



## Views on the Effects of Nature-based Tourism Activities on the Environment: The Case of Fairy Chimneys Tourism Region (Turkey)

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### ABSTRACT

The Fairy Chimneys Tourism Region (FCTR) is located in a historical geographic region called Cappadocia in the central part of Turkey. Cappadocia, with its rich history, natural and cultural attractions, is one of the most visited places by domestic and international tourists and its most important attraction is fairy chimneys. In addition to its natural attractiveness, it has important tourist attractions for cultural and faith tourism. The region also offers a wide range of nature-based tourism activities. Qualitative research methods were used in the study and semi-structured interview technique was used. The study was conducted in Nevsehir province in Turkey. In the research, the following main results were obtained. With the nature-based tourism activities, the duration and expenditures of the tourists have increased. Almost all of the respondents (except balloon business) stated that nature-based tourism activities adversely affect the environment. There are different opinions about the rate of negative effects of sportive activities for tourism purposes on nature and which activity is causing more harm. Those who earn direct income from an activity generally report that there is little or no loss. Problems were identified such as unplanned and uncontrolled activities and lack of legislation. The sector lacks specialized tour guides to work in nature-based tourism activities in the region. Efforts should be initiated to develop and implement new tourism policies in order to ensure long-term sustainable tourism development in the region that does not threaten its future. It should be ensured that all stakeholders work in cooperation.

## 1. Introduction

The number of studies dealing with the negative effects of tourism is also increasing although they are not as many as the studies dealing with the positive effects of tourism. The studies on the negative effects of tourism are increasing because the understanding of increasing the tourism activities threatens its future.

Especially the negative effects of mass tourism on the environment and necessity of the protection of natural and cultural attractions caused the emergence of sustainable tourism concept which aims long-term and continuous use of the touristic attractions. The idea of sustainable tourism has led to discussions regarding the types of tourism such as alternative tourism, ecotourism, green tourism, nature tourism all of which are often used interchangeably. Although mass tourism is still predominant in today's world, alternative tourism is becoming increasingly important.

Requirements of alternative tourism have increased the demand for nature-based tourism. Thus, nature-based tourism has become an important and rapidly increasing part of the world tourism industry (Wright, 1996; Lindberg, Epler Wood, and Engeldrum, 1998). Nature-based tourism which is closely related to sustainability is an eco-tourism that aims to make a significant contribution to the protection of natural and cultural resources and to minimize the adverse

effects of tourism and then encourage development at the local level (Christ et al, 2003).

Today, nature-based tourism activities which are the fastest-growing elements of tourism (travel or trip to the national parks, protected areas, wildlife areas etc.) have mostly concentrated in the developing countries (Olson et al, 2001; WWF, 2001; Christ et al, 2003). Nature-based tourism is also important in the developing countries. In such countries, there are migrations from rural to urban areas because of the economic conditions in rural areas. Therefore, it is significant to note that nature-based tourism provides employment opportunities in rural areas (Weaver, Faulkner, and Lawton, 1998).

However, the increase in nature-based tourism activities brings along many risks and pressure on the resources. This risk may cause the degradation of ecosystems of destinations and adverse effects (water pollution, drainage disorders, soil erosion, pollination, crushing, deforestation, limiting or damage to the living things in the nature, biodiversity loss, etc.) on the resources (clean water resources, soils, natural vegetation, wildlife, etc.). It is stated that some activities such as hiking and trekking also damage such as crushing, jamming and drying on the soil conditions and the natural vegetation depending on the frequency of these activities, the number of participants, season, spatial distribution and

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behaviour of participants etc. (Cole, 2004). Briefly, nature-based tourism may cause destruction or damage to the resources.

The Fairy Chimneys Tourism Region (FCTR) is established in a historical-geographic region called Cappadocia that is located in the Central Region of Turkey. Since Cappadocia has rich historical, natural and cultural attractions for domestic and foreign tourists, it is one of the most visited areas.

Fairy chimneys (see Image 1 and 2) are the most important attractions of Cappadocia (Yılmaz and Günay, 2013).

Cappadocia has significant potential for alternative tourism. Carved out volcanic tufa was used as a church, monastery and residential area (see Image 3). So this area constitutes an important tourism attractiveness in terms of nature tourism as well as cultural and faith tourism. Wide variety of nature-based tourism activities are also organized in the region.



**Figure 1.** Location of the study area

Riding tours in the valleys of the area (starting from half an hour up to 10-12 days), canoeing in the Kızılırmak River, ATV trails and jeep safari tours in certain trails, scooter trips with guided and escort vehicle, orienteering between valleys, hot air ballooning in Göreme National Park is determined by the Civil Aviation General Directorate are organized in FCTR. Mountaineering, mountain biking, trekking and camping are other nature-based tourism activities in the region. It is observed that the demand for sports activities for tourism purpose will increase in this area as a result of the newly introduced activities (Orman ve Su İşleri Nevşehir Şb. Md., 2013, p. 34). In addition, it is expected that nature-based tourism activities have negative effects on the environment.

As in the other parts of the world, the demand for nature-based tourism is increasing rapidly in Turkey. The main purpose of this study is to determine the tourism professionals' opinions on nature-based tourism activities in FCTR through a sustainable tourism perspective. The sub-problems of the study are as follows;

1. Do the effects of nature-based tourism activities on the environment vary according to the type of activity?
2. How is the tourist profile who participates in nature-based tourism activities?
3. What are the problems encountered in practice regarding the nature-based tourism activities?
4. What are the recommendations for reducing the damage of nature-based tourism activities on the environment?
5. Do the views on the effects of nature-based tourism on the environment change depending on the field of operation?



**Image 1.** Variety of Fairy Chimneys a



**Image 2.** Variety of Fairy Chimneys b



**Image 3.** Volcanic Tufa Area of Cappadocia

## 2. Method

In this research which aimed to determine the tourism professionals' views on nature-based tourism activities in terms of sustainable tourism in FCTR, qualitative research methods and semi-structured interview technique were used.

FCTR is chosen as the universe of the study in Nevşehir province of Turkey. The research data were collected in Nevşehir from October 25 to 30, 2014. Convenience sampling method was used in the study. In this research, the enterprises engaged in nature-based tourism activities were used. And the enterprises which do not get direct income from the nature-based tourism activities were also included in the research.

Codes were used for the participants. Information about participants, jobs, the field of operations and education levels belonging to the participants whose opinions are reflected in this study are shown in Table 1.

Three of the participants expressing their views in this research do not generate revenue directly from the nature-based tourism activities. One of the participants is a representative of tourism agency that organizes nature-based tourism activities, one of them is a member of a company that provides all activities for the tourism agencies, one of them is a representative of a company specialized in the equestrian field, three of them are representatives of hot air ballooning company and two of them are hot air balloon pilot instructors who derive income from nature-based tourism activities. Most of the respondents graduated from university.

First of all, an unstructured preliminary interview was conducted with a person who does not get direct income from the nature-based tourism activities by one of the researchers. Subsequently, the obtained data were transcribed, and so the interview subjects were determined. Themes of the subjects were personal information, the environmental impact of the nature-based tourism activities, tourist profile, experienced problems and stakeholder views to reduce the adverse impact on the environment. The created interview form was used during the conversation. All participants permitted the video or audio recording.

For the analysis of qualitative data, primarily audio and video recordings were converted to text without any changes. Two audio recordings were examined and approved by a specialist. By content analysis, an interview coding key was created. Data were coded according to that key. Another researcher coded again the text of the two recordings. Thus the reliability was calculated. Reliability rate of this study was 97% (Reliability: consensus/consensus+difference of opinion, Miles and Huberman (1994) cited by Kaya, 2012, p. 1003). Then findings were obtained and interpreted.

## 3. Findings

### 3.1. Contribution of nature-based tourism activities to the regional economy

Sports events for tourism purpose have been offered to the market since the late 1980s in FCTR. Formerly there was a marketing system based on shopping for great tour operators in this area. During this period, tourists participated in panoramic tours in the region. Four of the participants who contributed to the research with their opinions stated that tour operators have been earning hefty sums from the sale of these activities, thus some of the tour operators have added these activities into their tour programs. All participants except two explained that duration of their stay extended with the activity tours in this area, income has increased, tourists have had more sightseeing alternatives, more fun, and they have known this area more. Participants' opinions on this issue can be exemplified as follows;

P1: *"Tourists who plan to stay in the area for a long time have known the activity tours before coming. Thousands of people are working in this sector and tens of thousands of people have been earning their life from this sector".*

P2: *"We have no problem except protectionism, everyone has earned money in the area. Certainly, there is no employment problem. We even cannot find the staff to run the business."*

P8, *"1300 people work in only hot air ballooning sector".*

**Table 1.** Personal Information of Participants

Participant	Job	Field of operation	Education level
P1	Activity provider, company coordinator	Nature-based tourism activity	University
P2	Hotel manager	Accommodation and souvenir sector	Secondary school
P3	Member of Nevşehir Guides Chamber	Tourist guide	High school
P4	Horse breeder	Nature-based tourism activity	Secondary school
P5	Retired guide	Tourist guide	University
P6	Balloon company manager	Nature-based tourism activity	University
P7	Instructor	Hot air balloon pilot training	University
P8	Academician	Vocational High School	University
P9	Tourism agency manager	Nature-based tourism activity	University
P10	Balloon company manager	Nature-based tourism activity	University
P11	Balloon company manager	Nature-based tourism activity	University

P10: *'Tourists coming for religious tours also have been attending the balloon tours. Some tourists have come just for the balloon tour. Balloon tours increase the number of tourists coming here.'*

### 3.2. Tourist profile involved in the nature-based tourism activities

All of those expressing their views in the research noted that mostly foreign tourists are interested in nature-based tourism activities. Guests from all nationalities have fun. In terms of tourist profile, the tourists attending the nature-based activity programs can be classified. Short tours or programs that are mostly for amateurs. Tourists interested in adventure sports participate in a day or longer-term programs. There are 200 different programs designed for all kinds of groups, ranging from 4-year-old children to the 80-year-old man or from beginner to professional. Although the entertained age group is between 18-45, especially elderly professional rider guests are also hosted. The number of tourists participating in nature-based tourism is continuously increasing. Related to the customer profiles;

P1: *'We entertain guests from all nationalities on canoeing, riding, ATV, etc. Especially Europeans prefer riding horse. Asians mostly prefer tours with scooters. This year the domestic tourists also attended a lot.'*

P4: *'There is a demand from almost every country but mostly foreigners prefer our activities. Mostly young people (aged 20-40 years) are coming. 60% of our customers are beginner. We train some horses for beginners. We first give a bit of training to our guests. Professionals want to ride a horse for a longer time and by camping.'*

P9: *'Overall we are working with the European market. People are bored with classical tourism. They have dedicated themselves to nature tourism. In particular, the number of tourists who come to join trekking, mountain biking, horseback riding, cycling has increased and continues to increase. We usually serve those aged between 18 to 45. People who constantly ride can also come at the ages between 65-70.'*

The representatives of all hot air balloon companies stated that they entertain people from all nations and guests from all ages. As in other activities mostly foreign tourists are interested in hot air ballooning.

### 3.3. Effects of nature-based tourism activities on the environment

Due to the acceleration in erosion in nature, jeep safari and ATV tour trails have been limited and motor vehicles entrance has been forbidden to the valleys by Nevşehir Governorship. Nevşehir Trails Setting Commission has identified the areas of ATV and jeep safari trails (Nevşehir Valiliği, 2014) according to the regulation for the Sports Activities for tourism purpose (Resmi Gazete 2011). However, 45% of the participants state that (P1, P2, P3, P4 and P9) the greatest damaging activity is hot air ballooning. These individuals indicated that each day 500-600 vehicles are entering the valleys in connection with the hot air ballooning. They prove their claim that these vehicles are accelerating the erosion in the valley and everybody can easily understand this case from the dust clouds every morning and this dust cloud is coming down on the city of Göreme National Park. Three of the participants stated that (P2, P3 and P4) in particular, because of the volcanic terrain, the effects of this dust cloud on the health of the local population should be investigated. Three of them (P2, P3 and P4) stated that the damage of the gas from the balloons needs to be more carefully studied for public health. According to this person, drying trees in the

valley, the extinction of some bird species and vineyards are an evidence for the damage caused by hot air ballooning on the environment. The opinions expressed with this regard can be illustrated with the following sentence:

P1: *'The entrance of motor vehicles is banned to valleys. Every morning 500-600 vehicles are allowed to enter the valley in connection with hot air ballooning because hot air ballooning is a million-dollar sector. It has been discussed for days where horses would pass through the valley. Damage of the horses on the region is very little compared to the other activities.'*

P2: *'Hot air ballooning has begun to slaughter nature. You cannot see the birds in the valley anymore. Local beautiful birds called "sarıkanat" are extinct. While living things in the region are still asleep at the very early hours of the day, tens or hundreds of balloons rise in the valley. These animals do not live there anymore. Balloons land wherever is empty. Thyme plants in the hills have disappeared.'*

P3: *'Our aim is to protect the region while we are earning money with it. Environmental board decisions should not be valid only for ATV tours. All jeeps are entering into the valley while balloons are in the air. Erosion in nature should not be accelerated by man.'*

P4: *'If I released my horse in this land and if my horse broke a vine tree, it would be a big problem. While hot air balloons are landing, they may break hundreds of vine tree. Once upon a time there were grape, apple and pear orchards on that flat land you see. There is a picture, I can show you. Because of balloon gas coming down we cannot eat apples or pear. Nobody cares for them. Dust covers the top of all fruits. In the past, we could eat our grapes without washing.'*

On the other hand, hot air balloon company representatives stated that this activity did not give any harm to the environment. For example, P6 explains that as "we are very careful about the landing area, we prefer main or stabilized roads for our vehicles. This is important for the availability of the vehicle for a long time. In the last stage, we get off the road and enter the land 20-30 meters, then we take the balloon. P11 added saying that the gas from balloons does not have a negative impact on the region. Scientific studies have also been made.

### 3.4. Suggestions for reducing the effects of nature-based tourism activities on the environment.

P2 and P3 who do not earn any income directly from hot air balloon activities, advocate radical decisions to be taken for sustainable tourism. Their suggestions can be summarized as follows:

- Removing hot air balloon landing and lifting-off activities from the National Park.
- Distributing 100 hot air balloons to different regions by broadening the flight space.
- Allowing hot air balloons to lift off from outside the National Park but to fly over the National Park.
- Reducing the number of hot air balloons lifting off from the region of the National Park.
- Increasing the number of flight fees flying over the National Park Region.

According to them, if put into effect, these suggestions will increase the duration of accommodation, and will increase the total amount of income by using less hot air balloons.

P2: *'Due to the developments in nature-based tourism, as well*

*as the increase in the activities and the income, it is wrong to suggest that deformation is inevitable. The objective should be to avoid accelerated deformation. How can we ensure sustainability? I tell you the situation for the next 50 years: There will be no natural vegetation left in the area. There will be no trees left in the valleys. There will be no endemic species left in the region.'*

P6 and P7 underline that determination of the regions for landing and lifting off and also removal of these activities from the National Park cannot be implemented due to some technical reasons. According to them, since Göreme region has the best scenery, hot air balloon flights cannot take place anywhere else.

*P6: 'Balloons are not high-tech vehicles. You cannot simply take off from a region outside the park and fly to any destination you want with hot air balloons. The Civil Aviation Authority determines the regions for lifting-off and landing.'*

*P7: 'It is impossible because of two reasons. It is not possible to land on a different place without getting a lower altitude and meanwhile approaching the destination, after lifting-off from a distance of 5 km. This is because hot air balloons do not have a target-actuator, which is the first reason. Another reason is that weather conditions are not the same everywhere. Göreme Valley, where all flights take place, has very different meteorological characteristics. The wind is stable mostly. Sometimes, it is possible to lift off from an outside region and to arrive at the region. However, this cannot be continuous. In addition, the utmost visual attractions are available around this region.'*

P11 said that balloons have only vertical movement control, but no-horizontal movement control. Balloons lift off from a place where the wind will take you to Göreme or if the weather is not windy, then they lift off from Göreme region.

P3 suggests that the jeep safari tours can be performed in Karadağ region (in this region there are 12 monuments built by an Australian Artist) or in the eastern Cappadocia region where there are less fairy chimney formations compared to other regions.

P4, P2, P5 and P3 have made some suggestions: Restricting the number of vehicles and tourists entering the National Park; Managing Göreme National Park just like other national parks; not allowing mass tourism in the region and instead supporting ecotourism and rural tourism.

*P4: 'We have to get rid of mass tourism. Because tourists come and view sceneries over the valley-region with hot air balloons just for one day. There are other places which tourists can visit and which are within walking distance such as historical churches and caverns. But they ignore these important historical sights. They not only learn nothing about the daily lives of locals who lived in ancient times but also they do not interact with the local culture. Next day, they travel around on tours with the supervision of a guide. Previously, the tourists were interacting with the women who sat in front of their doors, wove handmade carpets, prepared winter food in front of their doors, or interact with the people who made grape-molasses, hanged grapes for drying, etc. But now, there is nothing to see, all those nostalgic sceneries and folklores are almost gone.'*

*P5: 'The number of tourists who visit Cappadocia should not be as much as those who visit Antalya. If everyday 5 to 6 thousand visitors get into these historic rock churches, the humidity which is a direct result of respiration will damage wall-pictures and may lead these pictures to vanish within*

*40-50 years. There are similar examples of this all around the world. You can build one or two imitation museums by copying the original Göreme Museum. People can visit the imitation museums at lower fees. But, the people who would like to visit original museums should pay higher fees.'*

*P4: 'Participant stated that they can plant several thousands of trees every year as the hot air balloon business generates a high level of income. P2 proposed that all the roads on which the motor vehicles run to accompany the hot-air balloons be sprayed with water every morning to avoid road dust.'*

*P9: 'If they do not allow motor vehicles, not even a single hot-air balloon will lift off from this valley. There are 27 hot air balloon operator companies which conduct business in the region. It will affect Jeep Safari Tours. Millions of dollars and euros of revenue will be lost. Thousands of people earn their income through hot air balloon flights. They have to make a decision by taking into consideration the realities of the region.'*

*3.5. The views of the people (based on their occupation in the tourism sector) regarding the impact of nature-based tourism activities on the natural environment.*

The people who do not generate income from hot air balloon business, stated that those activities are most harmful to the natural environment in the valley-region, due to the motor-vehicles following hot-air balloons. In addition to the above statement, the people who generate income indirectly from hot air balloon business and even some people who generate income directly from nature-based tourism business shared similar opinions and thoughts. However, the people who generate income directly from hot air balloon business, shared their views which were contrary to those who did not generate direct or indirect income from hot air balloon business. Hereof, the views and thoughts of P6 (who is a representative of hot air balloon business) can be given as an example. He says "we do not think that we have done much harm to the natural environment". The hot air balloon operators are not harmful, but the jeep safari and the ATV tour operators do the most harm.

#### **4. Discussion and Conclusion**

FCTR has the greatest potential for nature-based tourism activities with its rich natural and cultural resources and biodiversity (Orman ve Su İşleri Nevşehir Şb. Md., 2013). Sporting events for tourism began in the late 1980s. Major nature-based tourism activities include horseback riding, ATV, canoeing, mountaineering, camping, orienteering, hot air ballooning, mountain biking, trips with scooter, trekking, camping, etc. in the region. Sports activities for tourism have gained considerable importance and are expected to continue its growth. This situation has led to two results. First, the contribution of tourism to the region's and the country's economy has greatly increased. The longer length of stay and expenditure by tourists have led to an increase in the revenues of tourism operators and tourism-based business opportunities in FCTR, the fourth most visited destination in Türkiye. About 12-13% of total work-force are employed in the tourism sector in FCTR (AHİKA, 2013). This situation is also attractive for new tourism investments (AHİKA, 2014). Second, the increase in the number of tourists, length of stay and tourism activities have accelerated the deterioration of the natural environment. Although there are a lot of areas that can be used for nature tourism, some problems have been identified for such an activity, such as lack of infrastructure, promotional activities and legislation as well as unplanned and uncontrolled activities in FCTR (Orman ve Su İşleri Nevşehir Şb. Md., 2013, p. 34). However, the effects of such activities on the environment have not been studied yet.

The main purpose of this research is to determine the opinions of tourism professionals on nature-based tourism activities in FCTR from a sustainable tourism perspective. For this, tourism professionals were interviewed in FCTR in 2014. Qualitative research methods were used in this study.

Except for those active in hot air balloon businesses, nearly all of the participants shared the view that nature-based tourism activities had an adverse effect on the environment. Hot air ballooning is one of the activities that has negatively affected the natural environment. Despite seasonal variations, many balloons are flown every day in the region. It is argued that as a result of hot-air balloon take-off and landing in Göreme National Park, gas exhaust from the balloons and clouds of dust cause extinction of vineyards and fruit trees in surrounding valleys. It is reported that some plant species (thyme etc.) and animals (especially species of birds such as sarıkanat) ceased to exist in the valley. An increase in the soil erosion was also mentioned, which was believed to occur because of the 500-600 moving vehicles as part of the balloon tours, jeep safaris and ATV tours. Due to the semiarid climatic conditions and volcanic nature of the land in FTCA, the region is open to the effects of desertification processes (Türkeş, 2005). It should also be remembered that increasing the number of tourists and their length of stay can threaten the natural and cultural resources.

The studies investigating the negative effects of nature-based tourism activities underlined the following types of damage: changes in the behaviour of animals and birds, damages to the habitat, soil degradation and soil erosion, more sensitive vegetation and its destruction, and decline in biodiversity. Long-term negative effects of these kinds of activities cause permanent damage and the extinction of some species (Wong, 1998; Newsome et al., 2005; Tapper, 2006; Cole, 2004). Such research results confirm the observations of the participants.

Except for representatives of hot air balloon business, all of nature-based tourism event organizers noted that there were some problems, such as lack of regulation and ad-hoc application. Tourism activities have been unplanned and uncontrolled because Tourism Sports Board in Nevşehir Province has not been established yet. In addition, there is a lack of specialized guides on nature-based tourism activities. Tourist guides should be required to gain expertise in nature-based tourism activities. On the other hand, the development of nature-based tourism activities can be considered as an opportunity for the revival of some traditional crafts.

Participants who did not generate direct income from this kind of activity argued that radical decisions should be taken to ensure sustainable tourism. They indicated that take-off and landing area of hot air balloons must be removed from National Park. But, hot air balloon business representatives and pilot trainers disputed this view due to some technical reasons. The participants who did not generate direct income from nature-based activities added that a reduction in hot air balloon flights is necessary. However, according to them, if flight fees are increased, then revenue losses could be avoided. They suggested that jeep safari tours can be performed in Karadağ or eastern Cappadocia region where there are less fairy chimney formations compared to the other regions.

To reduce environmental degradation, the number of vehicles and tourists must be limited in Göreme National Park. In addition, it is stated that Göreme National Park should be managed like other national parks. Researchers put an emphasis on a balanced approach to nature-based tourism and protection relations. (Dowling, 1992; Ioannides, 1995; Rotherham, Doncaster, and Egan, 2005) because sustainable nature-based tourism depends on the sustainability of natural resources.

There are different opinions on the ratio of negative effects of tourism-related sports activities over the environment and on deciding which activity is much more damaging. Representatives who generate direct income from an activity often report that these activities give little or no harm to the environment.

In fact, all kinds of tourism activities, bear a positive or a negative impact potential on the social, economic and physical environment (Mathieson and Wall, 1982). The environmental impact of nature-based tourism is an important matter to consider. If the process of degradation of resources which makes the activity itself attractive begins, then the number of visitors will decrease. (Priskin, 2001). Therefore, the level of environmental degradation must be scientifically determined.

Since the areas where nature-based tourism activities are usually sensitive ecosystems, tourism activities in this field must be carried out within the framework of the principles of eco-tourism and the concept of sustainable tourism. A better understanding of the eco-tourism will contribute to the protection of natural (Gössling, 1999) and cultural resources in FCTR. Sustainable nature-based tourism activities will be possible through social consensus. It is understood that managers of tourism companies in the FCTR do not agree on an environmentally responsible tourism approach. A master plan for sustainable tourism for establishing protection and balanced utilization of natural and cultural resources are among the necessities. Therefore, further studies should be geared towards the development and implementation of a new tourism policy which will ensure long-term sustainable tourism. All stakeholders (operators, managers, local people and tourists) must collaborate in this process.

Tourism management approach should stay away from focusing solely on financial returns and mass tourism, and transform to rural tourism and ecotourism, which will prioritize protection and sustainability.

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