

## **Sustainable Development of Tourism – A Case Study, the identification of the optimal capacity of the Sânmihaiu German Thermal Swimming Pool in the Timiș County**

by

Associate Professor Phd.Cipriana Sava  
The Faculty of Tourism and Commercial Management  
The Christian University "D. Cantemir" Timișoara, România  
cipriana.sava@gmail.com

*Abstract:* The concept of sustainable development is timely, highlighting its relationship with the environmentalists and the responsibilities of present generations to come. The development is considered sustainable if it meets the company's current needs without jeopardizing the future. The application of this concept can be realized in the majority of the economic activities, including tourism.

Tourism is an activity based on the environment, so integrity is required. Sustainable tourism development requires meeting the needs of present tourists, protecting the environment, and tourism resources for the future. Recreation is an important part of the tourism activity, thus its development is strongly connected to the surrounding environment.

*Keywords:* environmental protection, sustainable development, tourism, optimal capacity

*JEL classification :* Q56, L83, D24

### **1 Introduction**

The environment, being the fundamental element of human existence, represents the result of combining some natural elements with elements created by human activity. People, through their activities and lifestyle, have negatively influenced the environment. The pressure exerted by the earth's population on the soil, waters and air has led to the appearance of undesirable effects.

„The environment is the main factor for the continuation of people's survival, and people's prosperity on a long term basis is unconceivable unless we are capable of ensuring the next generations to fully enjoy nature's benefits. At the same time, development is necessary in order to solve poverty in the emerging countries and to give people the possibility to live a civilized life in a favorable environment. Thus, environment protection and economic development must be present-day preoccupations.”<sup>1</sup>

A solution for the protection of the environment would be sustainable development that has as

objectives: the protection of natural resources and the improvement of the environment quality; low resource consumption and high productivity; the support of innovations and behaviour changes; the creation of sustainable communities; the radical change of the way in which energy is generated and used.

In the „Our Common Future” report from 1987, the Brundtland Commission defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."<sup>2</sup>

Tourism is one of the activities that exert a major pressure on the environment, and that is why sustainable development is primary. The implementation of a sustainable tourism means: resources preservation; maintenance and respect for local culture and traditions; supporting the integrity of the place; the increase of the quality of tourist products; the involvement of the local population; benefits for all the members of the society; special holidays for tourists.

<sup>1</sup> Saburo, Okita, Facing the 21st century, AGER, Economistul,- RAI, Bucharest, 1992

<sup>2</sup>. Constantin, Daniela, Luminița, Regional economy, Oscar Print, Bucharest, 2000

European policies for a sustainable development of tourism are based on several principles:

- integration through cooperation;
- subsidiary;
- introduction of the harmonizing method;
- ensuring the conditions for the participation of tourism in the enforcement of the communitarian strategy of sustainable development;
- ensuring the framework necessary to the application of the sustainable principles in the tourist industry.<sup>3</sup>

Sustainable tourism can be met within the framework of various types of tourism: mountain tourism, seaside tourism, spa tourism, cultural tourism, ecotourism, rural tourism, religious tourism and business tourism.

## 2 Territory arrangement for tourism

The arrangement of tourist areas is considered a part of the general process of territory arrangement, whose objective is the scientific organization of space and the valorisation of existent resources.<sup>4</sup> According to the World Tourism Organisation, the norms for territory arrangement are those of development, quality and safety, planning of locations, regarding the tourist infrastructure and construction engineering, aesthetic arrangement, and architectural aspect.

The selected and delimited territory arrangement for tourism supposes the following aspects: elements of technology necessary to the territory arrangement; the techniques of territory arrangement for tourism; the respect for the principles that govern territory arrangement.

The principles of territory arrangement for tourism that must be applied in order to obtain the expected results (the arrangement of a tourist area that is attractive, sustainable and profitable) are the following: the harmonious integration of constructions with the natural conditions; the flexibility of developing structures; the correlation

of the main activity and the secondary reception; the networks' interdependency; the optimal functionality of the entire network system; the direct and indirect profitability.<sup>5</sup>

Highlighting the types of territory arrangement is necessary in order to formulate strategies regarding territory arrangement for tourism as a main method of spatial tourism development. Taking into consideration some classification criteria, the following categories of territory arrangements were created:

- according to the size and distribution of resources in territory, the arrangements can be: univocal; multivocal; equivocal.
- according to the nature of the geographic space the arrangements are: seaside sites; mountain sites; parks and natural reservations; historic and archaeological sites; thermal resorts; rural areas; pre-urban areas.
- according to the relationships of arrangements with the defining elements of territory and the distribution of the demand, they are: punctiform and complex.

The main factors to be taken into consideration when talking about territory arrangements for tourism are related to the: natural particularities of the area; distance between the emission area (of tourist origin) and the reception area of tourists; area's potential, the market; socio-economic conditions of the area to be established; decision-making competencies.

The characteristics of territory arrangements for tourism that play an important role at the time of decision making regarding the location and size of equipment are: the uniqueness of the destination; the tourist location is made "at the source"; the tourist location is removed from the buyer's market; the arrangements' polyvalence; the territory arrangements for tourism are integrated with the tertiary's tendency to "expansion".

In order to establish and develop a spa resort we take into consideration the following objectives:<sup>6</sup>

<sup>3</sup>Pascariu, Gabriela, Carmen, Evolution and trends in the international tourism – fluxes, markets, policies, SedcomLibris Publishing House, Iași

<sup>4</sup> Lajugie, J., Defflaud, P., Lacour, Cl., Espace regional et aménagement du territoire, 2 Ed. Dalloz, Paris, 1985, p.42.

<sup>5</sup>Minciu, Rodica, Territory arrangement for tourism, SYLVI Publishing House, Bucharest, 1995, p.59

<sup>6</sup>Institute for Research-Development in Tourism (NIRDT)

- a) the optimal exploitation of therapeutic mineral substances resources, the size and development of the spa function in correlation with their certified reserves;
- b) the development of the tourist function of the location through the exploitation of other natural and anthropic resources from the place/area;
- c) the socio-economic development of the place, the arrangement and the commercial, cultural, social and urban equipment adequate to the spa necessities of the local population.

### 3 The establishment of the optimal tourist reception capacity

Through the optimal tourist reception capacity we understand the possibility of the destination area to absorb tourism without having a negative impact on the area. At the same time we take into consideration the general and specific infrastructure that can damage the environment. In other words, the optimal accommodation capacity expresses the maximum number of tourists that can be simultaneously accommodated in a tourist area, in such a way that the area is not crowded and the natural equilibrium of the area can be maintained. The calculus formula of the optimal accommodation capacity of a resort or area is

$$C_{OP} = \frac{S \times K_v}{N} \quad (1)$$

where:

$C_{OP}$  – optimal tourist accommodation capacity,

$S$  - surface of space in hectares or  $m^2$ ,

$K_v$  –having values within these parameters [0-2]

$N$  - □□□the norm for using the space in ha or  $m^2$ .

In the case of spa resorts, in order to set the size of treatment and accommodation spaces, the specialists have established correlations between the quality and the quantity of certified therapeutic mineral substances and the demand for spa treatment services.

The capacity of tourism exchange, which represents the level of valorising a tourist destination, including the maximal satisfaction offered to

tourists, without any consequences on tourist or environmental resources.

Capacity of tourist exchange calculated as it follows:

$$C_s = \frac{S}{N} \quad (2)$$

where

$S$  – areas used for tourism, expressed in  $m^2$  or ha

$N$  – norm expressed in  $m^2$  per individual

The number of visitors per day, determined accordingly to the formula

$$N_t = C_s \times R \quad (3)$$

where:

$N_t$  –total number of tourists

$C_s$  – Capacity of tourist exchange

$R$  – rotation coefficient

The rotation coefficient  $R$ , is given by the formula

$$R = \frac{h}{t} \quad (4)$$

where:

$h$  – the number of hours per day (when the area is open)

$t$  – the average visiting time (hours)

### 4 The Determination of the optimal capacity of a swimming pool

In the Timiș County, part of the Euroregion Danube - Criș- Mureș- Tisa (DKMT), there are possibilities for tourism development. One type of tourism that can develop, due to the presence of mineral and thermo mineral waters, is the spa tourism.

The locality Sânmihaiu German belongs to Sânmihaiu Român, which was attested by documents from 1333 and it is situated close to Timișoara, more precisely, at 18,2 km, accessed by DJ591. In 1977 during some depth drillings, it has been discovered geothermal water, the present foration is being done at a depth of 2154m. Its properties are shown in table 1.

*Table 1. The properties of the thermal water in Sânmihaiu German*

Water composition (mg/L)	Intake temperature	Discharge
- sulfurs 19,7 - bicarbonates 1098 - chlorides 737,5 - bromides 5,5 - minerals salts (Na,Ca,Mg) 3460,5	66 <sup>0</sup> C	7,8 litres/second

The thermal water from Sânmihaiu German is recommended for rheumatic disorders, posttraumatic and neurological disorders.

For the capitalization of these waters, starting with 1990 SC Radulov SRL has developed a project designed for 49 years, including the source of the thermal water and the swimming pool existing at that time. Today, a swimming pool is arranged on a surface of 0,9058 ha including :

- pool 1 – depth 1,1 m and a surface of 120m<sup>2</sup>;
- pool 2 – depth 1,65 m, surface of 320m<sup>2</sup>;
- pool 3, covered – depth 1,2m and a surface of 350m<sup>2</sup>;
- locker rooms;
- a shop selling drinks and fast food;
- terrace;
- ten wood houses assuring accommodation during summer;
- toilets.

Water is cooled at 38 - 40<sup>0</sup>C in order to be properly used. The functioning programme is on average 10,5 hours per day, 6 days per week. The time required for emptying the three pools is of 10 hours and their filling in demand 39 hours.

The optimal capacity of receiving tourists, calculated in Sânmihaiu German, taking into account the present facilities is of 996 people as it can be observed in table 2.

*Table 2. The optimal current accommodation capacity*

Tourism types practiced	Swimming pool –locker room
Area surface	0.9058ha
Correction coeff.	1
Surface rated for tourist consumption	1ha/ 1100pers
Optimal accommodation capacity (persons)	996

Reference: The „Project” Institute Bucuresti (for the correction coefficient and the normated surface)

We determined the tourism exchange capacity, the rotation coefficient and the total number of visitors per day of this swimming pool accordingly to the obtained data.

*Table 3. The capacity of tourist exchange, the rotation coefficient and the total number of visitors per day*

Tourism types practiced	Swimming pool, locker room
Area surface	0.9058ha
The tourism exchange capacity	996 people
Rotation coefficient	1,75
Total number of visitors per day	1743people per day

It has been noticed that the optimal number of customers present at the same time on the surface of the swimming pool is of 996 people, a superior number to the average declared by the swimming pool's administrator. Taking into consideration that every tourist stays 6 hours on average, 1743 people can register in one day without any danger upon the environment and customers' comfort.

Tourism development according to sustainable principles in this area of the county supposes a close analysis of the main resource – water. The existent discharge offers, according to the norms issued by the National Institute for Research-Development in Tourism (NIRD), the possibility of functioning for the swimming pool.

## 5 Conclusions

Sustainable development of tourism does not act brutally against the environment, keeping it unaltered.

By developing some tourist areas taking into consideration the optimal accommodation capacity there is the conviction that there will not be negative effects on the environment, and the natural tourist resources will be used rationally.

In the Sânmihaiu German area, within the Timiș county there is the possibility of practising

recreational tourism, but at a reduced scale, the location may be of regional interest.

## References

1. Constantin, Daniela, Luminița, 2000, *Regional economy*, Oscar Print, Bucharest,
2. Lajugie, J., Deflaud, P., Lacour, Cl., 1985, *Espace regional et aménagement du territoire*, 2 Ed. Dalloz, Paris;
3. Pascariu, Gabriela, Carmen, *Evolution and trends in the international tourism – fluxes, markets, policies*, SedcomLibris Publishing House, Iași;
4. Minciu, Rodica, 1985, *Territory arrangement for tourism*, SYLVI Publishing House, Bucharest;
5. Saburo, Okita, 1992, *Facing the 21st century*, AGER, Economistul,- RAI, Bucharest;
6. Sava, Cipriana, 2010, *Tourism within the frame of sustainable regional development*, Eurostampa Publishing House, Timișoara;
7. \*\*\* National Institute for Research-Development in Tourism (NIRD);
8. \*\*\*The „Project” Institute Bucuresti
9. www.strand-termal.ro

## Author description

Cipriana Sava, Associate Professor, Dean at the Faculty of Management in Tourism and Commerce, within the Christian University “D.Cantemir” from București.

I am affiliated to:

- Regional Studies Association – (RSA)UK from 2007;
- Regional Science Association International (RSAI) from 2008;
- The Romanian Association of Regional Science (ARSR) from 2001;
- Hobby Club Jules Verne from 1998;
- Scientific Council of the Research Centre „Management, Administration des Affaires and Marketing”, of the Faculty of Management in Tourism and Commerce;
- Coordinator of the Scientific Group of Tourism within Faculty of Management in Tourism and Commerce.

I attended the courses of Faculty of Management in Tourism and Commerce Timișoara from 1991 to 1996, obtaining an economist degree in 1996 after the defense of my BA at the West University of Timișoara.

I defended my PhD thesis in 2006, its title being „Contributions regarding the strategies and planning of tourism activity and valorisation of its resources (a case study of the West Region Development) coordinated by Professor PhD Marin Burtică. I obtained my doctor degree in March 2007, with a specialisation in management.

Research areas: tourism, sustainable development, regional development.