lies in the northwest and the southeast, and on the southern outskirts of the hill; Zeytintaşı being on the ridge broken by (“the” removed) deep rivers, is between the Kocadere and Gökçeler streams, which are among the important arms of Köprü Stream.
The cave is reached by a road off the Antalya-Alanya highway and heading north from the Serik center. After passing Yukarı Üründü, Deniz Hill and Kızıllar Village in the north from the town center, you reach the Gökcüler District of Akbaş Village. By a secondary road leaving from the 16th kilometer of this road in the east, the entrance of the cave can be reached. The cave can also be reached passing through Belkis, Aspendos, Karataş and Akbaş Village along the west side of Köprüçay from the Alanya region.

2. The Characteristics of Natural Environment
Zeytintaşi cave is found between the Taurus mountain belt and Antalya Neogene basin. This area has been deeply dissected by tributaries named Koca and Gökcüler streams of Köprü River, all of them flow into Mediterranean Sea (Figure 21). The natural vegetation of the cave area is composed of red pine (Pinus brutia) and maquis communities. Maquis vegetation that can be considered as a secondary succession is common where Pinus brutia forest has been destroyed.

3. Formation of the Zeytintaşi Cave
This cave has been developed in the Mesozoic (Jurassic-Cretaceous) thick limestone of the Taurus Mountains. It is located along the fault line extending northwest-southeast direction. The fault line supports the dissolving of limestone for the formation of the cave. Ground water originating from the Taurus outcrops discharges along the fault line. It can be stated that the ground water and/or stream is responsible for the formation of cave (Photo 1).

The cave, having developed in the shape of a gallery at first, is divided into many small salons and rooms by its stalactites. The galleries, developing in the direction of the stratum, form thin-long salient (Anonymous, 1999). The inner formation of the cave still continues. In particular, Macaroni stalactites which develop very quickly and which are characteristic of the cave are indications of this and their formation continues as well. (Photograph 2)

The impermeable layer produces the gathering of the water for the discharge into the cave. The water dripping from the side walls and the ceiling during the wet season forms lakes and dripstone pools are seen especially in the upper part of the cave. The depth of the lakes can be 50 cm in some parts (Photograph 3). The water dripping from the ceiling enables the formation of “spaghetti stalactites”, which are the characteristic shapes of the cave sediment and continue to develop quickly (Anonymous, 1999).
Figure 2. Topographic Map of the study area

Photograph 1: The fault steps in a northwest-southeast direction, forms Zeytintaşı Cave from northwest to southeast.

Photograph 2: A view of the “spaghetti stalactites”, the main characteristic of the big salon in Zeytintaşı Cave.
The formation time of the stalactites, which are as thick as macaroni, is determined to be about 200 years by the MTA experts who carried out the cave’s electrification project. The gallery opening at the tip of the cave, which has a hot and humid air (average temperature is 23°C, relative humidity 70%), is not able to maintain the circulation of air between the inner and outer parts of the cave and for this reason the air is trapped inside of it. Between the upper and lower floors of Zeytintaş Cave, which is formed as two storeys, there is a 10 meter height difference and a clear difference in humidity and temperature. This climatic feature enables the ongoing development of macaroni and other stalactites to take place and keeps them vivid.

The macaroni stalactites, which can be seen in every part of the cave and whose height can reach half a meter, mostly form in the big salon and are the most interesting shapes in terms of formations in the cave. The continuing development of these stalactites in the big salon, also known as “spaghetti salon” is its most distinctive feature and distinguishes this cave from the others. On the other hand, the small ponds forming among the large columns make the cave much more interesting.

Zeytintaş Cave, composed of two storeys linked to each other, has a total length of 233 meters. Only the upper storey of the cave, whose implementation project was completed in 1999 and was opened for tourism on 14th February 2002, has a length of 136 meters. However, the lower storey which is 97 meters long was left out of the implementation. These two storeys are linked to each other with a 10 meter collapsed well. The width of the lower storey, whose ceiling height varies between 0.5 and 7 meters, varies between 0.5 and 8 meters. The lower part, with an average of 12 meter elevation difference when compared to the entrance part with an elevation of 233 meters, couldn’t be deepened because of its impermeable units lying beneath the limestone. The lower storey, which is linked with the upper part by a natural well, hasn’t been opened to tourism lest the in-cave sediments be spoilt, and was left out of the project.

Photograph 3: The dripping water from the side walls and ceiling in wet periods and especially the lakes and dripstone pools in the upper floor of the cave add very interesting images.

Photograph 4: A view of the social facilities at the entrance area of Zeytintaş Cave. Built as three parts, it consists of a shopping unit, a box office and a tea house.

4. Caves Sediments and Their Importance

The features making a cave attractive, apart from the complete darkness of its cavities, are undoubtedly the travertine sediments developing in them. Among these, the most widespread ones are stalactites, stalagmites and the columns (Güldalu, 1983). In addition to the sediments housed in Zeytintaş Cave and their continuing formation, their not having been damaged is a very important feature which differentiates it from its counterparts.
Although the cave has two storeys, depending on the stratigraphic location, it indicates a single-period development characteristic, and the inside of it is covered with colluvial material and stalactites (Figure 2). Although rock fall materials are more abundant in the lower part; stalactites, stalagmites, pillars and stalactites formed by covering drippstones are all more concentrated depending on the water drops dripping from the cave’s ceiling. Among the columns dividing the cave into small rooms, there are small ponds whose depths can reach half a meter in some places.

5. Human Environment Features

The architectural and electrification project of Zeytintaşı Cave has been completed by the Cave Research Project group, which is connected to MTA Directorate (1999), and was taken under protection by being declared as a first degree protected area. The cave is run by state authorities in Serik. The social facilities at the entrance of the cave are run by the Akbaş Village. The social facilities, which were built in three parts and one storey, and 15 meters away from the cave’s entrance, consist of a shopping unit, a box office and a tea-house (Photograph 4).

![Figure 3: The Plan of Zeytintaşı Cave (Lower and Upper Storeys)](image)

The cave is toured accompanied by a guide and in the event of a group visit it's visited by forming 8-10 person groups. After the visits the door is closed, in order to maintain the humidity and temperature (“of” removed) inside the cave. In particular, with the spaghetti stalactites being very thin, they are vulnerable to damage. Because the salon and the galleries are too narrow, reaching the sediments may be easy. On the other hand, we have visited the cave several times with student groups and limiting the group numbers touring with a guide escort, prevent the probable damage to the formations. We assume that intense visiting, likely to take place in the future, can be overcome by an understanding of cave tourism which is distinct from commercial concerns; a manager who has adopted sustainable cave tourism; and a guide, who along with visitors, has a high level of education and awareness.
Conclusions and Suggestions

Zeytintaş Cave is one of the prominent caves in Turkey with its diversity of stalactites formations. In particular the spaghetti stalactites, which cannot be seen very often in the other caves of Turkey that were opened to tourism, makes Zeytintaş Cave a special one. Moreover, the fact that its stalactites continue their formation makes it a laboratory, and this enhances its importance for the conservation of this cave.

The inner sediments of the caves open to tourism in the country have been spoilt due to conscious, unconscious or even obligatory reasons such as the exploration and lighting of the cave. In this context, it’s pleasing that Zeytintaş Cave has just opened to tourism and the sedimentation of the cave hasn’t been spoilt yet (except for the very small part of it during the electrification project’s implementation). However, being that the cave is located in the Antalya Region, one of the most remarkable tourism centers in the world, its convenient location and available transportation present the likelihood of having intense visitation in the future. During these intense visitation periods, in order not to spoil the cave’s inner sediments, it’s crucial that the visitor’s profile be well-defined and that the groups’ numbers not be excessive, purely for the sake of earning money.

The cave is situated within the borders of Akbaş Village of Serik Town, and the social facilities at the entrance of the cave are run by Akbaş Village. The return of the revenue to the village people will contribute to their understanding of protection and increased welfare. Yet, it’s a big problem that the staff working in the social facilities run by the Mukhtar, doesn’t have any experience in tour guiding and tourism management.

The inner-cave is run by the Serik Town Administration and there are 3 staff assigned to the cave and working periodically, but these attendants are not experts in their work. In this context, we are of the opinion that tourist guides who know cave eco-systems well are needed. In addition to these guides having knowledge of the formation of the caves’ eco-systems and their progress, they need to be well-educated in several languages so they are able to communicate with tourists effectively and protect their security well (Ceylan and Demirkaya, 2006).

As mentioned above, Zeytintaş is one of Turkey’s best protected caves. It’s pleasing that the cave is visited by groups of up to a maximum of 8-10 people and they are accompanied by a guide in order not to spoil the cave. However, the making of “a cave management plan” is needed for the likelihood of intense visitation in the future and to determine the cave’s capacity (Bayarı, 2004).

The cave’s sediments are too close to the visitors’ path. This shows that in case of intense visitation in the future, the cave’s sediments might be damaged. Likewise, the inner-cave sediments can be reached easily in every part of the cave. We think that a precaution plan is needed for the Zeytintaş Cave. In this context, the “spaghetti salon”, where there are spaghetti stalactites and which are the most specific features of the cave, is the area of first priority requiring protection. Therefore, the visitors’ profile should be determined well, and the visits should be organized according to the visitors’ group size, their education level and age.

Zeytintaş Cave is a two-storey cave and only the upper storey has been opened to tourism. The lower part has been left out of implementation. However, we hope that the lower part will not be included in the project due to pressure from tourism in the coming years, because this part is more prone to damage as it is narrow and short. We think Serik Kaimakam has a large responsibility in this issue.

The Ministry has authority only over the “Tourism Centers” and over the usage of cultural and natural values, which are in the “Culture and Tourism Conservation and Development Regions”. In Turkey, there isn’t an official arrangement concerning the caves as of yet. For this reason, no institution has direct authority over this matter. Although the caves are among the most valuable natural monuments, instead of regulations directly putting the caves under protection, their protection is included in the natural richness of the Environment Law of Natural Wealth Protection. The caves must be taken under protection by declaring them as natural monuments or sit areas (Doğaner, 2001).

The Ministry of Tourism doesn’t take the scientific aspects of a cave into account while classifying them in terms of tourism. According to the Ministry, being 2 hours away from touristic centers is enough for a cave to be opened to tourism. This classification, having no
scientific basis, is completely commercially based. From this point of view, it is a priority that a scientifically based classification of our caves must be completed (Anmak, 1993).

It is cited by the Ministry of Culture and Tourism that these natural resources, whose formation has lasted millions of years and which cannot be replaced in a short period of time, need to be protected. Furthermore, while they are opened to tourism, a project must be prepared for the inside and outside of caves, in order to save their ecological balance (www.kultur.gov.tr). However, this usually includes the project phase until the cave is opened to tourism and the protection of the environment outside the cave, whereas the real important one is the situation after the project phase. Therefore, it's obligatory to make a management plan for sustainable cave tourism and to make the legal arrangements for the protection of the sediments inside a cave.

References