

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.

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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"

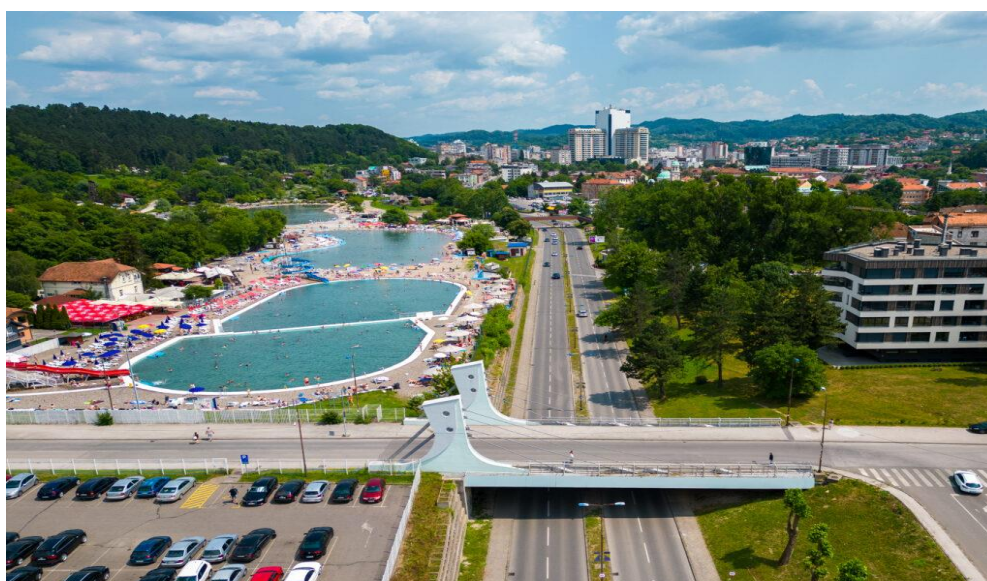


Fig. 2. Spatial distribution of the Pannonian lakes

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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