

TOURISM INTENSITY AS A DEVELOPMENT FACTOR OF SPA CENTERS OF DONJE PODRINJE (SERBIA)

Mr Slobodanka Marković¹; MSc Marija Perić²

¹ Faculty of Geography, Belgrade, SERBIA, markovicsslobodanka@gmail.com

² Faculty of Geography, Belgrade, SERBIA, maki.peric84@gmail.com

Abstract: *Donje Podrinje is one of four sections in the Drina River basin. It is the smallest and the most northern section, which occupies the western part of the Republic of Serbia, from Mali Zvornik to the confluence of the Drina River into the Sava River. In the area of Donje Podrinje there are three important spa centers (Koviljača spa, Badanja spa and Radalj spa) which belong to the Kolubara-Podrinje spa area. In order to determine the development of tourism intensity in spas of Donje Podrinje the indicators of tourism functionality have been used. Their application indicated the extent of tourism development in spa centers of Donje Podrinje from the chronological point of view. Also, methods of comparison and statistical analysis were applied to determine which of these three spa centers is the most developed and the most visited. Accordingly, the survey results indicate that Koviljača spa is a tourist center of Donje Podrinje, and that Badanja spa and Radalj spa have great potential to be more established and better presented to the tourist market.*

Key words: *Donje Podrinje, spa centers, tourism intensity*

1. INTRODUCTION

Geographically, the Podrinje is one of the micro-region of Western Serbia. It is a border region that covers the area on the both sides of the Drina River. So, it spreads on the territory of the Republic of Serbia and Bosnia and Herzegovina. It is named after the Drina River, in whose basin can be distinguished four different sections. The smallest and the most northern section is known as Donje Podrinje. The term Donje Podrinje is established according to the natural features of the Drina River [1]. It includes the basin of its lower course, from Mali Zvornik to the confluence of the Drina River into the Sava River.

As a border region Donje Podrinje, like other border areas of Serbia, is considered as a peripheral region in relation to major urban centers, development and infrastructural corridors. Throughout the history, the Drina River was a factor of the separation and isolation rather than connection and permeation [2]. The isolation of the area and the establishment of the state border on the Drina River (after the breakup of the former Yugoslavia) have influenced the economic stagnation of Donje Podrinje and unfavorable demographic processes. However, the processes of globalization have caused that “solid” borders become border zone areas of connection and cooperation of neighboring countries.

Modern research suggests that the development programs of border landscapes recognize tourism as a leading movement industry. Regional networking, connecting and intertwining of natural, cultural, historical and other elements of the space would make the conditions that Donje Podrinje grow into a comprehensive tourist zone of various topics [3]. The program of Podrinje development emphasizes the development and better promotion of selective forms of tourism and, consequently, spa tourism [4]. In the border area of Donje Podrinje there are three spa centers which belong to the Kolubara-Podrinje spa zone of Serbia. These are: Koviljača Spa, Badanja Spa and Radalj Spa. Tourism development in these spas will be analyzed using the indicators of functionality, which are the subject of the paper. The aim of this paper is to highlight the current state of tourism development and the possibilities for its improvement.

2. THE SPA CENTERS OF DONJE PODRINJE

Tourism in the border area represents the development potential of a particular tourist gravitational environment [5], in our case Donje Podrinje. Among three spa centers that are located in this micro-region, only Koviljača Spa is affirmed and recognized in the tourism market. Spa Badanja and Radalj are unrecognized in the tourism market. Their adaptation and integration in tourist flows would lead to the strengthening of commercial activities and significant development at the local and regional level.

2.1. Koviljača Spa

After Loznica, the Koviljača Spa is the second town on the territory of the City of Loznica. It is located on the right bank of the Drina River, along the road that connects Loznica and Mali Zvornik [6]. From Loznica is 6 km away, from Mali Zvornik 19 km and from Sabac 59 km. Spa has been developed at an altitude of 153 m. On spa’s microclimate Gučevo Mountain (779 m), which rises from the southwest, has a great influence. Moderate continental climate is characterized by warm spa summer and moderately cold winters. Autumn is warmer than spring and more suitable for the tourist industry. The average annual temperature is 11,2°C. Temperatures of 25°C was observed over 80 days a year, and insolation is 2025 hours per year.

The Koviljača Spa as a rural village first mentioned in the Turkish census from the year 1533. During the Turkish rule, the Turks from Mačva and Podrinje were coming to the spa to bath in mineral water. The healing effects of spa springs are known since 1827, thanks to Vuk Stefanovic Karadžić. Describing the spa and its surroundings, due to sulfuric sources he called it the “Smelly spa”. The first written document about the visitors in the Koviljača Spa is dating from the second half of the 19th century [7]. The authors [8] determine that in the last decades of the 20th century, a large number of different profiles of scientists researched the Koviljača Spa. Not only thermal, thermo-mineral and mineral spa waters have been studied (Teofilović i dr., 1972; Protić, 1981, Protić&Antonović, 1988; i dr.), but also its tourist features (Kostić, 1981; Stanković, 1983, 1990/1991, 2004 i dr.) [8].

In the spa, there are four hot sulfur springs. The main source was capped in 1836. The first chemical analyzes of water were performed in 1855, and more extensive survey was in 1874. The first well, “Vuk Karadžić” was dug in 1899/1890. The sulfur water from this well is used for making healing mud. Healing waters from three other springs (“Vojvoda Anta” “Jordan” and “Bakarna voda”) are used for the rinsing the eyes and drinking. In the beauty and healing properties of Koviljača Spa enjoyed: Vuk Karadžić, Dositej Obradovic, Karađorđe Petrović and Jovan Cvijić. The spa was favorite among the royal family of Karađorđević, which financially helped building the spa. The spa was often visited by King Petar I Karađorđević. Because of that Koviljača Spa is called the “royal spa”[9]. The first accommodation facility for guest reception was built in 1858. The main spa bath (King Peter I) was built in 1907. Until the First World War hotel “Podrinje” with 20 rooms and villas “Koviljača” and “Bosnia” were built. They have 40 rooms with 100 beds. In the period between two world wars villas “Dalmacija” and “Hercegovina” were built. In 1932 Kur-salon, and facilities “Standard”, “Javor”, “Belgrade” and “Serbia” were opened.

Today Koviljača Spa has about 2,500 beds. The holder of the hospitality and tourism industry is a hotel-tourist company “Koviljača Spa”. The part of the company are hotels “Podrinje” (160 beds), Resort “Gučevo” (130 beds) and spa villa “Beograd” (44 beds). The holder of medical tourism is the Special Rehabilitation Hospital which has 550 beds. It consists of villa “Dalmacija” (155 beds), “Hercegovina” (100 beds), “Novi Stacionar” and hotel “Standard” (66 beds).

Table 1: Tourists in Koviljača Spa

Year	Tourist Arrivals			Tourist night stays		
	Total	Domestic	Foreing	Total	Domestic	Foreing
2005	20302	17054	3248	156497	135054	21443
2006	19352	16501	2851	210097	187775	22322
2007	21439	18743	2696	177505	159121	18384
2008	22443	19283	3160	178459	158033	20426
2009	18434	15862	2572	157172	139208	17964
2010	20512	18300	2212	185881	167208	18673
2011	21693	19143	2550	217476	192370	25106
2012	17538	15388	2150	167941	150371	17570
2013	20644	16591	4053	171809	150677	21132
2014	15147	11581	3566	131352	113259	18093
2015	15094	11387	3707	103465	83476	19989
2016	23026	17191	5835	147026	114584	32442

Source: Statistical Office of the Republic of Serbia, Belgrade (2017)

Statistical data indicate that Koviljača Spa is a holder of spa tourism in Donje Podrinje, as it generates the most extensive tourist arrivals. According to tourist arrivals the Koviljača Spa is among the four leading spas in Serbia. Tourist’s arrivals in Koviljača Spa, is an indicator of its competitiveness in the tourism market [10]. Geographical position of spa has caused the development of transit and excursion tourism. These types of tourism are particularly pronounced during the summer months. Besides health tourism congress tourism is also developed. All this affects Koviljača Spa has foreign guests (mostly from the Republic of Serbian and Bosnia and Herzegovina), but also from other European countries [11]. They come not only to Congress but also to the numerous events held throughout the year.

The global economic crisis has affected on the reduction in the number of tourists in 2006. However, the low living standard of the population in Serbia and in the region indicates a significant reduction of tourist arrivals in 2014 and 2015. The turnover of domestic tourist arrivals in 2014/2015 is lower compared to 2006, while the turnover of foreign tourists increased compared to 2006. This is an indication that foreign guests are mainly transit travelers and vacationers visiting the numerous events that are held in the spa during the summer.

2.2. Badanja Spa

Badanja Spa is situated in the village of Donja Badanja on the territory of the City of Loznica. It is located at the south-western slopes of Iverak Mountain, on its contact with the Cer Mountain [6]. Spa is located in the bottom of the river Cernica valley, the right tributary of river Jadar [12]. Spa center is 153 m above sea level. From Loznica spa is away 18 km and 31 km from Šabac. Banja has a moderate continental climate. The mean annual air temperature is 10,8°C. Recreation and bathing period, when the average daily air temperature are not below 20°C last for 53 days a year [7].

The healing effects of the spa waters was known since the second half of the 19th century. Thermal mineral springs “Slana bara” and “Red water” were first analyzed in 1889. Detailed hydrogeological investigations were conducted in the 80s of the 20th century [8]. For many years Badanja was disorganized. The first bath was built before World War II, in 1938. The family Lazarević owned this bath until 1947 when it was transferred to social ownership. After the Second World War the mineral springs were capped. Two of thermal mineral springs were used as mineral springs: “Glavni izvor” and “Gvozdene vode”. Due to the high content of the gas radon waters of Badanja Spa are classified into the radioactive radon water.

The structure of accommodation facilities for the guests reception is not satisfying because the accommodation in private facilities is prevailing. Guests accommodation is possible at the motel “Cernica”, bungalows and in private accommodation. Since 2003, motel “Cernica” was transformed into a spa resort - Special Rehabilitation Hospital “Boro Škorić”. The hospital has a total of 33 beds in rooms category B. Bungalows have 10 rooms and 40 beds, while private accommodation has about 460 beds.

Table 2: Tourists in Badanja Spa

Year	Tourist Arrivals			Tourist night stays		
	Total	Domestic	Total	Domestic	Total	Domestic
2014	261	261	0	2926	2926	0
2015	470	470	0	5576	5576	0
2016	389	389	0	4218	4218	0

Source: Statistical Office of the Republic of Serbia, Belgrade (2017)

Statistical data indicate that tourist arrivals in Badanja Spa are reduced to arrivals and overnight stays of domestic tourists only. The spa is usually visited by guests from the local surroundings (Pocerina, Tamnava, Rađevina) [8]. Although this is a spa resort of local importance, we can conclude that natural spa resources are underused. Badanja has significant balneological properties for the development of health tourism and other forms of selective tourism forms. For the competitiveness of Banja Koviljača, attracting tourists and higher attendance can be achieved through the development of weekend tourism. Near the spa there are significant natural values (Mountain Cer, Radovašnica Spa, Spa Bela Reka, Spa Cerska Slatina etc.) and anthropogenic values (Tekeriš, Tršić, Tronoša monastery, Radovašnica monastery etc.), which should be included in the promotion of Badanja at tourism market.

2.3. Radalj Spa

Radalj Spa is located on the territory of Municipality of Mali Zvornik. It is located in the northwestern part of the Boranja Mountain, at an altitude of 350 m. It is part of the village Radalj, through which flows the Radalj River. From Loznica is away 20 km and from Mali Zvornik 8 km. It has a moderate continental climate. The mean annual air temperature is 10,9°C, a mean annual rainfall is 1.050 mm. Historical development of the spa is linked to the use of its thermal springs and is known since 1900. At that time the spa was insufficiently researched hydrologically and therefore insufficiently regulated. First capped spring Slatina has yield of 0.3 l/s and water temperature 24°C. Recent was found a source that yields of 750 l/min, with water temperature of 28°C. Studies have shown that thermal mineral water of Radalj Spas has an increased content of hydrogen sulfide and because of it is known as the “Radalj sulphur” [7]. These sources have a special role in the treatment of diabetes and rheumatic diseases.

In terms of tourism development the spa is badly affirmed in relation to neighboring Koviljača. The holder of the accommodation capacity is the company “STENS-TURS”, which is owner of the hotel “Izvor” with 40 available beds, hotel “Radalj” with 60 beds and pension “Stens” with 20 beds.

Table3: Tourists in Radalj Spa

Year	Tourist Arrivals			Tourist night stays		
	Total	Domestic	Total	Domestic	Total	Domestic
2007	64	52	12	224	200	24
2016	772	266	6	2930	2898	32

Source: Statistical Office of the Republic of Serbia, Belgrade (2017)

Statistical data show that during ten-year period the total tourist arrivals in Radalj Spa increased by more than 10 times. Arrivals of domestic tourists recorded a bigger jump compared to the foreign ones. So as Badanja Spa and Radalj Spa is sufficiently well established on the tourist market. In the purpose of promotion of the spas it is necessary to introduce tourist market with spa potentials, both healthcare and excursion. To potential spa guests can be offered excursions to the natural, cultural and historical sites in the area. From the natural resources there are Radalj and Zvornik Lake. The cultural and historical value is much higher (Tronoša monastery, Tršić, Mačkov stone etc.). By including excursion tourism in the spa offer significant effects in attracting tourists can be achieved.

3. METHODOLOGY

Indicators of tourist development of spas in Donje Podrinje were analyzed through indicators of tourism functionality. The paper discusses the three indicators (Defert Baretje-index, Charvat index and Schneider index). For the study a secondary source of data (data of the Republic Institute for Statistics)¹ was used. The collected data were analyzed with displayed mathematical formulas. The obtained results for each spa center are presented in the form of tables. A comparative method was used to determined the similarities and differences of the obtained results. Evolutionary method enhanced the development of health and wellness features in the spa center of Donje Podrinje.

The intensity in the tourism resorts/destination is calculated by Defert-Baretje index $T(f)$ on the basis of the following formula:

$$DTFI = T(f) = \frac{N \times 100}{P} \times \frac{1}{S} \quad (1)$$

where $DTFI$ is $T(f)$ Defert-Baretje functionality index, N is the number of beds, P is the number of the local population and S is the research area in km^2 .

$$Tch = \frac{N}{P} \times 100 \quad (2)$$

where Tch is Charvt index, N is the number of beds, P is the number of the local population.

Schneider index is the third index in expressing the intensity of the development of tourism in a resort/tourist place:

$$Ts = \frac{N}{P} \times 100 \quad (3)$$

Where is Ts Schneider index, N is the number of beds, P is the number of the local population.

4. RESULTS AND DISCUSSION

The research results indicate that the spa centers in Donje Podrinje in the total tourist arrivals in the Republic of Serbia accounted with 0.99%, and in the number of overnights with 2.25%. On the tourism market, these centers have local, national and regional importance. Local significance has Badanja Spa. Tourist arrivals are seasonal. Spa is developed near better-known and better infrastructurally equipped Koviljača Spa. This is the main reason why tourist arrivals are reduced to local guests, who come from Mačva, Posavina and Tamnava. Unlike Badanja Spa Radalj Spa recorded

¹ Since the Statistical Office of the Republic of Serbia does not issue data on the population estimate by settlements in the inter-census period, the authors estimate the population calculated on the basis of the obtained data on population growth.

foreign guests arrivals and overnight stays. In 2016, foreign tourists have participated with 0.78% in the total turnover of the spa, and achieved 1.09% of the total number of overnight stays. It is very small share of foreign tourists, which only confirms the fact that foreign visitors came from the former Yugoslav republics (Bosnia and Herzegovina and the Serbian Republic). The largest turnover of foreign tourists in the total turnover achieves Koviljača Spa (25.34%). In 2016, foreign tourists in Koviljača Spa achieved 22.07% of the total number of overnight stays.

Based on the achieved total turnover of tourists in 2016 we can conclude that Koviljača Spa is the main tourism carrier of Donje Podrinje, because it contains the largest number of accommodation facilities. During the monitoring period (2005-2016) density arrangement of the accommodation capacity of the spa ranges from 91.14 beds/km² to 59.5 beds/km². Changing the number of beds is related to changing the structure of particular objects. The density of the accommodation capacity was also recorded in Badanja Spa and it ranges from 46.88 beds/km² to 2.19 beds/km², while in Radalj Spa distribution of accommodation capacities is ranging from 0.88 beds/km² to 0.77 beds/km².

Accommodation capacity density indicates the carrying capacity of destinations, which can be determined on the basis of Defert-Baretje index. Defert Baretje-index is the ratio of the accommodation capacity per 100 inhabitants of the attached area (places or destinations of tourism) per km². This index points to the impact of tourism on the cultural identity of the local community, or is the identity of local community sustainable due to the construction of accommodation facilities.

Table 4: Defert-Baretje index

Year	Spa		
	Koviljača Spa	Badanja Spa	Radalj Spa
2016	484,35	108,96	37,04
2015	311,73	130,19	/
2014	307,93	71,31	/
2013	413,46	/	/
2012	345,30	/	/
2011	418,54	/	/
2010	355,00	/	/
2009	314,95	/	/
2008	378,08	/	/
2007	356,48	/	2,71
2006	318,71	/	/
2005	332,00	/	/

Source: Research results

For the research period (2005-2016) Defert-Baretje index indicates a change of accommodation facilities in all of three spas and that local environment is not compromised by intensive construction of tourism infrastructure. Depending on the availability of data, Defert-Baretje index of Koviljača Spa is less than 500, indicating great and already built recreation center. For Badanja, this index is around 100, which indicates the site with dominant local tourist activity. Defert-Baretje index for Radalj Spa is less than 40 and indicates that it is a site with significant, but not dominant recreation activities [13].

Tourist arrivals (Schneider index) and actual number of overnight stays (Charvat index) are the best indicators of the intensity of tourism and tourist saturation. The high intensity of tourism has negative impact on the local community and can impair its cultural identity, but also reduce the quality of the tourist experience [14].

Table5: Charvat index

Year	Spa		
	Koviljača Spa	Badanja Spa	Radalj Spa
2016	3.092,68	1.181,51	140,59
2015	2.136,82	1.544,59	/
2014	2.670,29	799,45	/
2013	3.440,99	/	/
2012	3.306,58	/	/
2011	4.195,95	/	/
2010	3.217,05	/	/
2009	2.685,32	/	/
2008	3.006,38	/	/
2007	2.951,53	/	9,49
2006	3.460,09	/	/
2005	2.559,23	/	/

Source: Research results

Charvat index measures the number of overnight stays per 100 inhabitants. Actual number of nights is one of the most important economic indicators of developing ment of particular destination. Income generated in this way, stay in local community which uses it to invest in the promotion and development of tourism. Charvat index of Koviljača Spa is ranging from 2136.29 to 4195.95 per night/per 100 inhabitants. Indicates a minimum of overnight stays in 2015 and maximum in 2011. Maximum of overnight stays is an indicator of economic recovery and a slight increase in living standard after the global economic crisis in 2008. After 2011, a slight decrease in the number of overnight stays is an indicator of the socio-economic situation and living standards in our country. However, statistics for 2016 shows slight increase, which may be linked to the action of the Government of the Republic of Serbia giving of vouchers for discount in the selection of Serbia as a tourist destination for holiday.

Charvat index for Badanja Spa in 2016 recorded a growth of 1.5 times compared to 2014. Although the spa visitors continue to be domestic tourists, the local community should devote significantly greater attention to its organization and thus better promote the tourism market. The same applies to Radalj Spa, where Charvat index indicates that the number of overnight stays in 2016 increased 14.8 times compared to 2007. In these two spas is necessary to organize infrastructure and engage them in tourism offer at national, not just local level.

Schnaider index points to the total turnover of tourists at some destination or tourist site. The research results indicate that the highest turnover was in Koviljača Spa 2016. In Badanja Spa and Radalj Spa tourist turnover growth was recorded in 2016. In Badanja Spa even 1.5 times compared to 2014 and in Radalj Spa 13.7 times compared to 2007.

Table 6: Schnaider index

Year	Spa		
	Koviljača Spa	Badanja Spa	Radalj Spa
2016	484,35	108,96	37,04
2015	311,73	130,19	/
2014	307,93	71,31	/
2013	413,46	/	/
2012	345,30	/	/
2011	418,54	/	/
2010	355,00	/	/
2009	314,95	/	/
2008	378,08	/	/
2007	356,48	/	2,71
2006	318,71	/	/
2005	332,00	/	/

Source: Research results

Based on the statistical data presented in Table 5, we can conclude that in Koviljača Spa are expressed two maximum peaks of tourist turnover. The first peak was achieved in 2016 and the second in 2011 and occurs as a result of economic recovery after the global economic crisis. The first peak is due to the recovery of the local economy and rising living standard in our country and the region. It is also a result of numerous activities of the Government of Serbia, most notably the “Vouchers for holidays in Serbia”.

5. CONCLUSION

The development of spa centers in the Donje Podrinje has a long tradition based on the use of mineral springs. Despite the significant capabilities of all three spa centres only Koviljača Spa used its natural resources and is affirmed in the tourism market. Badanja Spa and Radalj Spa are still unrecognized and less known on the tourist market. Tourist offer of Badanja Spa is complementary and not competitive to nearby Koviljača Spa, and develops in its shadow. Investing in Radalj Spa significant economic effects, important for the local community can be achieved. That's way it is essential that local communities, in cooperation with relevant institutions, pay attention to the arrangement of these spas. It is necessary to improve and modernize tourism infrastructure and superstructure, but also number of marketing activities to present the potential of the spas on the tourist market.

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