

DYNAMIC ANALYSIS OF THE OFFER FOR SPA TOURISM IN HARGHITA COUNTY IN THE PERIOD 2012-2021

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RESEARCH ARTICLE

Abstract

The analysis of the absolute and relative dynamics of the accommodation capacity in operation in the Borsec resort highlighted the fact that the number of places-days varied significantly in the analyzed period (2012-2021) and increased compared to the base year (2012) by up to 53.6%, with the end of the analyzed period being only 2.65% higher than the base year (2012). Overall, the average level of accommodation capacity in operation registered 99.4 thousand place-days, with an absolute average increase of 235.5 place-days and a relative increase of only 0.3%. In the Tusnad Baths resort, the analysis of the absolute and relative dynamics of the accommodation capacity in operation from the analyzed period (2012-2021), shows that the number of places-days registered in 2021, compared to the base year, increased by 31.24%. The largest increase in the number of places-days in Tusnad Baths compared with the base year was recorded in 2017 (47.08%). Overall, the average level of accommodation capacity in operation recorded 369.4 thousand place-days, with an absolute average increase of 9.7 thousand places and a relative increase of 3.06%. In the Borsec resort, the net utilization index of the accommodation capacity in operation varied between 6.68% (2014) and 18.25% (2018), and the lowest efficiency of the use of accommodation spaces was recorded in 2014. In the Tusnad Baths resort, the net utilization index of accommodation capacity in operation varied between 12.76% (in 2020) and 43.31% (in 2016), and the lowest efficiency of the use of accommodation spaces was recorded in 2020.

Keywords: accommodation capacity in operation, net utilization index of accommodation capacity in operation
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INTRODUCTION

Harghita County offers countless tourist attractions and has a rich history and ancient traditions; it is one of the counties in Romania that can boast of mineral waters known throughout the world.

The Borsec resort, in Harghita County, a permanent balneo-climatic resort of national interest, is known as the "Pearl of the Carpathians" and is located at an altitude of 900 m. The Borsec resort is located in the depression of the same name (Borsec Depression) in the Eastern Carpathians, between the mountains of Bistrita and Giurgeu, surrounded by the peaks of fir forests.

The inclusion of the balneo-climatic resort Borsec among the most sought-after destinations in relaxation and spa tourism is due to its special microclimate. Due to its geographical location, Borsec is located in the area of the subalpine depression climate. Air humidity varies between 79%-86% in the summer months and 86%-90% in the winter months. Small temperature variations, light

winds, air purity, and ozone richness are characteristics of the resort climate. These characteristics are accentuated by the presence of the mountain bioclimate, stimulating, tonic, with a negative aeroionization, and strongly sedative (<https://cndd.ro>).

The mineral water springs that constitute the greatest wealth of Borsec contribute to the development of spa tourism to the greatest extent. Springs have curative qualities and therapeutic effects that are internationally known. Within the spa resort, there are more than 15 springs of natural mineral water, only five of which are used for bottling (5 springs). They have variable flow rates and chemical compositions that allow their economic exploitation and use in the treatment of various ailments. The characteristics of mineralization place the waters of the Bors springs in the group of mineral waters: bicarbonated, carbonated, calcium, magnesium, hypotonic, sodium, and slightly sulfurous. Mineral waters are used in the treatment of the following

conditions: circulatory system, endocrine system, neuritic, gynecological, diabetes, and various kidney diseases. They can be used both through internal cures (through the direct consumption of mineral water) and hydrotherapeutic massages, skunks, and electrotherapy.

There are numerous tourist attractions of the Borsec resort: Central Park, Poiana Zânelor, and Round Hill with Travertine Quarry, Bear Grotto, Ice Cave, Citadel of Owls, botanical reserve "Paltinul pitic" (Neacsu et al., 2016).

Known as the "Pearl of Ardeal," the Tusnad Baths spa resort is also a permanent resort of national interest located in the southern part of the Ciuc Depression, between the Harghita and Bodoc mountains, in the Olt gorge. The resort is located at an altitude of 650 m, at a distance of 32 km from Miercurea-Ciuc; 37 km from Sfântu Gheorghe and 67 km from Brasov.

Spa treatment has several beneficial health effects. Thus, the geographical context and the wealth of natural factors, such as the bioclimate, numerous sources of therapeutic mineral waters, therapeutic natural gases, and thermal waters, favor the development of spa tourism.

The location of the city in the central area of the Eastern Carpathians in a mountain gorge influences the presence of a subalpine climate. The microclimate spares an intramontane depression, stimulates tonic nuances, and is rich in negative aeroions and aerosols. Specific features of this type of climate are low atmospheric pressure, moderate temperatures in summer, and low values in winter.

The presence of numerous mineral springs and emanations used in the treatments is favored by the location of the resort in the mofetic area. In addition, carbon dioxide emissions and skunks represent another valuable natural factor that can be used therapeutically. Volcanic rock, radioactivity of carbon dioxide emissions, and the presence of carbonic acid are consequences of the existence of volcanoes in the region of the Ciuc depression.

In the Tusnad Baths resort there are 44 natural springs, which contain waters: ferruginous, bicarbonated, chlorinated, sodium, magnesium, calcium, carbonated, and hypotonic mineral waters. They have different degrees of radioactivity and temperatures between 15 and 23°C. They are used in internal medicine to treat endocrine, gynecological, respiratory,

hepatobiliary, kidney, urinary tract, nutrition, and metabolism.

The tourist attractions of the Tusnad Baths resort are: Lake Ciucaș, Lake Sfânta Ana from the Ciomatu mountain, Tinovul Mohoș which preserves rare species, such as sky dew (carnivorous plant), the rock of the Falcon (848 m), etc. (Neacsu et al., 2016).

The technical-material basis of tourism (which represents the set of means of production used in this field to obtain specific goods and services intended for tourist consumption) in the balneo-climatic resorts of Harghita County favors the practice of spa tourism and mountain tourism and hiking, agritourism, and business tourism and congresses. The material technical base through the network of accommodation units (hosting) of the Borsec and Tusnad Baths balneo-climatic resorts, responds to one of the fundamental needs of the tourist - rest, overnight stay, knowing that without the existence of such equipment, tourist consumption cannot be achieved (Minciu, 2004; Băltărețu, 2016, Aluculesei, 2015; Astefanoaiei et al, 2020; Erdeli et al, 2011; Simeanu et al, 2022; Simeanu et al, 2022).

MATERIAL AND METHOD

The tourist reception structure with tourist accommodation functions is any construction or arrangement, which permanently or seasonally provides accommodation and other specific services for tourists. Tourist reception structures with tourist accommodation functions with an installed accommodation capacity of less than 5 places are not included in the statistical research (insse.ro).

The tourist accommodation capacity in operation represents the number of accommodation places made available to tourists by the tourist accommodation units, taking into account the number of days the units are open during the considered period. It is expressed in places - days. Excludes places in rooms or units temporarily closed due to lack of tourists, for repairs or for other reasons (insse.ro).

The utilization index of the tourist accommodation capacity in operation is calculated by relating the number of overnight stays to the tourist accommodation capacity in operation, from the respective period (insse.ro).

$$In = (N/Cf) \times 100,$$

were: In - the utilization index of tourist accommodation capacity in operation

N - no. of overnight stays registered in a certain period

Cf - tourist accommodation capacity in operation

Absolute indicators represent a basic form of dynamic series, based on which could be obtained general indicators (Badita et al, 2005; Merce & Merce, 2009; Petcu, 2005)).

Level indicators are the terms of a series formed by absolute indicators ($y \dots y_t \dots y_{t-1}$).

Total level of terms ($\sum_{t=1}^n y_t$), only for time interval series with absolute measures.

The absolute modifications: with fixed base $\Delta_{t/1} = y_t - y_1$ where, $t = \overline{2, n}$; with in chain base (mobile or variable base) $\Delta_{t/t-1} = y_t - y_{t-1}$ where, $t = \overline{2, n}$.

Relative indicators

It is a presentation way, mainly percentage. In this situation is mandatory that in title or outside the table to be mentioned the rating based so the data interpretation to be correctly done.

Dynamic index: with fixed base $I_{t/1(\%) } = \frac{y_t}{y_1} \times 100$;

with in chain base $I_{t/t-1(\%) } = \frac{y_t}{y_{t-1}} \times 100$.

Dynamic rhythm: with fixed base $R_{t/1} = I_{t/1(\%) } - 100\%$;

with in chain base $R_{t/t-1} = I_{t/t-1(\%) } - 100\%$, $t = \overline{2, n}$.

Average indicators: \bar{y} - the average level of the interval time series $\bar{y} = \frac{\sum_{t=1}^n y_t}{n}$;

$\bar{\Delta}$ - the average level of the absolute change (increase or decrease) $\bar{\Delta} = \frac{y_n - y_1}{n-1}$;

\bar{i} - the average index of dynamics $\bar{i} = \sqrt[n-1]{\frac{y_n}{y_1}}$;

\bar{R} - the average growth rate $\bar{R} = \bar{i} - 100$.

To adjust the number of tourists, the method of trends adjusted according to the polynomial trend, for the time period 2012-2026 was used:

Polynomial model: $y = a + bt$.

R is the correlation between the values predicted by the equation and the current values. The square R is used to indicate the variation of the values from the trend line (Pantiru, 2006).

RESULTS AND DISCUSSIONS

Analysis of the tourist offer

For an objective study of the tourist offer of the Borsec and Tusnad Baths spa resorts in Harghita County, it is essential to analyze the tourist accommodation capacity in operation and the net utilization index of the accommodation capacity in operation.

Tourist reception structures

Tourist reception structures with tourist accommodation functions are any construction or facility that permanently or seasonally offers accommodation and other specific services for tourists. Tourist reception structures with tourist accommodation functions and an installed accommodation capacity of less than five places are not included in the statistical research (insse.ro).

The number of tourist reception structures with tourist accommodation functions (hostels, tourist villas, tourist cottages, tourist guesthouses, and agrotourism guesthouses) in the balneo-climatic resort of Borsec (Harghita County) varied in the 10 years analyzed (2012-2021), between 19 and 28 structures (Table 1); their number was 26.31% higher in 2021 compared to 2012, the most numerous types of tourist reception structures being tourist guesthouses. In the balneo-climatic resort Tusnad Baths (Harghita county), the number of tourist reception structures (hotels, motels, tourist villas, tourist cottages, tourist guesthouses and agro-tourism guesthouses) varied less, between 23 and 28, their number being 4.16% lower at the end of the analyzed period compared to the reference year (table 1), the most numerous tourist reception structures being tourist boarding houses followed by hotels.

Table 1

Tourist reception structures with tourist accommodation functions by types of structures in the balneo-climatic resorts of Borsec and Tusnad Baths (Harghita county), in the period 2012-2021

Types of tourist reception structures	Places	Years									
		UM: No.									
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	Tusnad Baths	24	23	24	26	28	25	24	25	26	23
	Borsec	19	22	23	27	26	28	23	27	25	24
Hotels	Tusnad Baths	4	4	5	5	5	5	5	5	5	5
Hostels	Borsec	-	-	-	-	-	-	-	1	1	1

Motels	Tusnad Baths	-	-	1	-	-	-	-	-	-	-
Tourist villas	Tusnad Baths	1	-	-	-	-	-	-	-	-	-
	Borsec	2	2	2	2	2	2	2	2	2	2
Camping	Tusnad Baths	1	-	-	-	-	-	-	-	-	-
Tourist cottages	Borsec	1	2	3	3	3	3	3	3	2	2
Tourist guesthouses	Tusnad Baths	17	19	17	21	23	20	19	20	21	18
	Borsec	16	18	18	22	21	23	18	21	20	18
Pensions agrotourism	Tusnad Baths	1	-	1	-	-	-	-	-	-	-
	Borsec	-	-	-	-	-	-	-	-	-	1

Source: calculation according to insse.ro

Statistical characterization of accommodation capacity in operation

The tourist accommodation capacity in operation represents the number of accommodation places made available to tourists by the tourist accommodation units, considering the number of days the units are open during the considered period. Seats in rooms or units temporarily closed due to a lack of tourists, repairs, or other reasons are excluded (insse.ro).

Researching the absolute and relative dynamics of the accommodation capacity in operation in the balneo-climatic resort Borsec in the period 2012-2021 (table 2), it was found that in 2021, there was an increase in the number of place days by only 2.65% compared with the base year (2012). However, the

largest increase in the number of place days compared to the base year was recorded in 2017 (53.6 %), and a significant decrease was recorded in 2020, with 24.09% due to the temporary closure of reception units due to a lack of tourists (2020 being a pandemic year) or for repairs (in the absence of tourists, these being even appropriate).

Compared to the previous year, the most significant increase in the number of places-days was recorded in 2021, by 35.22%, but the largest decrease was recorded in 2020 (by 45.54%). This decrease may be due to the pandemic, which limits tourist travel.

Overall, the average level of accommodation capacity in operation recorded 99,441.2 place-days, with an average absolute increase of 235.55 place-days and a relative increase of only 0.3%.

Table 2

The absolute and relative changes in the accommodation capacity in operation, in the Borsec resort, Harghita county, in the period 2012-2021

Years	Accommodation capacity in operation (places-days)	Absolute changes		Dynamics index %		The rhythm of dynamics %	
		$\Delta t/1$	$\Delta t/t-1$	$I_t/1$	$I_t/t-1$	$R_t/1$	$R_t/t-1$
2012	79,760	-	-	-	-	-	-
2013	96,501	16,741	16,741	120.98	120.98	20.98	20.98
2014	108,405	28,645	11,904	135.91	112.33	35.91	12.33
2015	104,341	24,581	-4,064	130.81	96.25	30.81	-3.75
2016	115,142	35,382	10,801	144.36	110.35	44.36	10.35
2017	122,515	42,755	7,373	153.60	106.40	53.6	6.4
2018	114,149	34,389	-8,366	143.11	93.17	43.11	-6.83
2019	111,169	31,409	-2,980	139.37	97.38	39.37	-2.62
2020	60,550	-19,210	-50,619	75.91	54.46	-24.09	-45.54
2021	81,880	2,120	21,330	102.65	135.22	2.65	35.22
	\bar{y}	$\bar{\Delta}$		\bar{I}		\bar{R}	
	99,441.2	235.55		1.003 (100.3%)		0.3	

Source: calculation according to insse.ro

In the spa resort Tusnad Baths (table 3) it is observed for the accommodation capacity in operation that the number of places-days registered a better increase compared to the Borsec resort, in 2021, compared to the base year (by 31.24%). The largest increase in the number of accommodation places-days in Tusnad Baths was also recorded, as in the case

of the Borsec resort, in 2017 (by 47.08%, compared to the base year), but without registering decreases in the number of places-days compared to 2012, as was the case with the Borsec resort, which shows that the Tusnad Baths resort was not greatly affected by the decrease in the number of tourists during the

Covid 19 pandemic period, nor were closed units for repairs.

Compared to the previous year, the number of places-days registered the most important increase in 2013, by 24.30%, but in 2020, the number of places-days was 7.87% lower than that in 2019, which shows that the number of places-days was still affected to some

extent by the pandemic, but much less than in the resort of Borsec.

Overall, the average level of accommodation capacity in operation was 369,465.7 place-days, with an average absolute increase of 9,780.44, and a relative increase of 3.06%.

Table 3

The absolute and relative changes in the accommodation capacity in operation, in the Tusnad Baths resort, Harghita county, in the period 2012-2021

Years	Accommodation capacity in operation (places-days)	Absolute changes		Dynamics index %		The rhythm of dynamics %	
		$\Delta t/1$	$\Delta t/t-1$	$It/1$	$It/t-1$	$Rt/1$	$Rt/t-1$
2012	281,724	-	-	-	-	-	-
2013	350,187	68,463	68,463	124.30	124.30	24.30	24.30
2014	360,255	78,531	10,068	127.87	102.87	27.87	2.87
2015	377,361	95,637	17,106	133.94	104.74	33.94	4.74
2016	387,945	106,221	10,584	137.70	102.80	37.7	2.8
2017	414,371	132,647	26,426	147.08	106.81	47.08	6.81
2018	395,552	113,828	-18,819	140.40	95.45	40.4	-4.55
2019	394,255	112,531	-1,297	139.94	99.67	39.94	-0.33
2020	363,259	81,535	-30,996	128.94	92.13	28.94	-7.87
2021	369,748	88,024	6,489	131.24	101.78	31.24	1.78
	369,465.7	9,780.44		1.0306 (103.06%)		3.06	

Source: calculation according to insse.ro

The adjustment based on the graphic representation is a tool for assessing the development trend, depending on which one can choose the procedure to be used in estimating the long-term and short-term trend (Petcu, 2005).

For the next five years (2022-2026), the adjustment was made according to the polynomial trend of the accommodation capacity in operation, in the Borsec resort, with

the help of the adjustment function: $y = -531.3x^2 + 2E+06x - 2E+09$, and for Tusnad Baths resort, the adjustment function is: $y = -938.43x^2 + 4E+06x - 4E+09$.

The R square is used to indicate the variation of the values with respect to the trend line: in Borsec: $R^2 = 0.5208$; in Tusnad Baths: $R^2 = 0.6227$ (figures 1).

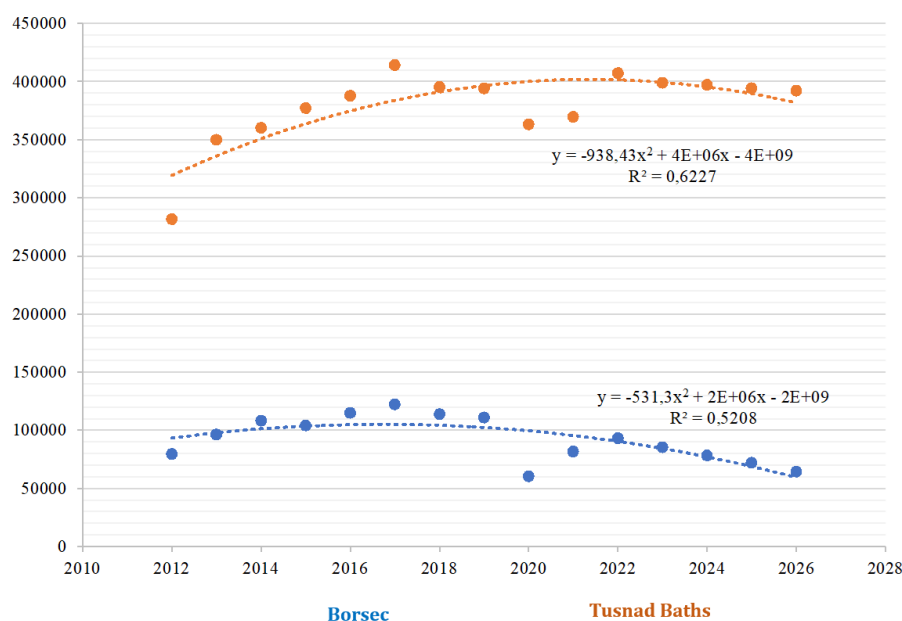


Figure 1. The dynamics and estimation of the accommodation capacity in operation in the period 2012-2026, in the resorts of Tusnad Baths and Borsec (Harghita county)

Given that the factors that influence the tourist activity will maintain the same pace in the next five years (table 4), in the year 2026, in the resort of Borsec the accommodation

capacity in operation will be approximately 65 thousand place-days, and in the resort of Tusnad Baths of approximately 392 thousand place-days.

Table 4
Estimation of the accommodation capacity in operation, in the Borsec and Tusnad Baths resorts (Harghita county), in the period 2022-2026

Years	T(x)	Accommodation capacity in operation (places-days)	
		Borsec $y=-2411.1x+5000000$	Tusnad Baths $y=4458.3x-9000000$
2022	11	93,375.86	407,289.66
2023	12	85,701.41	399,021.46
2024	13	78,513.72	397,331.74
2025	14	72,345.32	394,395.29
2026	15	64,618.58	392,374.09

Net utilization index of accommodation capacity in operation

The index of net use of accommodation capacity in operation is the relationship between the accommodation capacity in

operation and its actual use by tourists in a given period (insse.ro) (Table 5).

Table 5
The net utilization index of the accommodation capacity in operation, in the Borsec and Tusnad Baths resorts (Harghita county), in the period 2012-2021

Years	Overnights (no. nights)		Accommodation capacity in operation (places-days)		Index of net utilization of accommodation capacity (%)	
	Borsec	Tusnad Baths	Borsec	Tusnad Baths	Borsec	Tusnad Baths
2012	6,839	118,522	79,760	281,724	8.57	42.07
2013	6,808	119,550	96,501	350,187	7.05	34.13
2014	7,243	122,670	108,405	360,255	6.68	34.05
2015	14,331	140,422	104,341	377,361	13.73	37.21
2016	17,017	168,199	115,142	387,945	14.77	43.31
2017	20,886	154,043	122,515	414,371	17.04	37.17
2018	20,842	130,630	114,149	395,552	18.25	33.02
2019	16,764	130,477	111,169	394,255	15.07	33.09
2020	8,612	46,380	60,550	363,259	14.22	12.76
2021	12,553	94,540	81,880	369,748	15.33	25.56

Source: calculation according to insse.ro

In the Borsec resort, the net utilization index of the accommodation capacity in operation varied between 6.68% (2014) and 18.25% (2018), and the lowest efficiency of the use of accommodation spaces was recorded in 2014. At the end of the analyzed period (2021), the net utilization index of the accommodation capacity in operation in the Borsec resort was 15.33%, with an increase of approximately 79% compared to 2012, but quite low compared to the national value of this indicator (26%).

In the Tusnad Baths resort, the net utilization index of accommodation capacity in operation varied between 12.76% (in 2020) and 43.31% (in 2016), and the lowest efficiency

of the use of accommodation spaces was recorded in 2020. The values recorded for this index were above the national values in most years of the analyzed period above the national values recorded (in 2016, the value of this indicator was approximately 44% higher in the Tusnad Baths resort compared to the value of the indicator at the national level, which was approximately 30%). At the end of the analysis period (2021), the net utilization index of the accommodation capacity in operation in the Tusnad Baths resort was 25.56%, with a decrease of approximately 40% compared to 2012, but with a value very close to the value of this indicator (26%).

In the Tusnad Baths resort, the average value of the net utilization index of the accommodation capacity in operation in the period 2012-2021 was 33.23%, which shows that in this resort there was an efficient use of accommodation spaces, comparatively, in Borsec resort, the average value of the net utilization index of the accommodation capacity

CONCLUSIONS

Analyzing the absolute and relative dynamics of the accommodation capacity in operation in the Borsec resort in the period 2012-2021, it was found that in 2021, it registered an increase of only 2.65% compared with the base year (2012). However, the largest increase in the number of accommodation places-days compared to the base year was recorded in 2017, by 53.6%, and a significant decrease was recorded in 2020, by 24.09%, due to the temporary closure of the units for reception due to lack of tourists (2020 being a pandemic year), or for repairs (in the absence of tourists, these are even suitable). Overall, the average level of accommodation capacity recorded 99,441.2 place-days, with an absolute average increase of 235.55 place-days, respectively a relative increase of only 0.3%.

In the resort of Tusnad Baths, the analysis of the absolute and relative dynamics of the accommodation capacity in operation from the analyzed period (2011-2020), showed that the number of places-days registered a better increase compared to the Borsec resort, in the year 2021, compared to the base year (31.24%). The largest increase in the number of accommodation places-days in Tusnad Baths was also recorded, as in the case of the Borsec resort, in 2017 (by 47.08%, compared to the base year), but without registering decreases in

in operation for the period 2012-2021 registered only 13.07%, which shows a less efficient use of accommodation spaces. Thus, it follows that in the Borsec resort, the construction of new tourist reception units is not required, given that the existing accommodation capacity has not been used efficiently.

the number of places-days compared to 2012, as was the case with the Borsec resort, which shows that the Tusnad Baths resort was not greatly affected by the decrease in the number of tourists during the Covid 19 pandemic period, nor were closed units for repairs. Overall, the average level of accommodation capacity in operation was 369,465.7 place-days, with an average absolute increase of 9,780.44, and a relative increase of 3.06%.

Given that the factors influencing tourist activity will maintain the same pace in the next five years, in the year 2026, in the Borsec resort, the accommodation capacity in operation will be approximately 65 thousand place-days, and in the resort of Tusnad Baths approximately 392 thousand place-days.

In the Tusnad Baths resort, the average value of the net utilization index of the accommodation capacity in operation in the period 2012-2021 was 33.23%, which shows that in this resort there was an efficient use of accommodation spaces, comparatively, in Borsec resort, the average value of the net utilization index of the accommodation capacity in operation for the period 2012-2021 registered only 13.07%, which shows a less efficient use of accommodation spaces. Thus, it follows that in the Borsec resort, the construction of new tourist reception units is not required, given that the existing accommodation capacity has not been used in the most efficient way.

REFERENCES

- Aluculesei, A.C., 2015. Spa Tourism – A Comparative Analysis On Spain And Romania. *Balneo Research Journal*, 6(3). doi: <http://dx.doi.org/10.12680/balneo.2015.10106>.
- Astefanoaiei, R., Cristea, A., Marius, M., Raluca, 2020. Romanian spa tourism: Growth, Tourism patterns, Perspectives. *Scientific Papers-Series Management Economic Engineering In Agriculture And Rural Development*, 20(2), 19-27.
- Badita, M., Cristache, S.E., Iacob, A.I., 2005. *Applied statistics in tourism management*. Publishing house-ASE, Bucuresti.
- Băltărețu, A.M., 2016. *The economy of the tourism industry*, Publishing house-Universitara, Bucuresti, 131.
- Erdeli, G., Lequeux-Dinca, A.M., Gheorghilaș, A., Surugiu, C., 2011. Romanian spa tourism: a communist paradigm in a post communist era. *Human Geographies*, 5(2), 41-56. doi: 10.5719/hgeo.2011.52.41.
- Merce, E., Merce, C.C., 2009. *Statistics - established paradigms and complementary paradigms*. Publishing House-Academic Pres, Cluj – Napoca.
- Minciu, R., 2004. *The economy of tourism*. Ediția a III-a, Publishing House-Uranus, Bucuresti, 177.
- Neacșu, N., Băltărețu, A., Neacșu, M., Drăghilă, M., 2016. *Resources and tourist destinations in*

- Romania. Publishing House-Universitaria, București.
- Panțiru, M., 2006. ICT information and communication technology 3 (database management systems). Publishing House-ALL, București
- Petcu, N., 2005. Tourism Statistics 2005, Theory and Applications. Publishing House-Editura Albastră, Cluj Napoca.
- Simeanu, C., Păsărin, B., Simeanu, D., Avarvarei, B.V., 2022. Analysis in dynamics of demand for spa tourism in Bacău county during 2011-2020. Animal and Food Sciences Journal, 78(2), 138-145.
- Simeanu, C., Avarvarei, B.V., Simeanu, D., Păsărin, B., 2022. Dynamic analysis of the offer for spa tourism in Bacău county in the period 2011-2020. Animal and Food Sciences Journal, 77(1), 258-268.
- Turcu, D., Weisz, J., 2008. The economy of tourism, Publishing House-Eurostampa, Timișoara.
- <http://statistici.insse.ro8077/tempo-online/> [accessed:15.02.2023].
- https://cndd.ro/wpcontent/uploads/2018/08/AgLoc21_Borsec_rom.pdf. - The local sustainable development plan of Borsec Municipality, 2005, [accessed:12.03.2023].