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MAP OF FOOD DESERT AND FOOD SWAMPS FOR TOURISTS

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Semra Günay²

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Abstract: Food and beverage options play a critical role in shaping the experiences of tourists. When visiting a destination, tourists utilize both establishments catering specifically to travelers and those serving local residents for their food and beverage needs. Food desert and food swamp maps can serve as valuable tools to improve travel planning and visitor satisfaction by providing insight into the availability and quality of food options in a given area. For this reason, in this study, the locations of food businesses in Eskişehir city center and the attributes of the products they sell were determined and the businesses were classified. And food desert and food swamp maps were created with the data obtained. The maps were shown to tourists, and colors and symbols were developed in line with user comments. This study will provide theoretical contribution to food desert and food swamp and food maps in terms of gastronomy tourism, and it is expected to have a practical contribution to the use of maps in gastronomy tourism.

Key words: Food deserts, Food swamps, Tourism, Sustainability, Urban Planning, Regional Development, Gastronomy Tourism

INTRODUCTION

Food is a fundamental need of vital importance for all living things. Currently, the food system faces many food security and sustainability challenges. Food systems refer to the complete network of participants and interconnected value-added processes involved in producing, collecting, processing, distributing, consuming, and discarding food products derived from agriculture, forestry, or fisheries. These systems are also integrated into broader economic, social, and environmental contexts (FAO, 2018). The global population is projected to exceed 10 billion by 2050, leading to increased demand for food and more pressure on limited resources (www.futureoffood.ox.ac.uk/food-system-challenges).

Food environments are defined as the physical, economic, political and socio-cultural contexts in which consumers interact with food systems. Two key dimensions of the

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food environment are identified as availability and physical accessibility. Availability refers to the supply of food, while physical accessibility refers to the location of food retail outlets and the ease of reaching that location, taking into account distance, travel time and/or cost (Penchansky and Thomas, 1981). These dimensions directly affect individuals' food choices and eating habits.

The concepts of food deserts and food swamps have been used in the literature to describe food availability and physical access in specific areas: The concept of food deserts describes areas whose inhabitants do not have physical access to healthy food (Beaumont et al.,1995). In other words, the US Department of Agriculture (USDA) defines a food desert as ‘a low-income census region where a significant proportion or all of its residents have low access to a supermarket or a large grocery store’. The concept of food swamps refers to areas with ‘excessive’ access to unhealthy foods. Food swamps are areas with an abundance of foods with high energy density and minimal nutritional value. They are associated with areas such as fast-food joints in the city and street vendors selling unhealthy food. (Hager et. al., 2017). According to another definition, a food swamp is an area where fast food, junk food outlets, grocery stores and liquor stores outnumber healthy food options.

Food is also an important element of tourism destination marketing strategies. It has a significant impact on tourists' destination choices (Yang et. al., 2024). The main objective of this study is to determine the quality of food establishments in terms of food security and to promote access to healthy food. The specific objective is to improve the food security of tourists through maps of food environments. The importance of this study is that it focuses on improving tourists' travel experiences by mapping and creating food environments in terms of gastronomy tourism. These maps are made available to tourists in terms of travel planning and increasing their travel satisfaction. It also aims to make theoretical contributions to gastronomy tourism.

METHODOLOGY

The purpose of the study, several goals were set to guide the research process and ensure its comprehensive realization. The first goal of the study is to mark the locations of food establishments in Eskişehir city center and group them. Then, using this data, we create food desert and swamp maps that emphasize the importance of food and beverage options for tourists. Another goal is to use the food environments maps in Eskişehir to determine tourists' views on these maps.

Research Design

In the research, field studies were conducted to determine the characteristics of food enterprises and maps of food deserts and swamps were drawn. Spatial modeling of the data obtained from field studies and mapped with ArcGIS program. Spatialization of data modeling is one of the quantitative research methods. Then, in order to develop the maps obtained, the interview technique, one of the qualitative research techniques, was applied to the tourists and the data obtained were evaluated by descriptive analysis. Descriptive analysis is one of the qualitative research methods. Therefore, mixed method was used in this study.

Study Area

The study area is Eskişehir, an important destination in terms of urban tourism in Turkey (See Fig.1). As a city of science, culture and arts, Eskişehir welcomed approximately 1 million 200 thousand visitors in 2023. (www.sehirgazetesi.com.tr/eskisehirin-2023-raporu-aciklandi-sayisi-1-milyonu-gecti). In 2020, in accommodation facilities with tourism business certificate in Eskişehir 363,554 domestic tourists and 16,751 foreign tourists stayed (EBB, 2020). Eskişehir also has a considerable student population in terms of having three state universities (Ateş and Tunçel, 2023). Accordingly, it is seen that Eskişehir is an important destination in terms of tourism. In the field study, food businesses were marked in areas frequently preferred by tourists and students in Eskişehir.

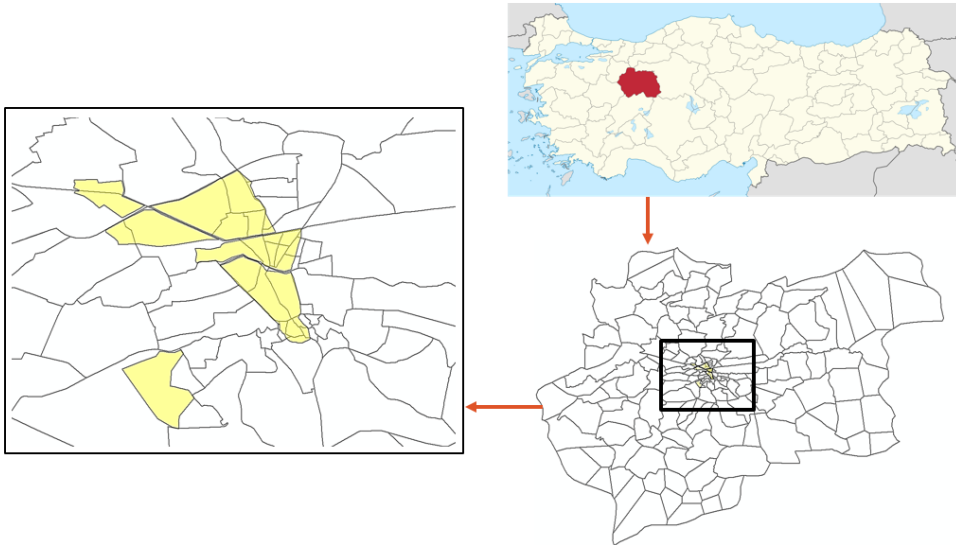
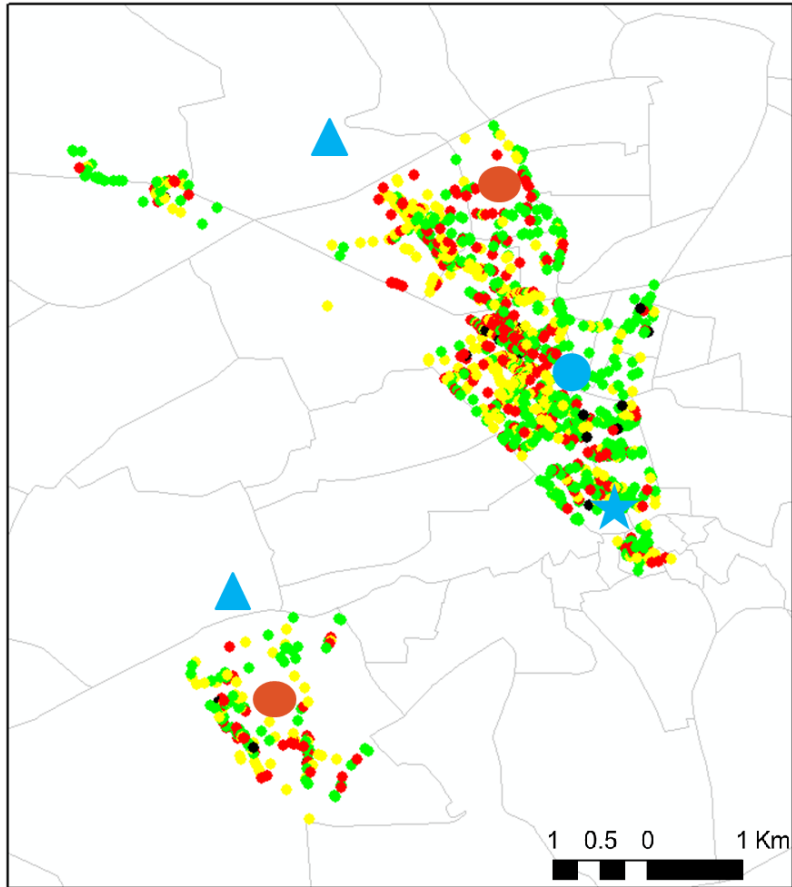


Fig. 1. Study Area

Mapping food swamps and food deserts

Data on food and beverage establishments were collected from 6 densely populated areas in Eskişehir (see Fig. 1). Fieldwork was conducted in the designated areas at various times between December 2023 and October 2024 and 1357 food establishments were marked on My Google Maps. Of these, 22 were excluded due to insufficient information about them. The marked establishments were then classified as healthy, unhealthy and neutral. This classification scale was developed from the classification scale of Sushil et. al. (2017). According to the classification, fast-food, takeaway, confectionary categories were categorized as unhealthy; local restaurant, supermarket, fruit-vegetable, farmers market, fish and meat, bakery, dairy and juice bars were categorized as healthy; and cafes and specialist store were categorized as a combination of healthy and unhealthy foods. The businesses coded according to this classification were shown on the map and spatial modeling was performed (see Fig. 2).



Legend

- | | |
|----------------------------------|---------------------|
| ● Healthy Food Environments | ▲ University |
| ● Food Swamps | ★ Touristic Area |
| ● Healthy and Unhealthy Together | ● Local Market Area |
| ● Missing | ● Student Area |



Fig. 2. Food Environments Map in Eskişehir

Sample and Data Collection

During the data collection phase, 10 different tourists were interviewed. An interview is defined as the activity of expressing the feelings and thoughts of the individuals participating in the research on a certain subject (Yıldırım and Şimşek, 2008). All of the interviewed tourists are domestic travelers to Eskişehir. The gender distribution of the participants is equal. In terms of age ranges, 60% are between 20 and 39 years old and 40% are 40 years old and above. Primary travel purposes include culture, science, arts, entertainment, and family vacations. The cities where tourists come

from cover different regions of Turkey (Istanbul, Izmir, Ankara, Bursa, Konya, Kütahya). This suggests that Eskişehir's geographically central location and strong transportation infrastructure play an important role in the flow of domestic tourists.

This reflects the attractiveness of Eskişehir as a multifaceted destination for a variety of interests. During the interviews, tourists were asked the following two questions:

1. How do you choose the food and beverages while traveling or how do you choose their places?

2. If you saw food deserts and swamps on a food environment map, how much would that map affect your choice of destination?

Analysis of qualitative data

Tourists' responses were evaluated by descriptive analysis. Descriptive analysis is one of the qualitative research techniques. Descriptive analysis is generally used to process data that do not require detailed parsing of the qualitative data set. Situations such as describing the demographic characteristics and different qualities of research participants, describing the general characteristics of a city, summarizing a person's life story are descriptive analysis (Miles & Huberman, 1994). The aim of descriptive analysis is to transfer the data collected as a result of interviews and observations to the reader in an organized and interpreted manner. To support the findings in the text, some quotations were made from the participants' responses. These quotes are given as Tourist 1 (T1, T2...).

FINDINGS

According to the data, it was determined that there is no food desert in the study area. However, it was revealed that there are quite a lot of food swamp areas. A total of 345 (26%) businesses selling unhealthy food were identified in the study area (see Fig. 2.)

In the first question, participants were asked about the factors that influence their choice of places to eat and drink while traveling. The responses and prominent analyses are as follows. The descriptive analysis of the responses provided by tourists revealed several significant findings regarding their preferences and considerations for food choices during travel. A dominant theme was the concern about access to healthy food, indicating that the availability of fresh and nutritious options is a critical factor influencing their decisions. The data also highlighted that food choices are a central element in travel planning, particularly for those traveling with families, where practicality, cheapness, and convenience are prioritized alongside diverse and accessible options. Some of the responses given by the participants are as follows;

T1: *“Usually price and location are important for me. I prefer places that are cheap and provide fast service. Since I usually travel a lot when I travel, I choose practical places.”*

T3: *“I pay a lot of attention to healthy eating. When traveling, I look for restaurants that serve healthy and fresh food. My favorite places are usually those that serve fresh vegetables and fruits.”*

T7: *“I look for places in my destination where I can eat quickly. I usually have a busy travel schedule and prefer time-saving options.”*

T10: *“I usually eat near the center and tourist areas. I don't like to travel long distances, so I prefer restaurants close to the area I am in.”*

Another key finding was the emphasis on cultural and gastronomic experiences, as many tourists expressed a desire to engage with local and authentic culinary traditions, suggesting that food is not merely sustenance but also a cultural exploration.

T2: *“I like to taste local food. This is one of the best ways to experience the culture where I am traveling. I prefer local restaurants and avoid chain restaurants.”*

T8: *“I pay a lot of attention to food quality. I am interested in places with organic or local production. I try to avoid fast food style restaurants that have been around for a long time.”*

T9: *“I pay attention to which cuisines are served. I like to try new cuisines. Discovering the food of different cultures is one of the best parts of traveling.”*

Furthermore, the demand for **hygienic and reputable establishments**, as evidenced by reliance on reviews and popularity, underscores the importance of trust and safety in dining decisions. **Dietary restrictions**, including specific allergies or lifestyle-based preferences, were also frequently mentioned, reflecting an increasing awareness and demand for inclusive food options. Some of the responses given by the participants are as follows;

T4: *“If I am traveling with family, I look for places that offer menus suitable for children. So I look for places that are both cozy and family-friendly. Hygiene is also an important criterion.”*

T6: *“I am a vegetarian, so when traveling I choose restaurants that offer plant-based menus. It can sometimes be difficult to find such restaurants, so I do my research.”*

These findings collectively suggest that tourists prioritize a combination of health, cultural enrichment, and practical convenience when making food-related choices, which can have broader implications for tourism strategies and destination management practices.

Another question asked to the participants during the interview was about the impact of food environment maps on their food and beverage choice preferences. For this

purpose, the food environment map was created according to the data in the study area. During the interview, tourists' opinions were asked according to this map. The answers given by the participants to this question are as follows. The responses to the question about how a food swamp or food desert map might influence travel decisions reveal diverse perspectives among tourists, shaped by individual priorities and lifestyles. Several respondents emphasized the importance of healthy and local food options, with some indicating that they would actively avoid destinations characterized as food swamps or deserts. These individuals view food as a significant aspect of their travel experience, particularly those with dietary restrictions or a strong interest in cultural and gastronomic exploration. Some of the responses given by the participants are as follows;

T2: "If I see that a place is a food swamp, it would be negative for me. I want to try local and healthy food, so this kind of map would definitely affect my preferences."

T6: "Being vegetarian, this kind of map would definitely influence my choices. I would cross a place off my travel list if it didn't have healthy options."

T8: "I would avoid a place with a food swamp or desert. It is very important to me that the place I am traveling to has places that serve local and quality food."

On the other hand, some tourists indicated that such a map would have minimal or no impact on their decisions. This group includes those who prioritize practicality and convenience, cultural and activity-based attractions over food, or the availability of general food options in popular tourist areas. For families traveling with children, access to a variety of family-friendly and nutritious food options is a key consideration, as a food desert could deter them from certain areas. Some of the responses given by the participants are as follows;

T4: "If I am traveling with children, I want to have good food options. If there is a place like a food desert, it might put us away from that area. We choose a place where we can find comfortable food."

T5: "Honestly, I wouldn't be too bothered by a food desert area. I am more interested in cultural activities and tourist attractions. Food comes second."

T7: "It wouldn't affect me much. When I travel, I usually look for places that are practical. If I can find a quick meal, even if it's unhealthy, it's convenient for me."

T10: "Looking at the map would be interesting to me, but it wouldn't change my travel plans. I usually go to tourist areas anyway and find all kinds of food options."

Overall, the responses suggest that while food considerations are pivotal for some, others prioritize practicality, convenience, or other aspects of the travel experience. This variation underscores the need for tailored strategies in destination planning and tourism marketing, addressing diverse tourist expectations.

CONCLUSION

This study highlights food's multifaceted role in shaping tourist preferences and travel decisions. Healthy and fresh food options are particularly critical for health-conscious travelers, while those seeking local and cultural experiences view food as an integral part of their journey. Convenience and practicality emerge as key factors for tourists focused on time management and easy access to meals, while family-friendly choices are essential for those traveling with children.

For many tourists, access to healthy food significantly influences destination selection, with food swamp and desert maps acting as a decisive factor for those prioritizing nutrition. However, knowledge of such maps has a limited impact on others, as they prioritize convenience, cultural attractions, or overall practicality over specific food-related concerns. At the same time, food diversity remains a valuable component for tourists seeking immersive cultural experiences.

No food deserts were found in the study area. However, there is a significant presence of food swamps. The presence of such unhealthy food establishments in important tourist areas can negatively affect the image of destinations. Another methodological consideration is the need for a variety of scales for categorizing food establishments, especially when cultural differences are taken into account in such studies.

Developing a more culturally congruent framework will increase the accuracy and applicability of such tools, resulting in greater benefits for both tourists and destination planners.

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ANALYSIS OF HOTEL GUEST SATISFACTION RATINGS AND REVIEWS: AN APPLICATION IN SARAJEVO

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Abstract: The purpose of the study is to demonstrate the level of satisfaction regarding the quality of hotel services in the Canton of Sarajevo, specifically within the areas of Stari Grad, Centar, Novo Sarajevo, Novi Grad, and Ilidža. The analysis focused on hotels with 4 and 5-star ratings located in these municipalities. A total of 49 hotels were included in the analysis, with hotel reviews from the TripAdvisor platform being examined. A visual representation, in the form of a word cloud, was generated for hotels to emphasize important factors that influenced guest satisfaction, as well as to pinpoint potential areas in need of improvement. This thorough analysis offers a deeper understanding of guest opinions and experiences, enabling a better grasp on their feedback and the identification of crucial elements necessary for enhancing service quality within the hotel industry. The top-rated hotels in the city are situated in Stari Grad and Centar municipalities. Their stellar reputation is largely due to their prime locations. These hotels consistently draw in a large number of visitors, setting a high bar for their staff who understand the significance of providing impeccable service. On the other hand, hotels in Ilidža municipality have received lower ratings. Their distance from the city center poses a challenge that necessitates extra efforts to entice guests, a task that appears to be falling short at present.

Keywords: TripAdvisor platform; Hotels; Guest satisfaction ratings; Reviews; Sarajevo.

INTRODUCTION

Technology has revolutionized the hotel industry by providing convenient access to information and services. Through the use of web and mobile applications, guests can easily browse and select hotels, read reviews, compare prices, and make bookings. This has not

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only made the process of finding and booking accommodation more efficient, but has also allowed hotels to gather valuable data on guest preferences and behaviors. By analyzing this data, hotels can gain valuable insights into consumer behavior and tailor their services to meet the needs of their guests (Hargreaves, 2015).

Prior studies have found that customer feedback shared online is a valuable source of information (Wood, Guerry, Silver & Lacayo, 2013; George, Haas & Pentland, 2014). Utilizing online reviews for customer satisfaction research has become a prevalent indirect research approach (Živković, 2011; Barjaktarović, 2014).

According to Choi and Chu (2001), the key factors that influence a traveler's satisfaction in a hotel are the quality of staff, the room amenities, and the overall value. Prioritizing customer commitment is essential for fostering genuine loyalty. It is believed that intentionally nurturing loyalty as a fundamental part of your business will yield more significant outcomes than simply making superficial gestures. Key to guaranteeing customer satisfaction is understanding their needs and delivering the services they desire (Hargreaves, 2015).

Seočanac & Sekulić (2020) determined that special attention should be given to the unique conditions found within the hotel industry, specifically highlighting the important role and impact of qualitative information gathered from online sources. Feedback shared on the internet regarding hotel experiences has become a valuable source for understanding consumer habits. In addition, it has become a vital tool for hotel and tourism management.

The hotel sector in Sarajevo plays a vital role in the city's hospitality and tourism industries, contributing significantly to its overall growth. Hotels are considered an essential service industry, offering guests intangible experiences and high service standards. This study aims to delve deeper into the satisfaction levels of hotel guests and identify areas where improvements can be made by hotel management to enhance overall performance. The study included an examination of guest satisfaction ratings, focusing on aspects such as Location, Cleanliness, Service, and Value. Additionally, a detailed analysis of customer reviews was conducted, utilizing keywords to better gauge the sentiments expressed by guests regarding their hotel experiences. Data collected from Trip Advisor, an online platform, was used to compare and assess customer ratings and reviews for 49 different hotels in Canton Sarajevo.

METHODOLOGY AND RESEARCH RESULTS

The study utilized data from Tripadvisor.com to investigate guest satisfaction factors in hotel services in Sarajevo Canton. Information publicly available on Tripadvisor was used to analyze the quality of services in 49 hotels across five municipalities in Sarajevo Canton.

Specifically, the study focused on 4* and 5* hotels in Stari Grad, Centar, Novo Sarajevo, Novi Grad, and Ilidža. The analysis concentrated on relevant data from 2023, covering categories like Location, Cleanliness, Service, and Value. Data collection took place between November 1st and December 15th, 2023, with a particular emphasis on qualitative feedback from guest reviews. By identifying key words in reviews, significant issues were addressed, and results were visualized using a Word Cloud. Fifty reviews were carefully examined for every hotel, if available. The analysis started with the most current reviews from 2023, followed by those from 2022, and so on, until 2019. The best rated hotels in Stari Grad municipality with a rating of 5 are: Hotel Aziza, Hotel Vip and Diamond Rain Boutique Hotel. The Word Cloud for all three hotels is shown in Figure 1.

Figure 1: Key words in reviews for Hotel Aziza, Hotel Vip and Diamond Rain Boutique Hotel



Source: creation by the authors

Hotel Sahat and Hotel Europe have received the lowest ratings among all the hotels in Stari Grad municipality, with both establishments having an overall rating of only 3.5. The visual representation of the word cloud for both of these hotels can be observed in Figure 2.

Figure 2: Key words in reviews for Hotel Sahat and Hotel Europe



Source: creation by the authors

In Centar municipality, three hotels have received a 5-star rating: Hotel Boutique Platinum, Hotel Festival, and Hotel Colors Inn. These establishments are all classified as 4-star hotels. The visual representation of the Word Cloud for these hotels can be seen in Figure 3.

Figure 3: Key words in reviews for Hotel Boutique Platinum, Hotel Festival, and Hotel Colors Inn



Source: creation by the authors

Hotel Holiday Sarajevo and Hotel Belvedere rank as the lowest-rated accommodations in Centar municipality, receiving an overall rating of 3 stars each. Despite being categorized as four-star hotels, these properties have failed to impress guests. The visual representation of feedback for both establishments can be seen in Figure 4.

Figure 4: Key words in reviews for Hotel Holiday Sarajevo and Hotel Belvedere



Source: creation by the authors

In Novo Sarajevo, a thorough analysis was conducted on four hotels, all of which hold a four-star rating. The top-rated establishment is Bosmal Arjaan By Rotana, achieving a

perfect score of 5, while the lowest-rated hotel is Hotel Boutique Bristol, receiving a rating of 3.5. The visual representation of customer reviews for both hotels can be seen in Figure 5.

Figure 5: Key words in reviews for Bosmal Arjaan By Rotana and Hotel Boutique Bristol



Source: creation by the authors

An analysis was conducted on three hotels in the Novi Grad municipality, consisting of two four-star hotels and one five-star hotel. Among them, Ibis Styles Sarajevo emerged as the top-rated hotel with a rating of 4, while Hotel Walter received the lowest rating of 2.5. The Word Cloud representation for both hotels can be seen in Figure 6.

Figure 6: Key words in reviews for Ibis Styles Sarajevo and Hotel Walter



Source: creation by the authors

Fourteen hotels were analyzed in the municipality of Ilidža. the best rated hotels are Malak Regency Hotel and Heritage Hotel Krone, with a total rating of 4.5. The Word Cloud for both hotels is shown in Figure 7.

Figure 7: Key words in reviews for Malak Regency Hotel and Heritage Hotel Krone



Source: creation by the authors

Hotel BM International is rated 3.5 out of 5, while Spa Hotel Terme has a rating of 3.0, making them the lowest-rated hotels in Ilidža. The Word Cloud for both establishments can be seen in Figure 8.

Figure 8: Key words in reviews for Hotel BM International and Spa Hotel Terme

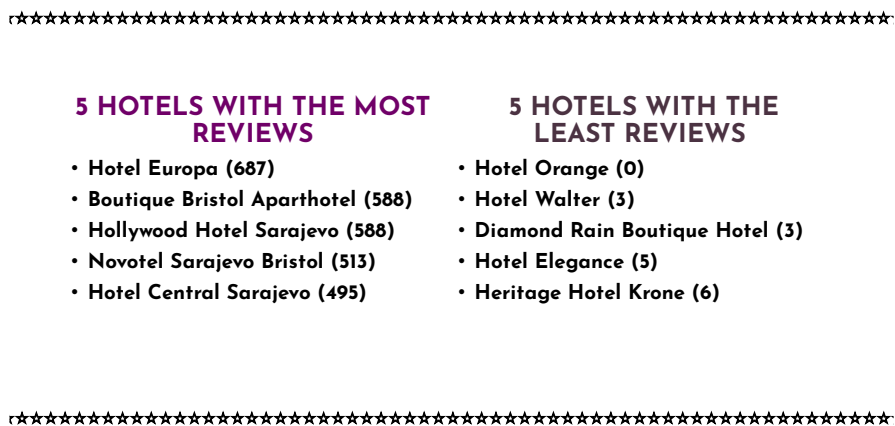


Source: creation by the authors

Overall, there are a total of 6 luxurious hotels in the Canton Sarajevo, each boasting a prestigious 5-star rating. These hotels are scattered across the different municipalities of Sarajevo, with one located in Stari Grad, one in Centar, none in Novo Sarajevo, one in Novi Grad Sarajevo, and three in Ilidža. Additionally, there are a total of 43 upscale hotels in the

Sarajevo region, each holding a commendable 4-star rating. These hotels are spread out among the various municipalities of Canton Sarajevo, with 17 in Stari Grad, 9 in Centar, 4 in Novo Sarajevo, 2 in Novi Grad Sarajevo, and 12 in Ilidža. Figure 9 depicts the hotels that have received the most reviews, as well as those that have received the least reviews.

Figure 9: Hotels with the highest and lowest number of reviews



Source: creation by the authors

Hotel Europa has the largest number of reviews, with 687 reviews, while Hotel Orange has no reviews at all.

Figure 10: Hotel ratings by municipality

| GRADES | STARI GRAD | CENTAR | NOVO SARAJEVO | NOVI GRAD SARAJEVO | ILIDŽA |
|--------|------------|--------|---------------|--------------------|--------|
| 5.0 | 3 | 3 | 1 | x | x |
| 4.5 | 9 | 4 | 1 | x | 2 |
| 4.0 | 4 | 1 | 1 | 2 | 2 |
| 3.5 | 2 | x | 1 | x | 6 |
| 3.0 | x | 2 | x | x | 1 |
| 2.5 | x | x | x | 1 | x |
| 2.0 | x | x | x | x | x |
| 1.5 | x | x | x | x | x |
| 1.0 | x | x | x | x | x |

Source: creation by the authors

The top-rated hotels in the city are situated in the municipalities of Stari Grad and Centar. Their exceptional reputation is due to their prime locations, which draw in a large number of visitors. The staff at these hotels uphold high standards, recognizing the significance of providing impeccable service and maintaining a superior appearance. On the other hand, hotels in the municipality of Ilidža have received lower ratings. Their distance from the city center presents a challenge in attracting guests, requiring additional efforts that do not seem to be fully realized at this time.

Figure 11: Best and worst rated hotels

5 BEST RATED HOTELS

- Hotel Aziza
- Hotel Vip
- Hotel Colors Inn
- Malak Regency Hotel
- Bosmal Arjaan By Rotana

5 WORST RATED HOTELS

- Hotel Walter
- Hotel Belvedere
- Hotel Holiday Sarajevo
- Spa Hotel Terme
- Hotel Europa

Source: creation by the authors

The best rated hotels are Hotel Aziza, Hotel VIP, Hotel Colors Inn, Malak Regency Hotel and Bosmal Arjaan By Rotana. The lowest rated accommodations include Hotel Walter, Hotel Belvedere, Hotel Holiday Sarajevo, Spa Hotel Terme, and Hotel Europa.

The hotel has an overall average rating of 3.95, with the location receiving an average rating of 3.94. The cleanliness category boasts a high average rating of 4.25. Service category impressively scored an average rating of 4.24, and the overall value was rated at 4.01.

CONCLUSION

Tourism and hospitality distinguish themselves from other sectors because of the intangible nature of their services. This distinctive characteristic means they heavily rely on information. The easy access to information on the Internet has significantly increased their importance in the service industry. This research seeks to provide a thorough insight into the current service quality benchmarks in Sarajevo hotels by examining customer feedback on

Tripadvisor.com. The results from the statistical analysis show that customers were pleased with the level of service provided by the hotel.

The hotel is rated at an average of 3.95 overall, with the location earning a solid 3.94 rating. The cleanliness category stands out with an impressive average rating of 4.25. Service category also does well with a rating of 4.24, while the overall value is rated at 4.01. The most highly recommended hotels are Hotel Aziza, Hotel VIP, Hotel Colors Inn, Malak Regency Hotel, and Bosmal Arjaan By Rotana. On the other hand, the least recommended accommodations consist of Hotel Walter, Hotel Belvedere, Hotel Holiday Sarajevo, Spa Hotel Terme, and Hotel Europa.

In general, visitors are content with the level of hospitality offered in the Canton of Sarajevo. The positive reviews specifically commend the outstanding cleanliness and service provided. Hotel proprietors can utilize this feedback to elevate guest satisfaction and refine their offerings. The results of this research offer managers a chance to comprehend how guests view a hotel's operations. Through careful scrutiny of guest reviews and feedback, managers can pinpoint any shortcomings and implement necessary changes to boost the overall standard of service. Feedback serves as a vital tool in the ongoing enhancement of services, providing valuable insights that can help managers tackle obstacles and devise strategies for improvement (Seočanac and Sekulić, 2020).

The study's limitation stem from the exclusive reliance on reviews from guests who posted on Tripadvisor.com, thereby neglecting feedback from other platforms and individuals who do not reserve accommodations in Sarajevo online. Suggestions for future research include incorporating alternative hotel reservation websites, encompassing lower-tier lodging establishments, and expanding coverage to all municipalities within Sarajevo Canton.

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INTERACTION OF FOOD GEOGRAPHY AND GASTRONOMY TOURISM: A STUDY ON GASTRONOMY DESTINATIONS IN TÜRKİYE

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Abstract: This study aims to examine the interaction between gastronomy tourism and food geography in Turkey. Gastronomy tourism holds significance in preserving local cultural values, fostering sustainable economic development, and enhancing the international recognition of destinations. The study seeks to contribute to the strengthening of local gastronomy identities and the support of tourism policies through sustainable strategies. A qualitative research method, specifically the document analysis technique, was employed. The analysis of the documents was conducted using content analysis, with Gaziantep, Hatay, and Afyonkarahisar—cities included in the UNESCO Creative Cities Network—selected as the study sample. Analyses based on various documents cover themes such as gastronomy tourism strategies, the impact of local food production on tourism, the economic contributions of geographically indicated products, and the preservation of cultural heritage. The findings reveal the decisive role of food geography in gastronomy tourism and its contribution to promoting local cuisines at an international level. The study presents recommendations for strengthening gastronomy tourism policies of local administrations, utilizing geographical indications effectively, and fostering the sustainable development of gastronomy tourism. By comprehensively evaluating the economic, cultural, and social impacts of gastronomy tourism, this research provides significant contributions to the literature.

Key Words: Food geography, Gastronomi tourism, Gastronomi destinations, Türkiye,

INTRODUCTION

Gastronomy tourism, as a strategic component of both cultural and economic development, plays a significant role in promoting tourist destinations globally by highlighting local values and strengthening regional economic dynamics (Küçükkömürler et al., 2019). This strategic role is particularly critical for introducing local gastronomic events and geographically indicated products to international markets, thereby enabling the unique cultural heritage of the region to reach broader audiences (Brisson, 2012). The integration of local flavors with the tourism sector not only enhances the touristic appeal of destinations but also facilitates the preservation of local cultural heritage and its transfer to future generations (Özdemir & Dülger

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Altiner, 2019). In this context, gastronomy tourism offers significant opportunities for countries in terms of the sustainability of cultural values, regional development, and international recognition (Işkın, Şengel & Genç, 2017).

Food geography provides a robust framework for understanding the deep interconnections between local food production and tourism. Additionally, it enables the development of unique marketing strategies for the tourism sector by analyzing how agricultural practices and environmental factors shape local culinary cultures (Kivela & Crotts, 2005). Therefore, the gastronomic identities shaped by the geographical conditions of gastronomy destinations attract tourists and increase the competitiveness of these destinations. Local food production is a cornerstone of a destination's gastronomic identity. This identity encompasses not only the recipes of traditional dishes but also the sourcing of ingredients from local resources and the support of sustainable agricultural practices.

Turkey, with its rich culinary heritage and geographical diversity, stands out as a country capable of maximizing its gastronomy tourism potential (Sürücüoğlu et al., 2001; Yayla & Aktaş, 2017). Regional differences, such as the meat-based cuisine of Eastern Anatolia, the olive oil-focused culinary culture of the Aegean region, and the seafood and corn-based flavors of the Black Sea region (Yayla, 2019), provide tangible examples of this potential. To better understand Turkey's gastronomy tourism potential, the geographical and cultural characteristics of each region should be analyzed in detail. In Eastern Anatolia, the harsh climate shapes its meat-centric cuisine, while the Mediterranean climate of the Aegean region fosters the development of olive and herb-based dishes. These differences enable each region to acquire a distinctive gastronomic identity.

This study aims to analyze the interaction between food geography and gastronomy tourism in specific gastronomy destinations in Turkey, highlighting its contributions to the preservation of cultural heritage and the tourism sector. In this context, the cities of Gaziantep, Hatay, and Afyonkarahisar, which are included in the UNESCO Creative Cities Network, serve as exemplary cases in the field of gastronomy tourism. The initiatives conducted in these cities play a crucial role in promoting local cuisines on national and international levels and in developing sustainable tourism strategies. The research makes significant contributions to determining tourism policies and developing sustainable destination strategies. Furthermore, understanding the economic and social impacts of gastronomy tourism on local communities will enable more effective and inclusive efforts in this field.

Food Geography and Gastronomy Tourism

Food geography is an interdisciplinary field that examines the environmental, economic, and social factors shaping a region's agricultural capacity and local culinary culture. This field encompasses a wide range of elements, from local agricultural methods to climatic conditions, soil structure, and societal traditions, all of which directly influence local culinary habits. Food geography analyzes not only the physical geographic factors affecting local cuisine but also the cultural, social, and economic implications of these interactions. Therefore, food geography is essential for defining and sustainably promoting a destination's gastronomic identity (Yayla, 2019). Another critical factor in ensuring the national and international recognition of local gastronomic elements is the integration of food geography with the tourism sector. This integration forms the foundation of gastronomy tourism and plays a significant role in enhancing the competitiveness of destinations. Processes such as the production, distribution, and consumption of local foods, as well as their transformation into gastronomic experiences, lie at the core of food geography's scope.

Gastronomy tourism is a type of tourism based on unique cultural experiences, where local culinary elements are integrated with the tourism sector and used in destination marketing (Hall & Mitchell, 2002). It holds significant potential for preserving, promoting, and contributing to the sustainable economic development of local cuisines (Kearns & Philo, 1993). Presenting gastronomy products that reflect a region's cultural values to tourists not only strengthens the unique identity of the destination but also provides meaningful contributions to the local economy (Sarıışık & Özbay, 2015). In this context, gastronomy tourism contributes not only to local economies but also to regional development and international recognition processes.

The interaction between food geography and gastronomy tourism is not limited to economic benefits. It also plays a crucial role in preserving local identity, promoting cultural values, and passing them on to future generations. For example, geographically indicated products serve as essential components of gastronomy tourism, reinforcing local culinary identity (Yayla, Ekincek & Günay Aktaş, 2018). Promoting geographically indicated products in international markets increases a destination's appeal in terms of gastronomy tourism while also enhancing the economic and cultural value of these products.

Turkey stands out as a country offering extensive opportunities for gastronomy tourism due to its geographical structure and agricultural diversity (Türkoğlu & Kozak, 2015). A wide variety of flavors reflecting the diversity of Turkish cuisine attract significant tourist interest across the country. The different culinary cultures within Turkey (Halıcı, 2009) place the country in a unique position on the global stage

in terms of gastronomy tourism potential. Examining the culinary identities of various regions in Turkey offers a valuable opportunity to better understand the contribution of gastronomy tourism to local development (Kan, 2011). The analytical framework provided by food geography serves as a strategic tool in determining sustainable tourism policies for destinations.

Developing gastronomy tourism sustainably contributes not only to economic growth but also to improving the quality of life of local communities and enhancing the international recognition of destinations. In countries like Turkey, which are rich in culinary culture, the synergistic interaction between food geography and gastronomy tourism provides a unique competitive advantage for the tourism sector. The interaction between food geography and gastronomy tourism supports both the economic development and the cultural heritage of a destination in a sustainable manner. In this regard, it is essential for local administrations and policymakers to develop strategic plans that integrate food geography and gastronomy tourism to ensure the long-term success of destinations.

METHODOLOGY

This study employed a qualitative research design to evaluate the interaction between food geography and gastronomy tourism in selected gastronomy destinations in Turkey. A total of 47 documents were examined, and the data obtained from these documents were analyzed using content analysis. Content analysis is a method that enables the systematic examination of data and the emergence of main themes. During this process, data related to gastronomy tourism and food geography obtained from written sources were analyzed.

The study population consists of Turkey's 81 provinces. Using purposive sampling, the cities of Gaziantep, Hatay, and Afyonkarahisar, which are included in the UNESCO Creative Cities Network under the Gastronomy category, were selected as the sample. These cities are among Turkey's leading destinations in gastronomy tourism and serve as models for the integration of local culinary cultures into the tourism sector. This sample was deemed suitable for a thorough examination of the interaction between gastronomy tourism and food geography.

The documents analyzed in the study were sourced from various entities, including tourism ministries, local administrations, non-governmental organizations, industry reports, academic articles, and UNESCO reports. These documents contained data covering thematic areas such as gastronomy tourism strategies, the impact of local food production on tourism, and the economic contributions of geographically indicated products. The content analysis process was conducted in four stages:

- i. ***Data Collection:*** A total of 47 documents were examined, and the data obtained from these documents were compiled. These documents were based on literature reviews and analyses of sectoral reports to understand the relationship between gastronomy tourism and food geography.
- ii. ***Coding and Theme Identification:*** The data obtained from the documents were thematically coded, resulting in four main themes:
 - ***Gastronomy Tourism Strategies:*** This theme covers the methods and practices used by destinations to develop gastronomy tourism. Strategies developed by local administrations and tourism stakeholders were analyzed under this heading.
 - ***Impact of Local Food Production on Tourism:*** The effects of local agricultural and food production methods on the touristic appeal of destinations and the sustainability of gastronomy tourism were examined.
 - ***Economic Contributions of Geographically Indicated Products:*** The economic benefits of geographically indicated products and their role in enhancing the brand value of tourist destinations were explored under this theme.
 - ***Preservation and Promotion of Cultural Heritage:*** The effects of gastronomy tourism on the preservation of local cuisines and their promotion on the international stage were analyzed within this theme.
- iii. ***Data Analysis:*** Once the coding process was completed, the data collected under each theme were analyzed comparatively.
- iv. ***Interpretation of Results:*** The findings obtained from the themes were interpreted by the researchers to understand the economic, cultural, and social dimensions of the interaction between gastronomy tourism and food geography.

FINDINGS

The content analysis of 47 documents in the study revealed the interaction between food geography and gastronomy tourism under four main themes: gastronomy tourism strategies, the impact of local food production on tourism, the economic contributions of geographically indicated products, and the preservation and promotion of cultural heritage. The findings related to each theme are presented below.

Findings on Gastronomy Tourism Strategies

In the context of gastronomy tourism strategies, it was observed that the selected destinations in Turkey have developed effective methods to promote their local cuisines. Particularly, the gastronomy tourism policies of Gaziantep, Hatay, and Afyonkarahisar—cities included in the UNESCO Creative Cities Network—have yielded successful results. Local festivals and events have played a significant role in this success. For example, the International Gastronomy Festival held in Gaziantep not only promoted the local cuisine but also attracted substantial tourist interest. Hatay’s “Table of Civilizations” concept offers visitors unique experiences by combining local culinary culture with historical and cultural values. Additionally, social media and digital marketing were identified as crucial tools in promoting geographically indicated products, effectively capturing the attention of younger tourist groups.

Findings on the Impact of Local Food Production on Tourism

When examining the impact of local food production on tourism, it was found that Turkey's rich agricultural potential strengthens the gastronomic identity of its destinations. The production of spices and baklava in Gaziantep forms the foundation of the region’s unique gastronomic identity, while olive and olive oil production in Hatay contributes to the sustainability of the region's culinary culture. In Afyonkarahisar, products such as sucuk (spiced sausage), kaymak (clotted cream), and poppy seeds significantly impact the local food economy. These products not only serve as attractions for tourists but also bolster the economic well-being of local producers.

Findings on the Economic Contributions of Geographically Indicated Products

The study also highlighted the economic contributions of geographically indicated products. These products enhance the brand value of destinations while providing economic benefits to local producers. Gaziantep’s geographically indicated baklava generates substantial economic value in both national and international markets. Furthermore, Gaziantep was identified as Turkey's leading city in geographical indication awareness, boasting the highest number of geographically indicated products in the country. Afyonkarahisar’s sucuk and kaymak attract more tourists to the region, and their promotion at international gastronomy events significantly contributes to the local economy. Similarly, traditional dishes from Hatay, such as tepsi kebabı, simit, yogurt, tomato paste, and künefe, have been preserved through geographical indication and promoted internationally, increasing the region's touristic appeal and generating economic gains.

Findings on the Preservation and Promotion of Cultural Heritage

It was determined that gastronomy tourism significantly contributes to the preservation and promotion of cultural heritage. After Hatay gained the status of a UNESCO Gastronomy City, the international recognition of its local dishes increased, with greater emphasis placed on traditional recipes. In Gaziantep, the preservation of traditional cooking techniques and their teaching in restaurants and local culinary schools serve as an example of cultural sustainability. Local food festivals in Afyonkarahisar, featuring competitions and workshops, attract tourists while encouraging the local community to take pride in their cultural heritage. These processes enable the preservation of local culinary identities and their use as tools for economic development.

CONCLUSION

This study evaluated the interaction between food geography and gastronomy tourism in selected gastronomy destinations in Turkey, analyzing its economic, cultural, and social dimensions. The findings demonstrate that food geography shapes a destination's gastronomic identity, which can be promoted nationally and internationally through gastronomy tourism. The integration of local culinary elements into tourism marketing strategies not only enhances the competitiveness of destinations but also supports regional development. Turkey's rich gastronomic diversity offers immense potential for the development of sustainable tourism policies.

According to the results, gastronomy tourism strategies implemented in cities like Gaziantep, Hatay, and Afyonkarahisar have played crucial roles in increasing the recognition of these destinations both nationally and internationally. The impacts of local food production on tourism and the economic contributions of geographically indicated products have supported not only regional development but also the preservation of local cultural heritage. These findings highlight the multidimensional effects of gastronomy tourism and underscore the need for more effective policy implementation in this field.

Based on the research findings, the following recommendations have been developed:

- Collaboration between local administrations and tourism stakeholders should be established to enhance gastronomy tourism strategies.
- The processes for registering geographical indications should be expedited, and incentives for local producers should be increased.

- International promotion of gastronomy destinations should be achieved through digital marketing and social media campaigns.
- Environmentally friendly agricultural practices should be encouraged to ensure the sustainability of local food production.
- Education and awareness programs focusing on gastronomy tourism should be organized.
- International gastronomy festivals and events should be hosted to enhance the brand value of destinations.
- New gastronomy routes should be created to showcase Turkey's gastronomic diversity across different regions.
- Academic research on gastronomy tourism and food geography should be promoted.

Future studies can examine the interaction between gastronomy tourism and food geography from a broader perspective, enabling more in-depth analyses in these fields. Comparative studies exploring the gastronomic richness of Turkey's diverse regions can provide detailed insights into how local culinary cultures are shaped by geographical and environmental factors. Additionally, research analyzing the economic, social, and cultural impacts of gastronomy tourism could evaluate the positive and negative aspects of this tourism type on local communities in a more comprehensive manner.

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DARK LITERARY TOURISM ROUTES DESIGN PROCESS WITH HALIDE EDİP ADIVAR'S BOOK TÜRKÜN ATEŞLE İMTİHANI

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Abstract: Dark literary tourism is a new niche tourism type born from the combination of literary tourism and dark tourism. In this study, it is aimed to share the systematics of designing dark literary tourism routes based on the work of an author who witnessed the period. In this context, Halide Edip Adivar's book *Türkün Ateşle İmtihanı* which was personally present in the battlefields, was analyzed. While examining the work, geography-centered reading technique was used. While using this technique, the work was analyzed in accordance with the themes and sub-themes of geography. Based on the fact that the author mentioned the names of the settlements one-to-one, the current names of these places were determined. Then, three dark literary tourism routes were developed by checking the suitability of the names of the settlements to the route. Thus, a new route planning that can be used in dark literary tourism has been made. This study, which aims to support regional and local development, will guide the formation of new tourism markets. The study, which will provide a perspective on dark literary tourism, a new niche tourism type, from the battlefields, will also contribute to the creation of routes that can be used in battlefield tourism.

Key words: Dark tourism, dark literary tourism , dark literary tourism routes guidance, route designing, geography-centered reading, geo-literary, literary geography.

INTRODUCTION

Dark tourism is defined as a type of tourism that involves visiting places associated with violence, death, and tragedy. This concept was defined and categorized by Lennon and Foley (1996). A sub-type of tourism, dark tourism, also referred to as thanatotourism, is linked to specific places such as crime scenes, prisons, and massacre sites (Seraphin and Korstanje, 2021). Examples of this type of tourism include concentration camps like Auschwitz and Chernobyl, Hiroshima, battlefields, and disaster zones (Mora Forero et al., 2023). Visitors choose such sites to empathize with the suffering endured by previous generations and to honor their spirits. Literary tourism, on the other hand, is a type of tourism that combines literature, travel, and

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cultural experiences. This form of tourism plays a significant role in regional economic development and shaping the image of cultural tourism, particularly through literary routes, author museums, and literary festivals (Romanova & Silkina, 2024). In recent years, dark literary tourism has emerged as a niche that combines dark tourism and literary tourism (Çevik, 2023).

Tourist guides always work to better themselves and focus on their areas of interest in order to stay up with the changes taking place in the world. They contribute to this by taking part in specific training courses offered in these domains. In this context, it is stated that specialisation in tourist guiding can basically be examined in two dimensions: destination-oriented and touristic product-oriented. A wide variety of fields can be given as examples for touristic product-oriented specialisation. These are; regional tourist guiding, international guiding, protocol guiding, cruise guiding, museum guiding, cultural tour guiding, faith tourism guiding, battlefield guiding, gastronomy tourism guiding, wine tour guiding, festival guiding, nature tour guiding, eco-tourism guiding, flora and fauna guiding, mountaineering and trekking guides, diving guides, safari guides, adventure tour guides, equestrian tour guides, birdwatching guides, photography tour guides, health tourism guides, disabled guides, sign language guides, and tourist guides for children/tutorial groups (Yenipinar & Yılmaz, 2019). In addition to these areas, dark literary tourism route guidance can be a new specialisation area focused on touristic product.

Many literary works have been written about the period of the National Struggle in Turkey. In addition to being written after the war, there are also literary works inspired by what happened during the war. Halide Edip Adıvar, one of these writers, also conveyed the experiences of the geography she saw and travelled in her works. Professional tourist guides can enrich their narratives by making use of these literary sources as well as conveying historical and geographical information to tourists in war zones. When Halide Edip Adıvar's *Türk'ün Ateşle İmtihanı*, which is the subject of the study, is read, it is seen that it follows a route. The aim of the study is to reveal how dark literary tourism routes are created through a literary work set in battlefields.

METHODOLOGY

Literary geography is considered a method of reading. It can be approached as a way of analyzing literary texts, focusing on fiction, poetry, or drama through a geographical perspective (Tally, 2019). A useful technique for the thorough assessment and interpretation of many elements, including human, physical, and military traits, cultural and economic systems, and all physical and emotional characteristics specific to the geographic area in which people are raised, is geography-centered reading, or geo-literary. (Garan, 2012). It is used as a deductive analysis. It is a study that frequently appears in the field of literary literature. however,

it has only recently started to be used in the field of tourism. Studies are quite limited (Çapa, 2022; Harmancı, 2022). In the study, Halide Edip Adıvar's book *Türk'ün Ateşle İmtihanı* (*Turkey's Ordeal*), which provides a firsthand account of the National Struggle period, was analyzed using geography-centered reading, an inductive analysis method employed in qualitative research.

FINDINGS

Route 1

The first route focuses on Halide Edip's journey from Istanbul to Ankara. It includes locations such as Üsküdar, Dudullu, and Adapazarı, which were significant in the early stages of the National Struggle. This route reflects the initial resistance and the challenges faced by those involved in the movement, offering tourists a historical journey from urban centers to rural strongholds.

The first route spans two days and begins in Istanbul, Turkey. It includes many locations that were considered rural areas at the time, such as Üsküdar, Dudullu, Ümraniye, and Samandıra, now neighborhoods of Istanbul. The route then proceeds toward Kocaeli, Sakarya, and Bilecik. The first overnight stay can be in Sakarya Province. On the second day, the route continues to Eskişehir, where visitors can visit the house where İsmet İnönü, commander of the Western Front during the National Struggle, stayed during his time in Eskişehir. Today, this house serves as the Independence Museum. Visitors can also see Eskişehir's historic train station, which is mentioned in the literary work, providing an opportunity to offer a narrative drawn from Halide Edip's writings and gain a perspective on Eskişehir during the National Struggle period.

The final overnight stay is in Ankara. For early departures the next morning or if a late return is anticipated, Eskişehir's Sivrihisar district, located on the way to Ankara, can be an alternative for accommodation. The district is extensively mentioned in the literary work *Türk'ün Ateşle İmtihanı*. In Ankara, places related to the National Struggle period that can be visited include the Independence War Museum and the Second Turkish Grand National Assembly, Abidin Pasha Mansion National Struggle Museum, and Anıtkabir.

Route 2

The second route focuses on the National Struggle areas of Türkiye, including key locations such as Polatlı, Alagöz, and Duatepe. This route offers visitors the opportunity to explore the military strategies, challenges, and outcomes of the battles, highlighting their significance in Turkish history.

The second route can start from Ankara and spans two days. It covers significant events of the National Struggle, such as the Battle of Sakarya and the Great Offensive. After departing from Ankara, key sites related to the Battle of Sakarya, including Duatepe, Beylikköprü, and the Alagöz Command Post Museum, can be visited. The first overnight stay can be in Uşak, marking the transition to the Great Offensive phase.

On the second day, the journey continues to İzmir, the final point of the National Struggle. In İzmir, visitors can explore the Atatürk House Museum, the statue immortalizing Mustafa Kemal Atatürk's command "Armies, your first goal is the Mediterranean. Forward!" created by renowned Italian sculptor Pietro Canonica, and the Republic Tree monument, symbolizing the National Struggle period. During the tour, details about İzmir mentioned in the literary work can be shared with visitors. İzmir can also be chosen as the accommodation site for the final night of the route.

Route 3

The third route follows Adivar's journey through Western Anatolia after the victory in the National Struggle. This route provides an in-depth understanding of the final stages of the struggle and the establishment of a new era.

According to the literary work, Halide Edip traveled to Bursa after İzmir. If transitioning from the second route to this third route, the journey can proceed from İzmir to Bursa. In Bursa, the Bursa City Museum can be visited, and details about the city's structure during that period, as mentioned in the literary work, can be shared. An overnight stay in Bursa can be preferred. This route represents the return home after the conclusion of the National Struggle period. It can be planned as a two-day route, concluding with a journey from Bursa to Istanbul.

CONCLUSION

This study, conducted through Halide Edip Adivar's book *Türk'ün Ateşle İmtihanı (Turkey's Ordeal)*, is significant as it provides a method for designing dark literary tourism routes. The creation of dark literary tourism routes aims not only to increase the awareness of Turkey's battlefields but also to establish an educational and memorable tour route for visitors. Adivar's journey from Istanbul to Anatolia, culminating in the victory during the National Struggle and covering Western Anatolia, forms the basis for the development of three distinct routes, highlighting the integration of geography and history in the field.

The planning of dark literary tourism routes as spaces for reflection and education for participants is crucial for ensuring long-term value and coherence. Additionally, dark literary tourism, as an emerging niche tourism type, can support the development of

rural areas along these routes. The integration of geography-literature studies with tourism is seen as having great potential to foster historical awareness and cultural empathy. Positioned at the intersection of literature, geography, and tourism, this study will contribute to the continuous growth of this niche area and offer insights into how tourism can be integrated with diverse themes. It can also be incorporated into specialization training for tourist guides, combining literature with battlefields through literary works to provide a new perspective.

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WORLD WAR II BATTLEFIELDS TOURS IN THE WEST EUROPE

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Abstract: Battlefield tourism is emerging as a new market and marketing area for tour operators to respond to changing human needs in a globalised world. This type of tourism is becoming more and more important in the tourism sector with the various tours it offers and is being preferred more and more every day. In Türkiye, battlefield tours are limited to certain regions and this situation results in a lack of detailed studies on the supply of battlefield tourism in the literature. This study is based on the TÜBİTAK 3005 supported project titled 'Creating a National Battle Route from İnönü to Sakarya and Monitoring Its Effects' and compares the content of the tour developed in this project with examples of World War II tours in Western European countries. Thus, it is aimed to enrich the content of a developing tour by using successful examples at an international level. For this purpose, battlefield tours from the United Kingdom, France, Germany, and Belgium were analyzed through document analysis. This study, which is conducted with a pragmatic paradigm, is a multiple case study. The findings of the study emphasize that the content of battlefield tours varies according to the historical and cultural background of the countries. In this context, the areas that need to be improved in the İnönü to Sakarya National Struggle Tour in Türkiye were determined and a structure that complies with international standards was created.

Key words: battlefield tourism, national struggle tour, international comparison, Türkiye

INTRODUCTION

Dark tourism, a distinct social phenomenon, involves the tourist consumption of sites associated with death, tragedy, and suffering. As an umbrella term, it encompasses various forms of tourism related to these themes, from visiting disaster areas to commemorating important historical events. As the term 'dark' often causes discomfort in the academic literature, alternative subfields such as thanatourism, post-disaster tourism, conflict heritage tourism, and battlefield tourism have emerged

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under this broad framework (Qian et.al., 2023; Yousaf & Kim, 2023). Among these subcategories, battlefield tourism stands out as a prominent area of research. It is also the basis of this study.

In contradistinction to some forms of dark tourism, which rely heavily on the concept of death as an explanatory framework, battlefield tourism often emphasises cultural, historical, and commemorative aspects. For this reason, some researchers have not found it necessary to reconcile battlefield tourism with the dark tourism paradigm. When dark tourism experiences are analysed in terms of sites, they are diverse: battlefields and death camps, sites of celebrity deaths, sites of extraordinary disasters (e.g., terrorist attacks), and sites of imprisonment or detention. Today, war remains one of the most popular historical themes, and battlefield tourism is a rapidly growing phenomenon (Hall et. al., 2010; Kang et.al., 2012). Smith (1998) identifies war-related attractions as the largest form of tourism, attracting diverse audiences seeking both cultural education and acts of commemoration. Visitors to battlefields are often commemorating important histories and events, highlighting the enduring appeal of these sites as places of historical and emotional significance (Light, 2017).

Battlefield tourism, which offers cultural memory sites such as commemorative rituals, memorials and museums, is a growing sub-sector of the tourism industry (Misztal, 2003; Prideaux, 2007). This trend is reflected in the growing academic interest in the subject. In addition to general overviews, numerous studies have examined battlefield tourism in specific contexts, including research on the battlefields of the First and Second World Wars (Dunkley et al., 2011; Laing & Frost, 2019; Winter, 2015). This scholarly literature highlights various reasons why significant numbers of contemporary tourists have been drawn to battlefields worldwide since the 1970s (Leopold, 2007; Ryan, 2007). For example, tens of thousands of schoolchildren visit the First World War Western Front each year as part of the English national curriculum (Iles, 2001).

Visiting battlefields goes beyond passive sightseeing to become a performative practice that actively engages visitors with history. Tour guides play a crucial role in shaping visitors' understanding and emotional connection to these historic sites. Using dramatic and interactive presentation techniques, they transform historical narratives into immersive experiences that foster empathy for the past. Using tools such as storytelling, poetry and music, guides enrich visitors' experiences and enable a deeper connection to the symbolic and commemorative significance of battlefield spaces. These encounters allow visitors to develop both personal and collective empathy, particularly in relation to the historical and cultural narratives embedded in these sites. For many British visitors, battlefield tours provide a means of reconnecting with national identity and family heritage. The serene and pastoral landscapes, juxtaposed with their turbulent wartime histories, evoke deep emotions

and highlight the stark contrast between the tranquillity of the present and the chaos of war (Iles 2006).

Laffin (1994) explains that the Western Front was a relatively narrow battlefield, 460 miles long and up to 20 miles wide, on which more than 6 million soldiers were killed and another 14 million wounded over a period of 50 months. It was inevitable that a vast battleground that had occupied so many people for so long would become a tourist destination. Even before the end of the war, the French tyre company Michelin began a series of battlefield guides in 1917, which grew to more than 20 within three years, including three volumes specifically aimed at American visitors (Seaton, 2000). The Illustrated Michelin Battlefield Guides were in fact the forerunners of the tourist guides that would be published in 1926 and that are so successful today. Around 2 million of these guides were sold. Between 1919 and 1938, 46 different titles were published in various languages. For example, Murphy's (2015) two volumes (Marne Guide and Ypres Guide) provide a detailed overview of the history of each battle and a comprehensive tourist itinerary.

After the First World War, the desire to visit battlefields for those who wished to commemorate their losses or see the physical effects of war was encouraged by commercial and public organisations. Tourist guides and government-sponsored publications were produced. In 1919, 60,000 people visited the battlefields of the Western Front and this tourism continued for the next 20 years, supported by organisations such as Thomas Cook. The Second World War, however, halted visits to the Western Front until the late 1960s, when interest shifted to the Second World War (Seaton, 2000). The guided tours analysed in this study are also limited to the Second World War (WWII).

This study is based on the TÜBİTAK 3005 supported project titled 'Creating a National Battle Route from İnönü to Sakarya and Monitoring Its Effects' and compares the content of the tour developed in this project with examples of World War II tours in Western European countries. Thus, it is aimed to enrich the content of a developing tour by using successful examples at an international level.

METHODOLOGY

This research was conducted within the pragmatic paradigm. The pragmatic paradigm allows the most appropriate methods to be chosen for the situation by focusing on the purpose and questions of the research (Morgan, 2007). In this study, to understand the structure and content of battlefield tours, a qualitative approach was adopted, using a multiple case study design, and 18 tour contents from 4 European countries (Table 1) were analysed using a thematic analysis method. Multiple case studies, as

suggested by Yin (2018), focus on comparing events and processes in multiple contexts to reveal common themes.

Table 1: European countries and battlefield tours

| No | Code | Country Name | Tour Name | Duration | Price |
|----|------|---------------------|--|----------|--------|
| 1 | T1 | The United Kingdom | SAS Selection Tour | 3 days | £675 |
| 2 | T2 | | American Air force, Duxford, The Sally B and Miss Pick-up | 2 days | £525 |
| 3 | T3 | | Belvoir Castle and US 8th AAF | 5 days | £9,995 |
| 4 | T4 | | Duxford Tour with a unique visit to the B-17: Sally B and The Catalina: Miss Pick up | 1 day | £245 |
| 5 | T5 | | Jersey Tunnel Tour | 3 days | £1,250 |
| 6 | T6 | | Bomber Command | 4 days | £1,435 |
| 7 | T7 | | Battle of Britain Tour | 5 days | £2,250 |
| 8 | T8 | France | Operation Chariot with weapons shooting | 5 days | £1,950 |
| 9 | T9 | | D-Day Landings | 5 days | £1,695 |
| 10 | T10 | | D-Day Experience | 5 days | £1,750 |
| 11 | T11 | | US Corporate Team Management Tour | 6 days | £7,500 |
| 12 | T12 | | Retreat to Dunkirk 1940 Tour | 4 days | £675 |
| 13 | T13 | *Normandy to Berlin | 12 days | £2,995 | |
| 14 | T14 | Germany | Berlin and the Holocaust | 7 days | £1,995 |
| 15 | T15 | | Battle of Aachen and Hurtgen Forest | 4 days | £1,350 |
| 16 | T16 | | Crossing the Rhine | 6 days | £1,740 |
| 17 | T17 | | Allied Bombing Campaign of Europe | 8 days | £2,000 |
| 18 | T18 | *Normandy to Berlin | 12 days | £2,995 | |
| 19 | T19 | Belgium | Operation Market Garden | 4 days | £1,250 |
| 20 | T20 | | *Normandy to Berlin | 12 days | £2,995 |

Source: <https://classicbattlefieldtours.com/tour-types/world-war-2/>

Thematic analysis is a type of data analysis developed by Braun and Clarke (2006), which allows meaningful themes in the data to be identified and analysed. In this study, the following stages of the thematic analysis process were followed: (1) detailed reading of the data and preliminary coding, (2) development of initial themes, (3) review and categorisation of themes, and (4) interpretation and reporting of themes. Each tour was analysed as a case study in order to understand the general nature of battlefield tourism and to identify trends in this context. The study area is the Classic Battlefield Tours

¹⁵ platform in the online environment. This platform provides comprehensive information on battlefield tours organised in Western Europe. The data was collected over a period of one month between August and September 2024. The data examined is limited to tour descriptions, programme details and content information on the platform.

FINDINGS

The Normandy to Berlin tour, which is one of the 18 tours analysed in the study, covers three different countries, namely France, Germany and Belgium, while the other tours are spread over four European countries. This tour lasts 12 days and it is understood that it is the longest of the tours analysed. As can be seen in Table 1, the cheapest of the 18 tours in the study is the 1-day Duxford tour with a unique visit to the B-17: Sally B and the Catalina: Miss Pick up tour. The most expensive tour is the 5-day Belvoir Castle and US 8th AAF Tour in England. As a result of the thematic analysis of the tours, common points were identified and the following themes were highlighted *Historical Context*, *Guide-Led Visitor Experience*, *Battlefield Evidence* and *Tourist Services*. These themes provide an important analytical framework for comparing both the Western European war tours and *the İnönü to Sakarya National Struggle Tour*.

Historical context

The tours of the Western European battlefields are carefully structured around key historical events of global significance. Indeed, T2 looks at the impact of the US Air Force in Europe and the strategic bombing campaigns of the Second World War, and T9 covers a major military operation of the Second World War, the Normandy landings. T7 covers both the strategic and technological aspects of the Battle of Britain, and T12 describes the critical historical event of the Allied retreat at Dunkirk. T13 covers their advance from the Normandy landings to Berlin, while T14 covers the Holocaust and the impact of the war on Berlin. Similarly, the tours cover the Allies' initial advance into German territory and the protracted Battle of the Hürtgen Forest (T15), their crossing of the Rhine into Germany (T16), the impact of the air raids on Europe (T17) and the failures and strategic implications of Operation Market Garden (T17), providing an insight into the major historical events and causes and effects of the Second World War. In contrast, the İnönü to Sakarya National Struggle Tour in Türkiye covers key battles of the Turkish War of Independence [the Battles of İnönü, First and Second (January 6-11, 1921/March 23-April 1, 1921); the Kütahya-Eskişehir Battles (July 13-21, 1921); The Battle of Sakarya (August 23,

¹⁵ <https://classicbattlefieldtours.com/>

1921-September 13, 1921)]. Still, these battles do not have the same level of international recognition. This limits the tour's wider appeal of the tour to international tourists. The historical narrative also focuses primarily on national history, which may not resonate with a global audience unfamiliar with the intricacies of the Turkish struggle for independence.

Guide-Led Visitor Experience

Guides on European tours are characterised by both military experience and academic qualifications (Table 2). Most guides have served for many years in the British Army or the Royal Air Force. Their postgraduate degrees in military history or modern history enable them to combine academic knowledge with practical experience. Guides provide engaging battlefield narratives that emphasise the psychological impact of historical events. They have also developed their guiding skills by working with prestigious organisations such as the Imperial War Museum and the Holocaust Educational Trust. With over twenty years' experience as guides, they have led projects such as the D-Day 80 commemorations and Herts at War, as well as working with media organisations.

Table 2: European battlefield tours and guides

| No | Guide Name | Tour Code | Professional Experience |
|----|---------------|--------------------|---|
| 1 | Andrew White | T6, T17 | Mr White is a retired Wing Commander. He served in the Intelligence Branch during his 26-year career in the RAF. He has operational experience in Northern Ireland, Bosnia and Iraq. He was a veterans' guide at the 75th anniversary of the Berlin Airlift. Andrew, who wears Guild of Battlefield Guides badge number 37, symbolising high quality guiding, combines strategic depth with human stories to create an experience for visitors. |
| 2 | Brian Shaw | T10, T15, T16, T19 | In a 38-year military career as a supply officer in the Parachute Regiment. He joined the Regiment in 1974, specialising in battlefield communications. He became a Supply Officer 1st Class in 1995 and retired in 2013. His many years of infantry experience and tactical knowledge enable him to provide visitors with an in-depth experience from a military perspective, analysing battlefield terrain and its impact on weapon systems. He has been leading battlefield tours for the past twenty years. |
| 3 | Phil Ginnings | T9, T14 | Mr Ginnings has taught history for 25 years. He has an MA in Second World War Studies and was awarded the Imperial War Museum's Holocaust Education Fellowship. He is an external education specialist for the Holocaust Education Trust, leading adult and school groups in the UK and Europe. She frequently works with museums and organisations such as the Commonwealth War Graves Commission. |
| 4 | Dan Hill | T12, T13, | Mr Hill holds an MA in British Military History from the University of Wolverhampton. He began his career at the |

| | | | |
|---|----------------------|-------------------------|--|
| | | T18, T20 | Imperial War Museum before setting up the First World War centenary project 'Herts at War'. In 2016, he was the British government's chief historian for the centenary of the Battle of the Somme and has been a historical adviser to the Royal British Legion and the BBC. Most recently, he was the official historian for the D-Day 80 commemorations attended by world leaders. He has produced content for organisations including the Commonwealth War Graves Commission and the National Army Museum, and presented the First World War podcast 'Not So Quiet on the Western Front'. |
| 5 | Rick Peacock-Edwards | T2, T3, T4, T7 | Mr Peacock-Edwards is a tour guide with an RAF career spanning over 30 years, during which time he attained the rank of Air Commodore and retired in 1999. He has a total of 3000 flying hours in Lightning, Phantom and Tornado jets. He has also held key positions such as RAF Leeming Base Commander and Eurofighter Typhoon Project Director. He works closely with the Imperial War Museum at Duxford and acts as Flying Display Director at major air shows. |
| 6 | Patrick Mercer | T1 | Mr Mercer studied modern history at Oxford before becoming defence correspondent for BBC Radio 4's Today programme. He served in the army for 25 years, mostly in Northern Ireland, Uganda and Bosnia. In 2014, however, he returned to military history, travelling to many of the British Army's battlefields. In 1993, he became the first Briton to return to the battlefields of Crimea. |
| 7 | Matt Minshall | T8 | He is an experienced guide who served in the British Army and has worked in many countries during his career. Living near Saint Nazaire in France, Matt has researched the history of the Second World War in the area and is particularly passionate about Operation Chariot. He organises an annual commemorative walk with French and British veterans and is a unique source of local history and new knowledge. His family has a historical heritage, particularly in relation to his father, Merlin Minshall, who ran espionage operations during the Second World War. |

Source: <https://classicbattlefieldtours.com/tour-types/world-war-2/>

The İnönü to Sakarya National Struggle Tour does not yet offer a guiding service of this professionalism. However, the information in Table 2 clearly shows that training as a tourist guide alone is not enough to provide a guiding experience that meets global standards. Guides need to acquire in-depth knowledge of the historical background and combine academic knowledge with practical experience. Guides in European battlefield tours, thanks to their extensive military experience as well as academic studies at Masters level and cooperation with prestigious organisations, successfully achieve this balance and offer visitors an enriched and impressive guiding service.

Battlefield evidence

European battlefield tours focus on the physical remains of the war, providing visitors with a tangible and visually rich experience. For example, the five-day T7 tour includes the Seated Airman statue (Figure 1), which can be seen on day 3 at the Battlefield of Britain Memorial. In 1940, it represents the Royal Air Force (RAF) pilots during the Battle of Britain, the heroes known as 'The Few'. The statue symbolises courage, sacrifice, and



Photo: Seated Airman Statue

Source:

<https://classicbattlefieldtours.com/tours/battle-of-britain-tour/>

endurance in battle¹⁶. In T2, the Cambridge American Cemetery features headstones and memorials to American soldiers and B-17 and B-24 aircraft, while in T3 the Duxford Imperial War Museum displays Spitfire, Hurricane and Lancaster military vehicles. T14 features the powerful remains of Auschwitz-Birkenau, including gas chambers, barracks and prisoners' personal effects, while T15 recreates the war in the Ardennes with trenches and munitions.

These tangible remnants allow visitors to visualise the impact of the war and feel the historical events. In contrast, the İnönü to Sakarya National Struggle Tour, despite its historical significance, does not offer the same level of preserved physical remains. Many of the battlefields have little or no physical evidence of the conflicts. The bridges, stations and buildings used as headquarters are in a state of disrepair and do not receive the attention, they deserve given their strategic importance in the war. This limits the visual aspect of the tour and makes it difficult to provide context, particularly for international visitors. More extensive restoration and presentation efforts could be an important step in addressing these shortcomings and increasing the appeal of the tour.

¹⁶ <https://www.battleofbritainmemorial.org/>

Tourist services

Western European battlefield tours are logistically well planned and cater for a wide range of visitors, from student groups to veterans. Services such as transport, accommodation, and meals are seamlessly integrated as an integral part of the tours, greatly enhancing the visitor experience. Guiding services, As mentioned in the second theme, are mostly provided by professionals with a military background, adding depth to the tours in terms of tactical and strategic knowledge.

Table 3: European battlefield tours and services

| No | Tour Code | Accommodation | Transportation | Meal Plan |
|----|-----------|--|--|--|
| 1 | T1 | The Castle of Brecon Hotel (half-board lodging for two nights; no extra fees for single accommodations) | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | Breakfast and dinner (except dinner on the last day) |
| 2 | T2 | The Cambridge Belfry Hotel and Spa (full-board lodging for one night; no extra fees for single accommodations) | The tour's participants get to the starting point-The Plough in Coton- on their own. Transportation is available between the tour destinations. | Breakfast, lunch and dinner (The Plough in Coton-lunch, Officers Mess-breakfast and lunch on 2 nd day, except dinner on the last day) |
| 3 | T3 | Belvoir Castle (full-board lodging for four nights double/twin accommodation) | The tour's participants get to the starting point - London Airport - on their own. Private return transfers from London airport to Belvoir Castle transportation is available between the tour destinations. | Breakfast, lunch and dinner (an open bar at the Castle, only breakfast on the last day) |
| 4 | T4 | It is a day tour (no accommodation) | The tour's participants get to the starting point - at The Old Officers Mess, IWM Duxford - on their own. Transportation is available between the tour destinations. | Breakfast and lunch (in the Officer's Mess) |
| 5 | T5 | Hotel name is not specified (bed and breakfast for two night) | Flights included and transportation is available between the tour destinations. | Only breakfast (except meals and drinks), including lunch (2 nd day) |
| 6 | T6 | Hotel name is not specified (bed and breakfast for three night four days) | The tour's participants get to the starting point – Petwood Hotel- on their own. Transportation is | Only breakfast (except meals and drinks) |

| | | | | |
|----|-----|--|---|---|
| | | | available between the tour destinations. | |
| 7 | T7 | The Red Lion Hotel (half-board lodging, 1 st day), The Landing Hotel (half-board lodging, 2 nd day), Best Western Premier Dover Marina Hotel & Spa (half-board lodging, 3 rd day), Howfield Manor Hotel (half-board lodging, 4 th day) | The tour's participants get to the starting point – The Royal Air Force Club - on their own. Transportation is available between the tour destinations. | Breakfast and dinner (except 1 st day breakfast and last day dinner), Bentley Priory (1 st day lunch), The King's Arms at Biggin Hill (2 nd day lunch), The Jackdaw pub at Denton (3 rd day lunch) Bridge Arms (4 th day lunch), RAF Club (5 th day lunch) |
| 8 | T8 | Accommodation on the Ferry (1 st day), Hotel Mercure La Baule Majestic (2 nd and 3 rd day), Chateau Hotel du Colombier (4 th day) (half-board lodging; no extra fees for single accommodations) | The tour's participants get to the starting point- at Portsmouth Ferry terminal- on their own. Transportation is available between the tour destinations. | Breakfast, lunch and dinner (1 st day breakfast and dinner on the Ferry, 3 rd , 4 th and 5 th day breakfast and dinner at the hotels, except last day dinner), 2 nd day lunch provided at the range, no information about 3 rd , 4 th day lunch. |
| 9 | T9 | Accommodation on the Ferry (1 st day), Hotel name is not specified (for 2 nd , 3 rd , 4 th day; no extra fees for single accommodations) | The tour's participants get to the starting point- Portsmouth Ferry Terminal- on their own. Transportation is available between the tour destinations. | Breakfast and dinner on the Ferry (1 st day). No information about 2 nd , 3 rd , 4 th day lunch. 5 th day's lunch in Falaise |
| 10 | T10 | Hotel name is not specified (only bed and breakfast) | The cost includes ferries. Transportation is available between the tour destinations. | Only breakfast (except meals and drinks) |
| 11 | T11 | Heathrow Airport Hotel (1 st day accommodation), Accommodation on the Ferry (2 nd day), Hotel name is not specified (for 3 rd , 4 th , 5 th and 6 th day; full-board lodging) | Flights is not included and transportation is available between the tour destinations. | Breakfast, lunch and dinner (no information for six days) |

| | | | | |
|----|------|--|--|--|
| 12 | T12 | Hotel name is not specified and no information. | Transportation is available between the tour destinations but there is no details. | There are no details about meal plans. |
| 13 | T13* | Hotel name is not specified. (10 nights 4-star accommodation on a bed and breakfast) | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | St Mere Eglise (3 rd day lunch). There are no details about other meal plans. |
| 14 | T14 | Hotel name is not specified (bed and breakfast for seven days) | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | Lunch in the Jewish Quarter (2 nd day), Lunch in Potsdam (3 rd day), Lunch in Wroclaw Old Town (4 th day). There are no details about other meal plans. |
| 15 | T15 | Wehrmacht (1 st day accommodation). Bed and breakfast (for three day). | The tour's participants get to the starting point - Ashford International station - on their own. | Only breakfast (except meals and drinks) |
| 16 | T16 | Hotel name is not specified (bed and breakfast for five day) | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | Only breakfast (except meals and drinks). There are no details about lunch and dinner plans. |
| 17 | T17 | Hotel name is not specified and no information. | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | Lunch on the pleasure boat (2 nd day). There are no details about other meal plans. |
| 18 | T18* | Hotel name is not specified. (10 nights 4-star accommodation on a bed and breakfast) | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | St Mere Eglise (3 rd day lunch). There are no details about other meal plans. |
| 19 | T19 | Hotel name is not specified (bed and breakfast for four days; no extra fees for single accommodations) | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | There are no details about meal plans |
| 20 | T20* | Hotel name is not specified. (10 nights 4-star accommodation on a bed and breakfast) | The tour's participants get to the starting point on their own. Transportation is available between the tour destinations. | St Mere Eglise (3 rd day lunch). There are no details about other meal plans. |

As shown in Table 3, hotel accommodation is common on Western European battlefield tours, but details are often vague. Some tours offer extended stays in 4-star hotels, while others include alternative accommodation on the ferry or for short periods. There is no extra charge for single rooms. Tourists travel to the starting point by their own means, but some tours offer the convenience of airport transfers. Meal plans vary, with some tours offering full board and others offering breakfast only. Meals are often linked to the historical and cultural context of the battlefields.

In contrast, the İnönü to Sakarya National Struggle Tour is more basic in nature and limited in terms of integrated services. Each service in the table was provided by the sponsors in this tour. Improvements in transport, accommodation and professional guides can bring the tour closer to international standards. In addition, Türkiye could explore offering innovative experiences such as virtual tours or live re-enactments to broaden the scope of battlefield tourism. The fact that agencies do not yet offer tours specialised in battlefield tourism makes promotion a long and arduous process compared to European examples. In this context, Türkiye needs to take important steps both to improve tourist services and to develop international marketing strategies.

CONCLUSION

This study analysed 18 World War II-themed battlefield tours from four Western European countries and conducted a comparative analysis with the İnönü to Sakarya National Struggle Tour. The main aim of the study is to identify areas for improvement in order to develop battlefield tours which meet international standards. The study results show that the content of battlefield tours is directly related to countries' historical and cultural backgrounds. In this context, it has been identified that the İnönü to Sakarya National Struggle Tour needs to be improved in terms of infrastructure, preservation of physical evidence and appeal to the international market. It is understood that the 18 tours within the scope of the study were conducted by a total of 7 tour guides, and that they support the study of Laing and Frost (2019) with both their academic knowledge and military experience. Indeed, this study found that the empathic narratives of the guides in the battlefield tours were deepened by the aforementioned knowledge and experience. Seaton (2000) highlighted the potential of physical remains on battlefields to enrich the visitor experience. Indeed, the location of physical evidence is very important to the success of the 18 tours. Leopold (2007) states that 'international recognition' is as important as physical evidence, and the tours discussed are quite successful in this sense. Therefore, it is suggested that the İnönü to Sakarya National Struggle Tour should focus on these areas of improvement in order to reach international standards:

- To provide a tangible historical experience for visitors, physical evidence on battlefields should be preserved and restored.
- To attract a wider range of tourists, the context of accommodation, transport and meals should be improved.
- To cater for school groups, history buffs and international visitors: Specialised tour packages should be developed.
- To make tours more educational and interactive, multimedia and virtual reality technologies should be integrated.

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THE NATURAL RESOURCES OF THE PRIMEVAL FOREST PERUĆICA AS THE BASIS OF NATURE-BASED TOURISM

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Abstract: The subject of research in this paper is the identification of natural resources in the primeval forest Perućica, and their valorization in nature-based tourism. The natural resources of this region attract a significant number of tourists from the country and abroad and provide the basis for the development of nature-based tourism, such as: walking tourism, cycling tourism, adventure tourism, fishing, bird and wildlife watching, ecotourism, SAVE tourism. The geomorphological, climatic, hydrogeographical, biogeographical potentials, as well as the natural landscapes of the area, were analyzed. Mountaineering and cycling trails, viewpoints, caves, waterfalls, water sources, streams, endemic plant and animal species, etc. are singled out. The research area is the primeval forest Perućica, which is located in the southeast of Bosnia and Herzegovina on the border with Montenegro. This protected nature reserve is located on the western slopes of Mount Maglić and is part of the Sutjeska National Park. The goal of the research is to comprehensively analyze and evaluate natural tourist resources in order to recognize and distinguish existing and potential tourist resources in the protected area of the Perućica primeval forest. Different research methods have been applied, from field research of the area, to the use of data obtained by remote sensing that are processed and analyzed in geographic information systems. A tourist map of the geographical distribution of natural resources of the Perućica primeval forest was made. The obtained research results will bring this unusual attractive area closer to nature lovers, which will have a positive effect on the additional strengthening and development of tourism in the primeval forest Perućica, as well as in Bosnia and Herzegovina.

Key words: natural resources, nature-based tourism, primeval forest Perućica, Geographic information systems, Bosnia and Herzegovina

INTRODUCTION

In this paper, the natural potentials of the Perućica primeval forest were identified and analyzed. The aim of this paper is to determine the possibilities of valorization of the identified natural resources in nature-based tourism. This area was chosen because it represented special value of Bosnia and Herzegovina in the world. Under the influence of

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economic development, industrialization, urbanization, and the increase in the number of inhabitants on Earth, untouched nature is increasingly difficult to find anywhere in the world. Primeval forest Perućica is one of the last two saved primeval forests in Europe (UNESCO). The Perućica primeval forest is classified as the largest category of protected areas - Strict nature reserve (IUCN category Ia), according to the International Union for Conservation of Nature (IUCN) categorization of protected areas (Dudley, 2008). The Perućica primeval forest is at the same time a "double protected area", because it is located within the Sutjeska National Park (IUCN category II).

In 1952, Perućica was declared a strictly protected part of nature. Two years later, in 1954, it was placed under state protection as a nature reserve (Decision of the National Institute for Protection of Cultural Monuments and Natural Rarities of Bosnia and Herzegovina). The Sutjeska National Park was founded in 1962, and the Perućica primeval forest became an integral part of it (Stupar, Milanović, 2017).

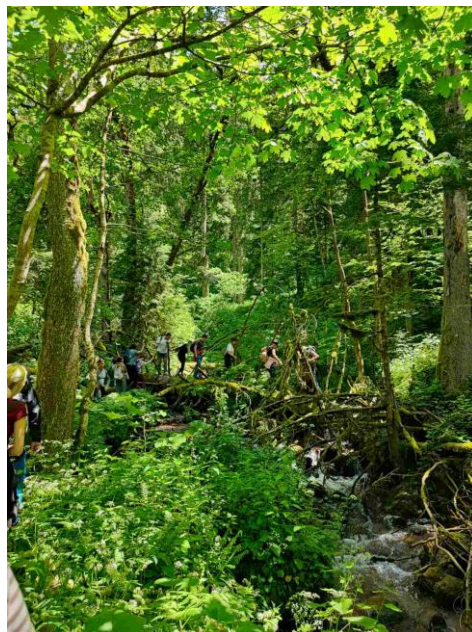


Fig. 1. Field research in the Perućica

Sutjeska National Park was formed due to preserving the memory of one of the most important battles in the 2nd World War (the Battle of Sutjeska). However, primeval forest Perućica was put under protection for the extremely preserved diversity of geological, geomorphological and biological values. Natural landscapes with numerous valleys, colossal mountain peaks, river canyons, deeply incised watercourses, mountain pastures, waterfalls, numerous endemic plants, diverse fauna are the characteristics of this area.

Perućica is protected primarily to be visited for scientific and educational purposes (Fig. 1.). In this paper, the boundary of the Perućica protected area was used, which exceeds the boundaries of the strictly protected area of the Perućica primeval forest, and such a limited area can be valorized in nature-based tourism.

Natural tourism resources

In the scientific and professional literature, natural tourism resources are most often divided into: geomorphological, climatic, hydrogeographic, biogeographic and landscape (natural landscapes). Natural tourist resources were created independently of the will of man, that is, they were created by the action of two basic types of natural forces on our planet - endogenous (earth's gravity and earth's heat) and exogenous (solar heat and gravitational effect of the Sun and Moon) forces of the Earth. They have one or more types of tourist attractions and condition the corresponding types of tourism. Natural tourism values are the basis of the development of recreational types of tourism (swimming, nautical, hunting, spa, mountain, coastal, lake, river, etc.) (Mešanović, Hadžimustafić, 2023).

Geomorphological tourism resources represent the relief and its forms, the way they influence the tourist offer, tourist infrastructure, construction of roads, tourist accommodation capacities, etc. The most significant are the mountains, which differ in the vertical dissection of relief, morphometry and morphogenesis. Relief is one of the climatic abiotic factors that significantly affects climate processes, altitudes modify temperatures, which is especially visible in areas with increased relief dissection, such as the area researched in this paper.

Climate is a complementary tourist resource, which can often be put first in terms of importance. In different ways, the weather and climate, that is, the variability of climatic elements, influence the choice of a tourist destination. It affects the human organism in a variety of ways, positively and negatively. Among the climatic elements that most favorably affect humans are insolation, air temperature, relative humidity, precipitation and winds, while the most significant climatic elements are air temperature and precipitation.

Hydrographic resources are also very attractive, because water covers 70% of the Earth's surface, and water is indispensable for the normal functioning of the human body. Hydrographic tourism resources include oceans, seas, lakes, rivers, thermal mineral springs, wetlands and glaciers. In this paper, two rivers flowing through the researched area, several springs, and two waterfalls were analyzed.

In the geographical envelope, the biosphere is distinguished, which consists of plant and animal life. In addition to the importance of fauna, as an integral part, the flora is more valued in the context of tourism development.

Landscape resources

The tourist value of landscape resources is directly dependent on the degree of tourist development as well as the equipment of the landscape itself. The National Park is an area with a large number of diverse natural ecosystems of national importance, prominent landscape features and cultural heritage in which man lives in harmony with nature, intended for the preservation of existing natural values and resources (Stojanović, 2011). These natural areas have several attractive attributes that attract tourists, and they can be linked to special objects in their composition that have motive characteristics: mountains, gorges, canyons, forest complexes, springs, rivers, lakes, endemic plants, animal species, etc. (Kadušić et al., 2018).

The concept of Nature-based tourism

Under the influence of globalization, more and more people live an urban life and separate themselves from the traditional life in the countryside in harmony with nature. The perception of people who produce food, catch fish, grow cotton for the clothes we wear is lost. The seasonality of fruit and vegetables virtually has ceased to exist; and the furniture in our homes is impossible to picture as the trees from which it came (Kuenzi, McNeely, 2008). People are part of nature and returning to nature is a primal need that we all strive for, regardless of modern "obstacles".

Tourism is one of the largest and fastest growing economic sectors in the world, and nature-based tourism is one of the fastest growing sectors of tourism.

There is no universal definition of nature-based tourism, it can be most simply defined as a trip during which the traveler enjoys the natural environment leaving his permanent place of residence. It can be said very succinctly that: Nature-based tourism is primarily concerned with the direct enjoyment of some relatively undisturbed phenomenon of nature (Valentine, 1992).

It has considerable growth potential and its development can concurrently ensure tourist satisfaction with the nature experience, profit for tourism providers, funds for environmental protection and an improvement in living standards in local communities (Žafran, 2023).

Nature-based tourism is determined and modelled by both anthropic and natural factors such as socio-demographic attributes, cultural values and financial aspects, biotic and abiotic elements (unique fauna, flora, often spectacular geology and hydrography of an area, etc.), infrastructure (access, utilities, and services), as well as objectives (endemic species, pristine wilderness, serene landscapes, monuments of nature, and man-made elements of touristic attraction within a natural setting) (Donici, Dumitras, 2024).

Nature-based tourism sector developed rapidly, at the time of the emergence of the global pandemic of COVID-19, when the demand for visits to nature increased strongly (Derks et al., 2020, Ferguson et al., 2022).

Examples of Nature-based tourism are: walking tourism, cycling tourism, adventure tourism, fishing, bird and wildlife watching, photography, stargazing, ecotourism, SAVE (Scientific, Academic, Volunteer and Education) tourism.

MATERIALS AND METHODS

Study area

The Perućica primeval forest is located in the Sutjeska National Park, in the southeast of Bosnia and Herzegovina. It stretches in a southeast-northwest direction, from the border with the Republic of Montenegro, to the Sutjeska River (Fig. 2.). Perućica is located in the Middle Bosnia macroregion, i.e. in the Upper Drina Mesoregion. In the administrative division, it is on the territory of the municipality of Foča. It has a favorable traffic-geographical position, because it is located next to the main road Višegrad - Goražde - Foča - Tjentište - Bileća - Trebinje - Dubrovnik. The protected area of Perućica has an area of 3,091 ha, while the strictly protected area of the Perućica primeval forest covers 1,434 ha.

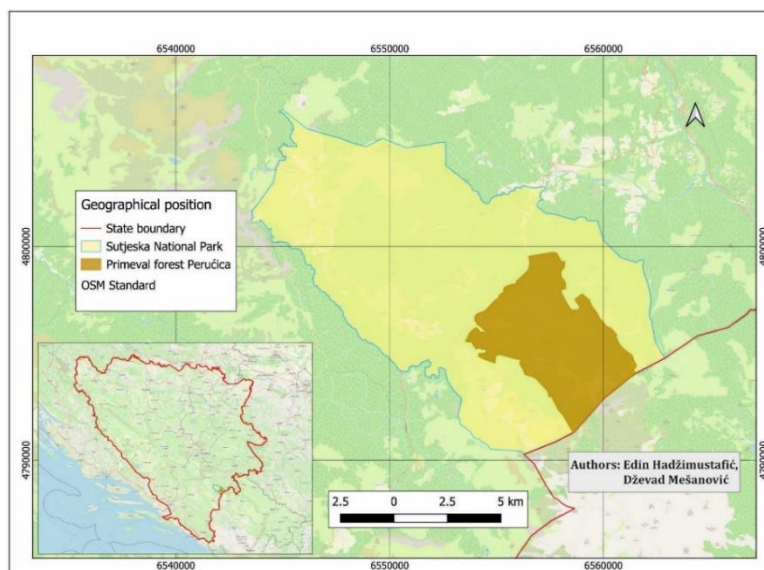


Fig. 2. The geographical position of the primeval forest Perućica

Classic tourist-geographical methods were applied in this work: analytical-synthetic, spatial, comparative, systematization and classification method, mathematical-statistical, as well as cartographic method. Field research in the area of the Perućica primeval forest was conducted in May 2024, when numerous natural heritage sites were analyzed (Fig. 3.).



Fig. 3. Fieldwork in the Perućica primeval forest

In the preparatory phase of the research, existing scientific and professional literature, cartographic material and other information (statistical data, photographs, satellite and aerial photographs, etc.) were analyzed. Geographic data for analysis in geographic information systems are collected from different sources and in different ways. The borders of the Sutjeska National Park, as well as the Strict nature reserve of the Perućica primeval forest, were taken from the geographic data repository of the European Environment Agency (EEA). Data on land cover, i.e. the eight classes of land found in this area (Broad-leaved forest, Coniferous forest, Mixed forest, Natural grasslands, Moors and heathland, Transitional woodland-shrub, Bare rocks and Sparsely vegetated areas), were taken from Corine Land Cover (CLC) 2018 database (CLC). For terrain analysis and visibility analysis, the global SRTM Digital Elevation Model with a spatial resolution of 30 m was used (USGS). Data of roads, mountain tops, viewpoints, shelters, were taken from the Open street map site (OSM). Data of watercourses, as well as springs, were digitized from a topographic map at a scale of 1:25,000 (Topo map). Data analysis was conducted in geographic information systems, software QGIS 3.34.3. An analysis of elevations, slopes, aspects, and terrain visibility was conducted. Topographic and hydrographic cross profiles were created using a digital elevation model with a spatial resolution of 30 m.

RESULTS AND DISCUSSION

The relief is made of sedimentary and clastic rocks of Mesozoic age, dominated by limestone and dolomite. Perućica is located in the highest mountain range of Bosnia and Herzegovina, in the northeastern part of the geomorphological region High Central Dinarides (Lepirica, 2009). The formation of today's relief forms is conditioned by the action of the Alpine orogeny, when the folded-thrusted massifs of Zelengora (2,015 m above sea level), Maglič (2,386 m above sea level) and Volujak (2,297 m above sea level) were formed. The terrain is criss-crossed by numerous faults and is characterized by pronounced vertical relief dissection.

Denudation-erosion-corrosion exogenous geomorphological processes, with gravity processes at higher altitudes, modeled the slopes. On the slopes above 1,500 m, glacial, periglacial and nivation forms of relief are represented. The valley of the river Sutjeska was formed by fluvial erosion, and in the researched area there is a gorge. Remains of the Pleistocene glaciation, cirques, glacial trough and moraines were found on mountain Maglić.

The recreational properties of geomorphological motifs are reflected in height differences, convenient viewpoints, the width of the horizon and the appearance of the landscape, which affect tourists psychologically and aesthetically. Terrain analysis is the best way to get to know existing and discover potentially new relief natural tourism resources. Therefore, we performed a hypsometric analysis, an analysis of terrain slope and aspect, as well as an analysis of terrain visibility.

The lowest measured altitude in the Perućica primeval forest is 578 m above sea level, while the highest is 2,386 m above sea level at Maglić (Fig. 4.). The lowest hypsometric zone 578 – 1,000 m above sea level occupies an area of 6.15 km², which is 20.4% of the total area. We divided the middle mountain belt into two classes. The first, 1,000-1,500 m above sea level covers the largest area of 16.2 km², or 53% of Perućica. The second class, 1,500 – 2,000 m above sea level has a smaller area of 7.7 km², that is, 25% of the territory. The smallest areas are in the high mountain zone of 2,000 - 2,386 m, only 0.78 km², which is 2.6% of the researched area.

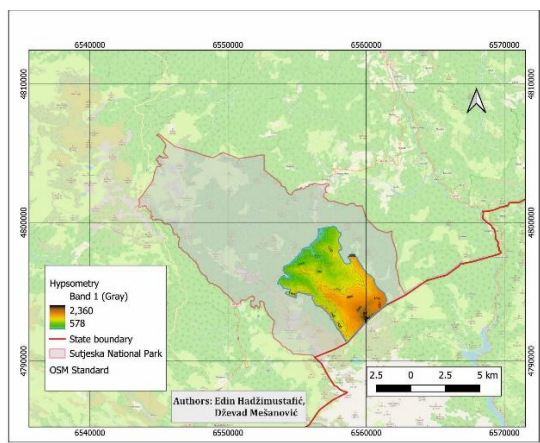


Fig. 4. The hypsometric map of Perućica

The slopes of the terrain were analyzed because they have a special importance for activities in nature such as hiking, mountaineering, mountain biking. Possibilities for these activities are expressed in the Perućica primeval forest by numerous hiking trails and roads, which allow movement. We have created a slope classification that best suits the terrain of Perućica (Fig. 5.). Smaller terrain slopes are less demanding to move, while larger slopes require more

effort to overcome. The gentlest slopes of the terrain (Nearly flat) of 0° - 5° are intended for easy walks, which can be used by people of all ages. Gentle slopes of 6° - 11° are the most suitable for easy picnic walks. These two classes are the least represented with 12.9% on the surface of 385.08 ha. Slopes of 12° - 20° represent mild ascents (Moderately sloping), while moderately difficult mountain ascents (Moderately steep) on terrain slopes of 20° - 32° . Moderately sloping has an area of 746.8 ha or 25%, while Moderately steep is the most represented with 947.9 ha, which is 31.7% of Perućica. On terrains with slopes of 33° - 55° (Steep), great physical strength is required, as these are difficult mountain climbs with free climbing. They occupy one quarter of Perućica (26.43%) with an area of 789.4 ha. Slopes over 55° (Very steep) are reserved for free climbing and alpinism, they have a small area of 1.17 ha, which is 3.91% of Perućica.

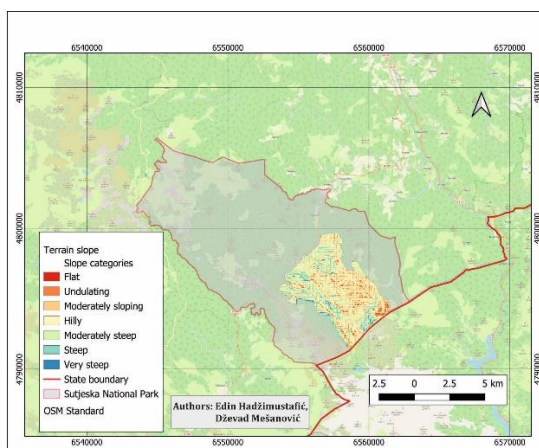


Fig. 5. The slope map of Perućica

The importance of the aspect analysis is because they are used for orientation, they play an important role in the spatial distribution of plant species and the length of the vegetation period. Differently oriented slopes receive an unequal amount of short-wave solar radiation (Hadžimustafić, 2023). Southern aspect are sunnier and receive more solar energy, while northern aspect receive less solar energy and are cooler. The northern aspect (north, north-east, north-west) have the largest area of 1,435 ha, which is conditioned by the general from south-east to north-west direction of Perućica. Slopes with southern aspects (southeast, south, southwest), which receive the greatest amount of solar energy, occupy a quarter of the researched area or 749.7 ha (Fig. 6.). Sunnier slopes are more pleasant for movement and stay in nature, and have better prerequisites for nature-based tourism.

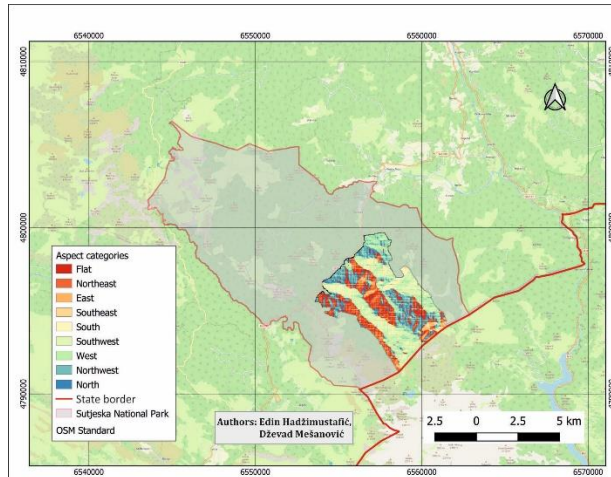


Fig. 6. The aspect map of Perućica

Primeval forest Perućica has great potential for movement in a special natural environment, almost untouched nature. All forms of movement (hiking, trekking and mountaineering) are possible on marked trails. The path that starts from Dragoš sedlo, descends and crosses the Perućica river, climbs the Tunjemir hill, and descends steeply towards the Suški stream, is the main path for scientific research, education in nature, academic visits and studies of flora and fauna. Considering its importance and the position it occupies, we named it ‘‘The heart of Perućica path’’ (Fig. 7.).

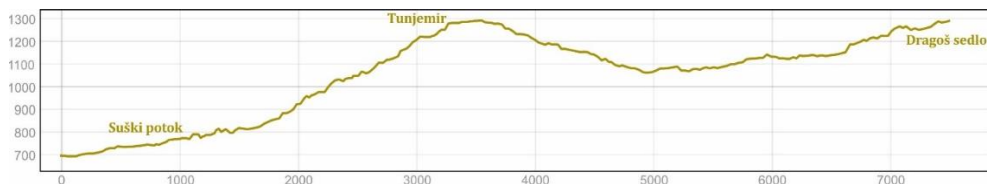


Fig. 7. Hiking path ‘‘The heart of Perućica’’ (Dragoš sedlo - Perućica river - Tunjemir - Suški potok)

From the locality of Prijedor, the trails heading to the highest peak of Bosnia and Herzegovina, Maglić (2,386 m above sea level). From the regional road that passes through the Sutjeska National Park, all the way to Prijedor, there is an unpaved road, which is used both for hiking and mountain biking, also for landscape photography and enjoying scenic beauty. That road leads to Prijedor locality where is the beginning of the path towards Maglić peak (2,386 m above sea level). That peak is particularly important because it represents the starting point towards the highest peak of Bosnia and Herzegovina, so it is a special honor to visit this trail and climb Maglić mountain.

From the tops of mountains and hills, there is an extraordinary view of the relief composition and natural and cultural landscapes. In this area, there are several viewpoints from which one can enjoy spectacular views. Viewpoints are suitable, in addition to enjoying the extraordinary beauty of the landscape, for bird and wildlife watching, photography, stargazing. Most viewpoints are located in the northern part of Perućica, on Beškita hill (1,274 m above sea level) and Dragoš saddle.



Fig. 8. „Beškita“ viewpoint

There are two viewpoints on Beškita, but the view is better from the higher viewpoint, which is located at 1,250 m above sea level, just below the top of Beškita (Fig. 8.). It offers a view of the entire Perućica primeval forest, Maglić, Volujak, Prijevor, Zelengora (Fig. 9.).

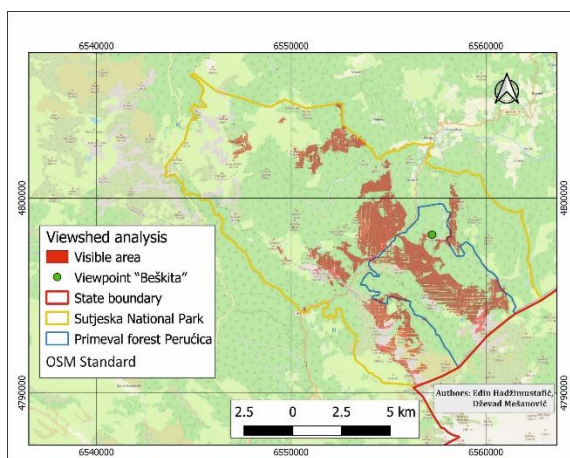


Fig. 9. Terrain visibility from the „Beškita“ viewpoint

A special curiosity is the view of the Skakavac waterfall. The Skakavac waterfall is best seen from the Skakavac viewpoint, located on the slopes of Mokra greda, so one can enjoy its beauty from the closest distance. In the southeastern part of Perućica, in the wider area of Prijevor, at 1,645 m above sea level, there is a viewpoint. In its vicinity, between Prijevor

and Makaze (1,683 m above sea level), at an altitude of 1,654 m, there is a tower, from which one can see the Perućica primeval forest from the southeast, and the mountains Maglić, Volujak and Zelengora also (Fig. 10.). It is located on the opposite side of Beškita, and since it is at a higher altitude, a larger area can be observed from it. For the purposes of the analysis, two terrain visibility maps were created from the aforementioned viewpoints, Beškita and Prijedor (tower). The maps show parts of the Perućica terrain that can be seen from the viewpoints, as well as parts that cannot be seen.

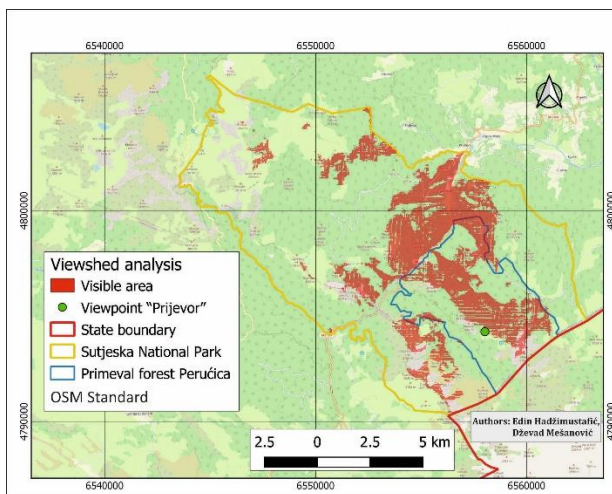


Fig. 10. Terrain visibility from the „Prijedor“ viewpoint

The protected area of Perućica is located on the western slopes of Maglić, and the influence of the Mediterranean climate from the south and the continental climate from the north can be felt in this area. Mountain climate prevails at higher altitudes. Winters are long and cold, and spring and summer are short. The lowest temperatures are in January (Čemerno -4.5°C, Suha -3.1°C and Tjentište -1°C), and the highest are in July and August with 13°C (Suhoj), 14.9°C (Čemerno), and 18°C (Tjentište) (Hrelja et al., 2020). The annual amount of precipitation is from 1,500 to 2,000 mm, depending on the altitude. Rainfall is frequent and evenly distributed throughout the year. Snow stays for three to six months. The mountain climate has a beneficial effect on the human body, it increases the number of red blood cells, it is suitable for asthmatics, anemic people, people who do a lot of intellectual work, staying in fresh and clean air has a beneficial effect on people who exchange urban environments with the natural environment.

Among the hydrographic tourist resources in the Perućica primeval forest, we single out the Perućica watercourse and the less attractive Suški potok. The rivers have a pluvial-nival regime with the highest water levels in March and April, and the lowest from June to October. Suški stream dries up in the period from June to October. The main right tributary of the Perućica river is the Kondžilski stream, and the Prijedorški stream flows in from the

left side. The attractiveness of rivers is usually related to certain curious hydrological phenomena, such as waterfalls. Waterfalls represent an exceptional natural rarity and beauty. On the Perućica stream, there is one of the highest permanent waterfalls in Bosnia and Herzegovina, the Skakavac waterfall, which falls from a height of 75 m (Fig. 11.). Perućica is also rich with many natural water sources.



Fig. 11. Skakavac waterfall

The Perućica river valley is a hanging valley cut into the lower western slopes of the Maglić massif. The Perućica River rises at 1,582 m above sea level, and flows into Sutjeska, as the right tributary, at an altitude of 615 m. It is 6.8 km long with a height difference of 967 m from the source to the mouth, with a pronounced slope of the river bed. It flows in a southeast-northwest direction and in its basin is the Perućica primeval forest. The river bed of Perućica is evenly cut into the topographic surface, except for the part where a cascade is created from which the water of the Skakavac waterfall falls (Fig. 12.).

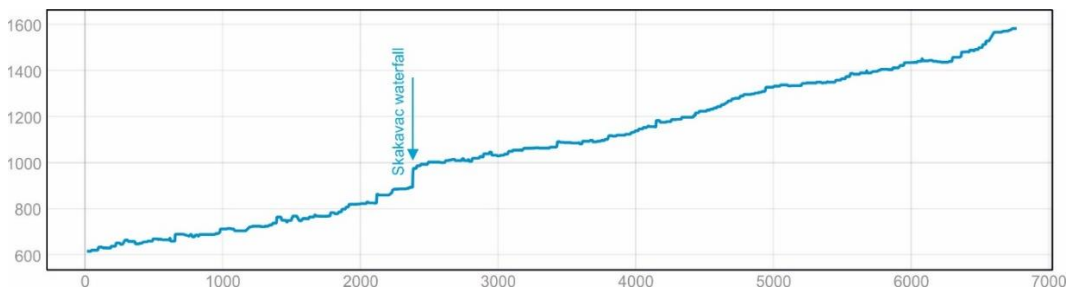


Fig. 12. Longitudinal elevation profile of the Perućica river

Skakavac waterfall was created by tectonic movements. Downstream from the Skakavac waterfall, the valley narrows and changes into a canyon valley, all the way to the mouth of the Sutjeska river. In the far south of Perućica, on the border with Montenegro, there is a water reservoir called Suha Jezerina, which is of a periodic nature, as it dries up from April to October. It has a small area, is relatively difficult to access, and is attractive mostly for mountaineers.

Plant life in tourism can be used in several ways: first aesthetically, then decoratively, hygienically and recreationally. Broad-leaved forest covers 986 ha or 31.9%, while Coniferous forest is much less widespread at 284 ha, which is 9.2% of Perućica. The largest area is covered by mixed forest with 1,286.42 ha, which is 41.61% of the territory. Compared to forests, the areas of Natural grasslands are small, 73 ha or 2.36%. Bare rocks are visible on 149.4 ha or 4.83% of Perućica (Fig. 13.).

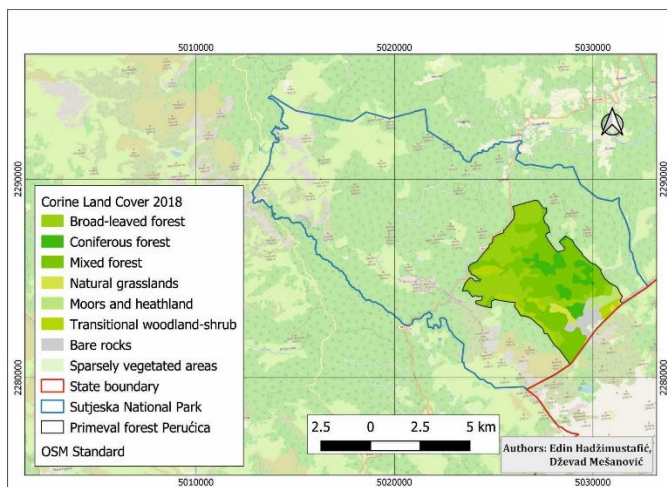


Fig. 13. Perućica Land cover

In the area of Maglić we find all the most important species of mammals that live in Bosnia and Herzegovina: chamois (*Rupicapra rupicapra*), roe deer (*Capreolus capreolus*), wild boars (*Sus scrofa*), wolves (*Canis lupus*), bears (*Ursus Arctos Bosniensis*), wild cats (*Felis silvestris lybica*), foxes (*Vulpes vulpes*) and martens (*Mustelidae*). The golden eagle (*Aquila chrysaetos*) and Eastern imperial eagle (*Aquila heliaca*) nest on the high cliffs. Peregrine falcon (*Falco Peregrinus*) and Eurasian goshawk (*Accipiter gentilis*) dominate the lower areas. In the coniferous forests we also find numerous forest hens such as: western capercaillie (*Tetrao urogallus*) and hazel grouse (*Bonasa bonasia*) in warmer places, and in the meadows: red-winged blackbird (*Agelaius phoeniceus*) and rock partridge (*Alectoris graeca*). A total of 114 different species of birds were recorded. So far, over 170 species of trees and shrubs and over 1,000 species of herbaceous plants have been registered in Perućica, many of which are endemic (Balijan, 2017).

The natural tourism potential of this area has been researched in a broader sense, with works that treat the Sutjeska National Park (Hrelja et al., 2020) and the Upper Podrinje mesoregion (Lepirica, 2010). As a result of research of the Perućica primeval forest, in the context of Nature-based tourism, a tourist map was created, which synthetically presents natural tourist resources (Fig. 14.).

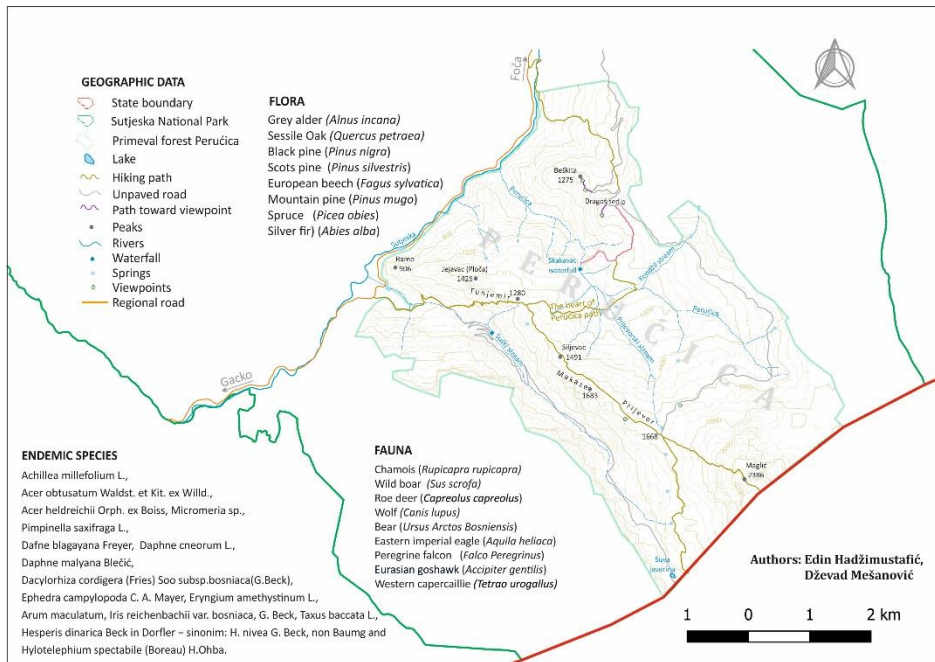


Fig. 14. Touristic map of primeval forest Perućica

Tourism in protected areas brings certain benefits, but also degrading elements. Potential benefits of tourism in the Perućica primeval forest are: employment for the local population, increased income, stimulation and diversification of the local economy, encouragement of local production, contribution to the preservation of natural heritage, support for environmental education of tourists, visitors and local residents, etc. Negative effects are associated with environmental degradation, loss of biodiversity, excessive number of tourist visits, etc. The development of tourism in the Perućica primeval forest implies adapting to the specificities and protection regimes of this area. Tourism must be carefully regulated, in small groups of visitors, primarily interested in scientific and ecological education and recreation. This is achieved by implementing the concept of environmentally friendly tourism, which will not degrade natural resources and which will ensure quality contact between tourists and pristine natural values.

CONCLUSION

Perućica primeval forest, as an integral part of Sutjeska National Park, is a protected area of national interest: scientific, educational and touristic and recreational. The Perućica primeval forest is protected primarily to be visited for scientific and educational purposes. Given that the protected area of Perućica is larger than the primeval forest itself, it is possible to develop different forms of tourism based on natural tourist resources, respecting above all, the uniqueness of the preserved diversity of geological, geomorphological and biological values. It has excellent predispositions for adrenaline tourism (mountaineering, hiking, camping,

bird watching, ecotourism, photo safaris, orienteering, etc.), geotourism, sports-recreational, sustainable tourism, etc.

The Perućica primeval forest is a unique gem of Bosnia and Herzegovina's natural heritage. With its natural beauty and landscapes, it attracts a significant number of tourists and visitors, both from Bosnia and Herzegovina and from abroad. The research results obtained in this paper will bring this unusually attractive area closer to nature lovers, which will have a positive effect on the additional strengthening and development of tourism in the Perućica primeval forest, as well as in Bosnia and Herzegovina.

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A GIS-BASED MULTI-CRITERIA ANALYSIS OF OPTIMAL SKI RESORT LOCATIONS IN SARAJEVO CANTON

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Abstract: This research was aimed to employ a GIS-based multi-criteria analysis (MCA) to identify optimal ski resort locations within Sarajevo, where the XIV Winter Olympic Games were held in 1984. Utilizing a MCA within a geographic information system (GIS), four key geomorphological parameters were analyzed: elevation, slope, aspect and terrain roughness. Elevation and slope were prioritized as primary criteria, while aspect and terrain roughness served as secondary criteria. Additionally, climatic data, including snow cover depth and average air temperatures, were considered to provide a comprehensive assessment of the region's suitability for ski resort infrastructure. Using a digital elevation model (DEM), these parameters were first standardized and then weighted according to their significance in ski resort suitability. The combined analysis facilitated the identification and visualization of the most suitable locations for ski resorts on mountains such as Bjelašnica, Treskavica and Jahorina. The integration of multiple criteria within GIS provided a comprehensive and objective approach to spatial planning and tourism development. The robustness of the results was confirmed through systematic analysis, demonstrating the method's reliability in supporting informed decision-making processes. This research underscores the importance of detailed geomorphological and climatic analysis in the sustainable development of tourism.

Key words: GIS, Multi-Criteria Analysis (MCA), Ski Resort Location, Sarajevo, Spatial Planning, Tourism Planning

INTRODUCTION

Tourism significantly contributes to the global economy, by providing opportunities to enhance local communities, protect the environment and improve quality of life. Geographic

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Information Systems (GIS), which facilitate in-depth spatial analyses and strategic decision-making, have become integral to tourism planning in recent years. It provides a strong basis for recognizing potential and overcoming challenges in the development of tourism, by incorporating a range of datasets, including environmental, socioeconomic and infrastructure aspects (Khattab & El-Sayed, 2021; Lawelai, 2024). This technology enables precise site selection and the development of sustainable tourism policies that balance economic objectives with environmental preservation. An example of GIS application can be found in Sarajevo Canton, located in the central part of Bosnia and Herzegovina, which represents a region with significant tourism potential that could greatly benefit from such planning approaches. Its mountains – Bjelašnica, Igman, Trebević, Jahorina and Treskavica – are renowned for their geomorphological conditions for winter sports. Furthermore, their historical role as hosts of the XIV Winter Olympic Games in 1984 adds cultural and symbolic significance. Despite these advantages, Sarajevo's tourism resources remain underutilized, pointing to the need for a systematic approach to developing its tourism infrastructure.

GIS technology offers a solution by integrating spatial parameters such as elevation, slope, terrain roughness and climatic data into a detailed analytical models. When combined with MCA, GIS serves as a powerful tool for evaluating spatial suitability, providing important insights for informed tourism development planning. This combination enables evidence-based decision-making, ensuring that tourism development aligns with sustainability objectives and addresses environmental challenges (Malczewski, 2006; Lawelai, 2024). For instance, GIS is instrumental in analyzing factors like snow cover depth and temperature fluctuations, which are pivotal for ski resort viability (Berard-Chenu et al., 2022).

Climate change poses significant challenges for winter tourism, particularly through the variability in snowfall patterns and increasing temperatures. In Sarajevo Canton, these impacts are evident in reduced snow reliability in lower elevations and increased dependency on artificial snowmaking. To address these challenges, this research utilizes GIS-based MCA to develop sustainable solutions.

The increasing unpredictability of snowfall and rising temperatures trends threaten the sustainability of ski resorts, necessitating innovative solutions such as artificial snowmaking and climate-adaptive designs (Berard-Chenu et al., 2021; Mikloš et al., 2018). GIS-based tools provide insights for assessing these risks and developing mitigation strategies, thereby ensuring resilience of tourism development. This research was focused on the usage of GIS and MCA methodologies to evaluate tourism planning within Sarajevo Canton, emphasizing the importance of sustainability principles integration in that process. Sustainable tourism in this context includes the preservation of natural features, but also reduction of ecological footprint and the promotion of socio-economic development within local communities (Khattab & El-Sayed, 2021; Lawelai, 2024).

This research uniquely integrates geomorphological parameters, such as elevation and terrain roughness, with climatic data, including snow cover and temperature, to provide a strong basis for sustainable ski resort planning in Sarajevo Canton. The results of this research intend to support policymakers, but also investors, in formulating tourism planning strategies that harmonize natural conservation with economic profit, thus enabling long-term benefits of mountain tourist destinations. This research therefore offers a systematic approach to understanding and addressing the complexities of tourism development, as it provides practical recommendations for improving Sarajevo Canton's tourism infrastructure while considering the impacts of climate variabilities and regional disparities.

LITERATURE REVIEW

The integration of Geographic Information Systems (GIS) combined with MCA has become an important method in tourism planning. It helps solve various challenges such as site selection, sustainable development and resource optimization.

GIS analyses, based on MCA model, have been widely recognized as a powerful tool for addressing complex challenges in land-use planning and resource management. Rikalović et al. (2014) emphasize GIS-MCDA's utility in industrial site selection, showcasing its adaptability to spatial decision-making challenges. Lokhande et al. (2017) and Aksoy & San (2019) extend this framework to landfill site selection, highlighting its ability to integrate diverse criteria for informed planning. Their research has demonstrated the efficacy of GIS and MCA in industrial and landfill site selection. However, application to ski resort planning remains limited, particularly in integrating climatic and geomorphological data. Ahmadi et al. (2014) highlighted the rapid evolution of GIS-based MCA in solving urban planning problems and managing conflicting multi-objectives, such as ecological conservation versus tourism expansion. Similarly, Vuković (2022) illustrated the utility of GIS and MCA in ecotourism development, showcasing their ability to evaluate resources and develop strategic plans that balance environmental and economic priorities.

Phua and Minowa (2005) emphasized the adaptability of GIS-based MCA in forest conservation planning, which has been extended to tourism infrastructure development. Boers and Cottrell (2007) applied these methods to identify sustainable tourism pathways by overlaying social and environmental datasets, enabling planners to create sustainable trail systems that align with carrying capacity and visitor preferences.

GIS-based MCA has also proven invaluable in cultural and ecotourism contexts. Sivic et al. (2023) developed a methodological framework for evaluating cultural tourism sites in Foča, Bosnia and Herzegovina, ranking attractions based on accessibility, amenities and ancillary services. Their research was conducted to show an example of how GIS can optimize resource allocation and provide actionable insights for enhancing tourism offerings.

In ecotourism, Ahmadi et al. (2014) utilized GIS and MCA to identify site suitability in Iran, integrating physical and environmental criteria to optimize land-use strategies. Ebrahimi et al. (2019) further explored ecological carrying capacity in Iran, demonstrating the importance of aligning tourism development with environmental sustainability by balancing visitor numbers and ecological preservation.

Accessibility plays a crucial role in successful tourism planning. Zhu et al. (2006) applied GIS and MCA to evaluate housing and tourism infrastructure in Singapore, focusing on accessibility to public transport and amenities. Their findings underscore the importance of integrating accessibility models into tourism development strategies to ensure connectivity and convenience for visitors.

Similarly, Ólafsdóttir and Runnström (2009) examined ecological sensitivity for tourism development in Iceland, emphasizing the importance of preserving fragile environments while developing tourism infrastructure. Their research reinforces the necessity of environmentally conscious planning to maintain the integrity of natural landscapes.

Climate considerations have emerged as critical factors in tourism planning. Maily et al. (2013) integrated climatic variables such as wind speed and temperature into MCA frameworks to evaluate favorable climates for tourism. This approach highlights the role of GIS in climate-responsive tourism planning, ensuring resilience to environmental changes and optimizing visitor experiences. Selçuk (2013) also applies GIS-MCDA to avalanche hazard mapping in Turkey, addressing geomorphological risks - a methodology highly relevant to ski resort planning.

Recent advancements in GIS technology have facilitated digital and web-based applications in tourism. Noviansyah (2023) demonstrated the development of GIS platforms for halal tourism, enabling users to locate attractions and facilities through mobile apps. These innovations reflect the growing emphasis on interactive GIS solutions to enhance tourism management and accessibility. By combining spatial analysis with decision-making models, these tools enable a balanced approach to economic development and environmental conservation. Research by Sivic et al. (2023), Ahmadi et al. (2014) and Vuković (2022) underscores the transformative potential of GIS and MCA in optimizing resource allocation, enhancing cultural tourism and fostering sustainability.

Despite the extensive use of GIS and MCA in tourism planning, limited studies have simultaneously integrated geomorphological and climatic parameters in the context of ski resorts. This research is focused on addressing this gap by combining these parameters to provide actionable insights for Sarajevo Canton's winter tourism

RESEARCH AREA

Sarajevo Canton, located in central Bosnia and Herzegovina, spans 1,276.9 km², with diverse geomorphological and climatic characteristics that are highly relevant for tourism development, particularly winter sports. The canton is characterized by its mountainous terrain, including the Sarajevo Valley and the surrounding mountains: Bjelašnica, Igman, Trebević and Treskavica. These mountains, especially Bjelašnica and Treskavica, showcase significant geomorphological features such as karst formations, glacial deposits and five glacial lakes on Treskavica, including Veliko and Bijelo Lake. These features not only define the Sarajevo's natural appeal but also serve as a solid basis for developing tourism infrastructure like ski resorts and eco-tourism initiatives.

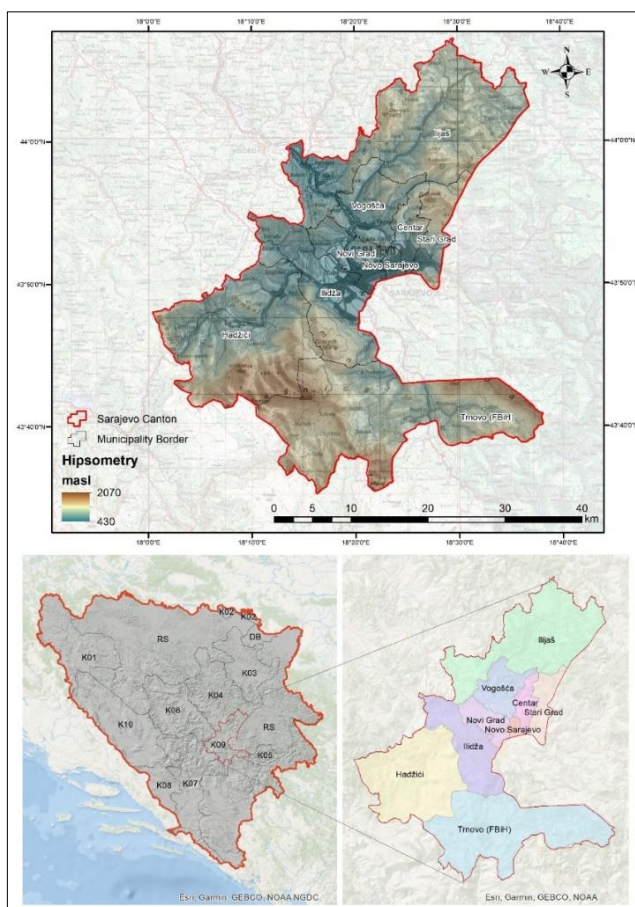


Fig. 1: Geographic and administrative position of Sarajevo Canton in Bosnia and Herzegovina

(Source: Geo-database of GIS Center of Department of Geography, University of Sarajevo – Faculty of Science, adapted by the authors using ArcGIS [GIS software] Version 10.6.1.)

Sarajevo's elevation ranges from 500 to over 1,500 meters, with approximately 10% of the area lying above 1,500 meters, primarily in the southern regions. This relief variation significantly influences the area's climatic diversity. Lower altitudes are characterized by Cfb climate type, with warm summers (but no dry season) and moderate precipitation evenly distributed throughout the year, while higher altitudes experience colder and snowier conditions, classified under the Df climate type (humid boreal or snow forest climate) in the Köppen system. The classification within this climatic type is determined based on the thermal and pluviometric regimes, alongside the accompanying values of other climatic elements (Drešković, 2011). The lower elevations, including the Sarajevo Valley, are characterized by a temperate continental climate with an average annual temperature of 9.7°C and annual precipitation of 935.0 mm. These climatic conditions, combined with the geomorphological ones, create ideal conditions for winter tourism, particularly skiing. The valley's topography, however, can slow down air circulation during winter thermal inversions, contributing to air pollution, which negatively impacts tourism development both directly and indirectly. (Gekić et al., 2022)

Bjelašnica, one of the most prominent mountains in the research area, represents its potential for winter sports. The mountain receives significant snowfall, with snow cover exceeding 10 cm typically lasting 160 days annually, from late November to May. These characteristics were a crucial factor in its selection as a venue for the 1984 Winter Olympics, stabilizing its reputation as a premier location for skiing and other winter sports.

The historical significance of Sarajevo Canton, highlighted by its role as host of the 1984 Winter Olympics, provides a unique cultural and symbolic foundation for tourism. However, recent climatic trends, such as temperature inversions and snow variability, highlight the need for adaptive and climate-resilient planning.

Sarajevo Canton's transitional climate, situated between subtropical and temperate zones, provides a mix of conditions suitable for diverse tourism activities. Higher altitudes offer cold, snowy winters essential for ski resorts, while the temperate conditions of lower elevations support year-round activities. The area also experiences approximately 1,800 hours of annual sunshine, enhancing its appeal for outdoor recreation. However, climate change poses significant challenges, including fluctuations in snow reliability and temperature inversions, particularly in the Sarajevo Valley. This area is especially susceptible to air pollution, influenced primarily by its geomorphological and climatic features, as well as emissions from individual heating systems and traffic. These factors must be accounted for in tourism planning to ensure the region's resilience and long-term viability.

The geomorphological and climatic features of Sarajevo Canton provide a strong basis for using GIS-based analyses in tourism planning. Key spatial parameters such as elevation, slope, terrain roughness, snow cover and temperature can be integrated into a MCA framework to identify optimal sites for ski resorts and other tourism infrastructure.

This approach ensures that development aligns with the natural characteristics of the region while addressing environmental and climatic challenges. For example, the glacial and karst features of Bjelašnica and Treskavica offer unique opportunities for eco-tourism and educational programs, complementing the Sarajevo's winter sports facilities.

MATERIALS AND METHODS

The methodology applied in this research outlines the systematic approach used to identify optimal ski resort locations within Sarajevo Canton using GIS and MCA. ArcGIS software was selected for its strong capabilities in data collection, integration, analysis and visualization of spatial data.

Initially, the research focused on data preparation, using DEM to derive critical geomorphological parameters such as elevation, slope, aspect and terrain roughness. These datasets were compiled from topographic maps, high-resolution satellite imagery and field surveys to ensure comprehensive coverage and accuracy across the research area. Standardization of parameters was used to ensure consistency and comparability across diverse datasets. Each parameter underwent normalization within predefined ranges suitable for ski resort suitability analysis.

Primary criteria included elevation and slope, which significantly influence snow quality and skiing conditions, while secondary criteria like aspect and terrain roughness impact wind. For each criterion, specific scales were defined to reflect the most optimal, optimal and unfavorable conditions for ski resorts. The weighting scheme was informed by expert consultations and validated against established frameworks, such as the U.S. Ski & Snowboard Association guidelines (2022) and Marinović-Uzelac's spatial planning criteria (2001), ensuring relevance to skiing infrastructure requirements.

The classification of these layers was performed using ArcMap. Elevation was classified according to the suitability for ski resorts. Following the guidelines set by Marinović-Uzelac (2001), the most optimal locations were defined as those with elevations between 1600 and 1800 meters, as these elevations typically provide the most favorable snow conditions and terrain features for skiing. Locations above 1800 meters were also considered optimal due to their potential for better snow quality and extended skiing seasons. All other elevations were deemed unfavorable for ski resort development.

Slope was categorized based on its relevance to skiing conditions. The analysis utilized slope classifications similar to those applied by the U.S. Ski & Snowboard Association (2023), where slopes between 14 and 22 degrees were considered most optimal for skiing due to their ideal gradient for various skiing activities. Slopes ranging from 3 to 14 degrees were deemed optimal, while slopes outside these ranges were classified as unfavorable.

The classification of aspect involved differentiating between various exposures to sunlight and prevailing winds. Most optimal aspects were those facing north (0 to 22.5 degrees and 337.5 to 360 degrees), as these orientations typically experience less direct sunlight and more consistent snow conditions. Slope aspects within the ranges of 22.5 to 67.5 degrees (northeast) and 292.5 to 337.5 degrees (northwest) were classified as optimal, while all other aspects were considered unfavorable due to less favorable snow preservation conditions.

Terrain roughness was evaluated using criteria adapted from the U.S. Ski & Snowboard Association (2023). The most optimal roughness values were those between 30 and 100 meters, indicating moderate terrain variation suitable for diverse skiing experiences. Roughness values between 100 and 296 meters were considered optimal, while terrain with roughness outside these ranges was deemed unfavorable due to excessive roughness impacting skiing quality and safety.

With standardized parameters, MCA was applied to integrate and evaluate these criteria collectively. MCA enabled the synthesis of multiple factors into a single evaluative framework, facilitating the identification of the most suitable locations for ski resorts. Weighting criteria were assigned based on their relative importance in determining the suitability of ski resort site selection. This process involved assigning numerical weights to each criterion to reflect their influence on optimal skiing conditions and site attractiveness. Validation was conducted using sensitivity analysis by altering weights for each criterion. This process revealed minimal variation in final results, confirming the robustness of the applied methodology. The weights were derived from established guidelines (e.g., Marinović-Uzelac, 2001) and consultations with tourism planning experts. Elevation and slope were assigned higher weights (0.4 each), due to their critical influence on skiing conditions while aspect and terrain roughness were assigned lower weights (0.1 each) but still considered essential for comprehensive analysis. These weights reflect the relative importance of each parameter in the context of assessing locations for ski resorts. The combination of standardized and weighted layers was performed using the *Raster Calculator* tool, where the weights were applied to the respective layers and the results were combined into a single layer that displayed the overall score for the optimal ski resort location for each spatial unit. The final result is represented by an equation that synthesizes and integrates all relevant criteria into a weighted summation framework:

$$OL_{SR} = \sum_{\{i=1\}}^n (X_i \cdot W_i)$$

where:

- X_i signifies the normalized or standardized value corresponding to the i -th criterion, explicitly detailed as follows:
 - E_i for elevation
 - S_i for slope

- A_i for aspect
- TR_i for terrain roughness
- W_i denotes the corresponding weight applied to the i -th criterion, ascribed to:
 - W^E for elevation,
 - W^S for slope,
 - W^A for aspect and
 - W^{TR} for terrain roughness.

Using ArcGIS, the standardized and weighted parameters were combined through *Raster Calculator* to produce a suitability map for ski resorts. The GIS-based approach allowed for detailed spatial analysis and visualization of the most favorable locations based on the integrated criteria. The final output was a composite map highlighting the optimal areas for ski resort development, categorized into most optimal, optimal and unfavorable locations. MCA integrated the weighted parameters to objectively evaluate potential ski resort locations. The final values were classified using the Jenks natural breaks classification method, which creates class breaks to best group similar values together while maximizing the differences between classes. The Jenks natural breaks algorithm, much like K-means clustering, assigns data to one of K groups such that within-group variance is minimized. This method resulted in three categories related to ski resort location conditions: 0–0.298 (unfavorable), 0.299–0.651 (optimal), and 0.652–1 (most optimal). By synthesizing multiple criteria into a unified analytical framework, MCA facilitated the identification of sites that best met the predefined criteria for ski resort development in Sarajevo Canton. Sensitivity tests varied criterion weights and input parameters to ensure the consistency and quality of findings, thereby confirming the method's suitability for informing decision-making processes.

FINDINGS AND DISCUSSION

The research was conducted to provide a detailed analysis of the spatial distribution of optimal and most optimal values for each geomorphological parameter within Sarajevo Canton, focusing on elevation, slope, aspect and terrain roughness. These parameters were systematically evaluated and visualized to identify the most suitable areas for ski resort development. Furthermore, the analysis was augmented with climatic data, including snow cover depth and average air temperatures, to ensure a comprehensive and holistic assessment of the region's potential for ski resort infrastructure. Using Fig. 2, which illustrates the suitability of elevation, slope, aspect and terrain roughness, the research resulted in geovisualisation of the most favorable locations for ski resort infrastructure.

The elevation parameter is critical in determining suitable locations for ski resorts due to its influence on snow cover and climatic conditions. The elevation suitability map (Fig. 2.1) categorizes locations into:

- Most Optimal Locations (1600 - 1800 meters): These regions represent the ideal elevation range for ski resorts. They represent only 4,31% of total research area, emphasizing the scarcity of high-suitability zones. However, locations within this range ensure a reliable snow cover while maintaining accessibility. This elevation range is crucial as it balances the need for adequate snowfall and the logistical considerations of resort construction and maintenance.
- Optimal Locations (Above 1800 meters): These areas cover only 2,50% of total area. They are suitable for skiing, but present challenges such as increased difficulty in access and potential harsh weather conditions. However, they still offer reliable snow conditions, making them viable options for ski resort locations.
- Unfavorable Locations (Below 1600 meters): Areas below indicate unsuitability for ski resort development due to insufficient snow cover and less favorable climatic conditions.

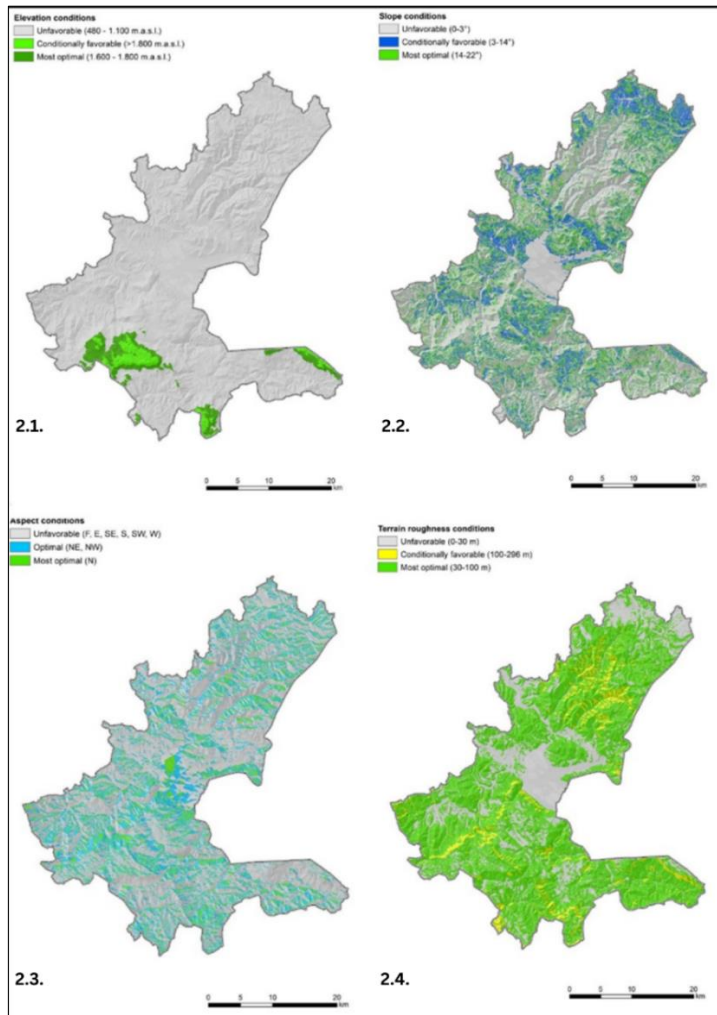


Fig. 2: Suitability analysis of geomorphological parameters for ski resort development in Sarajevo Canton: Elevation (2.1), Slope (2.2), Aspect (2.3) and Terrain roughness (2.4)

(Source: Geo-database of GIS Center of Department of Geography, University of Sarajevo – Faculty of Science, adapted by the authors using ArcGIS [GIS software] Version 10.6.1.)

Slope gradient is another fundamental parameter influencing the suitability of ski resort locations, as it impacts the quality and safety of skiing activities. The slope map (Fig. 2.2) classifies the terrain as:

- Most Optimal Locations (14-22°): These slopes provide a good balance between challenge and safety, catering to a wide range of skiing abilities and preferences, therefore these ideal for skiing activities. They participate with 24,66% in total research area.

- Conditionally Favorable Locations (3-14°): Less steep slopes cover 21,19% of total area. They may not offer the same level of excitement; therefore, they may not meet the needs of experienced skiers, but they are suitable for beginner skiers and alternative winter sports activities.
- Unfavorable Locations (0-3° and >22°): These areas either lack sufficient incline for skiing or are too steep, posing significant safety risks and operational challenges.

Aspect, or the direction a slope faces, significantly impacts snow retention and quality, due to varying sun exposure. The aspect conditions map (Fig. 2.3) classifies slopes based on their orientation:

- Most Optimal Locations (North-facing, 337.5-22.5°): North-facing slopes cover 12,56% of total area. Those slopes are optimal due to reduced direct sunlight exposure, which helps preserve snow quality and prolongs the skiing season.
- Optimal Locations (North-East and North-West, 22.5-67.5° and 292.5-337.5°): These slopes cover 25,95% of total research area. They also benefit from favorable snow retention conditions but may receive slightly more sunlight compared to purely north-facing slopes, making them slightly less optimal.
- Unfavorable Locations (Other Directions): These areas are more exposed to sunlight, leading to quicker snowmelt and less favorable conditions for skiing.

Terrain roughness affects the feasibility of ski resort infrastructure development and the overall skiing experience. The terrain roughness conditions map (Fig. 2.4) categorizes the terrain as follows:

- Most Optimal Locations (30-100 meters): Moderate terrain variations create ideal conditions for skiing, while facilitating infrastructure development. These participate with a large percent (67,89%) in total research area.
- Conditionally Favorable Locations (100-200 meters): These areas cover 7,52% of total area. They may pose challenges for development but are still usable with careful spatial planning.
- Unfavorable Locations (0-30 meters and >200 meters): Extremely smooth or rugged terrains either lack the necessary terrain features for skiing or are too rugged for safe and practical resort development, therefore those are less suitable due to safety concerns and construction difficulties.

Climatic factors, particularly temperature and snow cover depth, play a pivotal role in determining the viability of ski resorts. This research included data on temperature from a 30-year period (1992–2022) recorded at the Bjelašnica meteorological station.

By examining such an extensive temporal range, the research was aimed to identify precise climatic patterns critical for assessing long-term viability. For snow cover depth, data spanning the period 2015–2022 were analyzed, as this parameter has only been systematically recorded in meteorological yearbooks since 2015. The results revealed that snow cover depths from December to March consistently ranged between 66.75 cm and 183.125 cm, providing stable conditions for skiing activities. Average temperatures during the same months varied from -5.8°C in February to -3.7°C in March, which aligns with favorable conditions for snow retention and quality. Conversely, snow cover during the remaining months was negligible, typically ranging from 0 to 10 cm, making these periods unsuitable for winter tourism planning. Dual approach to analyzing long-term temperature trends and recent snow cover data ensures a solid framework for understanding the climatic prerequisites for sustainable ski resort development in Sarajevo Canton. The synthesis of geomorphological and climatic parameters (Fig. 3) provides a comprehensive overview of Sarajevo Canton's potential for ski resort development. By integrating elevation, slope, aspect, terrain roughness and climatic data, three mountains—Bjelašnica, Jahorina and Treskavica were identified as the most optimal locations for the construction and development of ski resorts. Each mountain is characterized by its unique attributes, influencing its suitability for ski resort infrastructure and diversification of tourism activities. The classification of suitability conditions depicted in Fig. 3 was derived using the Jenks natural breaks method, which optimally groups similar values while maximizing differences between classes. The most optimal locations constitute 2.17% of the total area of Sarajevo Canton, while optimal locations account for 36.99%, highlighting significant potential for targeted tourism development. The following provides a concise overview of the key characteristics of these mountains, with a particular focus on their suitability for winter tourism infrastructure development and implications for sustainable tourism planning

Bjelašnica is identified as one of the most optimal locations for ski resort development in Sarajevo Canton. The mountain's elevation, ranging up to 2,067 meters, falls within the ideal range for ski resorts, ensuring reliable snow cover and extended skiing seasons. The terrain features slopes with gradients between 14° and 22° , which provide the perfect balance between skiing challenge and safety. Additionally, the predominance of north-facing slopes ensures reduced sunlight exposure, enhancing snow preservation and quality. Bjelašnica's historical significance as a venue for the men's alpine skiing events during the 1984 Winter Olympics reinforces its identity as a winter sports destination. Recent investments in modern ski lifts and hospitality facilities have enhanced its infrastructure, attracting both domestic and international tourists. Despite its well-established ski amenities, the mountain remains relatively tranquil, offering a serene environment that appeals to those seeking less commercialized settings. Beyond winter sports, Bjelašnica supports diverse activities such as hiking and mountain biking, making it a year-round destination.

Jahorina, located southeast of Sarajevo, represents another highly favorable site for ski resort development. This mountains peak elevation of 1,916 meters supports consistent snow cover, while its extensive ski trails and moderate slopes cater to skiers of all levels. The slopes of Jahorina feature gradients within the optimal range (14° – 22°), complemented by northeast and northwest aspects, which enhance snow retention and prolong the skiing season. As a host of the women’s alpine skiing events during the 1984 Winter Olympics, Jahorina has solidified its reputation as a premier winter sports destination. Modern infrastructure, including advanced ski lifts, well-maintained trails and family-friendly amenities, positions it as a highly commercialized resort with wide appeal. Jahorina’s extensive offerings, such as hiking and biking in the summer, ensure that it remains a year-round tourist attraction.

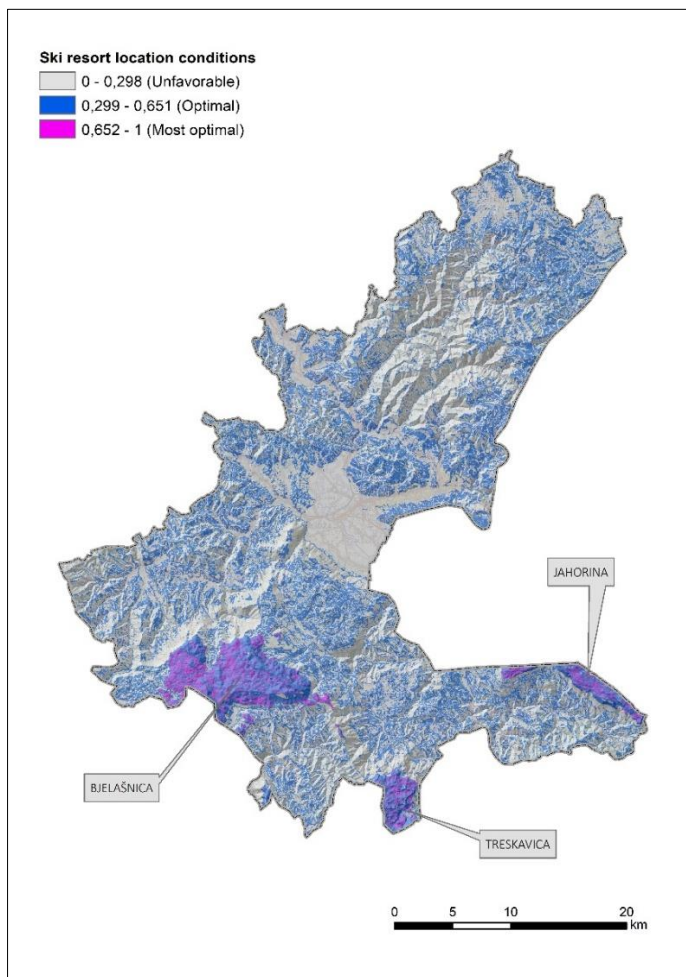


Fig. 3: Synthesized suitability map for ski resort locations in Sarajevo Canton
(Source: Geo-database of GIS Center of Department of Geography, University of Sarajevo – Faculty of Science, adapted by the authors using ArcGIS [GIS software] Version 10.6.1.)

Treskavica, although lacking the infrastructure of Bjelašnica and Jahorina, is a mountain with significant potential for diversifying tourism. Its remarkable features, such as glacial lakes and diverse biodiversity, make it an ideal destination for eco-tourism and adventure activities. While Treskavica's elevation and terrain meet many of the criteria for ski resort development, several factors limit its immediate feasibility. The absence of ski infrastructure on Treskavica is partly due to landmine contamination in certain areas, a legacy of the war that afflicted Bosnia and Herzegovina during the 1990s. Additionally, this lack of development can be attributed to the presence of relatively well-established ski resorts in its immediate vicinity. Additionally, the mountain's physical-geographical determinants align more closely with eco-tourism and conservation goals, offering opportunities for hiking, camping and nature exploration. Treskavica's landscapes provide an alternative to the highly commercialized settings of Bjelašnica and Jahorina, appealing to visitors seeking authentic outdoor experiences.

The synthesis map (Fig. 3) points to the fact that Bjelašnica and Jahorina are the most suitable locations for ski resort development, with both areas combining favorable geomorphological and climatic conditions. Bjelašnica's higher elevation and challenging terrain make it particularly attractive to advanced skiers, while Jahorina's extensive ski runs and modern infrastructure cater to families and tourists of all skill levels. In contrast, Treskavica's lack of ski infrastructure limits its immediate suitability for skiing but underscores its potential as a leading eco-tourism destination. The comparative analysis highlights the complementary roles of these mountains in Sarajevo Canton's tourism strategy. Bjelašnica and Jahorina can continue to expand as flagship winter sports destinations, while Treskavica offers a unique opportunity to diversify the region's tourism offerings through sustainable eco-tourism initiatives.

Compared to similar studies in the French Alps (Berard-Chenu et al., 2022), Sarajevo Canton demonstrates competitive geomorphological advantages but faces greater climatic variability. For instance, snow cover on Bjelašnica, averaging 160 days annually, contrasts with declining trends in similar regions globally, underscoring its resilience.

CONCLUSION

The results of this research point to the effectiveness of integrating GIS-based MCA in identifying optimal locations for ski resort development within Sarajevo Canton. By systematically evaluating geomorphological parameters—elevation, slope, aspect and terrain roughness, alongside essential climatic data such as snow cover and temperature, the research provides a solid framework for informed decision-making in tourism and regional planning.

The synthesis map highlights Bjelašnica, Jahorina and Treskavica as the most optimal areas of interest, with Bjelašnica and Jahorina standing out as the most suitable locations for ski resort infrastructure due to their optimal terrain and climatic conditions. Treskavica, while lacking ski infrastructure, presents significant potential for eco-tourism development, emphasizing the importance of preserving its natural environment.

The findings of this research provide a detailed plan for policymakers, emphasizing the integration of spatial data and multi-criteria analysis to guide sustainable investments in tourism infrastructure, ensuring resilience amid climate variability. Investments in the established ski resorts of Bjelašnica and Jahorina could enhance their competitiveness and solidify Sarajevo Canton's reputation as a premier winter tourism destination in Southeast Europe. The construction of new and potential reconstruction of existing infrastructure would improve accessibility and expanding amenities would not only attract more tourists but also stimulate local economies and foster sustainable regional development. Conversely, Treskavica's unique natural and ecological characteristics position it as an ideal candidate for eco-tourism initiatives. Targeted efforts in conservation and sustainable planning could further emphasize the potential of this mountain from a tourism perspective, while preserving its biodiversity and natural heritage. Such approach aligns with global trends toward environmentally responsible tourism, catering to a growing segment of eco-conscious travelers. Adopting a dual tourism strategy, focusing on the continued growth of ski tourism in Bjelašnica and Jahorina and developing Treskavica as an eco-tourism hotspot ensures a balanced and sustainable framework for tourism in Sarajevo Canton. This strategy accommodates diverse tourist preferences while addressing environmental sustainability, creating opportunities for both economic advancement and cultural preservation. By using the strengths of these three mountains, Sarajevo Canton can optimize its tourism potential while safeguarding its natural resources for future generations.

The methodology applied in this research demonstrates the value of integrating spatial analysis with MCA, offering a replicable model for similar studies in other regions. The use of GIS tools enabled precise visualization and evaluation of spatial and environmental factors, fostering objective, data-driven decision-making. Importantly, the inclusion of climatic data highlights the need for adaptive planning to address the challenges posed by climate change, ensuring the long-term viability of ski resorts. Policymakers should prioritize infrastructure upgrades on Bjelašnica and Jahorina, focusing on improving accessibility and sustainable amenities. Additionally, targeted conservation efforts on Treskavica could position it as a leading eco-tourism destination.

Future research should incorporate additional parameters, such as proximity to transportation networks, urban centers and complementary tourist attractions, to refine the analysis further. Furthermore, future research should incorporate socio-economic factors and stakeholder input to refine findings. Expanding the scope to include socioeconomic factors and stakeholder input could enhance the applicability of the findings and support more

comprehensive regional tourism strategies. By continuing to integrate advanced analytical tools and sustainable practices, Sarajevo Canton can serve as a model for other regions seeking to balance economic development with environmental protection.

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LIGHT POLLUTION AND SUSTAINABLE TOURISM: A CASE STUDY OF THE LOCAL COMMUNITY TRG OSLOBOĐENJA – CENTAR, SARAJEVO, BOSNIA AND HERZEGOVINA

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Abstract: The analysis of light pollution levels is crucial for understanding its impacts on the environment, human health and urban development, as well as for developing strategies and technologies to mitigate its negative effects. The International Dark-Sky Association (IDA) defines light pollution as any harmful phenomenon caused by artificial lighting, including skyglow, glare, light trespass and overillumination. Light pollution disrupts ecosystems, influences animal behavior and threatens human health. In urban areas, it can also reduce the attractiveness of tourist destinations, diminishing the clarity of the night sky. This research focuses on the geovisualization and measurement of light pollution at a selected micro-location – Trg oslobođenja - Centar, a local community in Sarajevo (Bosnia and Herzegovina). The primary aims of this study are to conduct precise measurements and geovisualization of light pollution levels, analyze their relationship with tourism activities and formulate strategies for sustainable tourism development. The proposed measures emphasize balancing tourism growth with the need to preserve the environment and the aesthetic value of the space. Research findings offer valuable insights into a critical aspect of tourism planning and provide a solid foundation for future comparative studies, both within Sarajevo and in broader contexts.

Keywords: light pollution, sustainability, geovisualisation, Sarajevo.

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INTRODUCTION

Light pollution, defined by the International Dark-Sky Association (IDA) as any harmful phenomenon caused by artificial lighting, such as skyglow, glare, light trespass and over-illumination, has become a pressing global issue (URL 1). This type of pollution not only disrupts ecosystems and human health but also contributes to energy waste and carbon emissions, with approximately 30% of global artificial lighting remaining unused (URL 2). In urban areas, light pollution significantly diminishes the visibility of the night sky, thereby reducing the aesthetic and experiential appeal of tourist destinations. This phenomenon poses a series of challenges, such as balancing urban growth and tourism development with the preservation of environmental and cultural heritage (Baloch et al, 2022). The local community of Trg Oslobođenja – Centar in Sarajevo, one of the most urbanized areas of the City of Sarajevo, which serves as the administrative, political, economic and educational center of the country, is presumed to be particularly vulnerable to the effects of light pollution due to its dense concentration of streetlights, illuminated advertisements, public events and commercial lighting. These sources collectively contribute to the overillumination of the area, raising important questions about the environmental and social sustainability of tourism development in such contexts (Baloch et al, 2022). As a significant tourism hub, rich in cultural and historical resources, this local community serves as an representative case study to explore the relationship between light pollution and sustainable tourism.

The importance of analyzing light pollution lies in its multidimensional impact on urban ecosystems, human well-being and tourism dynamics (Aguilera, Gonzalez, 2023). Artificial lighting interferes with the nighttime behavior of animals, impacts human sleep patterns and causes considerable economic losses due to energy inefficiency (Czarnecka et al, 2022). On the other hand, for tourism-driven localities, light pollution could negative affect the assets that attract visitors, such as clear night skies and the preservation of authentic urban aesthetics (Gallaway, 2010; Rodrigues et al., 2014). Rodrigues et al. (2014) state that light pollution in heavily illuminated areas has a range of impacts on tourists, affecting various aspects of their experiences and perceptions. It can diminish the aesthetic impression of destinations by obscuring the natural beauty of the night sky, a feature many tourists seek (Gallaway, 2010). Additionally, excessive artificial lighting can interfere with sleep quality, particularly for visitors staying in accommodations near bright, bustling areas (Wang et al, 2023; URL 5). From a practical perspective, light pollution can also raise concerns about safety, as overly bright or improperly directed lighting may cause glare or reduce visibility (URL, 6, 7). At the same time it can influence environmental awareness, encouraging tourists to reflect on the ecological impacts of artificial lighting (Jägerbrand, Bouroussis, 2021; Himschoot, 2024).

Considering the aforementioned topics and challenges, it becomes evident that a systematic and comprehensive study is needed, primarily aimed at determining the intensity of light pollution and identifying key zones with the highest levels of illumination and pollution. Expanding on the primary research question, further inquiries should explore how this form of pollution affects the sustainability of local tourism development. The main focus of this paper is the geovisualization and measurement of light pollution and daylight illumination in the local community of Trg Oslobođenja – Centar, with the aim of understanding their relationship with sustainable tourism development. The study is structured around several main objectives:

- to conduct detailed measurements of illumination and light pollution levels within the area to obtain precise data on its intensity and distribution;
- to identify the primary sources of light pollution in this local community, including street lighting, advertisements and commercial activities;
- geovisualisation using GIS software to create spatial representations that enhance the understanding of pollution dynamics;

Together, these objectives form a systematic framework for assessing light pollution and its implications for sustainable urban and tourism planning. In addition to the measurements conducted in the evening hours (8:00 pm), measurements of light levels were also carried out in the morning hours to determine the degree of illumination. It is important to emphasize that the following work builds upon prior research that investigated noise pollution in the same geographical area, forming part of a broader effort to analyze urban environmental challenges in selected local community. By focusing on light pollution, this research expands the understanding of pollution's impact on urban sustainability, offering insights into how artificial lighting interacts with tourism activities. This research seeks to propose practical measures that balance the need for tourism growth with environmental preservation and the enhancement of visitor experiences. The findings of this study contribute to an important and underexplored area of urban and tourism planning, particularly in the context of Sarajevo and Bosnia and Herzegovina. Furthermore, it provides a foundation for comparative studies within other local communities, offering opportunities to identify broader patterns and develop targeted strategies to mitigate light pollution. By addressing these challenges, this research highlights the critical role of environmental management in ensuring the long-term sustainability of tourism hubs in urban areas.

LITERATURE REVIEW

Light pollution has been increasingly recognized as a significant environmental issue, attracting attention in various geographical and interdisciplinary studies. Research in this area employs diverse methodological approaches from geography, particularly geoeological studies and urban planning, as well as psychology, to assess and address the

impacts of artificial lighting. The role of geography and geographic software, such as GIS, has proven crucial not only in the detection and visualization of light pollution but also in its integration with analyses of other urban pollutants, such as noise (Votsi et al, 2017). This emphasizes the growing importance of geospatial tools in understanding and mitigating the effects of pollution in urban and suburban contexts. Today, numerous resources provide geovisualized data that allow for comparative analysis of light pollution levels, including interactive light pollution maps (URL 3, 4.).

In recent studies advanced modeling techniques and remotely sensed imagery are used to analyze light pollution, particularly in urban and suburban areas (Chalkias, 2006; Lamphar, 2020; Li et al., 2020). Authors of these studies highlight the potential of combining satellite data with GIS to map and monitor the spatial distribution of light pollution. On a global scale, research has demonstrated a concerning trend, with satellite observations indicating a 49% increase in emissions between 1992 and 2017 (Sanchez de Miguel et al., 2021). In Europe, light pollution research has focused on three primary themes: the impact on ecosystem functioning and trophic interactions, socio-economic aspects of darkness protection and the advancement of measurement methods (Widmer et al., 2022). These studies provide a foundation for understanding the complex interplay between artificial lighting and environmental, economic and technological systems. Widmer et al. (2022) provide an overview of studies examining the relationship between light pollution and human health, encompassing approximately 20 studies conducted on substantial sample sizes. The findings from these studies make significant contributions to medicine, emphasizing the critical health implications of light pollution and the urgent need to address it as a pressing environmental and public health issue. European countries are increasingly addressing light pollution through legal frameworks, strategies and technical standards (Green Public Procurement Criteria for Street Lighting and Traffic Signals, 2018; Zero Pollution Action Plan, 2021). According to the documents, the measures encompass legislation, voluntary guidelines, awareness campaigns, research projects and the promotion of dark-sky areas. However, while European research has advanced in these areas, gaps remain in local-level assessments and regulations, particularly in Southeast Europe.

In the context of Bosnia and Herzegovina, research on light pollution, including studies conducted between 2013 and 2021, has provided valuable insights into the national trends and spatial distribution of this issue. These studies analyze changes in light pollution levels across different regions of the country and examine the impact on dark sky areas (Žiberna, et al., 2019; Žiberna et al., 2022). The findings emphasize the potential for establishing 'Dark Sky' protected parks through targeted measures for artificial lighting limitation, stating the importance of preserving areas with minimal light pollution for both ecological and tourism benefits. Such efforts align with broader global trends and highlight the necessity of integrating light pollution management into environmental and spatial planning in Bosnia and Herzegovina. Besides these studies it is important to mention the deficit in research at the local community level. This contrasts with the more extensive literature addressing other

forms of pollution, such as air and noise pollution in Sarajevo (Ćetković et al., 2023; Hasanović, 2023). According to Žunić (2024), research analyzing pollutants in Sarajevo concluded that light pollution significantly disrupts migratory bird behavior, affecting their navigation and stopover patterns. The research highlights how tourism-driven light pollution, combined with noise pollution and some other factors, may explain the unusual settlement of seagulls in urban areas like Sarajevo. This phenomenon underscores the intersection of environmental pollutants and wildlife conservation challenges, particularly in regions experiencing rapid tourism expansion. The scarcity of localized studies on light pollution presents an opportunity for new research in order to contribute to a deeper understanding of its impacts on urban sustainability.

These global and regional findings emphasize the importance of advancing research at both macro and micro levels to address the challenges posed by light pollution. By increasing the potential of geographic tools and interdisciplinary approaches, future studies could enhance the precision of measurements, develop targeted mitigation strategies and inform sustainable urban and tourism planning.

STUDY AREA

The local community of Trg Oslobođenja – Centar is located in the central part of Sarajevo and represents one of the most urbanized areas in Bosnia and Herzegovina. Its small spatial coverage, with a total area of 0.542 km² and a population of 3,148 (Federal Bureau for Statistics, 2016), indicates a high population density (among highest in the country). This community has a highly dynamic urban character, particularly in terms of tertiary activities and dense urban structures (Marić et al, 2024). The area includes key streets and squares that are functionally significant for the local population and form Sarajevo's cultural and commercial center. Consequently, there are significant daily population fluctuations in the streets within the study area, such as Branilaca Sarajeva, Dalmatinska, Ferhadija, Gimnazijska, Gajev Trg, Kaptol, Kulovića, Muhameda Kantardžića, Mula Mustafe Bašeskije, Obala Kulina Bana, Maršala Tita and Ćemaluša (Figure 1). The morphological and functional diversity of the selected area, together with intensive urbanization, high population density, diverse economic activities (which require high levels of illumination) and the presence of certain park areas (with very low illumination), makes this community an interesting location for measuring illumination and light pollution. Its central position in Sarajevo provides a relevant context for analyzing urban pollution and exploring opportunities to implement sustainable measures aimed at improving the sustainable forms of tourism.

It has already been noted that this local community was selected as a case study for a series of research projects, starting with noise pollution, followed by light pollution and subsequently comparative analyses with other local communities characterized by lower levels of urbanization and more peripheral locations. Trg Oslobođenja – Centar also plays

an important role in Sarajevo's tourism landscape, serving as an area for events, festivals and public gatherings that attract both local residents and international visitors. The area's intense street lighting and illuminated landmarks contribute to creating a lively and welcoming atmosphere for tourists, enhancing their overall experience. However, these features also significantly contribute to light pollution, raising questions about the balance between tourism development and environmental sustainability.

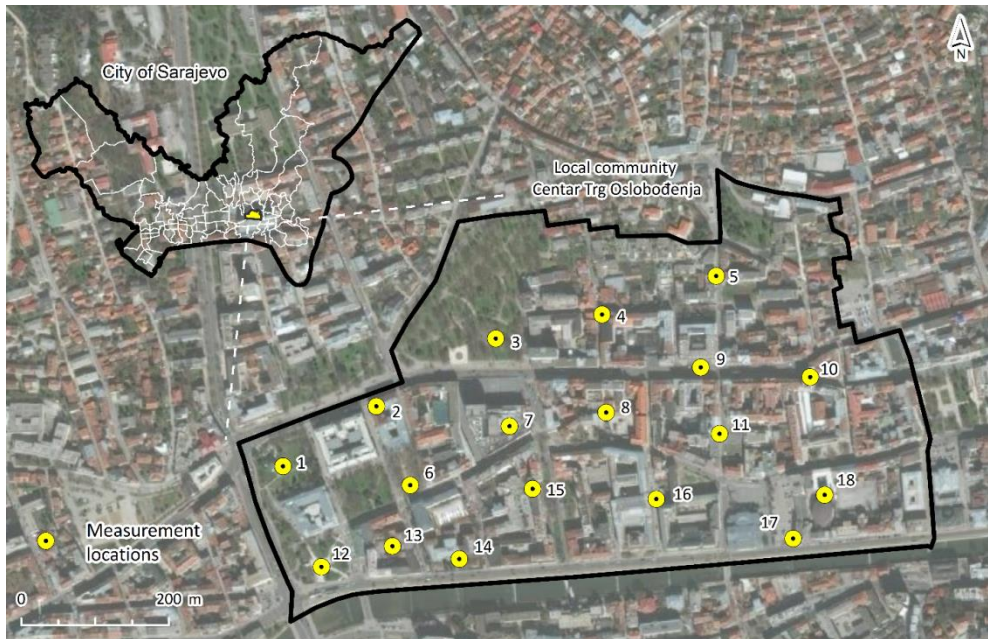


Fig. 1. Measurement locations within study area

Source: authors

Cultural events, which are hosted within and around this area, require extensive lighting infrastructure to ensure safety and create an engaging ambiance. The diverse tourism activities in Trg Oslobođenja and its surroundings make it an attractive destination, offering cultural, religious and business tourism, supported by apartments, hotels and conference centers that serve to visitors year-round. These social characteristics, including significant tourism potential and active tourism development, state the importance of the selected study area in Sarajevo's tourism sector while highlighting the challenges of managing its environmental footprint.

METHODOLOGY

The research applied set of methods, comprising analysis, synthesis, field research, statistical analysis and GIS techniques. In the first research phase, literature and cartographic materials were collected to define the subject and objectives of the study, as well as the research area itself. This phase also included a review of methodological approaches applied in previous studies, as well as the scientific equipment used for these types of research.

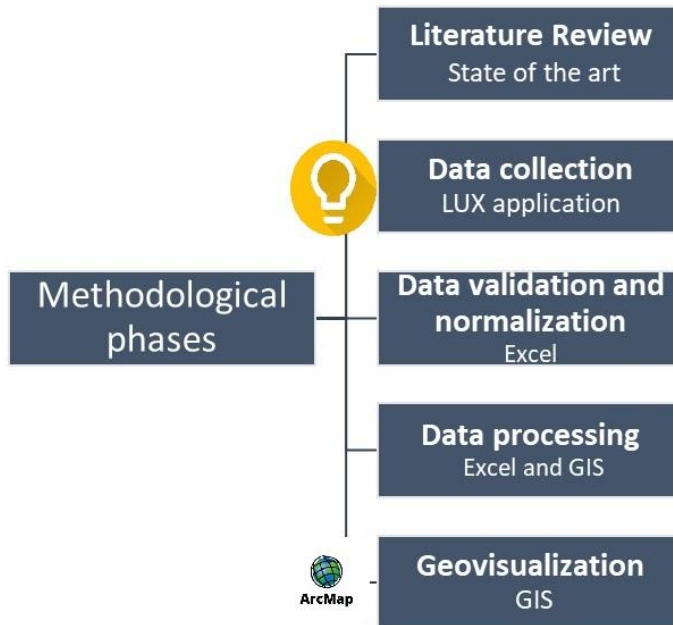


Fig. 2. The research methodological process

Sorce: authors

For field research, the mobile application ‘**Lux Light Meter Pro**’²⁸ was used, which enables relatively precise measurements of light pollution levels (expressed in lux, lx), given the use of mobile devices. The application was chosen for its reliability and compatibility with the research requirements, including the ability to collect accurate, time-stamped data. Data was

²⁸ Reviews for the mentioned application indicate very high user ratings compared to other applications with the same function - <https://play.google.com/store/apps/details?id=com.doggoapps.luxlight&hl=en&pli=1> (accessed in April 4, 2024).

gathered at a total of 18 locations within the local community of Trg Oslobođenja – Centar, aiming to capture key points (from the perspective of functional and morphological differentiation) that represent the entire area within the defined community boundaries (Figure 1). Locations were selected near street lighting, public facilities and green spaces to allow for comparisons of pollution levels across different parts of the area and under varying conditions.

Data collection was conducted from *March 30 to April 5, 2024*. Measurements were taken twice a day: in the morning (08:00 am) to capture daylight illumination levels, and in the evening (08:00 pm) to measure different levels of light pollution. This methodology enables the analysis of changes in the intensity of light pollution depending on the time of day and specific urban conditions (weather). The final output of the research process are thematic maps of light levels/illumination and light pollution at night, which represent the spatial distribution of this type of pollution within the local community of Trg Oslobođenja – Centar. This form of visualization provides significant insights into the spatial patterns of illumination and light pollution, allowing the identification of high-intensity zones, which is very important for planning of mitigation measures and the development of strategies for the sustainable tourism of the area.

RESULTS

Analyzing the collected statistical data (database) and thematic cartographic visualizations revealed that light pollution directly correlates with the morphological and functional differentiation of the area. Daylight cannot be classified as light pollution. Measurements, database creation and geovizualization of illumination during the morning hours (08:00 am), focusing on natural daylight, were conducted for comparative analysis with artificial night illumination. The goal was to determine the natural and anthropogenic factors influencing this type of pollution.

The comparative analysis identified significant differences between natural daylight and nocturnal light pollution levels (as expected), but it also established a link between the factors influencing daytime illumination and night-time pollution. Among detected factors, cloud cover stands out as having a significant effect on illumination, impacting the transformation of sunlight as it passes through the atmosphere to reach the Earth's surface. The highest average morning daylight levels were recorded at *8,883.6 lux* during clear and sunny days, while the lowest average values were *2,569.1 lux* during overcast and partly cloudy days.

Cloud cover also significantly affects night-time illumination. The highest average light levels at 8:00 pm were *17.9 lux* during clear nights, while the lowest were approximately *10 lux* on cloudy nights. In addition to cloud cover, the openness of the space to natural light sources (the morphology of the area) plays a crucial role in both daylight illumination and

light pollution. Even without artificial light sources, the most illuminated areas at night are those that are morphologically open to natural light. However, the morphological predisposition of an area (such as land cover contributing to its openness to natural light) is significantly enhanced during nighttime by the functional differentiation of the space. This includes services, illuminated advertisements and light emitted from vehicles, which together amplify the effects of light pollution.

The map (Figures 3, 4) illustrates the distribution of light illumination levels in the local community of Trg Oslobođenja-Centar during mornings on weekdays and weekends. The highest daily illumination (Figures 3, 4) is found in areas with the most open spaces, wide streets and squares that allow maximum passage of natural light. Additionally, extra artificial light from street lighting and commercial establishments contributes to the overall high level of illumination. On the outskirts, where daily light pollution is minimal, natural daylight is limited and artificial light sources are scarce. These areas may include residential neighborhoods with few open spaces or regions with dense tree cover that obstructs sunlight. It is important to note that cloud cover had a significant impact on the daytime measurement results.



Fig. 3. Map of Illumination in the Morning Hours on a Weekday (Trg Oslobođenja - Centar)

The highest average morning illumination (08:00 am) during weekdays was approximately 9,000 lux on clear and sunny days, while the lowest was around 4,000 lux on cloudy days.

The maximum recorded values during this measurement period (morphologically open spaces) were *14,097.9 lux*, while the minimum recorded values (morphologically enclosed spaces) during the same period were *3,093.5 lux*. Maximum daylight values were measured on clear days, while the minimum values were recorded during periods of significant cloud cover.

On weekends, with one day being clear and sunny and the other cloudy, similar measurement results were observed as on weekdays. The highest average morning illumination (08:00 am) during weekends exceeded *10,000 lux* on clear and sunny days, while the lowest was around *2,569.1 lux* on cloudy days. The maximum recorded values during this measurement period (morphologically open spaces) were *41,250.5 lux*, while the minimum recorded values (morphologically enclosed spaces) were *1,786.8 lux*.

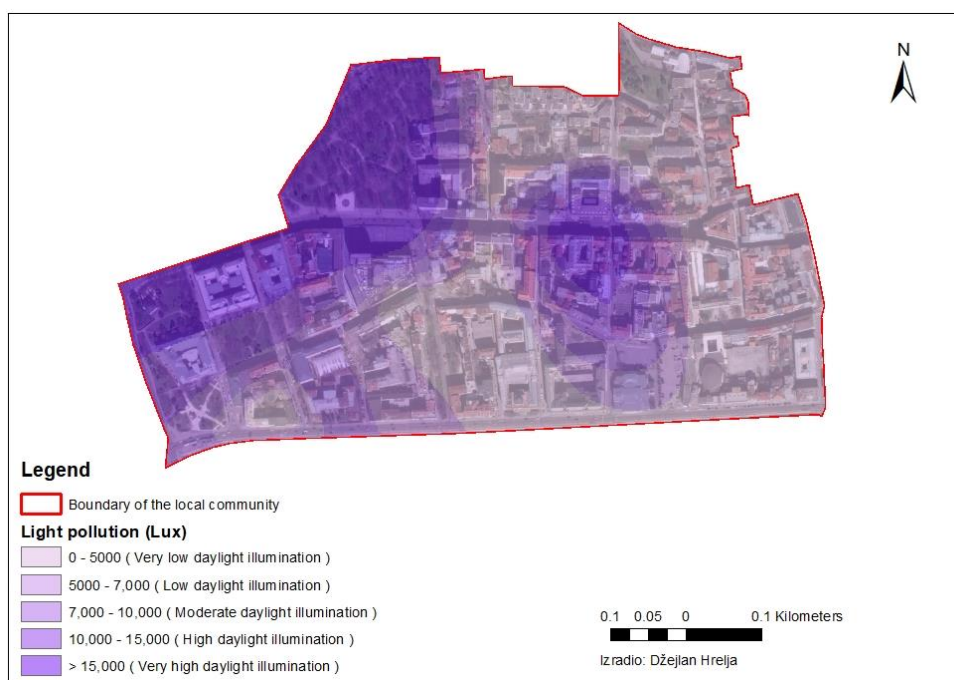


Fig. 4. Map of Illumination in the Morning Hours on a Weekend (Trg Oslobodjenja - Centar)

Maximum daylight values were measured on sunny days, while the minimum values were observed during periods of significant cloud cover and in morphologically enclosed areas (Figure 4).

Measurements of light pollution during nighttime hours (8:00 pm) and the geovisualization of spatial data reveal that pollution levels depend on both natural and anthropogenic factors. This conclusion is supported by the fact that the areas with the highest concentrations of

daylight also exhibit the highest levels of nighttime light pollution. A natural factor influencing these levels is cloud cover. Among the anthropogenic factors, the morphological and physical characteristics of the area, along with its functional differentiation, play a significant role in determining the extent of light pollution.

High levels of light pollution arise from the dense presence of artificial light sources, such as intense street lighting, heavily illuminated commercial areas and busy traffic. These are universal sources of light pollution, identified in studies conducted in other urban areas (Gaston et al, 2013). Areas with the lowest levels of light pollution are located on the outskirts of the local community, where there are very few or no sources of artificial light, which may include parks, green spaces or residential areas with minimal lighting. These zones are typically associated with urban cores where commercial and residential activities overlap. Moderate light pollution levels are present in transitional zones, such as areas between highly urbanized sectors and more peripheral or open spaces. These areas may have reduced but still active lighting, such as residential streets or secondary roads (Figures 5, 6).



Fig. 5. Map of Light Pollution in the Evening Hours on a Weekday (Trg Oslobođenja - Centar)

The highest average concentration of light pollution at 8:00 pm on weekdays was *17.9 lux* during clear nights, while the lowest was approximately *9.9 lux* during cloudy nights. The maximum recorded values during this measurement period (in morphologically open spaces) were *21.1 lux*, whereas the minimum recorded values (in morphologically enclosed spaces)

were 4.2 lux. The maximum light pollution levels were observed on clear nights in areas that are morphologically open and have a high concentration of service functions, while the minimum levels were recorded during periods of significant nighttime cloud cover in morphologically enclosed spaces without service functions.

During the nighttime measurement periods on weekends, the highest average concentration of light pollution was over 12.2 lux on a clear night, while on the second day of the weekend (during a cloudy night), it was 10.7 lux. The maximum recorded values during this period (in morphologically open spaces) were 17.7 lux, whereas the minimum recorded value (in morphologically enclosed spaces) was 7.6 lux. The maximum levels of light pollution on weekends were recorded in morphologically open areas with prominent service functions during clear nights, while the minimum levels were measured in areas with opposite spatial and functional characteristics (Figure 6).

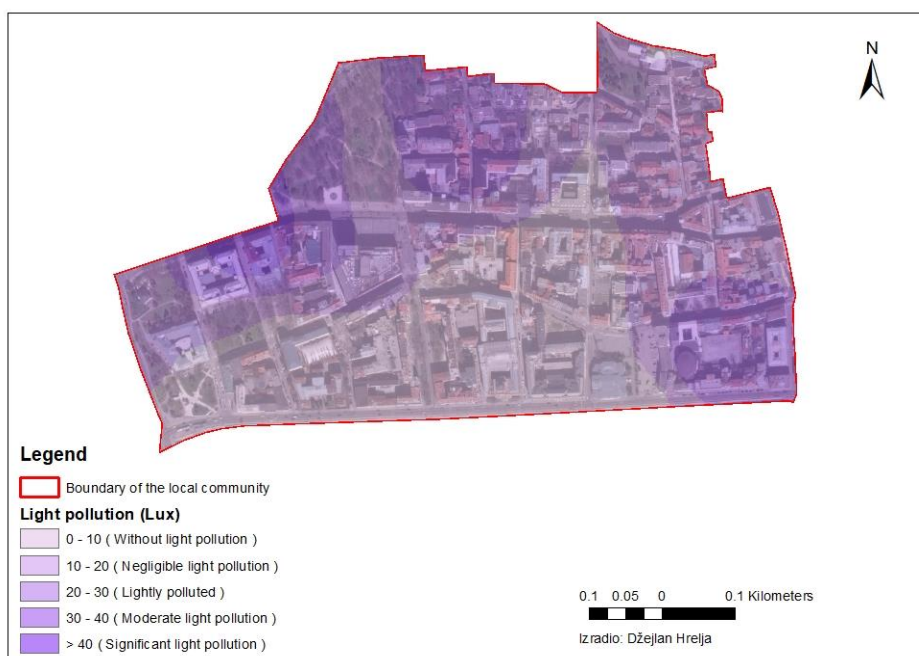


Fig. 6. Map of Light Pollution in the Evening Hours on a Weekend (Trg Oslobođenja - Centar)

A comparative analysis of statistical and geovisualized data on light pollution during evening hours (8:00 pm) on weekdays and weekends revealed no significant differences in the intensity or spatial extent of this type of pollution.

Slightly higher levels of light pollution (within certain lux categories) were observed on weekends, coinciding with increased activity by both local residents and international visitors (Table 1).

Tab. 1. Light Pollution in the evening hours (Trg Oslobođenja – Centar)

| Category | (LUX) | Weekday | | Weekends | |
|----------|---------|---------|-----------------|----------|-----------------|
| | | % | km ² | % | km ² |
| 1 | <10 | 34.27 | 0.186 | 36.65 | 0.188 |
| 2 | 10- 20 | 49.74 | 0.27 | 42.33 | 0.23 |
| 3 | 20 - 30 | 14.6 | 0.079 | 14.04 | 0.066 |
| 4 | 30 - 40 | 1.19 | 0.006 | 6.96 | 0.028 |
| 5 | >40 | 0.2 | 0.001 | 0.02 | 0.030 |

Source: authors

The local population predominantly uses private vehicles, accounting for approximately 70-80% of all movement (Ministry of Transport of Sarajevo Canton, 2014, 2023), which contributes to light pollution through vehicle lighting. However, this source of illumination does not create substantial differences between weekdays and weekends. Consequently, it can be concluded that the key factors influencing light pollution levels are natural (cloud cover and spatial morphology) and anthropogenic (functional diversification and land cover characteristics).

DISCUSSION

The analysis of light pollution in the Trg Oslobođenja-Centar area reveals significant spatial patterns and disparities. Areas with the highest concentrations of natural daylight also exhibit the highest levels of nighttime light pollution, revealing overlapping spatial patterns shaped by both physical and anthropogenic factors. Among the physical-geographical factors influencing the measured values, cloud cover stands out (Sciezor, 2020). During clear days and nights, higher illumination levels are recorded, while cloudy conditions lead to reduced light levels, stating the dynamic role of natural weather conditions in light pollution measurements (Liu et al, 2020). The morphological characteristics (openness or enclosure of spaces) and functional differentiation of the area (e.g., presence of service functions and commercial lighting) play a significant role in light pollution levels (Pan, Du, 2020). Open spaces with high service activity exhibit the highest levels, while enclosed spaces with fewer functions show significantly lower levels. Zones with the highest levels of illumination and night pollution are predominantly located along traffic routes (same as for noise pollution) particularly near main streets, where intense street lighting is necessary for traffic and

pedestrian safety. The commercial areas, including shopping centers, restaurants and cafes significantly contribute to increased pollution levels due to large illuminated advertisements and extended operating hours. Zones with the lowest levels of light pollution are predominantly enclosed green spaces and areas with limited traffic activity, such as parks. These areas provide important shelters from urban illumination, stressing the value of preserving such spaces in highly urbanized environments (Candolin, 2024). Considering the fact that light pollution plays a significant role in habitat transformation and altering ecosystem functions, areas with minimal or no light pollution may hold greater biodiversity-related tourism appeal. For example, in regions illuminated solely by natural light, there is the possibility of observing nocturnal organisms, such as fireflies, which are absent in areas burdened by this form of pollution.

The contributing factors to light pollution are multiple, but three important elements stand out:

- cloudy weather and intense lighting along traffic routes, combined with inadequate lighting infrastructure that unnecessarily disperses significant amounts of artificial light, are primary reasons contributing to pollution.
- large light advertisements on buildings and commercial establishments further increase pollution, especially in the central urban zones.
- unnecessary and redundant lighting along pedestrian paths, particularly in areas with low foot traffic.

Addressing light pollution in this area requires a detailed approach. The adoption of energy-efficient lighting systems, such as LED lights with adaptive brightness, could significantly reduce energy consumption and light spill (Gentile, 2022; URL 8), with lighting fixtures directed at a 90-degree angle relative to the surface. Another solution is the installation of sensors to turn artificial lighting on and off during time periods when illumination is needed or not needed. On the other hand, implementing dark-sky policies, which aim to reduce unnecessary lighting while preserving visibility and safety, could play a pivotal role in mitigating pollution levels (Žibera et al, 2022). Raising awareness among local businesses, government bodies and tourists is also crucial, particularly regarding the environmental and aesthetic consequences of light pollution (Rodrigues, Loureiro, 2024).

In some cases, artificial lighting can also serve as a part of the tourism offering. It is well-known that Paris, aside from other reasons (such as being a center of culture, education and philosophy during the Enlightenment), earned its nickname "The City of Light" due to the establishment of street lighting that illuminated pathways for its citizens and visitors. Similarly, to improve general living conditions and enhance tourism attractiveness, Sarajevo established the Park of Light, known for its light effects and illumination. Additionally, the Sarajevo Festival of Light was created to utilize artificial light sources as a tourist attraction.

The project, which includes light installations at the National Museum of Bosnia and Herzegovina, aims to revitalize the Museum as a ‘must-see’ Sarajevo attraction and create a new, sustainable tourism product (Tourism Development Strategy of Sarajevo Canton, 2024). Similarly, some countries highlight natural illumination as a key tourist attraction. For instance, the Northern Lights are marketed as a global phenomenon and one of the seven natural wonders of the world in Norwegian tourism. Norway has embraced the Northern Lights as its most important attraction, enriching it with various complementary activities (Deben, 2022).

However, there are numerous examples worldwide where light does not contribute to the tourism appeal of an area. For example, the DarkSky Association, in its International Principles on Astrotourism Development, highlights that dark nights are a disappearing tourism resource (URL 9). Additionally, there are numerous examples of the negative impact of tourism and tourist traffic on increasing the effects of light pollution, indirectly affecting ecosystem functioning (Cho et al., 2014; Sung, 2022).

While the methodology used in this study provided valuable insights, there is need for improvement in future research. One significant step would be to calibrate the collected data, ensuring higher precision in measurements (the use of more sophisticated devices for measuring light pollution such as *Konica Minolta T-10A Lux Meter* or *Extech LT300 Light Meter*, which could also validate the measurements obtained through the application) (URL 10). Future studies could also overlay light pollution models with residential zones and key sources of artificial lighting, comparing these layers with tourist movements and the intensity of site visitation. This approach would allow researchers to understand how light pollution intersects with urban functions, residential living conditions and tourism activities. Additionally, assessing the impact of light pollution on the quality of life for both residents and tourists would provide a more holistic understanding of its consequences (Falchi et al, 2011; Candolin, 2024).

Future research should incorporate qualitative methods, such as surveys or interviews with tourists and local residents to better understand their perceptions and experiences regarding light pollution. Such studies would reveal the subjective dimensions of this issue, including its impact on tourist satisfaction, well-being, and the attractiveness of urban destinations. Combining these insights with quantitative data would create a significant framework for researching light pollution in urban and tourist destination areas like Sarajevo (Trg Oslobođenja-Centar).

CONCLUSION

This research is based on the process of measuring and geovisualizing daylight and nighttime light pollution, with a focus on spatial distribution in local community Trg Oslobođenja-Centar, Sarajevo. The findings show that both physical-geographical factors, like cloud

cover along with the morphological characteristics of the area (land cover) and the functional diversification of the space, human-made influences such as bright streetlights, commercial lighting and traffic, strongly affect the levels and distribution of light pollution. Open areas with active commercial use have the highest pollution levels. As a popular area for tourists and tourism activities, Trg Oslobođenja-Centar faces challenges in managing lighting needs while promoting sustainable tourism. Light pollution affects not only the environment and appearance of the area but also how tourists experience and perceive the destination.

As highlighted in the study, in some cases, light (both artificial and natural) serves as a tourist attraction and contributes to increased tourist traffic. On the other hand, dark nights are becoming an increasingly threatened tourism resource for specific types of tourism, such as astrotourism. Additionally, high levels of illumination reduce biodiversity, indirectly diminishing the attractiveness of tourist destinations. Furthermore, tourism itself is often cited as a significant factor contributing to light pollution due to the use of tourism services, which unnecessarily consume electricity and produce excessive levels of artificial light. In the tourism industry, to ensure economic efficiency and promote responsible, sustainable practices, various methods are being explored to reduce electricity consumption and light pollution. One such example is the installation of sensors for turning artificial light sources on and off, as well as the use of key cards for locking/unlocking hotel units, which interrupt the power supply in rooms or apartments, thereby reducing energy consumption and light pollution.

Using energy-efficient lighting, dark-sky practices and educating businesses and visitors could help reduce the impact of light pollution and support sustainable tourism. The study also highlights the need to combine numerical data with personal feedback from tourists and residents to better understand how light pollution affects urban living and tourism. This type of research is significant in geography as it connects spatial patterns of light pollution with human activities and environmental impacts. It provides insights for urban planning, sustainable development and the mitigation of pollution in rapidly growing urban areas such as Sarajevo.

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FINANCING TANGIBLE CULTURAL HERITAGE PRESERVATION: AN ANALYSIS OF RESOURCE ALLOCATION MODELS WITH OVERVIEW OF THE EXPENDITURES FOR TANGIBLE CULTURAL HERITAGE IN SARAJEVO CANTON 2020-2024

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Abstract: Due to the complex state organization in Bosnia and Herzegovina, a competence in the field of culture in the Federation of Bosnia and Herzegovina is decentralized to ten cantonal authorities, in the Republika Srpska it is regulated at the entity level, and at the district level for Brčko District in Bosnia and Herzegovina. The requirements and principles of local self-government additionally affect the complexity and make it more difficult to analyze public expenditures for the protection of cultural and historical heritage.

Besides the Development Strategy of the FBiH 2021 – 2027, and the Tourism Development Strategy of the Federation of BH 2022-2027, as fundamentally important documents and framework for the development of tourism in the FBH, at the level of the Sarajevo Canton, a Tourism Development Strategy until 2030 was adopted and the Culture Development Strategy 2021-2027 is currently in the draft procedure.

Along to the adopted strategic documents, there is a certain lack of coordination of activities and measures of cultural policies in the FBiH, as well as lack of awareness of priorities in expenditures allocation in order to achieve strategic goals in the field of culture. This especially refers to the lack of clear criteria and systematization of the type of culture or the subfields in the context of applications selection to be funded. A wider offer of cultural programs and events attracts a greater number of tourists to visit such a destination. If more tourists visit a recognized destination that will lead to higher personal consumption in the market, which affects the growth of income and increase in public revenues. The synergy of public policies measures and activities in the fields of tourism and culture would contribute to a more levelled, uniform allocation of public funds and the more realistic range of strategic goals achievement.

Key words: cultural tangible heritage, public expenditures for culture, resource allocation model for culture, direct and indirect financing of culture heritage, revenue funding and capital grants

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CULTURAL AND HISTORICAL HERITAGE: NORMATIVE FRAMEWORK

The normative framework for regulating the field of culture in Bosnia and Herzegovina (BiH) is entirely determined by the vertical and horizontal complexity of the political and legal system in BiH. The main characteristic of the normative regulation in the field of culture is a highly decentralized system. According to Article 4, paragraph 1, point c) of the Constitution of the Federation of Bosnia and Herzegovina (FBiH), the establishment and implementation of cultural policy is the exclusive competence of the cantons. On the contrary, centralized system is present in the Republika Srpska (RS), where same competence is given to the entity. Cantons are authorized to create and implement cultural policies: based on this constitutional provision, the Sarajevo Canton Assembly adopted the Law on the Protection of Cultural Heritage (“Official Gazette of the Sarajevo Canton”, No. 2/00 and 37/08) (Ajanović, 2020).

The important role in implementing policies in the field of protecting cultural and historical heritage belongs to the Cantonal Institut(ion)e for the Protection of Cultural, Historical and Nature Heritage Sarajevo, with certain public powers entrusted by law.

As a sheer consequence of the complexity of normative framework, there are twelve different cultural policies (10 cantons, Brčko District, and RS) in BiH, which complicates the analysis of public expenditures and financing models for the protection of cultural and historical heritage at the national level. Furthermore, FBiH has its own Federal Ministry of Culture and Sports which predominantly retains a coordination role. Since the normative regulation of the cultural sector is entrusted to a total of 12 legislative bodies, and the implementation of cultural policy is in the responsibility of 12 executive bodies, a high-quality coordination system is needed to ensure a consistent and adequate incorporation of strategic goals and principles of cultural policy in the asymmetric and decentralized political and legal system of BiH. A comprehensive analysis of public expenditures for the cultural and historical heritage at a broader level (BiH level, or even the FBiH level) would require the analysis of dozens of budgets from different levels of government, due to the requirements and principles of the local self-government. Considering previous observations, in order to provide adequate attention to the funding model for culture/the protection of cultural and historical heritage, the focus of this paper is dedicated to the Sarajevo Canton, with certain considerations related to the budget of FBiH and chosen municipalities. Since cultural and historical heritage is affected by tourism policy, and at the same time represents a significant determinant of tourism, it is noteworthy to emphasize that constitutional provision determines tourism as a joint competence of the FBiH and the cantons.

Article 16 of the Law on Development Planning in the FBiH ("Official Gazette of FBiH", No. 32/2017) foresees the adoption of the Federation Development Strategy as a fundamental document that establishes the goals and priorities for the development of the FBiH, as well as the financial framework for implementation, monitoring, evaluation and reporting. The Development Strategy is listed as the primary document based on which sectoral strategies, the Medium-Term Expenditure Framework, the budget, public investment programs and other strategic documents are developed. Articles 18 and 19 of the Law anticipate the adoption of cantonal development strategies and cantonal sectoral strategies.

In December 2020, the Government of the Federation of Bosnia and Herzegovina adopted the FBiH's Development Strategy for 2021–2027 which serves as a basis for sector strategies adoption: Strategy for Tourism Development in the Federation of Bosnia and Herzegovina for 2022-2027 from April 2022, Sarajevo Canton Development Strategy 2021-2027 from December 2020, Sarajevo Canton Culture Development Strategy 2021-2027 (in draft procedure), and Sarajevo Canton Tourism Development Strategy until 2030³¹ from October 2024.

These strategic documents, for the first time, are linking different economic and social policies with public financing, thus *de facto* and *de jure* creating legal commitment to coordination in public expenditure management and strategic goals. Strategic priorities, measures and activities are included in the budget planning enabling necessary public expenditures for the sector of tourism and capital investments. Therefore, public financing of cultural and historical heritage would not be carried out *ad hoc*, in an unsystematic and uncoordinated manner. Considering the necessary scope of implementing cultural and historical heritage protection policies, financial planning requires multiannual planning for public expenditures, especially for the reconstruction and revitalization of cultural assets. The following analysis of public expenditures seeks to establish the connection between budget allocation and achievement of strategic goals, as well as the reciprocal goals of European Union reform policies in the context of the Sofia Declaration on the Green Plan for the Western Balkans, whose central outcome in the field of cultural and historical heritage is determined by the concept of sustainability.

There are various strategic goals defined in strategic documents for sectors of culture and tourism, which are directly affecting the domain of cultural heritage. For SWOT analysis of the existing resource allocation model in Sarajevo Canton, the focus is on human capital,

³¹ Within strategic goals, development of the "tourist destination" as well as improving of competitiveness and sustainability level of tourism in Sarajevo Canton are emphasized together with financial framework of 15.000.000 BAM for goals realization through different funding sources: budget, international projects, sojourn tax, ticket revenues, etc.

protection of the heritage, public expenditures efficiency, coordination and cooperation of stakeholders, international funding (EU programs) and competitiveness and sustainability in general.

Culture, Tourism and Sustainability

The European Green Deal establishes a set of policies aimed at guiding the further development of the European Union, considering the need to protect the environment, promote a green transition in industry and the economy, and ultimately achieve climate neutrality goals. Within the Green Deal framework, as well as in the broader discourse on green transition, the concept of sustainability holds a prominent place in current EU policies. Managing and preserving cultural and historical heritage is multidimensional: cultural and historical heritage is simultaneously a relevant factor in culture and arts, tourism, religion, spatial planning, employment policy and the economy in general. Within each of these areas, given the horizontal and vertical connections between various forms of societal activities, prioritization is placed on coordination. Development programming in FBiH aligns with current EU policies and discourse, primarily centered around the concept of sustainability.

While none of the 17 UN Sustainable Development Goals³² directly address cultural heritage, within Goal 11, it is possible to, without extensive interpretation, establish a clear link between sustainability and cultural heritage in its conceptualization within international frameworks. However, achieving consistency in integrating culture into sustainability is more challenging (Petti, Trillo and Makore, 2020).

Considering the nature of cultural heritage and its relationship with the sustainability concept, it is essential to expand this relationship to include the economic dimension. Cultural and historical heritage must be understood on a broader societal basis: as a product/resource and as a competitive factor for the overall tourism offering. Conversely, cultural and historical heritage holds social significance difficult to economically quantify due to the "values inherent to heritage" (Tišma et al., 2021).

In such conditions, it is necessary to settle value systems within the realms of culture and economy, intertwining economic logic with the principles of cultural preservation and protection (Klamer, Mignosa and Petrova, 2013). The Council of Europe's Faro Convention of 2005³³ emphasizes the direct connection between cultural heritage as a resource for achieving sustainable development and quality of life. The Convention envisions the conservation and sustainable use of cultural heritage as a means for human development and

³² The 2030 Agenda for Sustainable Development. More information available at: <https://sdgs.un.org/2030agenda>

³³ Convention on the Value of Cultural Heritage for Society, Faro, 27 October 2005.

enhancing quality of life. It obliges states to raise awareness and capitalize on the economic potential of cultural heritage within economic policies (Ajanović, 2020). A third group of provisions within the Faro Convention ties up cultural heritage with economic activities. While not exclusively focused on this aspect, it is evident that tourism serves as the most significant intersection where economic logic and culture as phenomena converge. Here, cultural assets are simultaneously viewed as commercial goods that form the foundation of tourism offerings.

Such a standpoint is crucial when allocating public funds: investments in the preservation of cultural and historical heritage must account for the economic value and utility of individual projects. While the cultural and general significance of individual assets should not be diminished, selecting projects for implementation requires appropriate ex-ante and ex-post analyses, such as cost-benefit analysis. The results of these analyses should not necessarily dictate project selection automatically; factors like regional/local representation or the unique importance of a particular asset might justify a complex selection criterion. Nevertheless, conducting such analyses is a *conditio sine qua non*, and their findings must not be ignored or entirely overlooked.

Despite the challenges, it is undeniable that cultural and historical assets influence destination choices to varying degrees. According to the World Tourism Organization, four out of ten tourists choose a destination based on its cultural offerings. Distinguishing between leisure tourism and cultural tourism is challenging, and it is even harder to empirically determine whether cultural elements are a primary motivator or a secondary activity during a visit. At the same time, excessive tourism brings notable negative externalities (Panzera, de Graff and de Groot, 2021). These include overburdened infrastructure, increased living costs and reduced quality of life for residents. Other externalities, such as congestion in historical areas and the depopulation of old city centers, are difficult to quantify but significantly affect the local social fabric.

The Sarajevo Canton Tourism Development Strategy recognizes this issue and addresses it within the framework of protecting, sustaining and efficiently managing natural and cultural and historical heritage. At the strategic level, it proposes „*the creation of tourism zones and defining the carrying capacity of Canton's natural and cultural resources. The importance of this measure is also reflected in achieving balanced and polycentric tourism development throughout the Canton, easing the burden on primary tourist resources, such as the historic city center and the Baščaršija*” (Sarajevo Canton, 2024).

FINANCING CULTURAL HERITAGE

The analysis of cultural heritage financing in comparative frameworks is limited by data availability. It is possible to establish a consensus in comparative frameworks regarding the understanding of culture and its place in budgetary financing. The share of public expenditure allocated to culture financing varies. The multidimensional nature and the overall social importance of cultural heritage, and thus of culture itself, lead to a universal stance on the necessity of public financing due to the inability of all cultural elements to obtain sufficient funds for self-renewal, preservation and protection through commercial means.

When it comes to public financing of cultural heritage, it is important to consider not only individual cultural-historical assets but also the financing of institutions responsible for preserving cultural heritage. This includes funding for human resources, as well as equipment and various means necessary for carrying out tasks and fulfilling their assigned duties. After the major financial crisis in 2008, trends in European countries indicate a reduction in the role of the public sector, followed by an increase in decentralization of decision-making that shapes cultural heritage preservation policies. Furthermore, the growing importance of the private sector in shaping and financing these policies is present (Klamer, Mignosa and Petrova, 2013). Fiscal incentives play a significant role in financing cultural heritage in numerous countries; they include different forms of tax reliefs and/or exemptions (deductions from the tax base, tax credits, exemption of NPOs from corporate income tax, deductions related to value-added tax, etc.). Taxes, generally, have a dual role in the protection of cultural and historical heritage; on the one hand, tax regulations create an incentive for greater private sector involvement in preserving cultural and historical heritage, and on the other hand, certain tourist taxes aim to protect cultural assets from the harmful effects of mass tourism (Anton, 2020). However, collecting and estimating data on indirect funding through the usage of fiscal incentives often leads to an empirical dead-end, thus the focus is given to the public budget as an instrument for direct funding of cultural heritage.

Public Budget – Direct and Indirect Financing Culture

When it comes to the models of allocation of budget funds intended to support the work of various cultural institutions, organizations and associations, there are several important considerations to keep in mind. Individually determined cultural heritage projects, both due to the scope of the required funds and the social significance of the asset, can be financed directly from the budget. This is done by including the specific project in the expenditure part of the budget, thereby directly allocating funds for that project. Projects for the reconstruction/revitalization of certain assets, which represent significant

financial/construction ventures in both financial and technical terms, are often included in the capital section of the budget.

Considering the financial dimension and cultural-economic significance, such projects truly represent capital investments due to the benefits they bring. This type of financing is in line with democratic principles, as these forms of public fund allocation are an integral part of the budget, adopted by directly elected representatives (parliament). In the context of the reduced role of parliamentarism in modern democracies, particularly during the adoption of budget drafts, where the government (the highest executive body) plays a major role without adoption of amendments from parliamentary representatives, the democratic nature of such public fund allocation is somewhat diminished.

Certain government ministries, departments and sectors are included in the expenditure budget as budget users. Within the cultural sector, in addition to the Ministry of Culture and Sports of Sarajevo Canton, several cantonal cultural institutions are also included, which are founded by Sarajevo Canton and are part of the Ministry of Culture and Sports.

When considering the expenditures allocation models regarding expenditures in sector of culture, the primary focus is on revenue funding and capital grants funded by a relevant administrative authority. In comparative law, there are two models: the first solution involves the allocation of funds by the administrative authority itself (in this case, the Ministry of Culture and Sports) based on a decision made by the government, which determines government spending programs (Government of SC). Alternatively, in the second model, which exists in numerous countries, the funds are allocated to a separate body entrusted with certain public powers, most commonly foundations.

In the legal system of BiH (also FBiH), both models coexist. Latter model is used by the Film Foundation of FBiH, established by the Decision on the Establishment of the Foundation for cinematography by the Government of the Federation of Bosnia and Herzegovina ("Official Gazette of FBiH", No. 95/2007). The Foundation for Cinematography was established as a technically and financially independent body with entrusted public powers. Financial independence means autonomy in managing funds; however, the Foundation receives funds for its work from the budget of the FBiH. At the same time, the governing body is appointed by the Government of the FBiH as the founder, thus subjecting the Foundation to government control. This control has characteristics of both legal and political oversight of the Foundation's activities and operations. There are other examples of such foundations, like the Library Activity Foundation, which was established by the Decision on the Establishment of the Library Foundation ("Official Gazette of the Federation of Bosnia and Herzegovina", No. 95/2007). In administrative, technical, and legal aspects, the legal status, working methods, and sources of financing for

the Library Activity Foundation are aligned with those of the Foundation for cinematography.

The distinction between the mentioned models has numerous implications for decision-making process regarding the allocation of funds intended for the protection and preservation of cultural and historical heritage. Both models have certain advantages and disadvantages. Direct management of funds by the government or the relevant ministry is typically characterized by bureaucracy and the presence of a political element in decision-making, which often leads to the prioritization of preservation of "their" heritage in practice. Alternatively, when bodies are established to manage the funds, government influence can be filtered. Various models of these bodies can be distinguished, such as the British system where funds are allocated to non-governmental bodies, which then distribute them to applicants and different projects. These bodies can also have a mere advisory role, with the final decision on fund allocation made by the government or the relevant ministry. The latter model allows the government (via final decision) to shape heritage policy without entering the evaluation of the artistic quality of specific projects, while at the same time preventing allocation of the funds by experts solely to the „high culture of a narrow elite“ (Klamer, Mignosa and Petrova, 2013).

When considering international frameworks, both models of funding are frequently present on national (regional) levels in different countries (regions) with two different approaches in terms of sourcing the funds: either through state budgets or off-budgets. Sometimes even both models co-exist, and allocation of funds is partially conducted directly by relevant ministries, while separate public bodies at the same time usually allocate funds for specific heritage preservation. In certain instances, separate bodies secure their funding from the state budget, elsewhere, separate bodies have their own designated financial sources (off-budgets). There are numerous off-budget funds that allocate grants or loans for the preservation of cultural-historical heritage. The founders of these funds could be both individuals, legal entities, and various state bodies. An example of a state fund is the National Restoration Fund³⁴ of the Netherlands, offering individuals and legal entities more favorable loan terms than market provides, especially for the restoration of a designated protected heritage. At the same time, Cultural Heritage Agency of the Netherlands³⁵ funds heritage projects for buildings which are not used as residential homes. It is important to emphasize that the diversity of objectives and areas of cultural-historical heritage protection usually

³⁴ Nationaal Restauratiefonds. More information on cultural funding in the Netherlands available at: <https://english.cultureelerfgoed.nl/topics/national-heritage-sites/grants>

³⁵ Rijksdienst voor het Cultureel Erfgoed. More information on Cultural Heritage Agency of the Netherlands available at: <https://english.cultureelerfgoed.nl/topics/national-heritage-sites>

determines the sources of funding. Other examples of state-controlled funds are the National Lottery Heritage Fund³⁶ in United Kingdom and The German Federal Cultural Foundation³⁷.

Federation of Bosnia and Herzegovina: Cultural Heritage Financing

Despite the constitutional division of responsibilities in the FBiH, where cultural policy falls under the jurisdiction of the cantons, an analysis of public financing for the field of cultural and historical heritage necessitates consideration of certain activities carried out by federal administrative bodies, particularly the budget of FBiH as a financial instrument of a higher administrative level. The Federal Ministry of Culture and Sports (FMCS) operates within the FBiH government and includes the Department for Cultural and Historical Heritage and Culture, as well as the Institute for the Protection of Monuments. FMCS primarily retains a coordinating role in the implementation of cultural policy, in accordance with the constitutional allocation of responsibilities. Meanwhile, the Institute for the Protection of Monuments serves as a professional body responsible for a range of activities in the field of cultural heritage protection.

As significant funds for the financing of cultural and historical heritage are allocated from the budget of FBiH, it is essential to analyze the structure of those public expenditures to obtain a more comprehensive view of public financing of cultural heritage. During this period, the budget of FBiH has shown a consistent upward trend together with FMCS budget, particularly in 2023 and 2024. In 2024, the FMCS budget is more than four times larger than 2021, which has positively impacted the structure of FMCS transfers: both quantitatively and qualitatively. The table below presents the budget data of the FBiH and the FMCS during the observed period.

Table 1. Budgets of FBiH and FMCS in BAM, 2020-2024.

| Item | 2020. | 2021. | 2022. | 2023. | 2024. |
|-------------|---------------|---------------|---------------|---------------|---------------|
| FBiH Budget | 4.954.392.401 | 5.481.251.699 | 5.597.618.777 | 6.725.847.563 | 7.474.800.209 |
| FMCS Budget | 13.728.230 | 10.181.556 | 28.702.012 | 46.094.294 | 54.441.610 |

The following table presents public expenditures within the budgets of the FMCS, Federal Ministry for War Veterans and Disabled Veterans of the Defense-Liberation War and the

³⁶ Money raised by National Lottery players is a main funding source of Heritage fund. More information available at: <https://www.heritagefund.org.uk/about>

³⁷ Die Kulturstiftung des Bundes. More information on The German Federal Cultural Foundation available at: https://www.kulturstiftung-des-bundes.de/en/about_the_foundation.html

Federal Ministry of Development, Entrepreneurship and Crafts that are directly related to cultural and historical heritage. These include revenue funding and capital transfers, as well as subsidies to public enterprises and private sector (traditional crafts).

Table 2. Budgets of FBiH and FMCS in BAM, 2020-2024.

| Expenditure type (BAM) | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|------------------|------------------|------------------|-------------------------|-------------------|
| Revenue funding: other levels of government | 1.860.000 | 1.810.000 | 2.080.000 | 2.080.000 | 2.230.000 |
| Subsidies to public companies | 200.000 | 0 | 200.000 | 270.100 | 200.000 |
| Revenue funding – NPOs | 3.580.000 | 2.675.000 | 3.420.000 | 3.920.000 | 4.400.000 |
| Capital grants | 100.000 | 100.000 | 1.540.000 | 2.000.000 | 15.500.000 |
| Capital investments | 0 | 0 | 0 | 2.500.000/ 5.000.000 | 0 |
| Revenue funding – private sector | 0 | 0 | 0 | 100.000 | 0 |
| Total (BAM) | 5.740.000 | 4.585.000 | 7.240.000 | 10.870.000 | 22.330.000 |

Several conclusions could be made based on the analysis of public funding. First, there is a *traditional* segmentation in the allocation of transfers and incentives. Certain transfers, directly linked to cultural and historical heritage, have been consistently present throughout the observed period, with minor exceptions. These transfers do not necessarily grow on a linear basis with the increase in budgetary resources, rather than tend to maintain their amounts over several budget cycles.

Second, there is a noticeable lack of capital transfers and investments among public expenditures in cultural and historical heritage, besides 2024 as an exception. Considering the scale of the Federal budget and the budgets of other cantons (excluding Sarajevo Canton), capital transfers could be increased to support significant capital projects. Considering the overlap of certain expenditures on cultural heritage in cantonal budgets and budgets of FBiH, it would be pragmatic to differentiate roles in cultural heritage financing. During the observed period, only one multiannual capital project in terms of cultural heritage, was included in the capital budget: the restoration of the Lothar Berk's Castle within the national monument "Old Town Ostrožac" in the Una-Sana Canton. This capital project is 5.000.000 BAM worth, of which 2.500.000 BAM was allocated in the 2023 budget, with no funds allocated in 2024 budget even though Capital budget 2023-2025 anticipated this expenditure in 2024.

When considering the overall budgets of the FBiH during the observed period, there is a clear predominance of capital transfers in the field of sports at the expense of culture. In 2023, the ratio of capital transfers for sports compared to those for culture was almost 5:1 in favor of sports. Although this gap has narrowed in the 2024 budget, sports remain significantly prioritized.

Sarajevo Canton: Cultural Heritage Financing

Analyzing the budget data in Sarajevo Canton from 2020 to 2024 reveals a consistent trend of budget growth. However, this increase in overall budgetary resources does not necessarily imply real growth. Three key factors must be considered: inflation rate, increase of salary basis and amendments on *Law on Public Revenues Allocation in FBiH* ("Official Gazette of FBiH," No. 22/2006, 43/2008, 74/2008 - Constitutional Court decision, 22/2009, 35/2014, 94/2015, and 17/2022). A crucial consideration in any analysis of public expenditure is the annual inflation rate. The observed period was characterized by significant inflation and an increase in consumer price index (CPI)³⁸. This macroeconomic trend impacts both public revenues and expenditures; while public budgets at all levels have increased, costs increased as well, particularly for energy, goods and services contained in public expenditures. Furthermore, the basis of a salary (that is multiplied with certain coefficient) has increased from 330 KM to 385 KM for employees in the public sector who receive salaries from Sarajevo Canton Budget. Lastly, amendments on *Law on the Allocation of Public Revenues in FBiH* changed the coefficient for distributing public revenues among the cantons in FBiH, effectively revoking Sarajevo Canton's "privileged" status in revenue distribution, resulting in significant political, social and financial implications.

The data presented in the table below reveals a consistent trend of budget growth for the Canton of Sarajevo, as well as of the budget of the Ministry of Culture and Sports (MCS), except for 2021. Examining the expenditures in the budget, specifically the total expenditures allocated to cultural sector, there is a consistent upward trend in spending on culture, where 2021 Budget was an exemption. Furthermore, the number of employees in the public cultural sector also showed a steady increase during the observed period (from 611 to 649), with the number of employees being nearly 6% higher in 2024 compared to 2020. The share of cultural services in the overall budget ranged from 1.88% (in 2023) to 4.23% (in 2024). For comparison, in 2022, cultural services accounted for slightly less than 1% of total expenditure across the European Union, with only five member states³⁹ allocating more than 2% (Eurostat, 2022). Since the Sarajevo Canton budget is essentially a regional

³⁸ According to the Annual Report for 2023 of the Central Bank of Bosnia and Herzegovina, inflation (Inflation indicator: Consumer price index) was recorded at 6.1% in 2023, which is 7.9% lower than the 2022 inflation rate (14.0%).

³⁹ Lithuania, Malta, Latvia, Hungary, and Estonia.

budget and does not include expenditures tied to national competencies like foreign affairs and defense, it can be said that allocations for culture are adequate.

Table 3. Budgets of Canton Sarajevo, MCS, Culture expenditures in BAM, 2020-2024.

| Item | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------|
| Canton Sarajevo Budget | 1.135.335.82 5 | 1.143.627.97 2 | 1.220.787.84 0 | 1.438.896.53 8 | 1.530.602.00 0 |
| MCS Budget | 13.916.976 | 11.689.937 | 13.389.211 | 18.820.000 | 35.326.082 |
| Sports and Culture services – MCS | S: 9.201.253 C: 4.715.723 | S: 7.026.814 C: 4.663.123 | S: 7.791.040 C: 5.598.171 | S:12.119.800 C: 6.700.200 | S: 18.325.882 C: 17.000.200 |
| Ratio of Sports to Culture services | 3 : 1.54 | 3 : 1.99 | 3 : 2.15 | 3 : 1.65 | 3 : 2.78 |
| Culture services in MCS Budget | 22.217.647 | 23.310.904 | 23.938.623 | 27.070.689 | 32.048.135 |
| Culture services in Canton Sarajevo Budget | 32.621.057 | 32.447.729 | 35.274.143 | 42.456.519 | 64.773.368 |
| Culture services: percentage of entire Budget | 2.87% | 2.83% | 2.89% | 2.95% | 4.23% |
| Employees ⁴⁰ | 611 | 605 | 619 | 627 | 649 |

Moreover, given the various public needs and priorities, the justification for further increasing funds for cultural services at the expense of other public expenditures is questionable and could be opposed in a rational manner. Since culture and sports fall under

⁴⁰ Total number of employees in cultural sector receiving salary from the Budget (i.e. public cultural institutions such as museums, galleries, theatres, etc.).

the same ministry, comparing the two sub-sectors is important; sports have traditionally been favored, but in the latest 2024 budget, the gap between expenditures on sports and culture has narrowed to a ratio of 3:2.78.

Revenue Funding and Capital Grants

The key components of cultural and historical heritage financing are revenue funding and capital grants transferred by the MCS to various recipients in public and private sectors (including NGOs). These funds are forming the very core of cultural sector financing. In the context of revenue funding and capital grants, several methodological clarifications are needed due to the specific nature and functional placement of cultural and historical heritage within the cultural sector. The analyzed revenue funding in some instances represents public expenditures for culture, where Sarajevo Canton Government ensures the representation of various segments of culture when adopting annual expenditure programs. However, there is no methodological framework to determine the exact allocation of funds in certain instances, as the budget and expenditure programs do not explicitly specify cultural and historical heritage in public calls for projects, rather use broader syntagm of „cultural projects“. The same applies to capital grants; each expense for cultural and historical heritage is included in the overall public expenditure recap under the function of culture, however, it is not entirely possible to determine whether and to what extent each cultural expenditure is related to cultural and historical heritage. However, unlike certain expenditures in terms of revenue funding, it is still possible to track if capital grants fall under the category of financing cultural heritage.

To achieve clearer and more comprehensive data analysis, any transfer of funds to an institution or recipient directly or indirectly related to cultural and historical heritage, whether for institution (recipient) funding, specific cultural heritage projects or capital infrastructure investments, is treated as a public expenditure for cultural and historical heritage. There are challenges in making distinctions in public funds allocation (revenue funding) to various associations that potentially cover forms of intangible cultural heritage.

The Sarajevo Canton Government annually adopts decisions approving expenditure programs for revenue funding and capital grants. MCS then allocates most of the revenue funding to applicants meeting the requirements of public calls. A large amount of revenue funding is accessed through public calls for funding; applicants that meet the criteria can apply with projects. A smaller portion of revenue funding is transferred (without public call for application) to public cultural institutions (including seven state-level public cultural institutions⁴¹) or other levels of government (City of Sarajevo and municipalities).

⁴¹ National Museum of Bosnia and Herzegovina, Library for the blind and visually impaired of Bosnia and Herzegovina, Historical Museum of Bosnia and Herzegovina, Museum of Literature and Theater Art of Bosnia and Herzegovina, Film Archive of Bosnia and Herzegovina, National Gallery of Bosnia

The central part of financing cultural and historical heritage consists of revenue funding and capital grants from the Ministry of Culture and Sports (MCS) to various recipients. These funds form the core of financing for different cultural projects and cultural heritage initiatives. For methodological reasons, revenue funding and capital grants of MCS are separated from revenue funding and capital grants (as well as other expenditures like subsidies) of other departments, despite the nature of these expenditures⁴². Public expenditures from other departments mainly refer to the expenditures of the Ministry of Veterans' Affairs of Sarajevo Canton, which manages the Public Institution "Memorial Center Sarajevo" and the Ministry of Economy of Sarajevo Canton.

During the observed period, except for 2021, there has been a consistent increase in MCS' revenue funding and capital grants. These transfers encompass both cultural and sports sectors. Generally, slightly less than half of the total revenue funding is allocated to culture, except in 2024, when culture had a slight dominance in the structure of revenue funding compared to sports. These transfers are crucial for financing culture, because they include transfers to individuals, nonprofit organizations and public cultural institutions for various cultural projects.

MCS follows a traditional logic when allocating funds to various cultural sub-sectors and recipients. This includes support (revenue funding) for cultural programs aimed at individuals, artistic associations, permanent cultural-artistic events, cultural-artistic amateurism, projects promoting *sevdalinka*, pension and health insurance for independent artists and international and regional cultural cooperation. Additionally, significant funds are allocated for co-financing the production of different types of films: 2.500.000 BAM in 2024 (Sarajevo Canton Government, 2023) and 1.500.000 KM in 2023 (Sarajevo Canton Government, 2024). However, these allocations often blend multiple cultural forms within single public calls, making that methodologically difficult to determine their direct relevance to cultural and historical heritage. There is no normative framework to ensure the proportional representation (nor spatial distribution, artistic value or historical value, missing age of existence as a criterion, what is especially a lack considering ancient traditions, traditional crafts, etc.) of different cultural sub-sectors in public calls. For example, while cultural and historical heritage projects could be submitted under general cultural program public calls, there is no guarantee of proportional representation among different cultural forms. Lastly, MCS publishes decisions on fund allocations from public calls, although the

and Herzegovina and National and University Library of Bosnia and Herzegovina. In the observed period, these institutions received following amounts from the Budget of Sarajevo Canton (in BAM) 714.900 in 2020, 543.600 in 2021, 953.000 in 2022, 850.000 in 2023 and 800.000 in 2024.

⁴² These expenditures fall under the cultural function of the budget and are directly linked to cultural and historical heritage.

provided information typically includes only the recipient, project title and allocated amount of funds. From this data, it is not possible to determine with complete certainty whether, and to what extent, allocated funds relate to cultural and historical heritage.

Table 4. Revenue funding for culture in BAM, 2020-2024.

| Item | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|-------------|-------------|-------------|-------------|-------------|
| Revenue funding MCS (Sports and Culture) | 8.880.546 | 8.625.546 | 10.615.442 | 13.730.200 | 17.430.200 |
| Revenue funding to individuals (Culture) | 200.000 | 150.000 | 200.000 | 200.000 | 200.000 |
| Revenue funding to other levels of government (Culture) | 100 | 100 | 120.100 | 100 | 100 |
| Revenue funding (Culture) to Non-profit organizations | 3.695.523 | 3.458.023 | 4.877.971 | 6.000.000 | 9.900.000 |
| Percentage of revenue funding (Culture) | 57.94% | 45.15% | 48.97% | 41.83% | 43.87% |

The broad definition "*support for programs in the field of culture*" ensures the possibility of submitting a variety of differently oriented projects within the domain of cultural and historical heritage. This method of fund allocation has certain advantages and disadvantages. The main advantage lies in the broad definition of the phrase, which serves as the legal basis for fund allocation. This approach minimizes the likelihood that a portion of the funds will remain unallocated due to a lack of applications submitted through public calls. Additionally, this approach effectively rewards active members of the civil sector and cultural institutions, as the funds foster cultural life in Sarajevo Canton. The primary disadvantage of this allocation method is the inability to ensure balanced representation of different aspects of culture. This issue should be carefully considered during the implementation of cultural policy measures. For instance, similar to differentiation and dedicated funding provided for cinematography, earmarking funds specifically for projects that fall under cultural and historical heritage could lead to strengthening of the cultural heritage policy.

Table 5. Capital grants for cultural heritage in BAM, 2020-2024.

| Item | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|-----------|-----------|-----------|-----------|------------|
| Capital grants (Sports and Culture) | 4.520.300 | 2.466.486 | 2.015.400 | 4.315.400 | 16.100.200 |
| Capital grants to City of Sarajevo and municipalities (Culture) | 650.000 | 955.000 | 300.100 | 400.100 | 6.000.100 |
| Capital grants to non-profit organizations (Culture) | 170.100 | 100.000 | 100.000 | 100.000 | 100.000 |
| Percentage of capital grants (Culture) | 18.14% | 42.78% | 19.85% | 11.59% | 37.89% |

The Sarajevo Canton Government is annually adopting decisions to approve capital grants spending program. Regarding MCS' capital grants during the observed period, the funds usually originate both from the budget and from domestic borrowing. Fluctuations in the ratio of capital grants allocated for sports versus culture are evident, where transfers for sports were significantly favored in the observed period. At the same time, variations are also evident in the total amount of capital grants, where 2024 budget represents a precedent in terms of the amount allocated for capital grants in the field of culture. These funds are crucial for the protection and preservation of cultural and historical heritage. For instance, the City of Sarajevo was allocated 1.200.000.00 BAM as a capital transfer for the *Project of Facade Renovation and Restoration of the National Theatre Building*. The Municipality of Vogošća received 500.000.00 BAM for the *Superstructure of the Public Institution KSC Vogošća "Jasmin Isanović-Žuti"* for cultural purposes. The Municipality of Stari Grad was allocated 600.000.00 BAM for the *Reconstruction and Establishment of the "Berber Gallery" Project*. Additionally, the Municipality of Novo Sarajevo was granted 1.700.000.00 BAM for the *Restoration of the "Historical Museum of BiH" Building Project* (Canton Sarajevo Government, 2024). It remains unclear how decision-making processes work, since there are no publicly available explanations on criterion how individual projects are selected. Furthermore, there are no publicly available ex-ante analysis which were used to advocate for individual projects, nor ex-post analysis which would support decisions on project selection which were made in the past.

In 2021, the Municipality of Centar was awarded 500.000.00 BAM to co-finance the construction of the European House of Culture. The Municipality of Vogošća received a capital transfer of 255.000.00 BAM for the extension of the KSC Vogošća. Furthermore, the Municipality of Novo Sarajevo received capital grant of 200.000.00 BAM for the *Facade Renovation of the Historical Museum of BiH*. The Alija Izetbegović Museum was granted

80.000.00 BAM for the *Renovation and Reconstruction Project*, while the Municipality of Centar was given 20.000.00 BAM for the *Co-Financing of the Construction of the Mirza Delibašić Monument at Skenderija* (Canton Sarajevo Government, 2021).

Apart from the existence of certain expenditures throughout entire observed period, which tend to keep status of “traditional” expenditures due to their cyclical recurrence, there is no evidence that multiannual planning is conducted in the decision process. The link between individual expenditures throughout the observed period shows no traces or clear signs of financial planning. The impression is that funds are spent *ad hoc* based on the total amount of funds available and more efficient results could be achieved if more expensive projects were divided into phases with precise financial plan for its completion. While projects implementation is usually divided into phases, there is no guaranty that funds for the next phase of the project (next budget cycle) will be secured.

In the context of certain expenditures, which span on a multiannual basis, there is no uniform conclusion that could be drawn. For certain expenditures, due to the growth of the Sarajevo Canton budget, there is a linear increase in spending over the observed period, while simultaneously, there are certain expenditures for which the same funding is allocated across multiple budget cycles. Significant expenditures, shown in the table below, fall under the abovementioned category. These expenditures are present within the budget of the Public Institution “Memorial Center Sarajevo”.

Table 6. Memorial Center Sarajevo - expenditures for cultural heritage in BAM, 2020-2024

| Memorial Center Sarajevo - Expenditures | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|-------------|-------------|-------------|-------------|-------------|
| Maintenance of fallen defenders' cemeteries | 70.000 | 54.000 | 80.000 | 60.0000 | 65.000 |
| Rehabilitation of gravestones | 7.000 | 5.135 | 4.000 | 4.000 | 4.000 |
| Marking remembrance dates from the Defensive War of Liberation 92-95 | 28.000 | 30.000 | 30.000 | 30.000 | 138.000 |
| Traditional manifestation “Defense of BiH-Igman” | 55.300 | 56.000 | 130.000 | 105.000 | 105.000 |
| Funds for fallen defenders' cemeteries | 860.600 | 872.000 | 650.000 | 1.002.000 | 2.900.000 |
| Rehabilitation and reconstruction of memorials | 390.000 | 130.000 | 485.000 | 2.074.500 | 3.700.000 |

Certain funds in budgets 2022-2024 were allocated towards the support of traditional crafts by Sarajevo Canton Ministry of Economy.

Table 7. Ministry of Economy - expenditures for cultural heritage in BAM, 2020-2024.

| Expenditures | 2022 | 2023 | 2024 |
|------------------------------------|-------------|-------------|-------------|
| Preservation of traditional crafts | 500.000 | 50.000 | 500.000 |

Budgets of Public Cultural Institutions

For thorough funding analysis, budgets of certain cultural institutions were analyzed, mainly of institutions whose activity is primarily focused on tangible cultural heritage. With certain exceptions, there has been a consistent increase in budget allocations for the selected budget beneficiaries. This budget growth is partly constrained by the increase in the number of employees. The dominant portion of the budget is allocated to running costs, including salaries, salary allowances, equipment purchases, minor inventory, contracted services and utility costs. Only a small portion of the budget for the selected public cultural institutions is effectively operable and unrestricted.

Table 8. Public cultural institutions, Budgets (BAM) and number of employees, 2020-2024.

| Public institution/ No. of employees | Budget 2024 | Budget 2023 | Budget 2022 | Budget 2021 | Budget 2020 |
|--|------------------------|------------------------|------------------------|------------------------|------------------------|
| Cantonal Institution for the Protection of Cultural, Historical and Nature Heritage Sarajevo | 1.107.524 | 916.497 | 754.119 | 1.251.788 | 1.629.833 |
| | 23 | 23 | 23 | 23 | 23 |
| Museum of Sarajevo | 1.450.146 | 1.107.690 | 918.883 | 917.732 | 860.712 |
| | 29 | 29 | 22 | 22 | 22 |
| Sarajevo Historical Archives | 1.217.934 | 1.107.678 | 1.011.502 | 916.887 | 916.337 |
| | 27 | 26 | 31 | 26 | 26 |
| Sarajevo Libraries | 2.589.765 | 2.256.359 | 1.921.915 | 1.908.357 | 1.806.503 |
| | 60 | 60 | 60 | 60 | 60 |
| Alija Izetbegović Museum | 407,158 | 357,632 | 319,318 | 445.836 | 406.769 |
| | 7 | 5 | 5 | 5 | 5 |

| | | | | | |
|-----------------------------|------------|-----------|-----------|-----------|-----------|
| Memorial Center Sarajevo | 12.425.033 | 6.570.630 | 4.352.340 | 3.899.257 | 4.175.587 |
| | 90 | 85 | 80 | 80 | 80 |

Funding Sources for Public Cultural Institutions

An important aspect of financing public cultural institutions within the MCS department is the data on revenues made by public cultural institutions. The table below presents the amounts of revenue generated by selected cantonal cultural institutions. These revenues represent the income of the Sarajevo Canton budget, although they are separately reported within the budgets of cultural institutions as Sarajevo Canton budget beneficiaries. The selected cultural institutions generate income primarily through performing their core activities and providing services. The empirical data is unequivocal: cultural institutions fail to generate their own revenues and are entirely dependent on budget funding. While this may be acceptable and justified for certain institutions (such as Sarajevo Historical Archives), in the case of cultural institutions such as museums, the data is a cause for concern. Investigating the reasons for such results requires a separate study, but it is evident that there is an absolute deficit in demand for the services provided, even though Sarajevo Canton has recorded an increase in the number of tourists during the observed period. At the same time, the observed cultural institutions have seen an increase in the number of employees and their annual budgets. Analysis of budgets of individual public cultural institutions shows that only a small percentage of the budgets were used for professional training and development of the employees in the public cultural sector. These institutions are obliged to report to the Government of the Canton on an annual basis. Every annual report includes information on employment structure of subject cultural institution and HR needs of the institution; however, this data should be only an input for analysis on a macro-level perspective. Existing praxis shows that reports are somewhat automatically adopted by the Sarajevo Cantonal Assembly without a qualitative and quantitative assessment of completed projects based on human resources available.

Table 9. Revenues of public cultural institutions, 2020-2024.

| Chosen public institutions ⁴³ | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|-------|-------|-------|-------|-------|
| Cantonal institution for the protection of cultural, historical and nature heritage Sarajevo | 0,76% | 0 | 0.80% | 2.65% | 2.71% |
| Museum of Sarajevo | 1.74% | 1.63% | 1.63% | 1.35% | 6.89% |

⁴³ It wasn't possible to calculate percentages for two public institutions due to inconsistency in budget data (Sarajevo Historical Archives and Sarajevo Libraries).

| | | | | | |
|-----------------------------|--------|--------|-------|--------|-------|
| Museum of Alija Izetbegović | 12% | 7.06% | 9.86% | 8.80% | 7.61% |
| Memorial Center Sarajevo | 25.74% | 15.39% | 6.89% | 16.74% | 8.85% |

RESOURCE ALLOCATION MODEL FOR CULTURE: SWOT ANALYSIS

SWOT analysis is conducted based on the findings and data obtained by quantitative and qualitative analysis of the public expenditures for cultural heritage in the observed time frame, while taking goals from relevant strategic documents into consideration. Most strategic documents were adopted/drafted during the observed time and therefore, it is possible to compare funding practices in the period before and after the adoption of the relevant strategic documents. Since the measures and instruments for achieving strategic goals need funding, it is possible to draw several conclusions from the patterns (allocation model) used to allocate funds during the observed period.

Strengths

1. Existing model of resource allocation used by MCS ensures that policy measures are directly implemented by the Sarajevo Canton Government. This is the very main characteristic of the existing model itself. The basic principle for reducing responsibility lies in the establishment of an independent body with certain public power. Therefore, the existing model ensures that MCS is held responsible for implementation of the cultural policy, preventing shifts of responsibility towards relatively anonymous *independent body of experts*.

2. Considering findings and empirical data on a qualitative basis, Sarajevo Canton Government provided significant efforts to prevent state-level cultural public institutions from closing, providing required funds. Since these state-level institutions are located in Canton Sarajevo, providing funds for its operation and *survival* equals strengthening capital by increasing supply in terms of tourist arrivals. If these public cultural institutions were closed, Canton Sarajevo's tourist offer would be diminished.

3. Establishing an independent entity – body of expert with a task of allocating funds through applications selection process is less cost effective, since certain costs for operation of this body is incurred. If creating and implementing cultural policies belonged to FBiH, it would be wise to consider this option, however, even in that scenario, weaknesses of such model of allocation could lead to preservation of the existing model.

Weaknesses

1. The lack of distinction in public calls for projects in the cultural sphere can lead to lower/higher presence of cultural heritage in selected applications (projects). If public calls

were structured in a manner that certain funds were available only to the projects which fall under the category of cultural heritage, cultural heritage policy would benefit leading to better preservation of cultural and historical heritage. Another issue with public calls is a lack of consideration for various criteria that serve as basis in projects selection procedure, such as artistic or historical value, age of existence, appreciation of ancient traditions, traditional crafts, etc. There is an urgent need to establish firm and clear criteria defined by experts in the field.

2. The lack of ex-post and ex-ante analysis of the allocated funds leads to poor efficiency in public spending. There is no available information from MCS regarding the process of justifying the funds allocated to applicants, nor is there information on the implementation of projects by the recipients of the allocated budget funds. It is impossible to ignore the impression that, given that these are considerable amounts from the budget, an ex-post analysis is necessary. The results of this analysis could potentially influence the sustainability of the traditional segmentation of revenue funding for culture but also lead to alternative *pro futuro* solutions in the allocation of funds. Furthermore, no publication on conducted CBA is available, meaning that the decision-making process on capital investments is based on unknown criteria. This means that capital investments in certain cultural heritage assets are conducted without taking into consideration the benefit gained in terms of tourism supply. In terms of equal representation of different parts of the Canton, it is advisable to consider equal spatial (territorial) representation as a criterion for resource allocation to secure the sustainability of Sarajevo's Old Town, since the biggest burden in regard to the number of tourists visiting is present in the Old Town. Conducting analysis is a key prerequisite for ensuring efficiency of public funding. In order to obtain data required for decision making process, project analyses should be a priority in the next steps over the coming years.

3. The lack of long-term financial planning is evident after the qualitative and quantitative analysis. Multiannual planning is absent, resulting in *ad hoc* decisions on what to fund based on the available funds in that budget cycle. Without long-term financial planning, a meaningful part of funding becomes fragmented and allocated towards smaller, less significant projects instead of focusing on more expensive capital investments through multiple budget cycles. This issue refers to numerous areas of social life in Canton Sarajevo. There is a huge space for improvement of cooperation between the Ministry of Finance and MCIS, as well as other ministries and municipalities of Canton Sarajevo.

4. One of the biggest issues of the existing model of financing cultural heritage is neglecting human capital as a valuable resource. This affects innovations, motivation and creativity in the public cultural sector resulting in poor demand and low level of own revenues for public cultural institutions. This should be a top priority in future research, since the salaries of those employees have increased recently, meaning that the reasons for poor motivation have

deeper reasons and more complex determinants. In many cases, the total amount of transfers depends on the ability of applicants to apply to the public call with an appropriate project. There is a necessity for conducting research on employment policy in the cultural sector, as well as qualitative and quantitative analysis of employment structure to ensure coherent, adequate and efficient plan for employment and professional training and development of public sector employees in the cultural sector.

5. Even though strategic documents were adopted/drafted during the observed period (2020-2024), spending programs changed mostly quantitatively. With the increase in the budget, the present expenditure on cultural heritage has only linearly increased, without paying attention to a qualitative dimension of budget expenditure

Opportunities

1. Innovation in the process of structuring public funding calls could lead to an increase in the total number of cultural heritage projects.

2. Certain EU programs make cultural projects from BiH eligible for application, however there is an absolute absence of these projects in BiH. Establishing some sort of Joint Office for Project drafting and application support for EU grants could overcome issues in human capital and lack of know-how. In the EU budget cycle for the period 2014-2020, Bosnia and Herzegovina increased its participation in programs as well as its absorption of funds from these programs: Horizon 2020, Creative Europe, Erasmus+ (partial participation), Europe for Citizens, the Third Health Program, FISCALIS, Customs, and COSME. During the seven-year period, Bosnia and Herzegovina participated in about 1500 projects, drawing over 30 million euros in funding. In the current cycle (2021-2027), Bosnia and Herzegovina participate in the programs Horizon Europe, Creative Europe, the Single Market Program – Competitiveness and Sustainability of Small and Medium Enterprises (continuation of the COSME program), and Erasmus+. The EU's Civil Protection Mechanism is a program to which Bosnia and Herzegovina has been associated since 2023 (Directorate for European Integration, European Union Programs 2021-2027, 2023). From a cultural heritage point of view, the most important programs are Horizon Europe and Creative Europe. One of the more recent examples is the STECCI project⁴⁴ – Stone monument ensembles and the climate change impact under the Horizon program (Call from 2022), with the University of Sarajevo as the project coordinator and numerous other partners involved in the project. The process of writing projects and applying for participation in these projects requires professional knowledge and skills. Over time, the European Union has established a functional and partially formalized system for evaluating project applications, as large number of experts engaged in the evaluation process based on their expertise and professional field. This results

⁴⁴ More information about STECCI project is available at: <https://steccihorizoneu.com/about/>

in the existence of „a recipe” to increase the likelihood of a positive outcome in the application process. There are numerous trainings, workshops, and educational opportunities, both in Bosnia and Herzegovina and in the region, which focus on project writing for the purpose of applying for EU grants. It is unrealistic to expect that every cultural institution within the group should have an individual that would participate in such training and workshops due to the lack of available funds. For the reasons of efficiency, it is more suitable to educate employees in public cultural institutions within their area of expertise and to establish a support/joint office at the Cantonal level. This Office would provide support to numerous institutions, departments and organizations in project writing and the application process. Considering EU Programs allow individuals, companies, public institutions and private organizations to apply for funding, support office would benefit a wide range of users on a horizontal and vertical level. Such office should not only benefit the cultural sector, but various industries and the public sector as well, including universities and institutes. Potential financial gains significantly exceed operational costs of support office. Such a solution would be effective, economical and would positively encourage public institutions to come up with ideas for project proposals. The establishment of such Office could easily be subjected to an analysis in terms of the costs of establishment and operation, together with potential benefits regarding funds which could be received from EU programs. Anticorruption and Quality Control Office of the Sarajevo Canton could be used as a role model for establishment, organization and task regulation of the Office.

3. Another opportunity lies in establishment of Joint Fund for Capital Investments in area of Cultural Heritage. Considering that there are nine municipalities in Sarajevo Canton, together with the Cantonal budget and budget of City of Sarajevo, creating such a Joint Fund for Capital Investments would improve not only coordination and cooperation, but financial opportunities for expensive capital investments as well. Tourist tax (sojourn tax) could partly become the revenue of the Fund. Since cultural heritage can be viewed as an intersection of interests of both tourist and citizens, using sojourn tax for the purpose of protection of cultural heritage can be justified. It is possible to observe overlaps in certain transfers made by the MCS and the City of Sarajevo as well as certain municipalities. Even though coordination is not legally required, indeed, the independence of local government units in managing budget funds is constitutionally guaranteed, it would be pragmatic to consider the representation of certain fund recipients. Specifically, it is evident that some entities simultaneously benefit from transfers provided by MCS and those from the City of Sarajevo. Since part of the funds for the City's transfers originates from MCS transfers to the City of Sarajevo, a higher degree of coordination in implementing cultural policy could yield better and more efficient results. There are two comparable funds which already exist in Federation of Bosnia and Herzegovina, Film Foundation of FBiH and Library Activity Foundation, which could be used as a basis for reforming existing model of financing of cultural heritage.

4. Spending programs could be structured in a manner to foster cooperation with the private sector, namely for funding protection (reconstruction, rehabilitation) of cultural heritage assets in private ownership.

Threats

1. Due to formalism in the process of application on MCS' public calls for funding, high quality projects might fail to fulfill formal requirements.

2. Poor competitiveness of public cultural institutions leads to poor revenues from the tickets sales so high maintenance costs are exclusively funded by the public budget. Without new sources for financing the preservation of cultural heritage, such as public-private partnerships, the existing model of financing is threatened because of the fact that the biggest portion of the funds is used for maintenance, leaving little to no room for capital investing. At the same time, around two thirds to three quarters of the public cultural institutions' budgets are spent on salaries and material costs; that unfortunately leads to an inability to improve work motivation and human capital investments.

3. Without equal spatial (territorial) distribution during the selection procedure of new projects, there is a threat of high tourist concentration in Sarajevo's Old Town Municipality that is affecting sustainability.

4. Neglect of traditional crafts is evident, and that could lead to the disappearance of traditional crafts. This would affect both: the uniqueness of Sarajevo as a tourist destination, as well as tourist experience related to the facts of economic history, in general.

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THE GASTRONOMIC OFFER OF THE SARAJEVO TOURIST- GEOGRAPHICAL REGION

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Abstract: The Sarajevo tourist-geographical region stands out as an increasingly popular destination for gastronomic tourism due to its rich cultural heritage, diverse gastronomic offer, and authentic ambience that attracts tourists from different parts of the world. This area is characterised by collection of traditional Bosnian dishes, the influences of Turkish and Austro-Hungarian cuisine, as well as modern interpretations of local specialties, and this is what makes it unique. This form of tourism is based on different gastronomic experiences, from small family restaurants to sophisticated gastronomic locations. This region is known for its hospitality and warm welcome to tourists, which further enriches their gastronomic experience. It is important to mention that the Sarajevo tourist-geographical region has positioned itself as an increasingly attractive destination for all those who want to explore the wealth of Bosnian cuisine and get to know its cultural heritage. This region offers a deeper understanding of local culture and identity through its gastronomic offer. The degree of valorization of gastronomic tourism in this region is at a very modest level, so the possibility of its improvement and intensive development for tourist purposes should be pointed out. The aim of the research is to provide an insight into the specifics of Sarajevo's gastronomic offer, identify the key attractiveness factors for tourists, and examine the effects of the gastronomic industry on the local economy and cultural heritage.

Key words: gastronomic tourism, Sarajevo tourist-geographical region, tradition, culture, customs

INTRODUCTION

Today, tourism is an industry that is rapidly and unstoppably developing all over the world. Modern tourism also has its new forms: health, spa, rural, cultural and historical, sports and events, educational, etc. In addition to the above, there are also specific forms of tourism: nautical, tourism of protected parts of nature, wine, gastronomic, etc.

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Gastronomic tourism is defined as "the visit of tourists to primary or secondary food producers, food festivals, catering establishments for the production and serving of food, and certain destinations for tasting and/or experiencing the attributes of regional specialties" (Hall & Mitchell, 2006).

Gastro tourism is defined as the activity of exploring and discovering a new and unknown culture and history through food, which influences the formation of unforgettable experiences. For this specific form of tourism, the most important item that interests tourists is certainly safe food, as well as an unpolluted natural and anthropogenic environment where this food is produced.

Gastronomic tourism is also called "culinary tourism" and is defined as the search for a unique experience of tasting foods and drinks to remember. Gastronomic tourism belongs to the group of vacation tourism, and of the two basic types of tourism, it belongs to alternative rather than mass tourism. Gastronomic tourism offers a wide range of choices, especially in countries with rich culinary traditions and attractions (Caffyn, 2010).

Food has become recognized in the tourism market as: part of the local culture, consumed by tourists, part of tourism promotion, a potential component of local agricultural and economic development, and as a regional factor influenced by consumption patterns and observed desires of tourists (Hall & Mitchel, 2001).

The aim of this paper is to give an overview of the most important stages of the development of the gastronomic offer through historical periods in the Sarajevo tourist-geographical region and the possibilities of their valorization, which would contribute to the development of both gastro tourism and cultural tourism, as well as the overall economic development of this region. The resource basis of modern gastro tourism in the Sarajevo tourist-geographical region needs to be methodologically elaborated on the basis of geographical, economic, and socio-cultural research, in order to obtain a complete potential tourist picture that, through the adoption of an appropriate tourism development strategy, would transform into a real and sustainable tourist offer with a focus on the development of gastro tourism, which would further generate revenues for the preservation and restoration of this unique value of Sarajevo (Bidžan, 2012).

The following general and specific methods of regional geographical research are used in this paper: the method of regional-geographical analysis and synthesis of tourist-geographical factors, the method of homogeneity in the spatial distribution of tourist-geographical parameters in order to identify the gastronomic offer, the further heritage of the Sarajevo tourist-geographical region, the method of establishing spatial-functional relations and relations primarily related to tourism activities in order to improve its development and lessen disruption to the environment.

In the process of evaluating the gastronomic offer as an anthropogenic tourist potential related to the development of gastro tourism, various tourist-geographical methods and valorization factors are applied, with a very complex classification procedure (identification and analysis of attractive properties, spatial coverage, landscaping, etc.). In addition to tourist methods, the following methods were also used: analytical-synthetic, cartographic, descriptive, method of comparison, statistical, method of assessing the situation, method of classification, etc. What was indispensable in this paper was field observation, by which we saw the real situation in space and found a lot of information that was used in writing this paper.

HISTORICAL OVERVIEW OF SARAJEVO TOURIST-GEOGRAPHICAL REGION GASTRONOMIC OFFER

Sarajevo is not only the capital of Bosnia and Herzegovina, but also an example of a city whose cuisine and customs cannot be understood without knowing its historical layers. Through the turbulent history of this area, many peoples have passed, and this has influenced the formation of the unique identity of this city, but also a rich tradition has been created, as well as an authentic gastronomic offer. All these factors are the result of a rich history, but also testimonies to the long and complex history of the coexistence of different cultures in the Sarajevo tourist-geographical region. This multicultural approach remains crucial for understanding and valorizing Sarajevo's cuisine and customs in a contemporary context. Below, we will briefly describe almost all the phases of the emergence of complex Sarajevo gastronomy through historical periods.

THE OTTOMAN PERIOD

The Ottoman Empire ruled Sarajevo from 1461 to 1878, and because of such a long period of rule, they left a deep mark in terms of gastronomy in these areas. During this time, many dishes were brought, as well as methods of preparation, which were specific to the Ottoman people at the time. The establishment of many *ćevabdžinica*, *asčinica* and *kahve* brought specialties such as salty: *ćevapi*, *dolma*, *sarma*, *pilaf*, etc., as well as sweets: *baklava*, *persimmons*, *tulumba* and other cakes with *agda*. In addition to food, Ottoman culture introduced rituals of tea and coffee consumption, which became an integral part of the daily life of Sarajevans. The spirit of that time is still present today, and this is reflected in the great representation of the methods of preparation and types of Ottoman Bosnian dishes today. In today's Bosnian dishes, strong and hot spices are not used, as well as a large amount of fat. Sarajevo's tourist-geographical region is currently recognized among tourists as a tourist destination that offers an autochthonous and world-specific, but attractive gastronomic offer, and is best known for its Sarajevo *ćevapi*. Some of the most famous *ćevabdžinica* in Sarajevo are: *Mrkva*, *Željo*, *Zmaj*, *Petica*, *Hodžić*, *Kod Kurte*, etc.



Fig. 1. “Sarajevski ćevapi” from Sarajevo's ćevabdžinica “Mrkva”

Photo: Seada Gavranović

Today, Sarajevo ćevapi are a symbol of the city itself, and they were also written about on the TasteAtlas online platform, which focuses on mapping traditional dishes and gastronomic specialties from different parts of the world (Fig.1). This platform is one of the most famous, and only authentic traditional dishes are found within it. "Taste Atlas" magazine ranked Sarajevo ćevapi among the ten best dishes in the world (Official web of Tasteatlas, sarajevski ćevapi). Also, on the map where the most famous dishes of the countries in Europe are mapped, ćevapi were selected for Bosnia and Herzegovina. It is also important to mention the procedure on the protection of Sarajevo ćevapi, which was launched in 2022 by the City of Sarajevo and the Food Safety Agency of Bosnia and Herzegovina, and was successfully completed and implemented on August 10, 2024. Sarajevo ćevap is now protected as a brand and as a separate traditional autochthonous Bosnian product. Soon there will be protection in the European Union, and after that, the protection of Sarajevo flatbread. In order for a gastronomic tourist destination to succeed, and especially Sarajevo, it is important that we brand everything that is related to Sarajevo. With this protection, Sarajevo ćevap has received a designation of geographical origin, and this local specialty is positioned as a unique and recognizable Bosnian brand, thus confirming and increasing its market competitiveness within and outside the borders of Bosnia and Herzegovina. USAID also participated in the protection process with its project "Development of Sustainable Tourism in Bosnia and Herzegovina", where it closely cooperated with the Food Safety Agency of Bosnia and Herzegovina with the aim of increasing the number of products that will have a geographical indication. In this way,

USAID participated in the expansion of the tourist offer and attracting tourists to our homeland, especially to the Sarajevo tourist-geographical region.

The Ottomans left a deep and lasting mark on Bosnian cuisine throughout the centuries of their rule, bringing with them a wealth of new ingredients, cooking techniques, and culinary customs that were integrated into local traditions. They introduced new foods and spices, which are today crucial for Bosnian cuisine: rice (it became the basis for many dishes, such as pilaf, and is also used in the filling of vegetables, such as sarma and dolma), pepper, ground pepper, as well as sweet dishes cinnamon, cloves, etc. They also brought new techniques for cooking and preparing food: baking in pans of various pies (Fig.2), baking and moussaka. Also, the Ottomans introduced the practice of cooking dishes over low heat for a long period of time, which led to the creation of rich and aromatic dishes, such as Bosnian pot and various types of goulash. In addition to salty dishes, numerous sweet dishes have been brought and have been preserved to this day: baklava, persimmons, ružica, tulumba, tufahija, kadaif, then zerde, hošaf, tahan halva, and the indispensable rahat lokum (Lakušić, 1999).



Fig. 2. Bosnian pie „Burek“

Photo: Seada Gavranović

Baklava is somewhat a symbol of Bosnian delicacies; however, many will say that it is authentically Turkish, but the Turks have different variations of baklava, predominantly with pistachios or hazelnuts, which are not discussed here. It's not just any cake; it's festive. Maybe that's why it's special and its own. Like its shape itself, it is quite precise; it is known

exactly what goes and to what extent, and even often housewives have special pans for baklava. Not everyone knows how to make good baklava, but Bosnian women learn it from their mothers and pass this knowledge on to their children from generation to generation.

In addition to food, the Ottomans brought the tradition of drinking coffee to Bosnia. Bosnian coffee has become an indispensable part of everyday life. Serving coffee with rahatlokum or sweet (traditional sweets) today is not only a custom but also a sign of hospitality and companionship. Bosnian coffee is always served in a cezve, on a large tray, with a small ceramic cup (fildžan), sugar or rahat lokum, and a glass of water.

The great influence of the rulers of the time is also felt through the way food is served and consumed. Meals were often rich and organized in several courses, with an emphasis on eating together. The tradition of eating together, where food is shared from one large plate, especially during festive occasions, has its roots in the Ottoman period. The combination of these influences has shaped Bosnian cuisine into a unique blend of Balkan and Oriental flavors, where elements of both cuisines have been harmoniously integrated into the daily life and traditions of the population of Bosnia and Herzegovina.

AUSTRO-HUNGARIAN PERIOD

The period of Austro-Hungarian administration in the area of the Sarajevo tourist-geographical region began in 1878. Year. The new government and different people bring with them a different culture, customs, and politics, but also a gastronomic offer. Bosnian gastronomy at that time was influenced by Western European culinary traditions, and the results of this influence are still visible today. This government has brought modernization throughout Bosnia and Herzegovina, and especially in the Sarajevo tourist-geographical region, in all segments. In the past, the central gathering places were houses, and in this period they are starting to be cafes. As far as the gastronomic offer from this period is concerned, cakes such as e.g. Sacher and others, and from savory dishes, Viennese schnitzel. Today, the best reviews for the Sacher cake have the pastry shop La Delicia Sarajevo (Official website of Tripadvisor, Pivnica Sarajevo and La Delicia pastry shop).

The Austro-Hungarian Empire also brought a number of new foods and spices that enriched the cuisine of Bosnia and Herzegovina, such as potatoes, although potatoes arrived in Bosnia earlier, in this period they became significantly popularized and became a staple food in many households. It also brought the European baking tradition to our region, including various types of pastries and desserts such as rolls, croissants, various types of bread, etc. We should mention that these pastries were filled with various ingredients, such as walnuts, jam, or poppy seeds. Cakes such as strudels, cakes, and various biscuits have become part

of Bosnian cuisine. Traditional Bosnian desserts are enriched with techniques and recipes from Central Europe.

Furthermore, this government brought changes in the way of serving and the aesthetics of food; more precisely, porcelain and other dishes began to be used. This style has become popular in urban households and has given a refined look to dining tables, especially in urban areas. Meals are also multi-course, as Austrian cuisine emphasized the consumption of multi-course meals, which included an appetizer, main course, and dessert.

During the Austro-Hungarian period, wine production was significantly improved, especially in Herzegovina, where vineyards expanded and wine quality improved. The establishment of breweries, such as the Sarajevo Brewery in 1864 (which operated under Austro-Hungarian administration), brought the popularization of beer as a beverage in Bosnia and Herzegovina. Beer has become an integral part of the culture of drinking and social gatherings.

Austria-Hungary also influenced the way households within Bosnia and Herzegovina organized meals and meal schedules, and although the tradition of communal meals existed before, Austro-Hungarian influence led to more formal dinners and gatherings, with an emphasis on family and social dinners.

PROMOTION OF GASTRO TOURISM IN THE SARAJEVO TOURIST- GEOGRAPHICAL REGION

Gastro tourism represents a significant segment of the tourist offer, especially in destinations with a rich cultural and culinary tradition, such as the Sarajevo tourist-geographical region. This area has an extremely large potential for the development of this specific form of tourism, but the disadvantage is the practical offer and the fact that the tourist board is not able to present such potentials in the right way.

The Sarajevo region works on the promotion of gastro tourism through various projects, involving tourist boards, travel agencies, numerous organizations, and even volunteers who want to gain some specific experience in their field through practical work. We should especially highlight the "Sarajevo Destination Festival", which was held for the first time this year and had a large number of visitors. The goal of this festival was to bring together all travel agencies throughout Bosnia and Herzegovina, as well as agencies from the region, to place attractive tourist offers to visitors, but also to make Sarajevo stand out from the rest as a tourist destination.

The best tourist promotion of a destination is through various festivals, events, digital media, which are the most important in tourism today, and in this way we can connect with tourists

or future tourists around the world and interest them in visiting Sarajevo. In addition, what wins tourists over again to come to a destination, is certainly hospitality, which tourists certainly point out in the Sarajevo region, as a beautiful experience.

In addition to domestic promotion, Sarajevo as a tourist destination is doing a lot to promote itself in countries around the world, one example is the promotion of tourism of the Sarajevo Canton at the fair in Paris in 2023. The Sarajevo Canton Tourist Board presented "Visit Sarajevo" for the first time in the tourist offer at the prestigious fair "IFTM – International & French Travel Market", which was held in Paris from October 3 to 5. This fair features multiple segments of travel and tourism, including leisure tourism, business travel, group travel, and MICE tourism. This year's edition of the fair brought together nearly 30,000 tourism professionals, presented 170 destinations from all over the world (including Sarajevo), and held 80 thematic conferences on the leading trends and challenges that the tourism industry faces globally. By presenting Sarajevo's tourist offer at this fair, he aimed to attract potential tourists from France in as many numbers as possible, as well as tourists from other emitting markets. Exhibitors and visitors to the fair are generally familiar with the destination of Sarajevo, and as a particularly interesting and recognizable tourist attraction, they pointed out Baščaršija (Oficijalna stranica Visit Sarajevo).

One of the biggest problems when it comes to the promotion of gastro tourism in the Sarajevo tourist-geographical region is the lack of brochures for the presentation of this form of tourism in our country. Travel agencies are trying to organize certain projects in agreement with rural households, which they would market to tourists. Such a positive example is the village of Lukomir on Bjelašnica, where the local population offers tourists gastronomic specialties of this region.

However, it is important to mention other events that contribute to the promotion of tourism in the Sarajevo region, such as: Street Food Market, Gastro Eco Fest food with sevdah, Beer and Food Days, etc. A positive example of the presentation of gastronomy in Bosnia and Herzegovina is the association of gastronomes that was founded under the name "Gastro Corner". This association is trying to bring back the traditions of the caterers of this area. Also, they promote the gastronomy of the whole of Bosnia and Herzegovina through television shows, with the aim of promoting traditional cuisine through the preparation of traditional Bosnian specialties. Through the organization of fairs, this association tries to present our gastronomic offer as much as possible.

GASTRONOMIC DESTINATIONS IN THE SARAJEVO TOURIST-GEOGRAPHICAL REGION

Sarajevo is known as a special cultural and historical core in Bosnia and Herzegovina, where there is a combination of various already mentioned influences, it represents a real fusion of different specialties such as ćevapi, pies, dolmas, schnitzels, numerous desserts, and the like. Many restaurants and cafes in the city promote traditional dishes, often using locally grown ingredients, thus contributing to the sustainable development of regional and local agriculture. However, in addition to traditional dishes, there are also many dishes popular around the world, and in this area they have become widespread due to the influence of westernization. We will single out a few specific gastronomic destinations in the Sarajevo region, which are visited by tourists, and these are:

- Baščaršija
- Obala Kulina bana
- Marijin Dvor
- Sarajevo City Center (SCC).

Baščaršija is the cultural center of this region, but also the most important gastronomic destination in the city itself, where there is a combination of different cuisines. The recognizability of the area itself is its narrow streets and traditional crafts, where a wealth of culinary delights is offered, reflecting the rich cultural heritage and diversity of local cuisine. The basis of Sarajevo cuisine is predominantly Ottoman, but you can also feel the influences of the Austro-Hungarian Empire. Baščaršija offers a wide range of traditional Bosnian dishes such as ćevapi, pies, dolmas, and various meat and vegetable specialties, as well as numerous desserts: baklava, tufahija, etc. Restaurants and local taverns (traditional Bosnian inns) are often located in old oriental houses or hans, providing an authentic experience. Tourists most often decide to visit restaurants such as "Ćevabdžinica Željo" (rating 4.4),⁴⁸ "Kuća sevdaha" (4.7), or "Restoran Morića Han" (4.6), which are known for their authenticity and long tradition of serving delicious Bosnian dishes (Official website of Destination Sarajevo, Baščaršija).

The "Obala Kulina bana" runs from west to east and upstream, i.e. parallel to the right bank of the Miljacka River, from the Skenderija Bridge to the Šehar-ćehajina Bridge. On the Miljacka Coast and in the surrounding areas, there are numerous restaurants and cafes with beautiful views of the river and the surrounding hills. These restaurants often offer a variety of traditional Bosnian dishes as well as international cuisines, making them popular among tourists who want to enjoy food with a nice view. Of the more famous restaurants in this

⁴⁸ Ratings are taken from the official websites, tasteatlas or tripadvisor (detailed pages are in the references)

area, "Konoba Luka Sarajevo" (4.5), "Bistro Obala" (4.5), etc⁴⁹ stand out (Official website of Destination Sarajevo, Obala Kulina bana).

Marijin Dvor is the political and business center of Sarajevo. The largest hotel in Sarajevo, the Holiday Inn, is located here and was built on the occasion of the 14th anniversary of the Holiday Inn. the Winter Olympics. Within a radius of 500 m, there are three retail commercial centers: Alta (3.5), Sarajevo City Center (4.0), and Importanne (3.5). When it comes to gastronomy, reputable restaurants and cafes offering a variety of gastronomic specialties are available to tourists. These establishments often combine modern cuisine with traditional Bosnian dishes, adapting to the urban environment. Among the restaurants, the following stand out: "Piccolo Mondo" (4.5), pizzeria and restaurant, then "Pivnica Sarajevo" (4.0), "Spazio Gourmet" (4.0), etc⁵⁰. (Official website of Visit Sarajevo, Marijin Dvor).

Sarajevo City Center, better known as SCC, is one of the largest shopping centers in Sarajevo, located in the center of the city, and is a popular destination for shopping, entertainment, and gastronomic delights, both among locals and tourists. The gastronomic offer of SCC is diverse and includes a variety of restaurants, cafes and fast food, which satisfy a wide range of tastes and preferences of all visitors. Within this shopping center, you can find traditional Bosnian dishes, as well as international cuisine. A wide range of Italian, Asian, and American cuisine is available to tourists who come to it. Restaurants often have a modern atmosphere, and the interior itself is adapted to today's trends, which especially attracts young tourists to visit these establishments. Also, there are mini stalls selling natural juices, fruits, as well as vegan products, and thus the gastronomic offer of this space is further enriched. In just a few meters there are traditional restaurants such as ćevabdžinica "Mrkva", then American food such as "KFC", but also the Asian restaurant "Kimono" (3.5)⁵¹, which certainly makes this space very attractive and tempting for all visitors, whether they are domestic or foreign (Official website Visit Sarajevo, SCC).

⁴⁹ Ratings are taken from the official websites, tasteatlas or tripadvisor (detailed pages are in the references)

⁵⁰ Ratings are taken from the official websites, tasteatlas or tripadvisor (detailed pages are in the references)

⁵¹ Ratings are taken from the official websites, tasteatlas or tripadvisor (detailed pages are in the references)

FUTURE TRENDS IN THE DEVELOPMENT OF GASTRO TOURISM IN THE SARAJEVO TOURIST-GEOGRAPHICAL REGION

Global trends and key parameters for the success of the Sarajevo region as a gastronomic destination should include its development through the following elements, which are:

- Growth of the gastronomic tourism market - an increase in world gastronomic tourism, which the Sarajevo region urgently needs to join. This is one of the most dynamic segments of the tourism market.
- The product is the basis of gastronomic tourism – Sarajevo's natural resources that are converted into tourist products will enable the identification of this territory with the original Sarajevo products.
- Cultural heritage – Sarajevo culture is a set of unique behaviors, knowledge and habits that Sarajevo society shapes, which is based on the feeling of belonging to the Sarajevo tourist-geographical region.

The gastronomy of the Sarajevo region allows tourists to gain insight into the cultural and historical heritage of this tourist destination through various testing, gastronomic experiments, and the purchase of local products. This cultural approach will allow for a more participatory and experiential way that will not be purely observational. We must also take into account the emergence of new cultural values that enhance the richness and cultural diversity of the Sarajevo region. In this sense, Sarajevo's tradition and innovation coexist in a natural way.

Today, the travel experience has changed and is no longer limited to the days spent on the road but begins much earlier (tourists are inspired, collect information, compare, buy) and ends when tourists rate their experience and share it through social networks. The key role in this process in the Sarajevo tourist-geographical region should be played by the following elements: amazing chefs who are starting a revolution in the segment of luxury kitchens, media (especially television), guides, blogs on the topic of local food and social networks. All this will help to create a favorable image for choosing the Sarajevo region as a favorable tourist destination.

For the Sarajevo tourist-geographical region, it is important to mention that one of the key trends in the future is its focus on sustainability and the use of local products and the placement of traditional Bosnian food and drinks to tourists. Tourists are increasingly appreciating dishes prepared with fresh, locally grown ingredients that provide an authentic experience and support the local economy. Sarajevo restaurants can take advantage of this trend by collaborating with local farms and producers to offer seasonal Bosnian dishes and promote a sustainable approach to food preparation. Also, one should not shy away from the marketing of modern cuisine, but the Sarajevo region should create new authentic products from local ingredients with global culinary techniques, which will be offered to visitors. This

blend of tradition and modern cuisine can create unique gastronomic experiences that will attract an increasing number of tourists again and again.

CONCLUSION

The development of gastro tourism in the Sarajevo tourist-geographical region has significant potential for the future development of this great tourist offer. By analyzing the current state of gastro tourism in the Sarajevo region, it was determined that this segment not only reflects the rich cultural and historical heritage of the city, but also contributes to its attractiveness as a destination. Also, it affects the development of the brand of this tourist destination and with its diversity and authenticity, it provides a unique experience that can significantly improve tourist activities and attract tourists from different parts of the world. The importance of promoting local food as a key element in attracting tourists has been recognized in the Sarajevo region, so the promotion of Sarajevo's culinary specialties, together with the organization of gastronomic events and tours, can play a key role in increasing tourist interest and extending the duration of stays in this region. In addition to the identified challenges, such as the need for greater coordination between the tourism and gastronomy sectors, as well as the improvement of infrastructure, it is necessary to implement strategic recommendations. The Sarajevo region needs to focus its marketing activities on a global audience, then it needs to increase support for innovative projects in gastronomy and more develop educational programs that will enrich tourist experiences. Also, in the future, further research and continuous efforts in the promotion of gastro tourism can significantly contribute to strengthening the position of the Sarajevo region on the global tourist map. Sarajevo's gastro tourism has the potential to become not only a recognizable part of the tourist offer, but also a key factor in creating a sustainable and dynamic future tourism sector.

The time of gastronomic tourism in the Sarajevo tourist-geographical region is yet to come, and this form of tourism has yet to become a real motive for many international tourists to visit, all because of their desire to experience something new and something authentic.

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SARAJEVO THROUGH THE LENS OF THE AUSTRIAN-HUNGARIAN PERIOD: THE SIGNIFICANCE OF POSTCARDS IN TOURISM PROMOTION

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Abstract: The Austro-Hungarian occupation of Bosnia and Herzegovina (BiH) was one of the key events of that period, having a profound impact on the overall development of Sarajevo. During this time, European media regularly reported on and wrote about Sarajevo, promoting it as a new and relatively unknown destination. However, postcards began to be used as a promotional tool somewhat later than in the rest of Europe. The postcards that emerged after 1890 depicted diverse architecture, significant cultural sites, as well as the everyday life and customs of the local population. This form of visual presentation allowed foreign visitors to learn about the city, thereby attracting potential tourists. Photographs of the most significant buildings, cultural and historical monuments, and everyday life, taken by prominent photographers of the time, became motif on Sarajevo postcards, creating a visual connection between Sarajevo and European tourism. Postcards are particularly significant in shaping the urban identity and perspectives of the city, as they contributed to the perception of Sarajevo as a modern and attractive destination for visitors. This research focuses on analyzing the motif of postcards from the Austro-Hungarian period and their role in the early stages of tourism development, as well as the popularization of Sarajevo as a tourist destination. The research findings contribute to existing tourist-geographical analyses of the beginnings of tourism development in Sarajevo and its spatial evolution.

Keywords: Sarajevo, postcards, tourism development, Austro-Hungarian period.

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INTRODUCTION

The Austro-Hungarian period in Bosnia and Herzegovina (BiH) (1878–1918) was marked by significant political, social, and economic transformations. This era laid the foundations for modern governance and public health systems, shaping the political landscape of the region long after the occupation ended. After Austro-Hungary occupied BiH, it immediately began integrating the territory into its political and legal system. In order to enable the state to quickly and easily adapt to the new conditions, it was necessary to reform the education system, launch its own newspapers, and publish both existing and new laws in the "national" language, which served as the foundation for the work of the new Bosnian-Herzegovinian administration (Baković, 2019). The construction of the railway network was a strategic priority, with the ultimate goal of connecting Bosnia to the Ottoman Empire. An example of this is the narrow-gauge railway from Sarajevo to the then-eastern border, which represents the Austro-Hungarian Empire's focus on strengthening its political and economic influence in the Balkans (Juzbašić, 2013). In parallel, a unique architectural style developed, blending indigenous and Oriental styles, particularly in urban centers. This style reflected the Austro-Hungarian Empire's goal of modernizing the region while respecting its cultural heritage (Klein, 2019; Hartmuth, 2020). Architectural achievements included public buildings and private residences, contributing to the creation of a distinctive cultural landscape worthy of attention (Klein, 2019), and were often featured in various photographs that served as backgrounds for the creation and printing of postcards.

The arrival of the Austro-Hungarian Empire marked the beginning of a new era for tourism in BiH. Tourist organizations, mountaineering societies, and professional services were established, and tourism became a commercial and economic activity. Prior to this, travel was mostly individual, driven by military, political, economic, sporting, or religious reasons (Kadušić et al., 2018). The Bosnian-Herzegovinian Tourist Club (Bosnisch-Herzegovinischen Touristen Klub) was founded in 1892 in Sarajevo, and in 1894, the tourist association Kružok Kluba Czech Tourists began operating. Members of these associations significantly contributed to the development of tourism in BiH. By publishing tourist guides in German, they introduced the natural beauties and landmarks of BiH to the public of the Monarchy. These guides serve as valuable documents on how the country was presented to the European public at the time. The Austrian Tourist Club also contributed to promoting BiH for many years, highlighting its unique blend of East and West and the high level of comfort for visitors (Šehić, 2011). The construction of roads and railways improved travel safety and prompted explorations for mineral resources, which enabled the discovery of natural beauty (Banda and Opačić, 2017). Nature attracted many officials, especially tourism enthusiasts. Frequent guests of foreign officials were friends and families from other countries, visiting to enjoy the untouched nature (Lis, 2020). Ćiro Truhelka, the first curator and director of the National Museum in Sarajevo, wrote about tourism during this period:

"Tourists from all countries of Europe flocked to Bosnia and Herzegovina to observe the nature and culture of a land awakening from centuries of stagnation, which, in terms of tourism, became a competitor to Switzerland and Italy. All these tourists brought money into the country, and all of them knew how to take home an artistic-craft item..." (Leka, 2011).

Presentations of BiH at international exhibitions attracted attention, highlighted its natural wealth, promoted tourism, and showcased the progress made under Austro-Hungarian rule (Baotić, 2012). To encourage tourism, the Austro-Hungarian administration promoted a positive image of BiH through literature, emphasizing its transformation into a safe and picturesque destination. Following the success of promoter Moser, more subtle methods were increasingly applied, such as supporting travel writers independent of the Bosnian administration, hoping they would spread a favorable image of the country and attract tourists (Cameron, 2023). Austro-Hungary recognized the recreational and tourism potential of the mountain areas around Sarajevo and invested in the construction of mountaineering facilities, publications on the mountains, and even initiated the creation of the first mountaineering organization. Mountaineering societies became key in the development of recreation and the organization of the first tourist movements (Banda and Opačić, 2017). During the Austro-Hungarian rule, the first tourist excursions were organized. Thomas Cook & Sons from London, which later became Hapag Lloyd, organized the first trip through BiH and published the first tourist guide in 1898 (Kadušić et al., 2018). Furthermore, during this period, significant changes in the hospitality industry were evident. With the expansion of hospitality facilities, legislation regulating this industry also developed. In the 19th century, Sarajevo had 50 caravanserais, among which the most famous were Morića han, Kolubara, Kreštalica, and Besarín han. Since these caravanserais did not meet the needs of travelers and the Monarchy, hotels began to be built. The first hotel, "Austria," opened in 1878, followed by "Keiserkrone," "Royal," "Radetzky," "Evropa," "Central," and others. Before World War I, Sarajevo had 13 hotels and adapted caravanserais with 621 beds. In larger cities, especially those with military garrisons, hotels and restaurants were being built (JLZ, 1983).

The objective of this research is to examine the themes and visual representations featured on postcards from the Austro-Hungarian period, and to explore their significant role in the early stages of tourism development in Sarajevo. Additionally, the study will investigate how these postcards contributed to the popularization of Sarajevo as a prominent tourist destination. By focusing on the depiction of architectural landmarks, cultural sites, and everyday life, this research will provide insight into how these postcards shaped the city's image and identity within the European context. The findings will enhance existing tourist-

geographical analyses of Sarajevo's tourism origins, shedding light on the city's spatial evolution and its transformation into a modern, attractive destination for visitors.

THEORETICAL BACKGROUND

One of the most significant media for promoting tourist destinations is postcards, which hold a special place and allow tourists to send messages to their acquaintances (Hossard, 2005; Hillman, 2007). Despite the advent of electronic means of communication, postcards remain very popular (Milman, 2011) due to their widespread use. They have been the subject of numerous studies, including sociological (Cohen, 2007), historical (Phillips, 2000), and landscape (Debussche et al., 1999) analyses. In tourism research, studies have mainly focused on the symbolic role of postcards in representing destinations (Markwick, 2001; Pritchard and Morgan, 2003; Yüksel and Akgül, 2007; Milman, 2011). A specific way of representing territories intended for tourists encompassed a wide range of media, including maps, illustrations, books, posters, advertisements, travelogues, postcards, and especially tourist guides. With the development of modern printing techniques, the quality of these representations significantly improved, particularly in tourist guides of that period, which played a key role in shaping specific images and providing detailed information about the places being described. For example, the city of Trieste on the Adriatic coast became an attractive destination for tourists due to its rich history, cultural monuments, and other unique features (Mârza, 2021). The front side of postcards was reserved for illustrations in the form of photographs, paintings, or drawings. The earliest postcards appeared in France and Germany, associated with the Franco-Prussian War, and were printed in the second half of 1870. After Germany, France, and the Austro-Hungarian Empire, the use of postcards spread to the territories of present-day Austria, Switzerland, and Luxembourg, and then beyond Europe, first in Canada in 1871 and later in the United States in 1873 (Manjgo, 2022).

Since their inception at the end of the 19th century, the primary function of postcards has been to serve as souvenirs from travels and destinations, as reminders of places and landmarks, as well as to promote new destinations. They are an all-encompassing, diverse, and visually narrative product created as visual information primarily for tourists (Albers and James, 1988). Postcards have always been relatively inexpensive, distributed worldwide, and printed in large quantities with a broad and diverse range of themes (Hillman, 2007). They also contain inscriptions and messages that can help in deciphering the images they display. In this case, the postcard is the most authentic depiction of reality, a true reproduction of real locations, people, and events. On the other hand, postcards became the most effective tool for tourism development, as they played a key role in promoting images that gradually entered public awareness. Postcards acted as "certificates of authenticity," allowing travelers to share their experiences and promote destinations, and on the other hand,

they became a popular medium in the late 19th and early 20th centuries, during the rise of a new consumer culture and middle class (Bouvier, 2024). The postal revolution made it possible to quickly, cheaply, and efficiently send short written messages over long distances, which represented a significant advantage in the tourism development of certain areas. The images printed on the front of postcards increased their popularity during this period. Postcards were often used to showcase settlements and regions, with a special emphasis on specific locations, squares, and monuments that were photographed and printed (Mârza, 2022).

During the Austro-Hungarian period, metropolises such as Vienna and Budapest were frequently depicted on postcards, not only due to their political significance but also because of the high fluctuation of people within the monarchy, from high-ranking government officials to workers on major construction sites. These people sent postcards from the two mentioned capitals, most often panoramic ones. Postcards printed within the Monarchy often depicted the most important bridges over the Danube as well. Grand boulevards, squares, and palaces from the late 19th and early 20th centuries presented new and characteristic landscapes that became deeply ingrained in the minds of visitors. The first seaside resorts along the Adriatic, which at the time was the only sea of the Austro-Hungarian Empire, were portrayed through the rich history, culture, and economic prosperity of the larger cities of the time (Trieste, Pula, Zadar, Split, and Dubrovnik). Postcards contributed to tourism branding and identity formation, while also highlighting the ethnic divisions within the Austro-Hungarian Empire, as tourism often reinforced existing cultural boundaries rather than promoting unity (Steward, 2004). Some tourism studies have focused on postcard images, while others have explored the written messages on them. Phillips (2000) analyzed transcripts from 2,000 postcards and highlighted that they were primarily used for arranging meetings and maintaining contact with others. The key elements of the written messages included greetings, discussions about the weather, and the health of the senders. Research on postcards is generally limited to the images they depict and the accompanying texts. Cohen (2000) defines postcards as a minor source of historical documentation and identifies four components that should be analyzed: pictorial representation, captions accompanying the image, text, and the address, which illustrates the flow of communication. Texts often serve as an explanation of the core component of the postcard, namely the image.

The postcard was made using a photograph of Sarajevo taken before the construction of the City Hall, the demolition of the Emperor's Bridge, and the regulation of the Miljacka River. This oldest postcard, as well as others from the early 19th century, was most likely available for purchase in a Sarajevo store near the Hotel Europe. Later, towards the end of the 19th century, a series of postcards titled "Saraj-Bosna" appeared in BiH, produced by the Vienna-

based company Philip Kramer for the Sarajevo bookseller Leon A. Finzi. The Directorate of the Imperial and Royal Postal Service of the Austro-Hungarian Monarchy created a series of greeting postcards featuring panoramic illustrations of several Bosnian and Herzegovinian cities. The Gazi Husrev-beg Library in Sarajevo currently holds a collection of 1,154 postcards (Manjgo, 2022) printed by local publishers, with a smaller number produced in the printing houses of the most famous European and global postcard publishers.

OBJECTIVES AND METHODOLOGY

The methodology is based on the identification of settlements, specific sites, squares, and monuments depicted on postcards of Sarajevo, with the aim of analyzing their significance for the development of tourism and the promotion of Sarajevo as a tourist destination. The research was conducted through several key steps. In the first phase, postcards were classified into five main thematic groups (Panoramas of Sarajevo, Cultural Heritage and Sacral Objects, Accommodation Facilities and Mountain Houses, Urban Greenery, and Scenes from Everyday Life). Each of these groups holds specific significance in the context of Sarajevo's tourism history and contributes to the understanding of the city's tourist identity. The second phase involves analyzing changes in the appearance of certain monuments and tourist sites. The third phase includes identifying actual "brands" associated with the depicted objects and locations. The aim of the study is focused on analyzing the motifs of postcards from the Austro-Hungarian period and their role in the early stages of tourism development. Postcards will be analyzed in the context of their contribution to the promotion of Sarajevo as an attractive tourist destination. The study represents a contribution to existing tourist-geographical analyses of the beginnings of tourism development in Sarajevo and its spatial evolution.

SARAJEVO ON POSTCARDS

The oldest dated postcards were created by Daniel A. Kajon, who opened a printing house in Sarajevo in 1892. The first such postcard (Fig. 1), sent from Sarajevo to Gradačac on April 24, 1899, marks the beginning of postcard publishing in the city. The oldest postcard of Sarajevo is illustrated with a photograph that predates 1896–97, during which the old Emperor's Bridge (Careva ćuprija), located near the entrance to the Emperor's Mosque, and the Drvenija Bridge were demolished as part of the regulation of the Miljacka River from the Princip Bridge to the Šeher-ćehaja Bridge. This postcard features the Šeher-ćehaja Bridge, the Drvenija Bridge, the Isa-beg Bridge, and the Latin Bridge, as well as houses and shops on the right bank of the Miljacka River, which were removed during the Miljacka River regulation project (1886–1897) (Manjgo, 2022) (Fig 2).

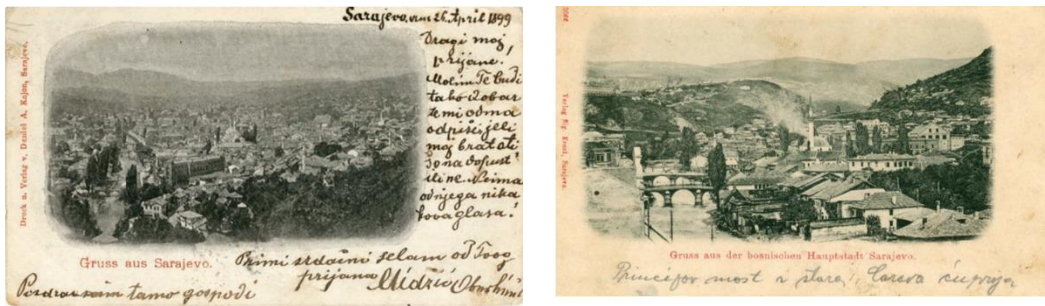


Fig. 1, 2: The oldest dated postcard of Sarajevo (1899) (left); The oldest postcard of Sarajevo before the regulation of the Miljacka River (right)

Source: Manjgo (2022) Photographic collection – Gazi Husrev-bey Library

Panoramas of Sarajevo

The surrounding higher hypsometric elevations around Sarajevo were used to take panoramic photographs of the city. A panoramic postcard (Fig. 3) offers a broader view of Sarajevo, highlighting the City Hall (Vijećnica) as the dominant structure. The most frequent motif on postcards was the City Hall, which, as a monument, aimed to represent the supremacy and legitimacy of Austro-Hungarian rule over Ottoman Sarajevo (Jenkins, s.a.). It was built between 1892 and 1896 as a representative seat of the City Administration. The conceptual design was created by architect Karlo Paržik, who was entrusted with the task of designing this significant building in 1891 (Mulabegović, 2003).

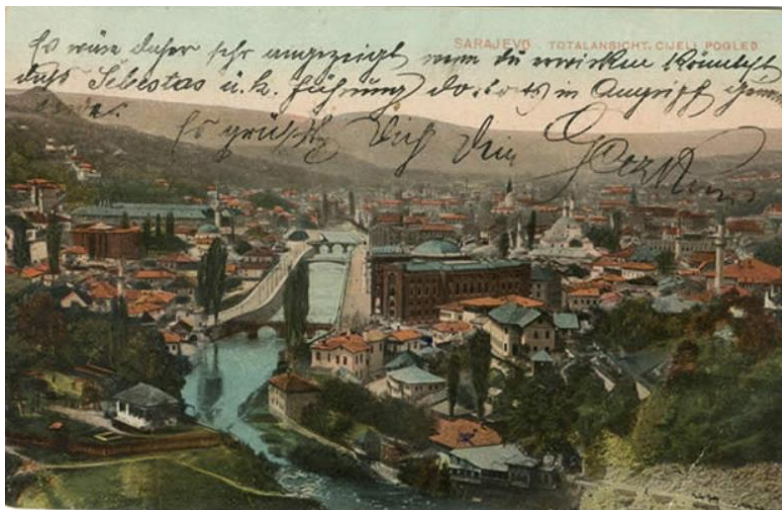


Fig. 3: Panoramic postcard of Sarajevo

Source: Photographic collection – Gazi Husrev-bey Library, <https://ghb.ba/fond-fototeke/>

Austro-Hungarian builders incorporated a locally recognizable style into their repertoire, featuring elements of Islamic origin – the pseudo-Moorish or pseudo-Oriental style (Kreševljaković, 1969). The building’s purpose changed several times, and from 1948 to 1992, it housed the National and University Library of BiH (Kurtović & Šaravanja, 2018). In 1992, it was struck by incendiary artillery shells, and the resulting fire irreversibly destroyed the City Hall along with the vast library collection of the National and University Library (Gradska vijećnica, s.a.). Today, it has been fully restored.

The text on Sarajevo postcards was most often written in the Bosnian language, using various scripts: Arabic, Latin, and Cyrillic. In addition to Bosnian, German, Ottoman Turkish, and Arabic languages were also present (Manjgo, 2022).

Cultural Heritage and Sacral Objects

These postcards bear witness to the religious and cultural diversity of Sarajevo, depicting significant buildings – the Alipaša and Gazi Husrev bey Mosque, the Evangelical Church and The Cathedral of Jesus’ Sacred Heart. The structures, although located in the same city, reflect different religious traditions and architectural styles that have shaped Sarajevo’s heritage. Alipaša Mosque, with its proportions and harmony built in the traditional Ottoman architectural style, is considered the most beautiful in Sarajevo (Vuk-Zec, s.a). Such depictions reveal certain details that differ from its current appearance. With the arrival of the Austro-Hungarian monarchy, the number of Evangelicals increased, creating the need for a place of worship. The Evangelical Church (Fig. 5), built in 1899 with a distinctive dome, was constructed in the Neo-Romanesque-Byzantine style based on a design by Karlo Paržik. It was reconstructed in 1972 and adapted to house the Academy of Fine Arts, the first such institution in BiH (Federalno ministarstvo kulture i sporta, 2010). The building, which transformed from a sacred object into a cultural center during its rich history, now symbolizes culture, art, and tradition (V. A., 2024).

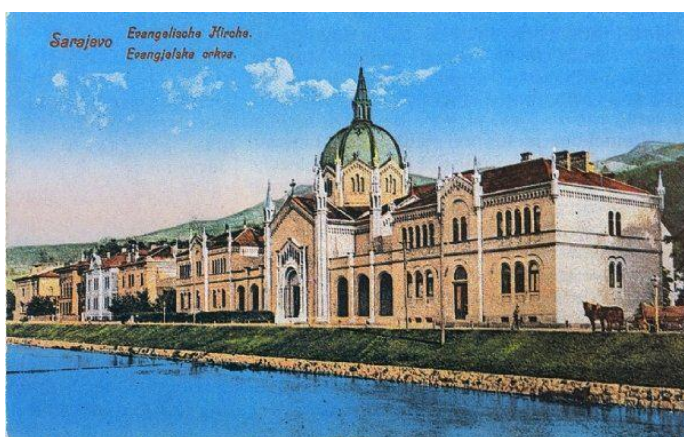


Fig. 4. Evangelical Church

<https://www.facebook.com/photo/?fbid=291970997540588&set=a.291970580873963>

Fig. 5. depicts today's Štrosmajer Street (Rudolfsgasse) with the Cathedral as the central feature. The street is portrayed as a bustling urban scene with passersby of various occupations, dressed in either traditional Bosnian attire or Western-style suits, reflecting the multicultural spirit of Sarajevo at the time. The Cathedral of Jesus' Sacred Heart is one of the most significant architectural landmarks from the Austro-Hungarian period. It was built with the intention of providing the newly established Archdiocese of Vrhbosna with a dignified seat. Its construction was strongly supported not only by the Catholic Church and its followers but also by the Government (Baotić, 2010). In the background of Fig. 6, there is a tram on tracks, representing the first organized form of public transportation in Sarajevo and a symbol of modernization, contributing to the city's improved connectivity and urbanization. The development of cities during industrialization created the need to regulate traffic and introduce organized public transport. In Sarajevo, the first horse-drawn tram officially began operating on January 1, 1885. This event marked an important milestone in the city's development under Austro-Hungarian administration. Ten years later, the first electric tram line was opened, running between the Tobacco Factory and the Latin Bridge (Forto, 2007). The inscriptions "Sarajevo" and "Marienhof," or Marijin Dvor, indicate the location depicted on the postcard.

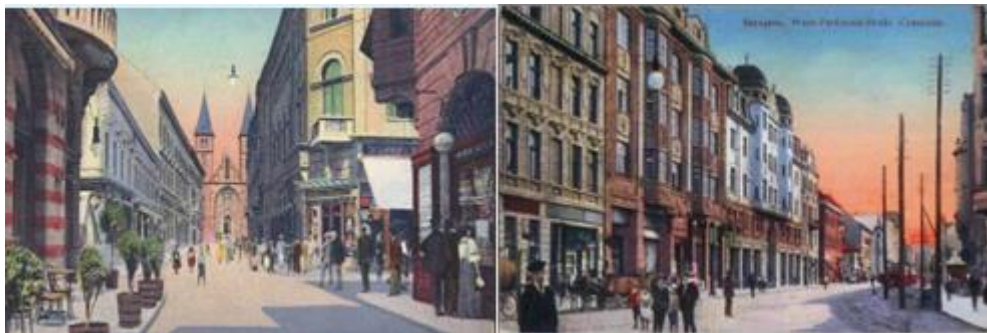


Fig. 5., 6. Štrosmajer Street and Franz Ferdinand/Ćemaluša Street
(Source:

<https://www.facebook.com/photo/?fbid=291970614207293&set=a.291970580873963>
<https://www.facebook.com/photo?fbid=291970634207291&set=a.291970580873963>)

Accommodation Facilities

With the arrival of Austro-Hungarian rule in Sarajevo, the military found around 50 caravanserais in the city (Halilović & Dervišević, s.a.), which served as the primary form of accommodation for travelers and merchants. The new administration sought to transform Sarajevo into a modern European city, which included building hotels with contemporary amenities and larger accommodation capacities. Significant changes in architecture, urban planning, economy, and culture enabled Sarajevo to acquire European urban characteristics within less than four decades. Hotels became symbols of urbanization and progress, frequently featured on postcards sent across the monarchy. These postcards, aside from

promoting Sarajevo, are now invaluable witnesses of past eras, offering insights into the original appearance of hotels and surrounding buildings while documenting changes over the decades.

Among the first hotels in Sarajevo's bazaar area were Hotel Europe, Hotel Central, Hotel Grand, and Hotel Stari Grad, while some residential buildings, such as Hotel Zagreb, were later converted into hotels. Additionally, numerous hotels were built outside the bazaar area (Obralić & Ćorović, 2021). Hotel Europe (Fig. 8) was the first hotel in Sarajevo built in the Western European style (Sanković Simčić, 2016). Following a fire in 1879, the new Hotel Europe opened in 1882. As the first building of its kind in Sarajevo, it became the center of tourism and hospitality, offering additional amenities such as the "Bečka kafana," the Golden restaurant, and a nightclub, all accessible to citizens. The hotel's western wing was extended in a contemporary architectural style after World War II (Obralić & Ćorović, 2021). Hotel Zagreb (Fig. 9), constructed during the early Austro-Hungarian period as a historicist work, holds significant ambient and documentary value within the urban complex of Titova Street and Marijin Dvor. Between the two world wars, it underwent a radical transformation, with its historicist decorative elements removed. Although such interventions may seem unacceptable today, buildings that underwent these transformations hold substantial historical and documentary value, reflecting a modernist approach and the historical layering of Sarajevo (M. N., 2014). At the start of the war in 1992, the hotel was completely destroyed (Radio Sarajevo, 2014). It was declared a national monument in 2011 (Commission for the Preservation of National Monuments, s.a.); however, the commission has not yet decided whether the building reconstructed in 2014 meets the required criteria (I. S., 2023).



Fig. 7, 8. Hotel Europe (left) and Hotel Continental (right)

(Source:

<https://www.facebook.com/photo/?fbid=1546887075413193&set=a.265322290236351>

<https://akos.ba/wp-content/uploads/2018/07/Hotel-Continental-danasnji-hotel-Zagreb-na-Marindvoru-Sarajevo-u-doba-austrougarske-vladavine.jpg>)

Hotel Central (Fig. 7) was built in 1889 on the site of the Ajaz-beg Mosque, which was burned down in 1697 and destroyed again in a fire in 1879, after which it was not rebuilt. The waqf decided to construct a hotel called "Ajaz-paša's Court" on the site (Islamic Community in Bosnia and Herzegovina, 2014; in Obralić & Ćorović, 2021). This hotel was also destroyed during the 1992–1995 war but was later renovated and modernized. The development of tourism and recreation in the mountains began in 1892 with the construction of the first mountain lodge on Trebević, followed by lodges on Jahorina, Bjelašnica, Treskavica, Prenj, and Čvrstica (Kadušić et al., 2018).

Urban Greenery

During the Austro-Hungarian period, the Vrelo Bosne (Spring of Bosnia) (Fig. 9.) was a highly popular destination, particularly due to its status as a natural phenomenon and its distance from the city center of Sarajevo, offering a peaceful environment and an escape from the bustling urban life. With growing interest, supporting facilities began to be built, including the Hotel Austria. These facilities not only contributed to the development of tourism but also further popularized the Vrelo Bosne as an excursion spot. The "Vrelo Bosne" complex is one of the oldest horticultural sites in Bosnia and Herzegovina. The area is rich in water, diverse flora and fauna, and, combined with its cultural and historical heritage, makes it unique and worth preserving (Brajić & Avdibegović, 2012). Its design represents a typical historicist park from the late 19th and early 20th centuries, similar to those constructed in Central Europe, particularly within the Austro-Hungarian monarchy (Hadžidervišagić, 2014). Between 1878 and 1918, a thermal bath, a hotel complex, and several private villas were constructed in Ilidža. Roads and waterways were developed, and the area was enriched with greenery. Thanks to the thermal springs, which became the foundation for the development of health and recreational tourism, Ilidža emerged as a significant cultural and entertainment center (Ljujić-Mijatović & Avdić, 2002).

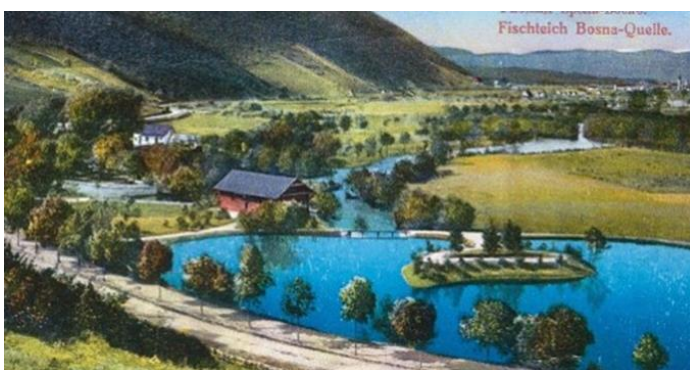
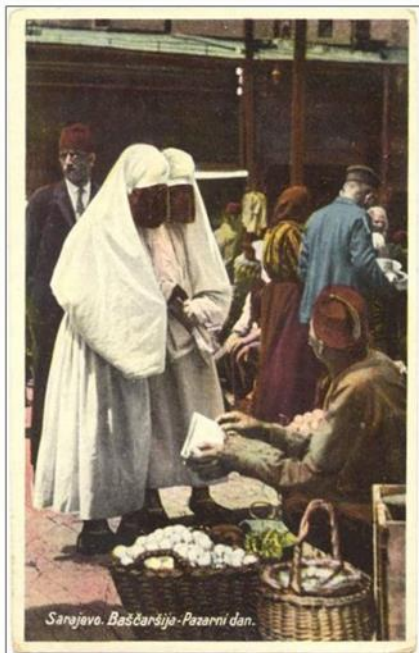


Fig. 9. Vrelo Bosne

(Source: <https://repositorij.muo.hr/?pr=i&id=47960>)

Scenes from Everyday Life

Postcards of Sarajevo from the first half of the 20th century capture not only public, administrative, and religious buildings but also scenes of everyday life, old customs, traditional clothing, trading in Baščaršija, and encounters on Sarajevo's streets and in its neighborhoods. They also depict portraits of notable figures and public events that shaped Sarajevo's history. This wide range of motifs on postcards provides researchers with valuable



information to enrich historiographical, cultural, and ethnological studies of Sarajevo during the Austro-Hungarian period (Manjgo, 2022). Fig. 10 depicts a market day in Baščaršija, a symbol of the trading tradition inherited from the Ottoman period, which continued to thrive under Austro-Hungarian rule. The image is dominated by passersby in traditional attire, including women in feredžas - clothing not exclusively characteristic of the Muslim population but reflective of the broader cultural context of the time. The scene vividly illustrates the daily life of Sarajevo, a city where people of various religious and ethnic backgrounds have always lived together, creating a unique atmosphere of multiculturalism and coexistence. The diverse range of goods offered in the market, as shown on the postcard, further emphasizes Baščaršija's importance as a center of social and economic life.

Fig. 10. Market day

(Source:<https://starerazglednice.blogger.ba/2009/09/06/240-sarajevo-bascarsija/attachment/239545/>)

Another postcard portrays the "Zvjerinjak," the first zoo in Bosnia and Herzegovina (Fig. 14), located in the Veliki park in Ilidža and intended for the wealthy Austro-Hungarian elite. The scene shows visitors observing a caged bear behind metal bars. This zoo, a symbol of luxury and social status at the time, was a gathering place for the upper classes, offering them an opportunity for leisure. At the end of the 19th and the beginning of the 20th century, visitors could see bears, deer, and wild boars, while swans, ducks, and herons swam on a nearby lake. Newspaper accounts from that period even mention pelicans. The zoo also had a large cage housing various species of native birds of prey, which further attracted the attention of visitors (Vijesti.ba, 2023).

Memorial postcards

During this period, memorial postcards were a popular medium for commemorating significant historical events and figures. One of the most famous examples of such postcards from this time is a reminder of the Assassination of Sarajevo, an event that served as the catalyst for World War I. These memorial postcards often depicted Archduke Franz Ferdinand and his wife Sophie, whose tragic lives were cut short on June 28, 1914, in Sarajevo (Fig. 11).



Fig. 11. Memorial postcard for Archduke Franz Ferdinand and his wife Sophie von Hohenberg
(Source: *wwitoday*, 2014)

CONCLUSION

Postcards of Sarajevo from the Austro-Hungarian period represent not only a visual record of the city's urban development but also a valuable document that testifies to the cultural, social, and economic changes that shaped Sarajevo at the time. Through the postcards, one can trace the process of modernization in the city, when new buildings and squares were constructed, and streets were organized according to Western European models, significantly altering the city's appearance. This process of urbanization was crucial in transforming Sarajevo into a modern European city, and postcards became a tool to promote these new buildings as well as the attractions that became a magnet for tourists. Thus, postcards were a key tool for promoting tourism, especially hotels, hospitality venues, and other infrastructure that enhanced recreation and tourism.

Furthermore, postcards from this period offer a wealth of information about Sarajevo's culture and tradition. The motifs on the postcards reflect the multicultural character of the city, where people of different faiths, ethnicities, and traditions lived together. Depictions of everyday life, traditional costumes, folk customs, trading at Baščaršija, as well as cultural and religious buildings, testify to the richness of Sarajevo's society and its openness to various cultural influences. Additionally, postcards from the Austro-Hungarian period promoted not only Sarajevo but also other Bosnian cities as tourist destinations. Postcards of Travnik, Zvornik, Maglaj, and Jajce, among others, were available for purchase at bookstores, expanding the tourist offering to all of BiH.

Postcards, as a visual medium, also serve as an important historiographical tool. They provide valuable information about architecture, urbanism, and social norms, as well as the everyday lives of citizens. Through them, past times can be reconstructed, offering a better understanding of how the city and society developed under Austro-Hungarian rule. Today, postcards from this period are not only a means of tourist promotion but also an invaluable source for exploring the cultural-historical, ethnological, and social aspects of BiH. They have become an integral part of collections and research in studying the identity and evolution of this city.

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VIRTUAL REALITY: ENHANCING INCLUSIVE TOURISM EXPERIENCES

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Abstract: Virtual reality (VR) represents an innovative tool increasingly utilized in tourism, allowing users to explore and experience tourist destinations in a completely different way. While the application of VR in tourism is still in its early stages, it holds significant potential for creating a more immersive and inclusive tourist experience. The aim of this research is to identify and analyze the practical aspects of applying VR in tourism sector and to emphasize the critical role of VR technology in promoting inclusive tourism by broadening access for diverse audiences, including individuals with disabilities and those who may face barriers to travel. The methodological approach involved qualitative research based on focus groups with representatives from the private, public, and civil sectors, aiming to explore perceptions and potential applications of VR in tourism promotion, with a special focus on enhancing accessibility and providing equal tourist experiences for all. The results revealed strong awareness of VR technologies in tourism among participants, alongside an interest in leveraging these tools to promote tourism and foster inclusivity. It was found that VR can be used as a mean to overcome physical barriers, enabling individuals with disabilities and older adults to access tourist experiences that would otherwise be unavailable to them. This study can serve as a basis for future research of the role of VR technology and modalities of its use for inclusive tourism.

Keywords: virtual reality, tourism development, tourism experience, inclusive tourism

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INTRODUCTION

Virtual reality (VR) is a powerful tool which allows the creation of authentic experiences, even when displaying completely imaginary and fantastical content (Slater & Sanchez-Vives, 2016). This type of technology refers to the utilization of a computer-generated 3D environment, known as a "virtual environment," in which users can move and potentially interact, creating a real-time simulation that engages one or more of the user's senses (Guttentag, 2010). Three elements distinguish VR experiences from others: 1) visualization – the ability to look around, typically through a head-mounted display; 2) immersion – the degree to which participants forget they are in a simulation; 3) interactivity – the control participants have over the experience using sensors, joysticks, and graphical manipulations, creating a sense of presence (Cruz-Neira et al., 1994; Williams & Hobson, 1995). Immersion is crucial to the VR experience (Rose et al., 2018;) as it represents the process by which the environment becomes temporarily closer (Cowan et al., 2023), or the level of detachment from the reality (Disztinger et al., 2017). Thanks to the development of VR technology, users experience greater immersion through authentic visuals (Jang & Park, 2019). Immersion becomes complete when the user can manipulate 3D resources, fostering empathy between the user and the virtual experience (Castro et al., 2018). Another concept, often conflated with immersion, is presence (Egger & Neuburger, 2020). Unlike immersion, which involves an objective description of the technology used, presence refers to the psychological experience where users subjectively feel that they are truly in the virtual environment (Gutierrez et al., 2008; Slater & Sanchez-Vives, 2016). While presence denotes the feeling of "being there," psychological immersion focuses on the experience of "being surrounded" (Slater & Wilbur, 1997; Fan et al., 2022). High physical immersion technologies can evoke a high level of presence (Rauscher et al., 2020), and the most notable effect of increased presence is enjoyment (Yung et al., 2020).

Given that tourism products are intangible and consumers cannot test them in advance (Yung & Khoo-Lattimore, 2017), VR has become a highly popular tool for enhancing visitor experiences and promoting destinations (Wang et al., 2022). Initially, VR technology was used to promote tourism products as a marketing tool, but it has now become crucial in the context of new digital alternatives in tourism (Baran & Baran, 2022). In a VR journey, the key characteristic of real tourism is absent – the person does not change their environment or physically move through space (Voronkova, 2018). The COVID-19 pandemic and travel restrictions have amplified the significance of digitalization in tourism. With the help of VR and virtual tours, users create realistic experiences, allowing potential travelers to familiarize themselves with destinations before actual travel and sparking their desire to visit (Williams & Hobson, 1995; Yung et al., 2020; Voronkova, 2018; Zeng et al., 2022). Although it can complement existing tourism experiences, Suprpto et al. (2023) noted that VR cannot fully replace everything that physical travel provides. With additional information and more immersive content (Wan et al., 2007; Vishwakarma et al., 2019), VR can supplement existing attractions (Rácz & Zilizi, 2019; Coghlan & Carter, 2020), serve as an alternative

to real experiences (Lee & Gretzel, 2012), and assist in decision-making (Buhalis & Law, 2008). In this way, it influences the creation of a positive destination image (Tussyadiah et al., 2018; Zeng et al., 2022).

Virtual tourism enables visits to protected locations as well as places that are otherwise inaccessible, such as space (Wagler & Hanus, 2018). In addition to its applications in planning and management, marketing, entertainment, education, and accessibility, VR also has significant uses in heritage preservation (Guttentag, 2010). The deterioration of natural attractions, cultural landmarks, infrastructure, artifacts, and the environment presents a serious challenge for all tourist destinations, which is why their preservation has started to attract increasing attention (Bec et al., 2021). Many monuments have been destroyed due to the effects of time, wars, natural disasters, and human factors. With the help of computer technologies, ancient monuments can be accurately reconstructed and displayed in digital formats. Research in this field not only enables the restoration of actual models but also brings significant value to the history, culture, and science of human civilization (Van Nguyen et al., 2022). VR contributes to education, raising ecological awareness, and promoting sustainability, offering tourists the experience of a destination in a virtual way, without the need for physical presence. In this way, the direct impact of tourists on the natural and cultural resources of the destination is significantly reduced (Yuen et al., 2022).

THEORETICAL FRAMEWORK

It is estimated that around 1.3 billion people, or 16% of the global population, have some degree of disability (World Health Organization, 2023), and more than 46% of people over the age of 60 experience disability. Unfortunately, individuals with disabilities face many barriers, such as negative attitudes, environmental, and institutional obstacles, which make it difficult for them to fully and equitably participate in various areas of life (United Nations, n.d.). Inclusion, disability, aging populations, and tourism are increasingly attracting the attention of researchers due to their impact on both tourism supply and demand (Buhalis & Darcy, 2010). Although "Inclusive Tourism" is often referred to as "Accessible Tourism" or even "Disabled Tourism" (Münch & Ulrich, 2011), these terms should be distinguished. Accessibility enables the development of products, services, and environments that are available to everyone, giving them the ability to use and benefit from them (Gillovic & McIntosh, 2020). Accessible tourism is a type of tourism that includes collaboration among different stakeholders to ensure access for individuals with disabilities, including mobility, vision, hearing, and cognitive dimensions of accessibility, with the aim of functioning independently, with equality and dignity, through the provision of universally designed tourism products, services, and environments (Darcy & Dickson, 2009). From this, it can be concluded that the development of inclusive destinations and accessible tourism experiences benefits a broader segment of the community, thereby contributing to the social sustainability of the industry (Michopoulou et al., 2015). Accessible tourism is just one part of inclusive tourism, as inclusive tourism encompasses all forms of social and economic

exclusion and division. Inclusive tourism is described as "transformative tourism in which marginalized groups are engaged in ethical production or consumption of tourism and the sharing of its benefits" (Scheyvens & Biddulph, 2017). Inclusive tourism goes beyond issues of accessibility and represents an ideal that involves the active participation of all relevant stakeholders, including individuals with disabilities, in the policy, planning, and management of accessible tourism development (Nyanjom et al., 2018). It contributes to improving the quality of life, socio-psychological adaptation, and rehabilitation of individuals with disabilities (Strelnikova et al., 2023).

A large number of individuals with disabilities have never participated in tourism activities, despite their desire to do so (Moura et al., 2023). Tourists face certain barriers when participating in leisure activities; however, individuals with disabilities are particularly affected by these limitations to a significantly greater extent (Kennedy et al., 1987). Therefore, it is essential to recognize the diverse needs of users and provide accurate information about available services. Tourism professionals must take these needs into account when planning and promoting tourism activities (Loi & Kong, 2015). Due to various physical barriers, such as the inability to access certain locations for wheelchair users due to the width of doors or stairs, individuals with disabilities may be restricted in their ability to travel. In addition, they may face challenges such as difficulties in reading signs and other indicators (Lee et al., 2021; Reindrawati et al., 2022). Smith (1987) identified the barriers and challenges faced by individuals with disabilities when traveling. These barriers were divided into intrinsic, environmental, and interactive. Given that technology is becoming increasingly prevalent in the tourism industry, it is evident that accessibility is not just a formality, but a key principle that must be incorporated into the design and application of technological solutions in tourism (Stankov et al., 2024). Technology has long been helpful to individuals with disabilities, assisting them in living and working independently (Germann et al., 2003). The Fourth Industrial Revolution offers solutions to overcome significant inequalities and limited access to tourism and hospitality for older individuals and people with disabilities (Ramukumba, 2024).

METHODOLOGY

VR technology has significant potential for application in various aspects of tourism, including the development of new tourism products, enhancement of tourist experiences, destination promotion, sustainability, and increased inclusivity. In this context, the primary purpose of this research is to identify both the opportunities and obstacles for the future application of VR technologies in the development of more inclusive tourism.

The research employs a qualitative approach, drawing on the methodology used in the study by Peštek et al. (2024). Since inclusion in tourism in Bosnia and Herzegovina is an under-researched topic, the focus group method proved to be the most suitable for gathering the opinions and perspectives of various tourism stakeholders. Focus groups were conducted

during March and April 2024 in Sarajevo and Mostar, with a total of 18 participants (11 in the first group and 7 in the second). The participants included representatives of institutions at various levels of government, the non-governmental sector, tourist guides, tourism business owners, and other relevant stakeholders.

The discussions during the focus groups were recorded with the participants' consent and subsequently transcribed. The main research questions, based on relevant literature, focused on the following:

1. The experience and knowledge that tourism professionals have regarding VR technology.
2. The potential of VR technology to contribute to the development of inclusive and sustainable tourism.

RESULTS AND DISCUSSION

Participants expressed very positive experiences with VR, emphasizing its potential as an innovative tool for promoting tourist attractions. For most of the focus group participants, augmented and virtual reality technologies became familiar through the use of mobile phones, gaming platforms, and visits to tourism fairs (Peštek et al., 2024).

"At tourism fairs around the world, the most attractive booths are those offering VR experiences. We had to buy tickets in advance because those had the longest queues".

Virtual reality experiences are often highlighted as some of the most immersive user experiences that can be encountered, excluding real-world situations (Dombrowski et al., 2019). Inclusive design does not entail creating a single solution for all, but rather creating various opportunities for participation, ensuring that everyone can feel a sense of belonging (Holmes, 2018). Tolvanen (2023) concluded that VR headsets can be useful for individuals with autism, but are not recommended for all members of the target group. VR headsets can serve as assistive tools for individuals of all ages and with various impairments, including those with illnesses, injuries, vision and hearing impairments, as well as mental disorders such as dementia and autism, as they facilitate access to education, employment, healthcare, and social inclusion, supporting independence and active participation.

VR helps people lead dignified and meaningful lives, contributing to inclusion and productivity (GREAT Summit, 2018; The Lancet, 2020; in Tolvanen, 2023). Shukla et al. (2024) highlighted the potential of VR in promoting inclusive tourism, which benefits individuals with different limitations. Participants emphasized that VR can make different destinations accessible for certain groups.

*"Through this approach, individuals with certain difficulties can be made happy".
"The key advantage of VR is inclusion, that is, tourism for all".*

Iftikhar et al. (2022) and Voronkova (2018) argue that VR will benefit people with disabilities the most, especially at cultural heritage destinations where full accessibility is often limited (Marasco & Balbi, 2019). "Virtual accessibility" of tourist destinations is improved through virtual tourism (Lu et al., 2021), which, by allowing visits to more difficult-to-access natural and cultural landmarks, promotes inclusivity (Stankov et al., 2024). VR, by offering an alternative for people with disabilities who wish to experience tourism (Perry Hobson & Williams, 1995), helps overcome physical barriers and provides interactive participation (Ford, 2001), ensuring accessible tourism for all (Ozdemir, 2021). Sussman & Vanhegan (2000) confirmed in their research that virtual vacations present a good opportunity for tourists with disabilities. Virtual spaces provide museums with an opportunity to enhance the visitor experience through educational and entertaining content. To be inclusive, these spaces must ensure equal access and equal cultural and educational opportunities for all (Caldarelli et al., 2022). In indoor spaces, there are barriers that exclude certain visitors, so virtual tourism will create access to artistic and architectural heritage that is otherwise unavailable (Minucciani & Garner, 2015). Immersive virtual reality technology has significant potential for evaluating architectural designs, as it allows navigation through designed spaces and interaction with their elements, making them feel real (Lach et al., 2020). Shaker et al. (2019) demonstrated that VR can positively impact individuals with intellectual and developmental disabilities (IDDs). VR tours showed potential in helping IDDs, as they enjoy the experience of freely exploring locations with easy access to information. Participants, both with and without disabilities, noted that the VR tour was immersive and enjoyable. They also suggested that the technology could be useful in other situations.

VR has proven to be an effective tool for assessing the accessibility of tourist destinations, giving users the opportunity to explore them from the comfort of their homes (Epuran et al., 2020). It helps parents and children with developmental disabilities explore a destination, identify attractions and barriers, and gain a better understanding of the places they want to visit, bridging the gap between perceptions of a destination before the visit and the actual experience at that destination (Tecău et al., 2019). One participant stated that VR could be very helpful for elderly individuals with limited mobility.

"There is an increasing number of tourists who belong to the older age group, or those with limited mobility. With the help of VR, they can explore different locations that are otherwise more difficult for them to access".

Hao et al. (2024), investigating the impact of VR on engagement and travel decisions of older adults, with a specific focus on the importance of emotional and informational content, found that emotionally engaging virtual tours significantly contribute to increased confidence in travel and reduced stress among older adults, while simultaneously increasing their travel intentions.

CONCLUSION

VR represents a technology that significantly contributes to the development of tourism by providing access to tourist experiences for a wide range of users, including people with disabilities and older adults. This research emphasizes the potential of VR to enhance the tourism industry, making it more accessible and inclusive. The advancement of VR technology in the future will undoubtedly play an even more important role in this context, as it allows for interactive exploration of destinations, creating a sense of presence and immersion. As a key tool for increasing accessibility, VR enables the promotion of destinations in a way that fosters emotionally engaging experiences that encourage future travel.

Considering the specific challenges faced by people with disabilities, VR offers significant potential for their inclusion in tourism activities, overcoming physical barriers and enabling them to experience destinations that would otherwise be inaccessible. One of the key aspects of VR's application in tourism is the ability for people with disabilities to explore tourist destinations in advance, gain useful information, familiarize themselves with the environment, and plan their trips without stress. This is especially useful for those facing physical challenges or psychological barriers related to travel.

Moreover, VR allows older adults with limited mobility to visit destinations, reducing the need for physically demanding or risky travel. The role of VR in promoting inclusive tourism is not only about providing access but also creating a sense of belonging. Virtual tours enable people with disabilities and older adults to actively participate in tourist activities, making them interactive, enjoyable, and educational experiences. The development of these technologies can further improve tourism accessibility by offering more detailed and personalized virtual tours tailored to the needs of users. While VR cannot fully replace the physical travel experience, it significantly expands its potential through innovative digital formats.

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INVENTORY AND RANKING OF SPORTS AND RECREATIONAL EVENTS IN THE AREAS OF SARAJEVO AND ISTOČNO SARAJEVO

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Abstract: Sports and recreational events across various sports and disciplines represent the most developed and common form of events in Bosnia and Herzegovina, particularly in the cities of Sarajevo and Istočno Sarajevo. Through effective organization of these events, Bosnia and Herzegovina lays the groundwork for hosting similar events in the future, as well as for the development of sports and recreational tourism. The aim of this study is to inventory and map all sports and recreational tourism motives, as well as to rank the events by types of sports and disciplines. The analysis includes 115 different sports events from 25 sports disciplines. Due to the variety of indicators and sub-indicators, the "H. du Cros" method was used for the tourist valuation of these events. The results of the valuation indicate that none of the events fall into the category of low market attractiveness. The most valued are the sports events that include world and European championships, as well as the Youth Olympic Games, which significantly contribute to the promotion and branding of the destination, attract a large number of tourists, and impact the development of tourist infrastructure and the increase of employment in the tourism sector. Detailed ranking of these events reveals different levels of importance, highlighting key characteristics, advantages, and disadvantages, which allows for a better understanding of their impact on the development of sports and recreational tourism. This analysis not only identifies the most suitable events for tourism development but also provides valuable insights for future initiatives and investments in tourism.

Key words: sports and recreational events, sports and recreational tourism, tourism evaluation, Sarajevo, Istočno Sarajevo.

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INTRODUCTION

Bosnia and Herzegovina has significant tourism potential and excellent sports facilities. The country is known for its rich cultural and historical heritage, natural attractions, particularly its mountains and a favorable climate. Its strategic location near major European hubs has also played a key role in establishing Bosnia and Herzegovina as an attractive tourist destination. According to UNWTO data, Bosnia and Herzegovina is defined as one of the three tourist destinations in the world with a total tourism market growth potential of 10.5% (for period until 2020). The tourism market of Bosnia and Herzegovina consists of the following types of tourism: winter tourism, cultural tourism, eco, ethnic tourism, adventure tourism, religious tourism, health tourism and coastal tourism. In addition to active vacations, contents such as different types of recreation, sports preparations throughout the year, organization of sports events, sports camps, sports animations by famous and successful athletes and clubs contribute to the strengthening of sports tourism (Đukić & Kojić, 2023). It is obvious that the concepts of tourism and sports are related, so we can say that they even overlap. Sport is an important activity within tourism, and tourism is a fundamental characteristic of sport (Hodžić et al., 2023 according to Hinch & Highman, 2001). Sports recreation plays a crucial role in fulfilling the need for physical activity and healthy movement, which are essential for an enjoyable vacation (Gekić & Bidžan-Gekić, 2015). As a result, the connection between sports and tourism has grown, driven by the rising interest and needs of an increasing number of tourists. To effectively develop sports and recreation tourism in an area, certain factors are essential. These include an intact natural environment, high-quality customer service, reliable transportation, well-maintained facilities and sites, organized entertainment options, a range of accommodation types, a strong tradition of sports participation, established infrastructure, and skilled organizers to manage these specialized forms of tourism. Additionally, visits to sports competitions, sports and recreational events include a larger number of tourist arrivals in the tourist destination in an organized form. All these events attract hundreds of participants and can significantly boost future tourist visits to destination through organized tours. These organized visits can, in turn, help diversify and enhance the existing patterns of tourist visits and stays in the region.

Sarajevo's tourist geographical region is an interesting tourist destination as a result of its geo-traffic position, exceptional and untouched natural beauty, cultural and historical values and favorable climatic conditions (Hodžić & Huremović, 2022 according to Bidžan-Gekić et al., 2016). Sports and recreational events represent the most common and numerous type of events held in the cities of Sarajevo and Istočno Sarajevo. Although these events are recognized as a key part of the activities in these cities, their tourist significance has not been sufficiently researched, which is why they are the focus of this study. The research is based on the identification of all such events held from 2018 to 2022 in Sarajevo and Istočno Sarajevo. Many of these events are traditional, repeating year after year, held on specific

days, or associated with special memories. The identification process involves systematic data collection and analysis to gain a realistic insight into the number, types, and diversity of these events, as well as their impact on tourism and the development of local communities. The methodological approach, which includes listing and providing detailed descriptions of the events, allows for a better understanding of their contribution to the tourist offer of these cities. Sports and recreational events have a multifaceted significance, as, in addition to their direct economic impact (increased number of tourists, higher spending in the local economy, and destination promotion), they also contribute to the preservation of cultural and sports traditions, strengthen social cohesion, and promote healthy living and physical activity among citizens and visitors.

The aim of this paper is to rank sports and recreational events in the cities of Sarajevo and Istočno Sarajevo after conducting a tourism evaluation, based on types of sports and disciplines. The goal is to identify the events that stand out as better than others in terms of economic impact, spatial dispersion of economic effects in tourism, strong destination branding, and significant sports, social, and historical importance, among other factors. The analysis will help determine which events are most suitable for future tourism investments.

THEORETICAL BACKGROUND

The relationship between sport and tourism has deep roots, dating back to ancient times when people competed against each other to prove who was the strongest, fastest, or who could jump the furthest. These competitions led to the organization of the first ancient games, and over time, this phenomenon has significantly evolved. In today's world, it is almost unimaginable to have a life without sport (Saayman, 2012). On the other hand, tourism has become a key factor in the development of sport as it supports the logistics of sports events by providing food, beverages, accommodation, transportation, and specialized services such as travel agencies and tour operators. At the same time, sport is used as a powerful tool for tourism development, establishing a symbiotic relationship between these two sectors. Large sports events and their organization bring numerous changes and socio-economic benefits to the destination where they are held. These changes often relate to the improvement of sports, transportation, and accommodation infrastructure, an increased need for additional labor, as well as a significant influx of tourists who come to attend the event (Pivčević, 2015/16). Additionally, there is an increase in consumption within the tourist destination, further contributing to its economic development.

When considering the economic effects of large sports events, they can be viewed from two perspectives: short-term economic benefits through visitor expenditure and long-term benefits, which include enhancing the image of the sports destination. Major sports competitions, such as the Olympic Games, World Cup tournaments, ATP tennis events, and others, have a significant impact on accelerating economic activity in the host country. The impact of these events extends from the primary and secondary sectors to the tertiary and

quaternary sectors of the economy. In addition to analyzing the economic activities associated with sports events, it is also important to ensure a positive relationship between the local community and the event, making it part of their culture, and ensuring that they recognize both direct and indirect benefits. Citizens, as well as tourists, become potential consumers of products and services generated by a particular event. Moreover, the local population can develop a culture of attending sports events, and their role in volunteer activities and assisting in event organization becomes increasingly important.

When discussing the economic effects of sports events, the starting point for calculating these effects includes direct, indirect, and induced costs. Direct costs encompass investments in the host city, construction of sports facilities, organizational expenses, and similar expenditures. Indirect costs refer to the spending of tourists and local residents related to food, transportation, and other services, while induced costs represent the effects of subsequent spending that arise from direct and indirect costs (Pavlović et al., 2023). Sports events and tourism are interconnected because sports events significantly enhance the attractiveness of destinations, stimulate the growth of local economies, and can contribute to extending the tourist season. Sports tourism has become a vital sector, generating significant economic revenue while also promoting the cultural identity of destinations. This phenomenon has its roots in the mid-18th century, evolving from local competitions to global events (Lewis, 2024).

Sports tourism developed through the industrialization process in the 19th century, when European society transitioned from an agrarian to an industrial phase, and today it is recognized as a dynamic market within the tourism industry (Zarotis, 2019). According to Higham (2021), both sport and tourism share similar developmental beginnings and motivations for recreation, with the shift from a materialistic to a post-materialistic society reflecting an increased demand for sports and tourism experiences. A key component of tourism is sport, which is closely linked to numerous other activities (Hinch et al., 2014). Sports tourism can be active or passive. Active tourism involves physical participation in sports activities, while passive tourism refers to attending major sports events and manifestations (Preuss, 2011).

Sports tourism not only encompasses the experience of sports activities but also creates a unique destination culture, known as sports culture (Pigeassou, 2004). According to O'Reilly (2016), sports events are often used as a tool for promoting tourism as they attract a large number of tourists. International events such as the Olympic Games or the FIFA World Cup serve as significant means for drawing tourists to a particular destination, thus creating a positive image of the host country. The development or enhancement of sports facilities can be a key strategy for opening new markets in sports tourism (Hinch & Hingham, 2004).

From the perspective of the destination, sports tourism focuses on the development and promotion of sports events with the aim of achieving economic and social benefits. For

tourists, this involves traveling to participate in sports events or simply to watch them (Getz, 2008), thereby contributing to the social well-being of the community and extending the life cycle of the destination (Getz & Frisby, 1998). Various studies have confirmed that the improvement of a destination's image is closely linked to the organization of various events, thereby increasing the destination's attractiveness and its tourism potential (Ritchie & Smith, 1991; Pyo, 1995; Jeong & Faulkner, 1996). Sports tourism is not limited to international events, but also includes local, regional, and national events. Gibson (1998) emphasized that travel associated with sport is one of the fastest-growing segments of the tourism industry. He also suggested the existence of a "symbiotic relationship" between sport and tourism, where both sectors mutually encourage growth and development. Tourism is, directly or indirectly, part of large global industries, including sport, sports equipment, promotions, as well as the development of infrastructure and superstructure (Saayman, 2012).

Zagnoli & Radicchi (2009) identifies participation in predefined sports activities or attendance at such activities as a key characteristic of sports tourism. The motivations of sports participants and tourists are often very similar (Weed, 2004), with primary sports tourists making up the main target group, as sport is the primary reason for their travel, positioning them as the most important segment in the sports tourism market (Perić, 2010). This group is not homogeneous, although professional athletes often represent a typical group, where their travel motivations are related to training and competitions, either at the national or international level. Participation in sport is the main purpose of their travels, while the experience of the destination is, in most cases, secondary, except when it involves quality infrastructure and necessary conditions for engaging in sports activities. Sports events and sports tourism in Bosnia and Herzegovina are increasingly intertwined, significantly contributing to the country's economic development. The evolution from mass tourism to selective forms reflects consumer preferences focused on health and active recreation, particularly in the growing number of sports facilities and infrastructure (Hodžić et al., 2023).

Sports and recreational tourism in Bosnia and Herzegovina aims to satisfy the human need for movement, play, active recreation, and entertainment, which, according to Knežević (2024), results in the development of a habit of active and purposeful use of free time, contributing to health preservation and increased life expectancy. A large number of various sports and recreational events are held in the cities of Sarajevo and Istočno Sarajevo. Numerous sports and sports associations are registered and operate in these areas. Given the position of the capital city of Bosnia and Herzegovina, Sarajevo is the center of sports in all its segments, with a lasting image as an Olympic city. Sarajevo hosts the largest number of official sports events. Since athletes from Sarajevo participate in all league competitions, there are many regular league tournaments. Sports and recreational events in different sports and disciplines are held at sports-recreational facilities, other areas, and designated roadways. In the city of Istočno Sarajevo, good conditions have been created for athletes and

sports professionals, and members of associations participate in league competitions at the level of the Republic of Srpska, Bosnia and Herzegovina, and abroad

RESEACH METHODOLOGY

In planning the sustainable development of sports tourism in a specific destination, it is essential to conduct a tourism valuation of sports centers and sports-recreational events, assessing their value from a tourism perspective. Many sports and recreational events and facilities hold significant potential to be developed into attractive tourism products. However, decisions regarding their inclusion in the tourism offer are often made based on insufficient information and incomplete assessments of local resource capacity to position them as primary tourist attractions. For these reasons, the overarching goal of this research is to inventory sports-recreational events in the cities of Istočno Sarajevo and Sarajevo, identify and rank the most spatially and functionally significant events, and perform a tourism valuation using the Hillary Du Cros method. By analyzing existing data, information from official city government websites, tourism organizations, sports associations, and media platforms, sports-recreational events were identified and categorized according to criteria such as the event name and type, location, timeframe, organizer, participants, and media coverage. A multi-criteria model was employed for ranking these events, incorporating aspects such as cultural, sports, and tourism significance, as well as the events' contribution to promoting the destination, particularly in positioning the cities of Sarajevo and Istočno Sarajevo as prominent tourist destinations. The research encompassed 14 mixed-type sports and recreational activities organized by various sports and recreational associations and events, including alpine skiing, biathlon, speed skating, ice hockey, curling, cross-country skiing, snowboarding, figure skating, futsal, handball, street basketball, volleyball, athletics, and tennis.

The tourism valuation of sports-recreational events was conducted using the Hillary Du Cros method, developed in 2000. This method's primary purpose is to examine the potential for integrating cultural resources into the sustainable development of tourism (Lakićević & Srđević, 2011). Hillary Du Cros introduced a destination tourism valuation process, including sub-indicators for cultural tourism and their gradation levels, specifically tailored for the tourism sector and the management of sports-recreational centers, as well as for assessing the robustness of sports-recreational centers to accommodate visitors. Some fundamental criteria of this valuation method were modified and adapted by the authors to suit the valuation of specific sports-recreational events which involve multiple sports and sporting disciplines. Based on the aforementioned principles, a matrix with 9 fields, labeled as $M(i, j)$ (where $i, j = 1, 2, 3$), was constructed. Each cultural asset was assigned to a specific field within the matrix, depending on the score obtained in the prior evaluation process (Du Cros, 2000). The matrix cells were defined as follows:

Tab. 10. Market Attractiveness/Robustness Matrix

| Indicator | Market appeal | | | |
|------------|---------------|--|---|---|
| | Overall score | 0-20 | 21-40 | 41-60 |
| Robustness | 0-20 | M(3,1) - low cultural significance/robustness and low market appeal | M(3,2) - low cultural significance/robustness and moderate market appeal | M(3,3) - low cultural significance/robustness and high market appeal |
| | 21-40 | M(2,1) - moderate cultural significance/robustness and low market appeal | M(2,2) - moderate cultural significance/robustness and moderate market appeal | M(2,3) - moderate cultural significance/robustness and high market appeal |
| | 41-60 | M(1,1) - high cultural significance/robustness and low market appeal | M(1,2) - high cultural significance/robustness and moderate market appeal | M(1,3) - high cultural significance/robustness and high market appeal |

Source: du Cros (2000).

Based on the matrix, which facilitates the assessment of the tourism significance and preservation capacity of sports-recreational sites, events with the greatest potential for further tourism investment have been identified in the cities of Istočno Sarajevo and Sarajevo. These events, distinguished by their authentic sporting, cultural, and historical values, can serve as key pull factors for attracting tourists. Their development and promotion have the potential to significantly extend the tourist season and increase the average length of stay for visitors in these cities.

RESULTS AND DISCUSSION

At the level of the Sarajevo Canton, a total of 572 sports organizations have been recorded, encompassing 57 different sports, including associations for sports recreation for persons with disabilities and institutional sports organizations. Estimates indicate that the total number of participants in sports activities is approximately 30,200. Athletes are categorized by age groups: seniors, juniors, cadets, and pioneers. Sports with the highest number of registered organizations include football, basketball, karate, swimming, mountaineering, and taekwondo.

The city of Sarajevo stands out as a leading center of sports activities in Bosnia and Herzegovina, hosting the largest number of organized official sports events in the country. Furthermore, due to the active participation of Sarajevo's athletes in league competitions at

organizers of sports events. Istočno Novo Sarajevo accounts for 8.70% of the events, while Trnovo and Sokolac contribute 4.35% each. The smallest share is recorded by Istočna Ilidža, with only 2.17%. An analysis of these data points reveals an uneven geographical distribution of sports activities. Larger and centrally located municipalities, such as Centar, Novi Grad, and Novo Sarajevo, organize a significantly higher number of events compared to smaller and peripheral municipalities. This disparity reflects disproportionate access to resources and infrastructural capacities.

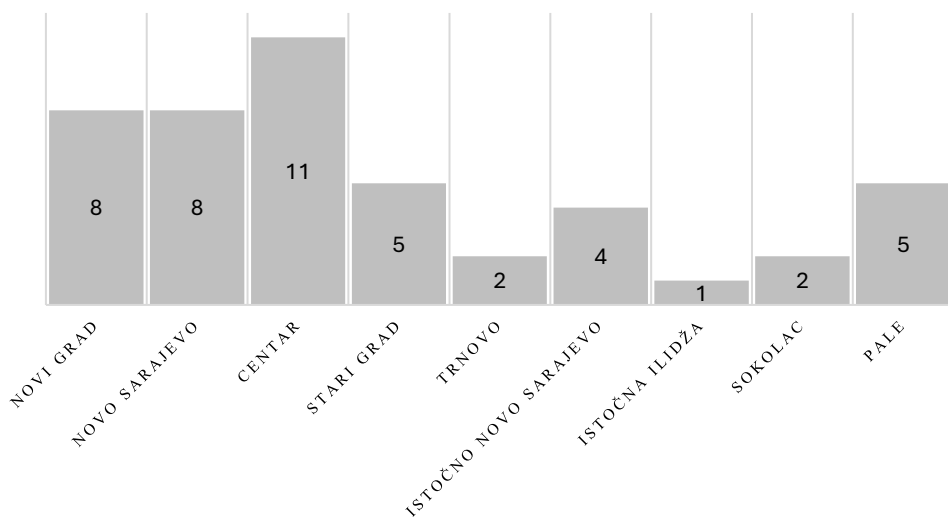


Fig. 2. Number of sports and recreational events in the areas of Sarajevo and Istočno Sarajevo

According to the adapted valuation by Hillary du Cros (2000), sports and recreational events that involve multiple sports and disciplines, which belong to this category within the territories of the cities of Sarajevo and Istočno Sarajevo, include: Youth Sports Games, Sports Games OAZA, Sports Festival "Sport Fest 2020", Sports Festival "Sport Fest 2021", and EYOF 2019 Sarajevo and Istočno Sarajevo (table 2).

Tab. 11: Tourist valuation of sports and recreational events in shooting, rhythmic gymnastics, bowling, chess, and events that include multiple sports disciplines

| Sports and recreational events in areas of Sarajevo and Istočno Sarajevo | |
|---|-------------------------|
| <i>Market attractiveness (1)</i> | |
| Ambience | 4 |
| Well known outside the local area | 2 |
| Important national symbol | 1 |
| An interesting story about the event can be told | 1 |
| It possesses certain traits that clearly differentiate it from other events (specificity) | 2 |
| It complements other tourist products at the destination, or in the region | 4 |
| Tourist activity in the region | 5 |
| The destination is associated with sports | 3 |
| <i>Factors of importance in designing a tourist product (2)</i> | |
| Good transport from the population center to the event venue | 5 |
| Urbanization assessment | 5 |
| Proximity to other sports and recreational attractions | 4 |
| Service amenities, parking, marked roads to sports facilities, refreshments, availability of information | 4 |
| Service amenities, parking, marked roads to sports facilities, refreshments, availability of information | 4 |
| <i>Sports and recreational significance (3)</i> | |
| Aesthetic value, including architectural value, if it concerns a building | 4 |
| Historical value of the event | 0 |
| Sporting value of the event | 3 |
| Social value of the event | 1 |
| Rarity of the sports and recreational event at the destination, or in the region | 2 |
| Representativeness for the destination | 2 |
| <i>Robustness (4)</i> | |
| Assessment of equipment and services | 3 |
| Existence of a sports and recreational center management plan | 3 |
| Accessibility assessment | 5 |
| Regular monitoring and maintenance | 4 |
| Potential for ongoing investment and consultation with key stakeholders | 3 |
| Potential negative impact of a large number of visitors on the physical condition of the sports and recreational center | 3 |
| Robustness | 21-40 M(2,1) |
| Market Attractivness | 41-60 M(1,3) |

Source: Authors based on du Cros, 2000.

The tourist valuation of sports and recreational events, conducted through the application of the Hillary du Cros method, resulted in a final matrix that places the listed events in the M(1,3) category, indicating high cultural significance and robustness, as well as high market appeal. This category includes events such as shooting, rhythmic gymnastics, bowling, chess, and those that involve multiple sports disciplines. These events showcase a variety of sports, such as football, basketball, handball, volleyball, street basketball, athletics, beach volleyball, tennis, table tennis, and many others, thus achieving high sports significance.

The duration of these events typically spans several days and takes place in large sports and recreational centers, as well as other specialized venues such as Olympic pools, stadiums, and halls. The ambiance and aesthetic value of these locations have been rated highly due to their accessibility, urban setting, and proximity to other sports, recreational, and tourist attractions. Most of these events have an international character, making them recognizable and representative of the destination. Specific events, such as the Sports Games OAZA, which include competitions for persons with disabilities, further contribute to the inclusivity and social significance of these events. All these manifestations represent a potential for further investment from stakeholders.

Among the evaluated events, the European Youth Olympic Festival (EYOF) stands out, receiving the highest ratings. Sarajevo and Istočno Sarajevo had the honor of hosting this prestigious event, which represents a European youth competition in winter Olympic sports. The EYOF took place over several days and included numerous events, such as the opening and closing ceremonies, the lighting and journey of the Olympic torch, and competitions in various sports disciplines. The venues for the event included the "Asim Ferhatović Hase" stadium, the "Zetra", "Skenderija", and "Peki" halls, as well as the ski resorts of Bjelašnica, Jahorina, and Igman. All venues were adequately equipped and organizationally prepared, providing excellent conditions for both athletes and visitors.

The European Youth Olympic Festival (EYOF) brought together 904 athletes from 46 countries, members of the European Olympic Committee, who competed in 8 sports and 32 disciplines across 7 venues. The competitions included alpine skiing (Bjelašnica, Jahorina), biathlon (Jahorina), speed skating (Skenderija Hall), ice hockey (Zetra Hall), curling (Peki Hall), cross-country skiing (Igman), snowboarding (Bjelašnica), and figure skating (Skenderija Hall).

Due to its organizational complexity, international reputation, and impact on the promotion of sports and tourism, EYOF is an exceptionally significant event. Its realization had a substantial influence on the tourist image of the destination, promotion of the country, an increase in the number of overnight stays, and economic benefits generated through the spending of participants and visitors. This event, following the 1984 Winter Olympics in Sarajevo, deserves the highest rating in the tourism valuation and ranking of sports and recreational events.

CONCLUSION

Sports and recreational events represent the most widespread form of tourism in the cities of Sarajevo and Istočno Sarajevo. Given the need for appropriate infrastructure in accommodation, dining, as well as spaces and equipment to host these events, large urban centers have recognized the potential of event tourism as a significant source of income. Local authorities actively support sports events through financial assistance, which not only promotes the city but also attracts new visitors, increases employment, and contributes to the economic development of the local community.

A wide range of sports events is organized within these cities, including football, basketball, handball, volleyball, tennis, swimming, chess, and many others. According to the results of the evaluation, the most valuable event among them is the European Youth Olympic Festival (EYOF), which received the highest ratings. These events have significant economic, sports, historical, social, and tourist importance, and they make a notable impact on the number of overnight stays and the promotion of the destination. Sports events, such as world and European championships and the Youth Olympic Games, are the most representative events that provide significant promotion and branding for the destination, attracting a large number of tourists and stimulating the development of tourist infrastructure and employment in the tourism sector.

Through the successful organization of these events, Bosnia and Herzegovina creates opportunities for further development and the continuation of similar events in the future. Therefore, event tourism, especially in the context of sports events, should not be overlooked, but rather intensively researched and included in tourism evaluations, with the support of tourist organizations and tourism statistics. With detailed analysis and organization, sports events can become key tourism products. Tourist organizations can use these events to promote their destinations, for example, through advertising materials on sports fields or during large international events.

Sports and recreational events should be subjected to detailed research and integrated into tourism development strategies. Their promotion and inclusion in tourism development by tourist organizations must be a priority to ensure their long-term sustainability and success.

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PANNONIAN SALT LAKES IN THE CITY OF TUZLA AS AN EXAMPLE OF A CREATIVE DESTINATION IN THE 21ST CENTURY TOURISM

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Abstract: At the beginning of this century, Tuzla became recognizable for the construction of salt lakes in the city center. The Pannonian lakes are the only salt lakes in Europe. They belong to the group of tourist values with emphasized recreational features. Of particular importance for the development of tourism are their aesthetic and healing properties, and they are frequent destinations for a large number of visitors to stay there. They stand out as the centers of the city's outdoor swimming pool, representing the basis for the development of cultural and event tourism. The Pannonian lakes have become a real attraction for all those who are unable to go to the sea and the basis for the future development of tourism in Tuzla. The paper presents theoretical-practical research of contemporary processes of tourism development in Tuzla. The goal of this research is the valorization of tourist destinations of the Pannonian Lakes as a creative tourist destination in the function of tourism development in Tuzla.

Key words: Pannonian salt lakes, City of Tuzla, creative destination, tourism.

INTRODUCTION

Talking about a tourist destination means treating that integrated space as a spatial unit that builds its tourist identity on the concept of cumulative attractions, which enable the experience and with additional tourist infrastructure represent a gathering place for tourists. We know that a modern tourist destination is determined by the wishes, preferences, interests and needs of visitors. Competitiveness on the tourist market is important for the sustainability of the destination, which ensures a certain demand and economic effect. For this reason, it is important that for the sustainable development of the destination, one should constantly work on improving the elements of its competitiveness, and respect all the principles and criteria of its development (Čavlek et al, 2011).

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The subject of this paper is the analysis of the development of the Pannonian Salt Lakes tourist destination in Tuzla, as a unique and creative destination in 21st century tourism in this part of Europe. From such a starting point, the aim of the work is to highlight in one place the complexity of the tourist possibilities and highlight some of the most important factors in the development of tourism in the city of Tuzla. Here we present just a handful of natural and other predispositions for the development of a modern tourist phenomenon in the city of Tuzla. Tuzla covers the central part of the Tuzla Canton, extending along the southeastern slopes of the Majevisa mountain at the point where its slopes merge into the Spreča river valley. It has a favorable geographical position (gravitates towards a large area). It is geographically connected to neighboring municipalities, as well as to neighboring countries: Republic of Croatia, Republic of Serbia and Republic of Montenegro. Tuzla is the center of Tuzla Canton and the largest urban center in the Northeastern Bosnia region. The city is located in the Tuzla Valley on the southwestern side of Mount Majevisa. and the valley of the Jala River. There are 107,783 inhabitants (Socio-economic indicators by municipalities of the FBiH 2023). Accommodation facilities available include: hotels, motels, several boarding houses and several overnight facilities. There are several restaurants and café-bars in the city (Ćatović, 2005). In the immediate vicinity of the city is the Dubrave airport, where the number of airline lines has increased in recent years, and new lines to the centers of neighboring countries are being introduced (Tourist Association of Tuzla Canton, 2024) (Figure 1).



Fig. 1. Airlines from Tuzla

Source: map made by the authors

Even during the Austro-Hungarian rule in this region, political and economic motives determined the development of Tuzla and its surroundings. The natural resources of salt and coal were another decisive factor in its economic and social development (Pašić, 1996). The Tuzla basin was among the most important within the territory of the former Yugoslavia and the largest energy area in Bosnia and Herzegovina. Tuzla grew into an industrial area and the largest development center in northeastern Bosnia (Klapić, 2002). The period of industrialization and urbanization in the second half of the last century significantly affected the spatial development of the city of Tuzla. The exploitation of salt from the Tušanj mine using underground mining methods caused land subsidence in the urban area of Tuzla, which led to major damage and the demolition of numerous residential buildings and infrastructure. Salt extraction by pumping thermal mineral water into wells in Tuzla caused subsidence and deformation of the terrain in the urban area of Tuzla in the period 1947-1991 up to 12 m, with a maximum subsidence of 1100 mm in one year recorded in 1983 (Taletović N. et al. 2014). According to the same authors, the results of the subsidence were the relocation of 15,000 inhabitants and the destruction of 2,700 housing units and approximately 200,000 m² of production facilities, educational, health, cultural and sports facilities (Ministry of Civil Affairs of Bosnia and Herzegovina, 2021). Thus, huge problems arose in the urban area of Tuzla, which were especially pronounced during heavy rainfall, which led to the blockage of the northern road (Ministry of Trade, Tourism and Transport TK 2023).

The terrain was mostly rehabilitated after the completion of the exploitation of the Tuzla salt deposit. There was a reduced destruction of the terrain surface, and therefore a reduced threat to buildings and infrastructure in the narrower part of the city area compared to the period of intensive brine exploitation. Demolished and damaged buildings were renovated where the terrain was assessed as stable. (Taletović N. et al. 2014). In the area of the “Pinga” site, where it was difficult and economically unacceptable to convert the terrain into a safe space for construction, as a measure to mitigate the consequences of terrain subsidence, devastation of the area and flooding of part of the northern highway during heavy rains, the problem was resolved by a significant environmental project in 2000, for the purpose of tourism development.

With the Pinga and Trnovac-Borić rehabilitation project, the existing water accumulation was arranged into three artificial salt lakes with pebble beaches and the healing properties of brine in the function of a city open spa (Archives of the Municipality of Tuzla, 2017). These lakes have the common name "Pannonian Lakes" or "Pannonica" and are used for recreation. (Ministry of Civil Affairs of Bosnia and Herzegovina, 2021.) With the construction of the lake, Tuzla has become a famous destination for bathing tourism.

PANNONIAN SALT LAKES IN THE CITY OF TUZLA AS AN EXAMPLE OF A CREATIVE DESTINATION

The Pannonian salt lakes are built with a combination of geosynthetic and natural materials, on the base of which polyethylene sheets are placed, covered with gravel, which gives them the appearance of a sea beach. The big lake was built in 2003, the small lake in 2008, and the new lake in 2012. The third Pannonian lake is designed in the form of two smaller lakes with a spillway and with a lot of adrenaline fun with two water slides, two hydro massagers (duck's beak) and a water geyser. It is located in the western part of the complex. Water inflow into the lakes is 95,000 m³, of which 30% is salt water, characterized by a salinity of 33 g/l. The volume of the lake is about 11,000 m³, and due to its small surface, the water is constantly purified and disinfected with 0.2 mg/l of chlorine. The Pannonian Lakes complex is managed by JKP "Pannonica" d.o.o. Tuzla (Archives of PUC "Pannonica", 2024). (Table 1. Lake parameters). Based on the Regulation on Water Classification, all three lakes belong to the II class of water quality. During the season, a large number of bathers are present, and therefore the water of the Pannonian Lake is constantly subjected to microbiological analysis by the Institute of Public Health (Mašala A. 2009). The pebble beach has an area of 17,000 m² and is 1,000 m long. According to the project documentation, the lakes were built in the shape of a foot (Figure 2).

Tab. 1. Geographic parameters of the lake

| Constr | Name | Area hectares | Water surface m ² | Depth/m | Length x width | Water capacity m ³ |
|--------|-------|---------------|------------------------------|----------|----------------|-------------------------------|
| 2003 | big | 1.014 | 10.140 | 0,5-1,6 | 180x80 m | 13.000-15.000 |
| 2008 | small | 0,530 | 5.300 | 1,35-1,6 | 90x70 m | 6.000-7.000 |
| 2012 | new | od 1,7 | 3851 | 1,8 | 40x105m | 5.600 |

Source: tabular overview made by the authors based on the source of the archives of the PUC "Pannonica"

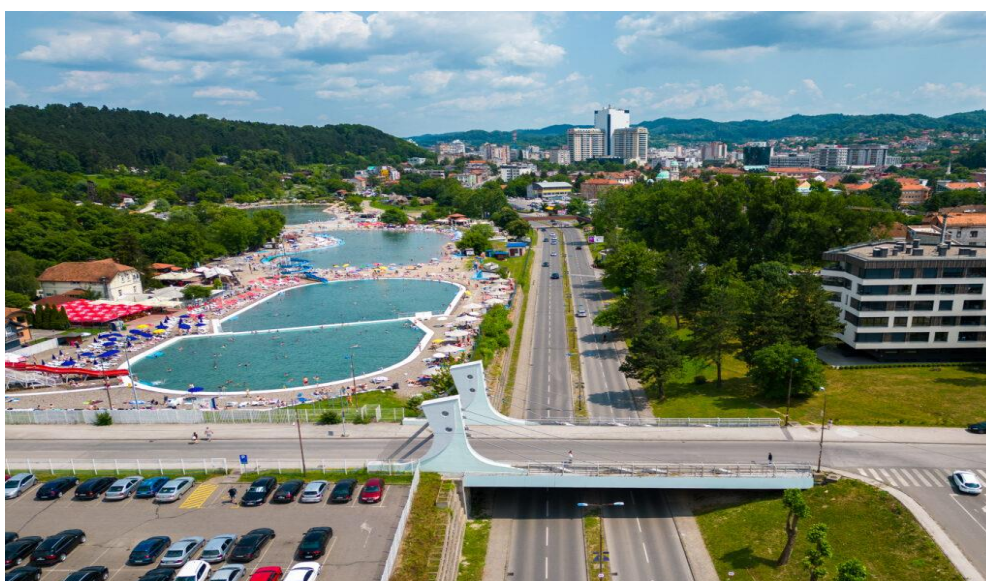


Fig. 2. Spatial distribution of the Pannonian lakes

Source: Tourist Board of TK, 2024.

With the construction of the lake, Tuzla has become a well-known destination for bathing tourism. A destination is a concept of a geographical space whose boundaries are determined by various complex relationships between the local community, attractions and tourists. A tourist destination is a space that differs from the permanent place of residence of tourists, and in which tourist activities are carried out and tourist products are consumed, i.e. the location of tourist consumption (S.Nezirović, 2022).

Thanks to the salinity of the water of 3.8%, identical to the water of the Adriatic Sea, the lakes represent a unique example of salt lakes in the Balkans and throughout Europe. In

addition to salt, the lake water is enriched with minerals, which is why it has medicinal properties that help in the treatment of sterility, rheumatic and respiratory diseases. Of particular importance are their aesthetic and medicinal properties, and they are a frequent destination for a large number of visitors (Nurković, 2008). The tourist offer of the Pannonian Lakes complex was enriched in 2009 with the construction of waterfalls over which salt water flows. Salt waterfalls have the properties of an inhalation center in the open air. They are a special attraction at the complex. Within the waterfalls there are five water cascades and two swimming pools, where inhaling salt water is very beneficial for: relaxation from stress, respiratory diseases, headaches and general health improvement (Archives of JKP "Pannonica" d.o.o. Tuzla, 2024).



Fig. 3. Salty waterfalls lakes in 2024

Source: Panonika Tuzla BiH



Fig. 4. Summer season on the
Source: Tourist board of the city of Tuzla 2024.

Within the complex, the Archaeological Park of the Sojenica-Neolithic Settlement and the Geological Exhibition of Pannonica were built in 2006, depicting the historical period of the city of Tuzla 5 thousand years ago, and the spectacular geological past of the Tuzla area. The Archaeological Park represents a reconstruction of part of the Neolithic Sojenica settlement discovered in Tuzla. The Archaeological Park of the Sojenica Settlement and the Geological Exhibition of Pannonica represent the cultural and historical settlement of the city of Tuzla and as such can serve excellently for educational purposes (Official Gazette TK 06/09, 2008). The geological exhibition presents the spectacular geological past of the Tuzla region in a multimedia way through the found fossil remains of sea shells and an exhibition of various minerals and rocks. The park is an open-air museum that aims to present to visitors part of the archaeological and historical past of the city of Tuzla, as well as the way of life, both material and spiritual, and especially the first production of salt in the Neolithic era. The archeological park consists of a floor bent in a semicircle around a hilly elevation, a leveled part of the hill arranged as a central plateau on which a totem pole are placed, a replica of a clay oven, a flat for weaving and dwellings of characteristic shapes and dimensions. Two smaller floors with 4 more dwellings are connected to the central floor by wooden bridges (Figure 5) (Tourist Board TK, 2024).



Fig. 5. Archaeological Park Neolithic-Sojenica settlement next to the Great Pannonian Lake in Tuzla

Source: Arhiva JKP „Pannonica“ d.o.o.

METHODOLOGY

The methodology is primarily based on detailed field research of the Pannonian Salt Lakes tourist destination in Tuzla. In the preparation of the paper, in addition to literature and planning documentation, data obtained from the JKP "Pannonica" d.o.o. were used, as well as statistical indicators of the Agency for Statistics from the census. The paper used the field method, descriptive method, statistical methods of analysis and synthesis. The paper analyzes the Pannonian Salt Lakes in the city of Tuzla and shows to what extent the postulates of sustainable tourism and management are recognized and applied in this creative tourist destination.

RESULTS AND DISCUSSION

TOURIST OFFER OF THE PANNONIAN LAKES

The destination is the basis for research into supply and demand in tourism. Therefore, the study approach also includes the possibility of planning and managing the destination. We know from the literature that a tourist destination can function and develop as long as the principles of sustainability are respected, and all elements of sustainable development are protected and reproduced (Čavlek et al, 2011). The organization of a tourist destination includes quality destination management, quality offer and visitor satisfaction (Živković, R, 2013). Quality destination management requires: available resources, receptive factors, a

rich tourist offer, development policies and strategies. Managing a tourist destination is related to business. Destination management is a business activity that combines and coordinates the work of various business and other entities in the creation and implementation of a tourist product, its quality, competitiveness, sustainability, and achieving optimal economic effects on the tourist market. Destination management coordinates tourist functions at a destination, which cannot be performed by individual providers of the offer, because together they have a greater chance of achieving their goals.

By using brine in the unique complex of Panonika Lake with a salt waterfall, Tuzla has made a certain turnaround in the development of its economy, placing a significant focus on the development of tourism (Ćatović, 2010). In addition to the climate, hydrographic tourist resources are the most attractive factors in the development of modern tourism. Hydrographic elements show the direction and mass of tourist movements, regardless of the form of tourism we are talking about. Water is primarily a prerequisite for the survival of humans, flora and fauna.

Regardless of the way it appears, water is of great importance for tourism because it enables the development of water sports: swimming, rowing, fishing, and in places with medicinal waters, it provides the possibility of wider recreation at bathing areas, in open and closed pools (Bilen; Bučar, 2001). The tourist attraction of lakes stems from their aesthetic and curious properties, such as the color of the lake water and the surrounding landscape. According to the degree of attractiveness, they can be seen as independent and complex tourist resources, they belong to the group of tourist values with pronounced recreational properties of attraction and form the basis for the development of lake tourism. Their importance is manifested in the possibilities of forming a rich offer and a meaningful stay for visitors. The most visited lakes are those near cities and where there is a high concentration of population (Nezirović, 2018).

The Pannonian Salt Lakes belong to a group of tourist values with pronounced recreational characteristics. Of particular importance for the development of tourism are their aesthetic and medicinal properties, and they are a frequent destination for a large number of visitors to stay there. They stand out as centers of the city's open-air swimming area and represent the basis for the development of tourism in Tuzla. For the sustainability of a destination, its competitiveness in the tourist market is important, which ensures a certain demand and the achievement of economic effects (Čavlek et al, 2011). During the summer months, the Pannonian Salt Lakes have become the most desirable destination for the residents of Tuzla and surrounding settlements. The lakes have become a real attraction for all those who are not able to go to the sea, which is confirmed by the constantly increasing tourist traffic. During the hot days of July, more than 10,000 visitors of all ages enjoy swimming in the lakes daily. According to statistical indicators, 4,995,881 people have stayed at the lakes since its inception until today, more than 1.5 million visitors in the last five years alone, and

in the summer season of 2024 there were 499,618 visitors (Archive Panonika, 2024) (table 2).

Tab. 2. Number of visitors to the Pannonian Salt Lakes in the period 2003-2024.

| No. | Year | Number of Visitors | No. | Year | Number of Visitors |
|-------|------|--------------------|-----|------|--------------------|
| 1. | 2003 | 99.000 | 12. | 2014 | 207.065 |
| 2. | 2004 | 142.851 | 13. | 2015 | 377.502 |
| 3. | 2005 | 96.928 | 14. | 2016 | 264.699 |
| 4. | 2006 | 124.379 | 15. | 2017 | 334.915 |
| 5. | 2007 | 168.539 | 16. | 2018 | 216.612 |
| 6. | 2008 | 288.770 | 17. | 2019 | 316.673 |
| 7. | 2009 | 316.165 | 18. | 2020 | 121.763 |
| 8. | 2010 | 280.987 | 19. | 2021 | 326.416 |
| 9. | 2011 | 290.803 | 20. | 2022 | 264.094 |
| 10. | 2012 | 374.547 | 21. | 2023 | 360.000 |
| 11. | 2013 | 337.319 | 22. | 2024 | 499.618 |
| Total | | | | | 4.995.881 |

Source: authors based on sources from the archives of JKP "Pannonica" d.o.o. Tuzla

A quality offer in tourism implies: the long-term existence of the resident population, the quality and structure of demand, determines the tourist offer, which includes safety, cleanliness, hospitality, environmental protection, etc. Satisfaction of visitors, local residents and all participants of the local tourist offer at the tourist destination (Čavlek et al, 2011). As part of the Pannonian Lakes complex, there are numerous tourist and catering facilities that provide visitors with accommodation and refreshment services. The tourist offer includes the organization of a school sports day or an excursion with a rich gastronomic offer offered by the restaurant "Pannonski Lovac" on the third Pannonian lake. The restaurant is located in a beautiful environment, has two summer gardens and offers a rich gastronomic offer of food and drinks. The summer garden and grill with about 300 seats overlooking the Pannonian lakes and the city of Tuzla also has a rich offer, different types of juices, coffee, tea, čevapes, sandwiches, hot dogs. In addition, it has an audio system that makes this summer garden into a mold dance floor, karaoke, etc.

There are several sanitary facilities on the lake that are regularly maintained, with daily chemical and hygienic control. Next to the Pannonian Lake itself, there is the Children's Amusement Park "Slana Banja" and it provides entertainment for children from 3 to 14 years old. The park has about a kilometer of asphalt paths. Various play equipment has been

installed – slides, swings, seesaws, trampolines, playhouses and a "pirate ship", as well as a number of other play equipment.

For safety reasons, the equipment is surrounded by a surface made of tartan rubber and sawdust to cushion any falls, and benches for parents or teachers to rest. The lakes are fenced off and separated from traffic so that the teachers can have complete control over the students. The location of the field itself is located in the attractive surroundings of Slana Banja and the Pannonian Lakes, and holding classes in the open air and fresh air are great advantages for the psychophysical development of children, compared to the closed spaces of sports halls and classrooms, and these activities take advantage of the Tourist offer (Archives of JKP "Pannonica" d.o.o. Tuzla, 2024). Cultural content is also expressed through the organization of concerts, theater performances, literary meetings, theater performances, sports meetings, etc. (Figure 7 and Figure 8).

The lake's tourist offer is also represented outside the swimming season. In the city itself there are the museum-tourist complex Soni Square, Freedom Square, Tuzla Gate, religious buildings, then the Museum of Northeastern Bosnia, a very interesting tour of the city promenade, the famous Tuzla "bridge with statues" of the biological collection, the monument to the painter Ismet Mujezinović and the writer Meša Selimović, etc. The tour of the above tourist locations is realized in cooperation and agreement with tourist guides in the city or in your own arrangement by walking through the city of Tuzla.



Fig. 7. Manifestation "Cum grano salis" literary encounters on the Papon Lakes
Source: Archives of Tuzla Municipality, 2017.



Fig. 8. Theatrical play "Chronicle of the King" Company on the Pannonian Lakes, 2022
Source: <https://tuzlapress.ba/ljetopis>

CONCLUSION

In this paper, we have tried to present the characteristics of the Pannonian Salt Lakes tourist destination in Tuzla, which are of particular importance for the development of sustainable tourism. Thanks to their aesthetic and medicinal properties, the lakes are a desirable destination for a large number of visitors. In addition to being attractive as the center of the city's open-air swimming area, they represent the basis for the further development of tourism in Tuzla and its surroundings. The lakes have become an interesting tourist destination for all those who are unable to go to the sea, which is confirmed by the continuously increasing tourist traffic. We believe that in the future it would be good to work on the tourist offer and to retain foreign visitors for a longer stay on the lakes and in the city of Tuzla. As a tourist destination, Tuzla has become largely recognizable for its salty Pannonian Lakes, which is important for the future development of tourism in the Tuzla Canton and the Northeast Bosnia region.

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