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SPATIAL DISTRIBUTION OF NATURAL TOURIST MOTIVES IMPORTANT FOR TOURISM DEVELOPMENT OF TUZLA CANTON*AUTHORS****Senada Nezirović, Boris Avdić***

University of Sarajevo, Faculty of Science, Department of Geography, 71000 Sarajevo, Zmaja od Bosne 35, Bosnia and Herzegovina e-mail senadanezirovic@yahoo.com; e-mail borisavdicpmf@hotmail.com

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ABSTRACT***Spatial distribution of natural tourist motives important for tourism development of Tuzla Canton***

Tuzla Canton is situated in the northeastern part of Bosnia and Herzegovina and is one of the ten administrative and political communities of the Federation of Bosnia and Herzegovina. The area has significant natural resources that are partly used in the development of tourism. This paper analyzes the spatial distribution of natural motives in Tuzla Canton, important for tourism development. The research of the area of Tuzla Canton considered qualitative and quantitative characteristics of the tourist values that are a good basis to create a new image of the area in tourism marketing, connecting tourist boards and introducing the increasing number of visitors to destinations that offer favorable conditions for rest, recreation, treatment and so on.

The paper represents the theoretical and practical research of modern processes of tourism development. The aim is to perceive the possibilities of valorization of natural tourist motives as an important factor of development of the tourism industry of Tuzla Canton through systematic observation of the basic theoretical assumptions and analysis of the current situation. By identifying the entire area, the dominant natural tourism resources in the area of Tuzla Canton were presented, where the guidelines are given in the further development of tourism and the creation of the position of Tuzla Canton as a significant tourist destination.

KEY WORDS

Tuzla Canton, natural tourism resources, tourism

1. Introduction

Tuzla Canton is situated in the northeastern part of Bosnia and Herzegovina, within the geographical coordinates between 44°10' and 44°55' north latitude, 18°8' and 19°3' east longitude. Within Tuzla Canton there are 13 municipalities and these are: Banovići, Doboј-Istok, Gračanica, Gradačac, Kladanj, Kalesija, Čelić, Lukavac, Srebrenik, Sapna, Teočak, Tuzla and Živinice. Within this territory, it covers an area of 2,652km², or 11.1% of the territory of the Federation of Bosnia and Herzegovina, where an estimated 499,099 *residents* live or 21.4% of the total population. The average population density of the area is 188 people per 1km².(Government of Tuzla Canton, 2014.) The favorable geographical position of Tuzla Canton and its openness to the Pannonian plain as well as transport links with the Adriatic coast are a very important element in using the resources of the area. During the conducted field research, the emphasis is on detailed attribution of tourist motives and their role in the spatial organization and the development of tourism in Tuzla Canton.

2. Geomorphological identification tourism motives and their tourism-attribute value

Natural tourist values of Tuzla Canton are special areas favorable for the development of various tourist attractions, and are located in the municipalities of *Kladanj, Lukavac, Gradačac and Tuzla*. In the following part of the paper, we will present geomorphological, climatic, hydrographic and biogeographic motives on the basis of which there were *isolated* elements of the environment, whose properties can be valorized for tourism needs.

2.1. Geomorphological tourism motives

Attractive properties of *geomorphological motives* include rare but also unusual and typical relief forms such as canyons, gorges, caves and mountain peaks. Tuzla Canton is located within the Pannonian and mountain valley areas. In the morphometric terms, in the area of Tuzla Canton all three basic forms of relief are represented: lowland, hilly and mountainous relief. Along the river flows, flatland relief over 200m of altitude gradually turns into a hilly *area*, whose altitude increase up to 500m. Plains stretch over the parts of Gradačac, Gračanica and Doboј Istok. Low foothills in the Pannonian perimeter make a gradual transition from lowland to *highland* area which belongs to the wider area of Gračanica and Gradačac. Along the river flows, flatland relief enters the hilly area of Srebrenik, Čelić and Sapna. (Petrović, 1963)

Elevations of over 500m of altitude at the perimeter of Sprečka valley make a gradual transition to upland mountains relief within which we have low mountains Trebavac 665m, Majeвица 916m and Ozren 918m. (Marković, 1958). Javornik 1021m and 1327m Konjuh belong to mountain areas above 1000m of altitude.

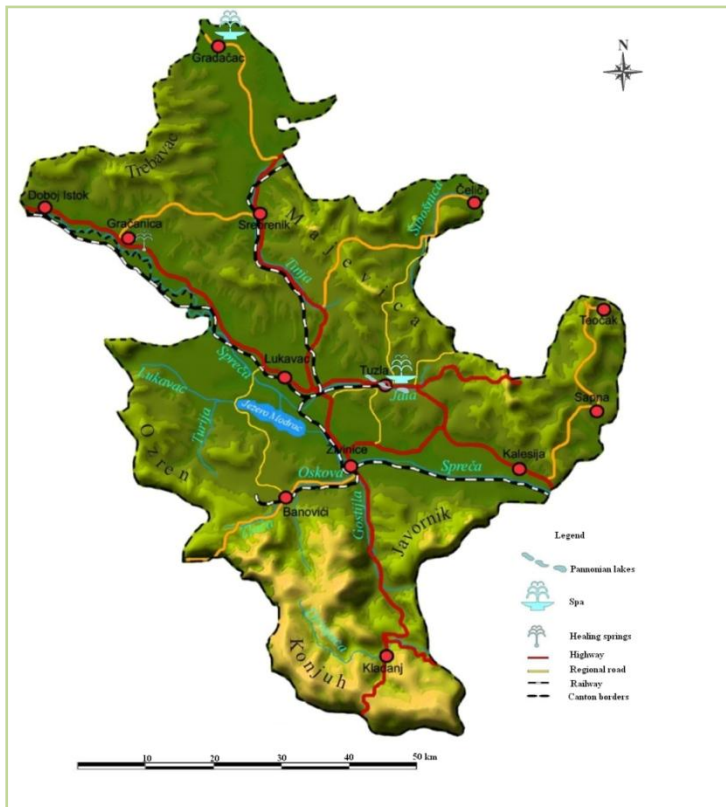


Fig. 1. Spatial distribution of natural tourism resources of Tuzla Canton

2.1.1. Mountains

The mountains of Tuzla Canton according to a series of elements of phenomena and processes have a significant tourist value, in addition to meeting the recreational needs of tourists, they have complementary tourist values on the basis of which one can develop more forms of tourism. Among the *mountains, Majeвица and Konjuh* have been best studied in terms of geology, geomorphology and tourism. Tourist value of these mountains is caused by numerous elements and processes, among which are: favorable geographical position, good transport links, the original landscape and morphological diversity.

2.1.2. Canyons

Canyons are long, narrow and very deep valleys, with almost vertical sides. They are morphologically shaped by vertical erosion of a river. They are built of limestone and sandstone, and they are characteristic forms of relief. (Stanković, 2000) In Tuzla Canton, the Ujča river and Matijevića stream have canyon valleys. ***The canyon rea of Matijevića stream*** is in the area of Stupari along the road Tuzla-Sarajevo, a distance of 100m. Visitors are attracted to the steep sides that are covered in dense vegetation. The canyon is about 150m deep where it is the most attractive. On the southwest side 2 km from Kladanj along the road Tuzla-Sarajevo, ***the Ujča river has carved 300 m long canyon*** with steep sides whose height reaches up to 200m. At its center, at the top, the attention of visitors is attracted to the rectangular stone block with a height of 30m, which is largely separated from its home base rock. At the foot of the mountain there is the entrance to the cave but the approach is impossible without special equipment. Visitors are especially interested in irregular stone shapes in the riverbed of the Ujča river which the water flow is separated to lower rapids and swirling sprinkling waterfalls. (Ćatović, 2005) The canyon has a tourist attraction that can be valorised in the form of excursions and sightseeing.

2.1.3. Caves

Caves are underground forms of relief. They consist of horizontal passages and halls that are often rich in cave ornaments. (Kacer, 1926) In Tuzla Canton there are several caves with unusual and remarkable characteristics of tourist attraction consisting of archaeological traces, underground rooms, cave formations and silence. (Group of Authors, 1977)

Among the best known are: ***Djevojačka (the Maiden's cave) and Bebravska caves*** in the area of Kladanj. (Archive of the municipality of Kladanj, 1990) So far, the most explored and most visited cave is *the Maiden's cave in Brateljevići*. For researchers and visitors, it is interesting by its drawings (engravings) which date back to the Bronze Age. The drawings are presented by male and female Tables, horsemen with spears and scenes of deer hunting. Not only is it an archaeological site but it also represents *a cult place*. Many pilgrims' visit to the cave, drawings from the recent history, people's names and signatures on the walls speak of the continuity of formation of this cave from prehistoric times to the present. The Maiden's cave creates opportunities for religious tourism in this part of north-eastern Bosnia. ***The Bebravska cave*** is located near the spring of Bebroštica stream in the central part of mountain Konjuh. The cave is walkable through a corridor in the length of 500m, rich in cave formations of stalactites and stalagmites.

The entire area is covered by the cylindrical, spherical and prismatic forms of cave decoration. Interesting details can be observed in the hall in the shape of an underground canyon. (Basler, Mulaomerović, 1984) The Bebravska cave is not well researched, which is necessary for its evaluation. Less or insufficiently explored caves are: the Hajdučka Cave near Živinice, *the Borovac-Pribitkovići cave* (Ćatović, 2005.) Valorisation of caves is conditioned by their arrangement, availability and the way they are presented to visitors.

2.2. Climate

The climate of Tuzla Canton belongs to moderate continental type. The warmest month is July. The schedule of July shows higher *temperatures* in the northern area in relation to the south mountainous area. (Milosavljević, 1977) The average annual air temperature is around 10,3°C (Tuzla 10.1 ° C, 10.5 ° C Gračanica, Gradacac 10.1 ° C, 10.1 ° C Lukavac, Kladanj 9.2 c). (Official Gazette TK 09/06 2008) As a number of sunny days is significant *for the development of tourism*, the indicator on the length of the solar insulations of great benefit. *The annual insolation* is moderate and is 1800 hours. August has the most sunny days, and December has the least. *Precipitation in the valley of Spreča* is stronger in spring and fall, the maximum precipitation is in May (in Gračanica 121mm, Tuzla 122mm, Kalesija 109mm), the minimum is in February (Gračanica 51mm, Tuzla 68, Kalesija 57mm). Accordingly, the *annual average* of rainfall ranges from 75 to 86 mm. Snowfall here occurs in January, February and March. The snow retains a little longer at the top of Trebavac and Ozren where the average height is 30 cm. (Atlas of climate of Yugoslavia, 1991) The *relative humidity* is 70% at 20°C and wind speed of 1m/s, at the foot of the mountains Majevisa, Ozren and Trebavac, a higher relative humidity to 80% is possible. During the fall and winter in Tuzla valley, there is also high fog. (Official Gazette TK 09/06 2008)

The mountains region has a favorable relative humidity. Specifically, these climate has benefits and positively influences anemia, high blood pressure, heart, lung and other disorders, and is favorable for recreational and health convalescent therapeutic components. The slopes of Ozren and Konjuh mountains keep out the air from the south and represent the subalpine and moderate continental climate. Both mountains have a high air pressure, which causes air currents to the valleys of Bosnia, Spreča and Drina. The areas of Banovići and Kladanj have a more pronounced effect of *subalpine climate*, whose elevation reaches up to 1000m compared to Kalesija, Živinice and Lukavac (198 m/asl). Based on these climate indicators the following can be concluded: Tuzla Canton is the contact area between the Pannonian Plain and the Dinarides. Thermal regime is characterized by a decrease in temperature from north to south parallel to the altitude increases.

Air temperatures are of the utmost importance for recreational tourism trends. Low winter temperatures cause the winter cover that remains longer on the mountain Konjuh which provides the **possibility to walk** through the snowy landscape or enjoy the sightseeing areas. Warm days last on average from mid-June to mid-September, enabling also complementary types of tourism: walking, excursions, sports and recreational. High summer temperatures cause the perfect time to move towards mountains. Increased insolation due to dilution of air at low summer temperatures is a significant recreational value of mountain areas. Thanks to the increased insolation during winter in the mountains at temperatures below 0°C, one does not feel extreme cold. Expressed insolation, apart from diluted mountain air and lower summer temperatures, is an important feature of recreational value of mountains. In addition to the thermal effects, it causes pigmentation of the skin and a positive effect on a number of physiological functions of the body, so it can be said that mountain regions have recreational and health healing (therapeutic) components. Along the Spreča valley, summers are significantly warm but there is not unbearable heat, nights are pleasant and slightly cooler.

2.3. Hydrographic tourist motives

Hydrographic elements with climate are the most appealing factors of modern tourism. The latest research related to sports and recreation show that a large number of people are attracted to hydrographic motives. In Tuzla canton there are river, lake and groundwater.

2.3.1. Rivers

All streams in the area of Tuzla Canton belong to the Black Sea basin, and they consist of **larger river flows** of Spreča, Tinja, Drinjača and other flows with smaller waterfalls, cascades and rapids. **The Spreča river** rises in Papraća in the municipality of Šekovići. It is 115 km long, it flows across the central and western part of the Tuzla Canton, through Kalesija, Živinice, Lukavac, Gračanica and Doboj Istok. It is the right tributary of the Bosna river into which it flows near Doboj. **The Tinja river** in Gornja Obodnica in the municipality of Tuzla. It is 69 km long flowing beneath the slopes of Majevisa mountain across the territory of the municipalities of Tuzla and Srebrenik. By its valley, it separates the areas of Trebava and Majevisa. At the settlement Plazulje (Brčko District), it flows into the Sava river. In the area of the municipality of Srebrenik, it is favorable for fishing and camping. (Official Gazette TK 09/06, 2008) **The Drinjača river** on the Konjuh mountain and flows through attractive parts of Konjuh. It is 78.5 km long, it flows into the Drina River near the village of Drinjača in the municipality of Zvornik. In its upstream flow, the landscape values stand out, it is rich in fish of different species, such as rainbow trout, grayling, chub, common nase, Danubian roach,

barbel, brook barbel (sapača), and Danube salmon. *The Gostelja river* passing through the mountainous part creates a canyon form of relief, entering the valley of the Spreča river expands its coastal strip creating accumulation of sand and gravel. The possibilities for development of excursion and recreational activities make it a valuable good. A special attraction is its stony-plate bottom from which conical boulders rise in some places, which catches the eye and attention of travelers and visitors. *The Turija river* beneath Brezje northwest of Banovići, flows in the north-west direction and flows into the reservoir "Modrac" on the locality of Mosorovac. Length of the catchment area for the main course is 23.98 km. Excellent waterfalls, beautiful backwaters at the mouth of the lake, rich flora and fauna characterize this river. (The government of Tuzla Canton, 2014.)

2.3.2. Lakes

Raising hydropower plants and dams on the rivers, artificial reservoirs were created: Modrac lake on Spreča, Hazna and Vidara on Gradašnica and Snježnica on Restošnica. *Modrac Lake* is accumulated after the construction of hydropower plants on the Spreča, 1964. It is 11 km long and spans across the territory of municipalities of Lukavac and Živinice. (Nurković, 2008.) Water in Modrac lake is used for the supply of industry and population in the municipalities of Tuzla, Lukavac and Živinice. In recent years the construction of tourist facilities at the lake has begun. Tourism importance of the Modrac accumulation is reflected in many forms of recreation opportunities such as fishing and sports competitions. Modrac Lake provides opportunities for the organization of sports-skiing, boating and driving vessels.



Fig. 2. Tourism facilities by Modrac Lake (Photo by the authors, May, 2015)

Lake Hazna accumulated by the construction of dams Hazna in 1967, where a lake pool of approximately 1 million m³ of water has been accumulated. *Lake Vidara* accumulated by the construction of Vidara damn 1971, a lake pool of approx 3,7 million m³ was accumulated The lakes are suitable for the organization of water sports especially kayaking and fishing. (Archives of the Gradačac municipality, 2013) Lake Hazna has the hotel, recreation center for

sports on water and land, a beach, mini restaurants, an enclosed children's bathing area with playground, camp in pine forest, parking spaces, pier with equipment for entertainment. Along the coast a playground for recreation and sports, indoor mini-football, beach volleyball and cycling recreation paths are built. Tourism potential of these reservoirs is still not being fully utilized, and this is especially true for Vidara lake.

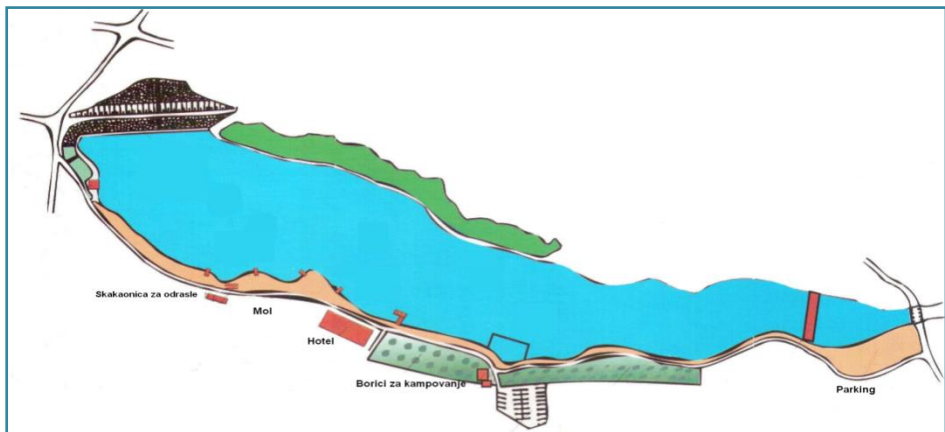


Fig. 3. Tourist values of Hazna lake
(Source: Archives of the Gradačac municipality)

Snježnica Lake accumulated by the construction of a dam on the Rastošnica river in 1984. It is situated in the northeastern foothills of Majeвица Mountain and belongs to the municipality of Teočak. The lake is inhabited by various species of fish, and is convenient for fishing. Near the lake there is a pebble coast. (Official Gazette TK 9/06 2008)

With built transport infrastructure and capacities, it can be activated in tourism purposes. In the zone of ore fields of the Tuzla basin there are more lakes which were formed in places of surface coal mining in areas of excavation and transport operations of earthy masses. Some of these lakes due to its size, position in space, quality of environment, a high degree of integration into the existing ecosystems as well as additional low construction works have become real gems of tourist interest, such as: **Bistarac Lake** (Lukavac), **Bašigovci Lake** (Živinice) and **Ramičko Lake** (Banovići). All of these lakes provide conditions for swimming, fishing and recreation.

A significant tourist potential for development of bathing tourism are **Pannonian salt lakes in Tuzla**. The lake water is enriched with minerals, it has medicinal properties that help in the treatment of rheumatic and respiratory diseases. Pannonian salt lakes were built by the combination of geosynthetic

and natural materials, on the surface of which are set polyethylene surfaces covered with gravel that gives the appearance of sea beaches. Above the lake *waterfalls* through which flows salt water are built.

Falls have the characteristics of inhalation center in the open air. The lakes have a function of the city open pool. In the last five years, the lake has been visited by around 1,5 million visitors. (Archive of Panonika enterprises, 2015)

During the summer months Pannonian salt lakes have become the preferred destination of inhabitants of Tuzla and surrounding villages. During the hot days of July, swimming in the lakes daily enjoys over 15,000 visitors of all ages. (Morankić, 2005) Tuzla salt lakes have become known even beyond the borders of Tuzla Canton. In the last season of 2014, at the lakes there were 400,000 people. Number of visitors has been constantly rising. Tourism-catering facilities on the lakes provide visitors with stays and refreshments.



Fig. 4. Pannonian salt lakes in Tuzla (Source: Archive of Panonika enterprises, May, 2015)

2.3.4. Healing mineral and thermal water

Along water flows of the Sava, Spreča and Drina river basin, there have been confirmed numerous sources of **healing mineral and thermal waters**. Among the famous healing springs in the area of Tuzla Canton are: Ilidža in Gradačac, Terme in Gračanica, Muška voda in Kladanj, Tuzla sorrel in Kiseljak near Tuzla.

Healing springs of Banja Ilidža are sulfuric hypother water with, a temperature of 29.5°C, whose pH is 7.1 (alkaline), whose characteristics have developed the baths. The temperature of mineral water springs and mineral curative mud gives this site priority and possibility of using it in medical purposes. (Archive of Clinical Center for physical medicine, rehabilitation and spa treatment Ilidža, 2013)

The spa complex Ilidža has 160 beds, it is located near the accumulations of Hazna and Vidara lakes, the scenery is very nice and appealing to visitors. The medicinal waters of the Spa Ilidža help in the treatment of metabolic diseases, nerve lesions, rheumatic, neurological and gynecological diseases. Treatment includes bathing in pools and bathtubs, drinking and mud coating under the leadership of the medical team. During spa treatments all other physical therapies are also used, including acupuncture.

The Spa Ilidža has an important role in the tourist offer of Gradačac. In accordance with the healing properties, tourist demand is reflected in the *health - spa* direction related to treatment and accommodation of visitors especially in the hotel and spa complex and less in private homes. In a *recreational outside spa direction*, different activities are possible, especially walking in the park surrounding the spa complex and along the accumulation of Hazna lake. The possibility of walking and recreation is provided by wider region of the Spa. (The tourist offer may include a trip and a tour of cultural monuments.)

The healing waters of the Saltwater spa are the sodium chloride water with a temperature of 27°C, with salty taste, the salt concentration is 33%, odorless, pH 5.5 (alkaline). **The Salt Spa** was developed on the medicinal properties of brine. Recreational fitness center with 120 beds was operated under the supervision of medical staff and therapists as part of the offer in the Bristol Hotel. Tuzla therapeutic salt water helps in the treatment of rheumatism, neuralgia and stomach disease (catarrh), infertility and respiratory infections. (Archive of the economic enterprises Salt Spa 2006) Treatment includes bathing in tubs, inhalation and underwater shower-massage. (Morankić, 2005) The reconstruction of the spa complex is in progress in the vicinity of the salt wells and newly built Pannonian lakes. (Government of Tuzla Canton, 2014.)

According to the medicinal properties, the tourist offer in the *spa and health direction* should be directed *towards* the accommodation and treatment of visitors in the spa complex and *towards* opening smaller boarding houses at the newly open Pannonian lakes. In a *recreational outside spa direction*, there can be organized various activities such as walking across wide park area in the part of Trnovac in the vicinity of the Spa and Pannonian lakes. The tourist offer of the Spa may include a trip to the nearby sites, visiting cultural monuments of Tuzla, visits to cultural institutions such as going to the theater, galleries,

visiting cultural events and so on. These spa resorts in 1991 were visited by 15,050 visitors, while 119,555 overnight stays were recorded.

Table 1. Capacity structure and tourist traffic of spas in the Tuzla Canton (1991)

Spas	Capacity			Tourists			Nights		
	Rooms	Beds	Seats	Domestic	Foreign	Total	Domestic	Foreign	Total
Banja Iliđža	21	75	470	5.700	80	5780	57.800	960	58.760
Slana Banja	58	120	340	9.000	270	9.270	58.500	2.295	60.795
Total	79	195	810	14.700	350	15.050	116.300	3.255	119.555

Source: Spa archive

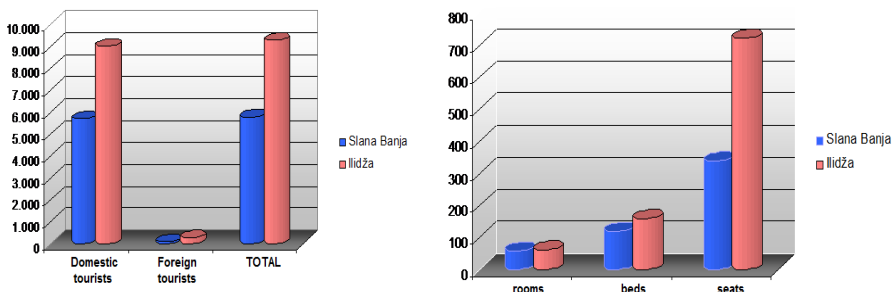


Fig.5. Capacity structure and tourist traffic of spas in the Tuzla Canton (1991)

Not only is the current state of development of spa-health tourism unsatisfactory but also the level of satisfactory potential is far behind the real possibilities although there are basis for its development. The development of the existing accomodation infrastructure would ensure better positioning of health tourism, which is the reason why *investments* in the construction of new accommodation facilities in the vicinity of medicinal springs, opening smaller boarding houses and development of accommodation facilities in private households *are necessary*.

Most sources in Tuzla Canton are still not used enough and some are at the stage of reaserach. Thermal spring in Slavinovići in Tuzla, Dubica, Bokovići and Dragunja (near Tuzla), Kiseljak Ljuljače in Spreča field, and Toplice in Živinice are still not enough exploited in tourism purposes. Among the potential spa resources stand out: Gračaničke terme (Gračanica spas), Muška voda in Kladanj and Tuzla sorrel.

Table 2: Integral typology of hydrographic motives towards the forms of tourism in Tuzla Canton

Hydrographic motives	Existing types of tourism	Potential types of tourism
Rivers		
Drinjača	fishing	picnic, camping, eco tourism
Spreča	fishing	picnic
Tinja	fishing	picnic
Turija	recreation	picnic
Lakes		
Paučak Lake	picnic	eco tourism
Modrac	sport fishing, camping	picnic, water sports
Hazna	recreation, swimming, camping	picnic, sport, recreation, eco tourism
Vidara	fishing	watersports, camping, eco tourism
Snježnica	fishing, recreation, swimming	picnic, sport, recreation, camping, eco tourism
Pannonian Lakes	recreation, health tourism, swimming	event tourism
Spas		
Iliđža	health tourism	wellness, fitness
Slana banja	construction of new object in process	health wellness, fitness
Terme	recreation, swimming	health tourism, recreation, wellness, fitness
Muška voda	recreation, picnic	sport, recreation

Source: Compiled by authors

2.4. Biogeographical tourist motives

The territory of Tuzla Canton is rich in various plant and animal species. **Vegetation** (high vegetation) is characterized by large diversity of communities. On the northern slopes of *Majevisa mountain*, what comes to the fore is the diversity of geological base and diversity of plant life resulting from the presence of the former Pannonian Sea. In the canyon of the Tinja river (between settlements Tinja and Srebrenik) in carbonate rocks, what stand out are ecosystems of silver linden, small-leaf oak, hop hornbeam and pubescent oak. Similar ecosystems occur in the immediate vicinity of the fortress Srebrenik, where together the ecosystems of forests and shrubs make the ambient complex of invaluable significance in landscape diversity. On the southern slopes of Majevisa, one can distinguish the ecosystems of pubescent oak and hop hornbeam, silver linden, sessile oak and Peripannonian beech. These communities to the east continue with the woods of sessile oak and pedunculate oak, sessile oak and Turkey oak, and in some places the beech woods of pre-mountain belt. (Official Gazette of TK 9/06,2008)

At Konjuh are widespread communities of beech and fir forests which continue to mixed forests of beech and fir with spruce. Along the Drinjača river extends the belt of sessile oak and Turkey oak forests. In the area of Kladanj there are ecosystems of high hop hornbeam, ecosystems of low forests and bushes of hop hornbeam, sycamore maple forests, Illyrian beech and common hornbeam. In the environment of Banovići, there are ecosystems of dark coniferous forests and sessile oak ecosystem. (Government of TK, 2009)

The area of Tuzla Canton has a *rich fauna*. In the mountain forests of Ozren, Trebavac and Majevisa, wildlife of wolves, doe deer, wild boars, foxes, hares and badgers is present. The dense assembly of deciduous and coniferous forests, numerous glades, meadows and pastures of Konjuha provide survival of animals so that fauna is rich. These are inhabited by bears, deer, deer, chamois, grouse, wild cat, and since recently a wild mouflon. (PC Forests of Tuzla Canton, 2001) On flat terrains along the Spreča and Tinja, their habitat have found pheasants, partridges, quails, rabbits, foxes and deer. Considered as a complementary tourist value, fauna enables the development of hunting.

Fauna of the river flows and reservoirs of lakes is characterized by many species of fish. In the protected area of the old riverbed of Spreča its habitat has found a beaver. Waterfowl as well as those birds which settle or nest bywater can be found along all streams. Along Modrac lake settle: red heron, coot, cormorant, grebe, great reed warbler and tern. (Ćatović, 2005.) The fauna in protected areas helps to enrich the tourist offer. Special attention is attracted by rare species of wild mountain goats, deer, grouse and beaver. Although natural tourist motives are relatively well represented, their rational utilization in tourism development is not equal to the whole area. These differences can also include uneven economic development and the different density of certain parts. Which means that the development of tourism in Tuzla Canton *is conditioned* by changes in the economy and society such as: higher investments in the development of tourism infrastructure, increasing traffic of visitors, volume of daily and total consumption. Thus, activation of all motives and creating a stronger base of tourist offer depends on several factors.

Table 3: Classification of natural tourist values in the municipalities of Tuzla Canton

The territory of Tuzla Canton		Natural geographical tourist values
Municipality	Area km ²	Detailed classification of resources
Banovići	182	geomorphological: Mountain Konjuh-protected landscape of nature Konjuh, locality of Mačkovac, cave Borovac -Pribitkovići climate: air spa resort Zobik with mountain house hydrographic: Ramičko lake, rivers Zlača and Oskova biogeographical: ecosystems of dark coniferous forests, sessile oak ecosystem, hunting grounds LD Zelemboj
Kladanj	328	geomorphological: Mountain Konjuh-protected landscape of nature "Konjuh", the canyon of the river Ujča, locality of Karaula, DjevojačkaandBebravska cave climate: air spa - Muška voda hydrographic: healingmen's water (Muška voda), the river Drinjača biogeographical: mixed forests of beech, fir, spruce, hunting grounds PL Konjuh and LD Sokolina on the slopes of Konjuh, Sokolina and Javorje
Lukavac	338	geomorphological: Ozren slopes, resort Svatovac climate: air spa Svatovac -localities of Vijenac and Odmarašite hydrographic: accumulation lakes Modrac, Bistarac lake biogeographical: hunting grounds LD Svatovac on the slopes of Mount Ozren-Kraljica and in the valley of Spreča- Gnojnica , the beaver population in the old riverbed of Spreča
Gračanica	215	geomorphological: the slopes of Mount Ozren, hydrographic: healing springs of Thermal spas biogeographical: alleys of trees, fishing in the river Spreča, hunting grounds on the slopes of Mount Ozren LD Srndač
Gradačac	219	geomorphological: the slopes of Trebavac hydrographic: accumulation lakes Hazna and Vidara, healing water Ilidža, the Gradašnica river biogeographical: excursion sitesat the spring Gradašnica, Ormanica landscapes, hunting grounds LD Jelen in the area of Majejica, on the slopes of Trebava and plains of Posavina
Srebrenik	249	geomorphological: Majejica slopes, resorts Hrgovi and Ormanica by the river Tinja climate: Lipici at Majejica hydrographic: the river Tinja biogeographical: ecosystems of silver linden, hunting grounds LD Majejica, fishing in the river Tinja
Teočak	31	geomorphological: slopes of the mountain Majejica hydrographic: Snježnica lake biogeographical: fishing on Snježnica lake, hunting grounds LD K.Hajro on the slopes of Majejica
Tuzla	296	geomorphological: Mountain Majejica, resorts Ilinčica, Kiseljak and old Majejica hydrographic: healing salt springs, Pannonian lakes biogeographical: ecosystems of pubescent oak, hophornbeam, Peripannonian beech, hunting grounds LD Tuzla on the slopes Majejica
Živinice	298	geomorphological: resorts Djedinska mountain, Tupkovići with the spring of the Gračanica river hydrographic: healing waters of Toplice, the Gračanica river, Modrac lake, Rajsko lake biogeographical: hunting grounds LD Toplice, Spreča plains and hilly-mountainous on the slopes of Djedinska mountain

Source: compiled by authors

3. Options for the development of complementary forms of recreational tourism

Tuzla Canton has opportunities to develop complementary forms of recreational tourism. Despite good opportunities, recreational tourism in this area is still underdeveloped and natural resources are generally not used. With adequate investment and activation of tourist board, Tuzla Canton could become an important destination for visitors who might enjoy the various aspects of sports and recreational movement (excursion, recreation, hunting, fishing). Recreational tourism involves activation of various aspects of the organization of summer and winter recreation. The Regional Plan of Tuzla Canton defines areas intended for recreation in the **mountains and waters**. The following part of the paper describes their options.

3.1. The areas intended for recreation in the mountains of Tuzla Canton

Konjuh, Ozren and Javornik Mountains have preserved flora and fauna, the valley of Spreča has hunting grounds for small and large game, which is an important resource and the basis for the development of *hunting tourism*. They possess tourist attractions: protected natural areas, camp grounds and picnic sites, attractive landscapes, rich hunting grounds, vast forests, pastures and meadows with herbs good for excursion movements of the urban population. Hiking mountain trails can be carried out throughout the year.

On the slopes of Konjuh mountain, a favorable path leads from the *site Mačkovac* (Banovići) to mountaintops Zelenboj (1060m) and the peak of Konjuh (1328 m). Another mountain trail leads from the locality *Muška voda* (Kladanj) towards the peak of Konjuh. There is an attractive environment for spending time outdoors, which provides an opportunity for rest and recreation. It is a favorite resort of the inhabitants of Tuzla basin and the neighboring municipalities. It lacks the capacity for stays of visitors which need to be resolved any time soon. The area of *Karaula* provides an opportunity for the development of small winter sports such as skiing, sledding and walking on skis. It has a skiing path 1700m long and set sky lift of the capacity of 1200 persons per hour. The ski area is activated, the site lacks tourist facilities to accommodate visitors. (Tuzla Canton Tourist Board, 2014)

On the slopes of Majevica, favorable walking trails are from Tuzla towards the *site Ilinčica*. The area is favorable for construction of sports and recreation facilities. The site is very attractive for hiking, staying outdoors and camping. From Srebrenik towards the *site Lipici*. According to the travel plans, there is the establishment of *mountain transverse* from Srebrenik towards Brčko District. Walking would take place about three days making it necessary to fix up the track, springs and rest stops for hikers.

Due to its terrain, this trail is intended for *mountain biking*. In addition to this, what is also necessary is to get it sign posted. Some of these activities already exist in the current tourism offer of Tuzla Canton, and for this reason the tourist offer needs to be improved and promoted the best possible way. Although there is a considerable height difference (from 150m in Spreča valley to 1327m on the peaks of Konjuh), they are not very pronounced. Encountering these differences in a relatively small area is an advantage for tourism development. Gently rolling relief is favorable for the development of recreational tourism, mountain areas with gentle slopes are favorable for winter sports. When we add other natural features, caves, canyons and gorges, all that makes this area attractive for developing more tourism forms. Activation of all motives and creating a stronger base of tourist offer depends on several factors: it is primarily related to investments in the development of tourism infrastructure, trade of visitors, the amount of daily and overall consumption.

3.2. Areas intended for recreation on water of Tuzla Canton

Natural tourist values are the hydrographic resources, ecoclimatic and ecotourist values of mountains at the edge of the Pannonian plain. The rivers Spreča, Tinja and Drinjača, the artificial reservoirs of lakes Modrac, Hazna, Vidara and Snježnica are significant hydrographic resources for the development of *fishing tourism*. Lakes have a real chance in the development of the tourism industry, have complementary tourist motives, provide opportunities for multiple forms of recreation and organization of water sports along with the cities and spas they have greater significance for domestic tourism. These accumulation lakes are an important element of tourist stay in urban areas being traffically related and enabling the development of water sports. Attractive activities are sailing, fishing and organization of various sporting events. They possess complementary tourist motives, provide opportunities for multiple forms of recreation and organization of water sports along with cities and spas they have greater significance for domestic tourism. Artificial accumulation lakes can meet the needs of modern fisheries and they greatly raise the possibility of wider tourist offer which includes various forms of fishing and anglers competitions. Fishing in the area of Tuzla Canton is organized by sport-fishing clubs.

The waters used in these purposes are the rivers Drinjača, Spreča, and Tinja, accumulation lakes Modrac, Hazna, Vidara and Snježnica. For a proper evaluation of the lake there are no tourist facilities with services of a higher quality that would allow extended-stay for visitors. In this respect, incentives are essential to create the conditions for tourism development on artificial lakes. Building infrastructure, increasing domestic traffic and creating conditions for arrival of foreign visitors would activate the development of recreational tourism as a new tourism area.

Tourism offer of Pannonian lakes is complemented by the construction of Neolithic lake settlement and the museum complex on Soni trg (a square) in the vicinity of Pannonian lakes. (Tuzla Canton Tourist Board, 2014) In recent years, Tuzla has numerous cultural and business events, international conferences, symposia and conferences, all of which significantly affects the development of cultural tourism. Everyone who comes to this city visits Pannonian salt lakes. During the summer season in the holiday period, there is a great number of visitors from abroad at the open public beach. In order to have greater development of **bathing tourism** in Pannonian lakes, tourism offer of Tuzla should be complemented by investing in accommodation facilities with good restaurants and catering services.

Tourism and catering services should be raised to the appropriate level which includes staff training, quality of food and equipped location. At the existing facilities, national cuisine with domestic dishes should be included. In order to develop cultural tourism, visits to archaeological sites and a large number of cultural and historic monuments in the area of Tuzla should be enabled. The tourism offer of Tuzla and its environment should be promoted. We should run cottage industries through the production of souvenirs; vividly present the remaining part of former Pannonian Sea totourists; set Pannonian boatson the lakes; put the emphasis on bringing organized groups of visitors; increase investments to the tourist industry by incentive such as affordable credits. One should do the classification of accommodation facilities and activate local people to rent accommodation facilities. Recreational and health tourism can be developed at the lakes by increasing the number of visitors, developing infrastructure, providing quality service and getting the support of the wider community. "Come to the medicinal lake!" With this message, one can count on the guests who will stay longer than a day or a weekend which is the chance for greater utilization of accommodation in Tuzla hotels, motels and boarding houses. Therefore, we recommend to the management of "Pannonian lakes" and the Tourist Board of Tuzla Canton to make a new propaganda campaign.

4. Conclusion

Seen from the tourist and geographical point of view, tourism potentials in Tuzla Canton are part of the entire geographic area representing a comparative advantage in its economic development, provide a good basis for more dynamic development of tourism as a factor of regional development. By building infrastructure, increasing domestic traffic and creating the conditions for the arrival of foreign visitors, **the development of recreational tourism as a new tourist area** of Tuzla Canton would be activated. All of this shows that the basis for the development of recreational tourism in Tuzla Canton exists.

In this regard, the relevant ministries need to encourage the development of this segment of the tourist offer, especially as experience shows when the demand is larger.

This area is rich in springs and healing waters in Tuzla, Gradačac, Živinice and Kladanj which makes the basis of spa health and recreation tourism. The current state of development of spa-health tourism is unsatisfactory and the satisfactory level of potentials is far behind the real possibilities although there are grounds for its development. *Salt Spa* bases its treatment on salt water, which is exploited in this area. The development of the existing accommodation infrastructure would ensure better positioning of health tourism in Tuzla. Therefore, it is *necessary to invest* in the construction of new accommodation facilities in the vicinity of the Spa, to open smaller boarding houses and develop accommodation facilities in households. The existing spa facility is located in Gradačac, while in other areas where there is mineral water this form of tourism is not developed. *The spa Ilidža* has an important role in tourism of Gradačac and its environment. For tourist valorisation of the spas in Tuzla Canton, what is essential is a material basis based on tourist facilities and the quality structure of employees. Gračanica has got the real possibilities of spa health tourism development.

Thermal spas in Gračanica are also an unused development opportunity. Waters of that thermal springs are used in only one way, for a swim in the outdoor pool. In accordance with the healing properties of the spas in Gračanica, tourism demand should be directed to the *spa and health* direction related to the construction of spa facilities which would significantly contribute to the launch of the spa and the quality evaluation of this resource. Applying modern methods of medical rehabilitation, provision of quality services, building new tourist facilities with accompanying infrastructure, The thermal spas can become an important destination for health tourism of Tuzla Canton. Reconstruction of existing and construction of new tourist facilities with accompanying infrastructure, provision of health services by applying modern methods of medical rehabilitation, the spas would establish a reputation of famous spas, which would significantly affect the development of spa tourism in Tuzla Canton.

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