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#### Original article

Evaluation of sustainable tourism potential of the principle Giant Mountains resorts in

the Czech Republic

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#### ABSTRACT

This paper proposes a new methodology for assessing the potential of sustainable tourism. It examines the overall potential of the landscape when faced with the negative impacts of tourism. Our assessment combines components of tourism and environmental sustainability. The methodology involved consultation with experts, and verification by tourists before being applied to the study area. The methodology was then applied to selected tourism centres in the Giant Mountains. The Giant Mountains are a popular tourist destination thanks to their outstanding natural beauty, and represent significant potential for tourism development. They are also one of the most over-burdened regions from tourism in the Czech Republic. However, many negative impacts of tourism exist, reducing the overall tourism potential of the region. Comparative results from the individual tourist centres in the study reveal the significant impact of potentially reducing attributes. Our assessment of the potential for sustainable tourism development in the area thus combines the environmental aspect of sustainable forms of tourism, with the identification of the most serious threats that need to be avoided to maintain the environment in the long-term. The results reveal the significant impact of excessive and inappropriate infrastructure and housing, as well as insufficient environmental education and legislation.

KEY WORDS: tourism potential, sustainable tourism, potential assessment, the Giant Mountains

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## **1. Introduction**

According to the EUROPEAN COMMISSION (2007), "sustainable tourism is tourism which is economically and socially viable without detracting from the environment and local culture." However, in areas heavily affected by mass tourism it is difficult to balance economic interests with social and environmental concerns. VYSTOUPIL ET AL. (2017) cite studies by PECHLANER & TSCHURTSCHENTHALER (2003), SAARINEN (2003), WALL & MATHIESON (2006) and TELFER & SHARPLEY (2002) and provide several benefits of tourism for the development and economic prosperity of mountain areas. Tourism represents one of the few options for forming the strong economic conditions that are required to maintain populations in these areas and has a direct impact on incomes and employment in the region. It brings additional finance into the area, creates economies of scale; leads to internationalization of business and improves the transfer of knowledge. Conversely, there are studies exposing the negative effects of tourism, such as increased antagonism between tourists and the local population, as well as their acculturation. Most recently ALVAREZ-SOUZA, 2017; FRANK, 2016; JOO ET AL., 2018). In addition, BIZZARRI (2016) and JAROS (2015) cite lower public investment in infrastructure used by residents to service the tourist sector, and the negative perceptions of protected areas by residents.

This article introduces a methodology for assessing the potential for sustainable tourism by measuring sustainable tourism activities. It also takes into consideration attributes which reduce the sustainability of tourism. This methodology is then applied to our study area in Krkonoše, Czech Republic. We chose the Giant Mountains region (Krkonoše in Czech, Karkonosze in Polish) because this is one of the most visited national parks in the world thanks to its natural and landscape features. Yet at the same time, the Giant Mountains are among the most damaged protected area on earth (KLAPKA, 2008).

## 1.1. Evidence of the burden of tourism in Krkonoše

The Giant Mountains National Park (GMNAP) receives between five and six million tourists annually (one million more than Yellowstone Park, in the United States in 2017). According to data retrieved from 21 roadside scanners installed at the entrance to zone one of the GMNAP, 1.41 million people entered this most strictly protected area (Director of the GMNAP Administration Jan Hřebačka cited by KUČERA (2017). POTOCKI (2010) examined the pressure on the natural environment in the large Giant Mountain resorts. He observed that there was a huge imbalance between lettable beds and full-time residents in the Giant Mountain resorts. GMNAP has the highest number of lettable beds and the densest bed capacity per square kilometre of all protected areas in the Czech Republic. In Špindlerův Mlýn, tourists outnumber residents by a ratio of five to one in the high season (both winter and summer holidays). Exceeding this amount of tourism in the area has negative impacts on the environment and on the local community. These effects are an increase in traffic and congestion problems, noise and air pollution, higher water consumption (tourists consume on average three to four times more water than residents, ARLEM (2012), higher energy consumption (heating and air conditioning), higher waste production, and results in the concreting of wooded and fertile areas for car parks, an overall rise of commodity prices within the resorts, and a singular focus on tourism as an economic activity (to the detriment of other activities such as agriculture or forestry)(BIZZARRI, 2016).

PÁSKOVÁ (2008) examines the damage caused by the sub-standard construction of many houses, cottages, apartments, guest houses and hotels. Business efforts to build additional ski slopes and

the constant pressure to increase accommodation capacity has led the Giant Mountains area to become a destination designed only for the needs of tourists, with little consideration for the impact this has had on the environment and the local community. TRUHLIČKA (2007) and ŠTURSA (2011) believe that developmental activities undertaken in the Giant Mountains show little empathy with the surrounding landscape. Multi-storey buildings are awkwardly juxtaposed with the character of traditional mountain villages. These architectural intrusions have transformed traditional rural mountain settlements into an urban form. The drive to maximize financial returns on property built on expensive land results in a reduction of greenery and a disproportionate increase in accommodation capacity.

CHLAPEK ET AL. (2009) provide additional evidence of the negative impact downhill skiing has had in the Giant Mountains: the ski slopes significantly scar the landscape; it causes soil erosion, degenerates the surrounding vegetation and forces changes in the macroclimate. Most slopes cannot be used without artificial snow, placing additional pressure on natural water resources. Night skiing threatens the health of many animal species, as artificial lighting can cause disruption to their communication, feeding and reproductive patterns (BUJALSKÝ ET AL., 2014; ŠPATENKOVÁ, 1996). In the Giant Mountains, the negative effect of downhill skiing on the natural environment is the most acute in the Czech Republic, since it has the largest concentration of ski slopes (VYSTOUPIL & ŠAUER, 2011). Therefore, it is important to identify alternative activities which are sustainable whilst increasing the tourism potential of the region.

#### 1.2. Sustainable tourism

The main academic disciplines that contribute to an understanding of tourism potential and sustainability are economics, anthropology, sociology and geography. Economics sees tourism as a dynamic sector, possible sources of employment and income for the local population and a source of foreign currency reflected in the balance of payments. Anthropology and sociology reflect on the socio-cultural and socio-economic aspects derived from tourism - interpersonal relationships between visitors and locals, distribution of power, customs, culture and their subsequent repercussions on the social fabric of the region and its organization. While geography has contributed to: tourism planning, regionalization from a development approach and evaluation of the impacts of tourism on the landscape and natural environment (CARDOSO, CASTILLO & HERNÁNDEZ, 2014). As the sustainable approach aims to offer holistic and long-term solutions to tourism development, it is inevitable that a transdisciplinary approach is adopted in order to maintain cultural integrity, conservation of essential ecological processes, biological diversity and local productive systems.

Ever since the publication in 1987 of the Brundtland report, technically known as "Our Common Future", the sustainability principle has been pursued. However, the concept is somewhat contradictory: it looks to maintain economic development, but without a) compromising the resources (sometimes non-renewable), on which the productive sector and local economy, depend and b) without overloading the sociocultural capacity. Although in the current globalized era, tourism is a cultural representation derived from the encounter between local peoples and tourists in one place (tourist destination), which in turn, must meet the changing needs of liquid tourists<sup>1</sup> (CARDOSO, CASTILLO & HERNÁNDEZ, 2014).

A review of the existing literature provides evidence of several approaches to sustainable tourism. A holistic approach is presented by PAUNOVIC & JANOVIC (2017), who focused their research on mountain tourism in the German Alps. A managerial approach is offered by CORTE EL AL. (2014), who deal with issues surrounding destination management. However, most studies adopt a strategic approach to their work. For example, NOWACKI ET AL. (2018) evaluated tourism development strategies in Poland; TSAUR & WANG (2007) or COTTRELL & CUTUMISU (2006) each provide further examples of evaluations of tourism strategies. Additional works using a strategic approach include CORTEZ (2010) and REICHEL & URIELY (2003). Most recently, KISI (2019) presented a hybrid strategic approach combining SWOT and AHP (Analytic Hierarchy Process) Analyses. SAIZ-ÁLVAREZ (2018) emphasized the importance

of local communities in his study about social entrepreneurship in one of Mexico's most popular destinations, the Tequila region (a designated UNESCO World Heritage Site). He concluded that the level of local poverty remained almost the same. He attributes the causes of this to be the sale of the main tequila companies to foreign multinationals; an informal labor market, under development of alternative economic activities; a concentration of wealth among a few elite families, and high levels of insecurity. When addressing sustainable tourism as an alternative for community development ALCÍVAR & BRAVO (2017) stress that in today's world, where tourist populations are constantly in search of culturally rich new destinations, communities must be empowered with their cultural heritage.

## 1.3. Approaches to tourism potential

Academics have been working on defining the potential of tourism for many years, and their approaches differ considerably. KRIPPENDORF (1980) sees tourism potential as a complexity of elements to satisfy the needs of tourists. Especially in the 1990s, the term tourism potential was used extensively in the Economics and Geography sphere, without much consideration for its meaning or purpose (IATU & BULAI, 2010). GLAVAN (1996) understands tourism potential as the assembly of components (both material and non-material), scientifically recognized and practically proven, to provide the possibility of touristic capitalization and providing functionality for tourism. NESTOROSKA (2012) on the other hand, provides a narrower definition, limiting its scope to achieving competitiveness in the tourism market. IATU & BULAI (2010) see tourism potential as a qualitative immaterial measure of certain subjective possibilities and conditions. MAMUN & MITRA (2012) agree that the term tourism potential creates misunderstanding and is often replaced by the term "attractiveness". MUNTELE & IATU (2003) also suggest "touristic offer" as a suitable synonym. We understand tourism potential to be: a summary of specific local socio-environmental components recognized not only by science, but also by the community, with an emphasis on the long-term functionality of tourism.

Current research provides several approaches on how to evaluate tourism potential. IATU & BULAI (2010) discuss material and non-material approaches. They include natural resources, cultural resources, tourism infrastructure and total infrastructure in the tourism potential equation and use multiple linear regressions to quantify tourist arrivals. Another approach adopted by

<sup>&</sup>lt;sup>1</sup>BAUMAN (2013) uses the term "liquid" to describe a society where the actions of its members change before it is possible to consolidated them into identifiable habits and routines. Liquid life sees the world as a collection of consumer objects, that lose their usefulness at the same time as being used. In practice, anything that cannot prove its financial value is very precarious (BARRENO, 2011). ROJAS (1992) writes, in this sense, about the light man, characterized by hedonism, enthronement of pleasure, consumerism, accumulation of goods, permissiveness, and finally, relativism, where nothing is good or bad and ultimately everything depends on the opinion of the individual (cited in BARRENO, 2011). In this sense, a liquid tourist is a consumer of the landscape and biocultural heritage, for the purpose of adventure and exceptional experience and its subsequent presentation on social networks.

researchers such as PRINSKIN (2001) and OPREA-GANCEVICI & CHEIA (2011), use a matrix form in which each resource receives a score revealing the importance of indicators. Other researchers have used Geographical Information Systems (GIS) to assess tourism potential in their studies, including CHHETRI & ARROWSMITH (2008), TIMČÁK & VIZI (2006), KLISKEY (2000), MIKULEC & ANTOUŠKOVÁ (2010), NOVOTNÁ (2007) and RUDA (2016). MAMUN & MITRA (2012) also point out that the multi-criteria decision-making technique has also been used and applied in numerous studies.

# 2. Methodology

The study area of the Giant Mountains includes the cadastral area of Harrachov, Rokytnice nad Jizerou, Špindlerův Mlýn, Pec pod Sněžkou and Janské Lázně; and is connected by a mountain range encompassing a total area of 216.15 km<sup>2</sup>. This area belongs to the tourist regions of Krkonoše and Podkrkonoší (Fig. 1) and has a population of approximately 27,000 residents. The field research was conducted between 2013 and 2015.

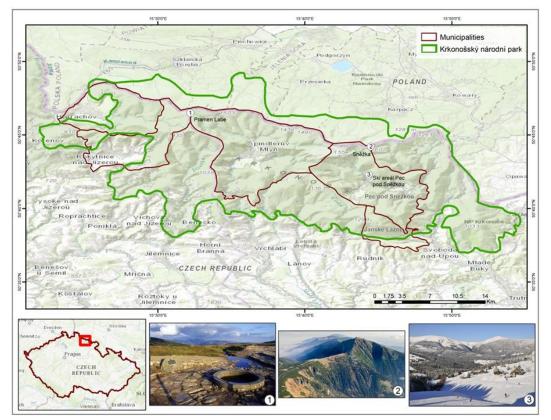


Fig. 1. Location of the study area

(Author's elaboration, based on ESRI base map. Vector data, park boundary, municipalities and georeferencing of images from the web portal: https://geoportal.gov.cz/web/guest/map. Photos from: (1) – http://www.pardubicko.info/902\_221199\_labska-stezka-od-pramenu-labe-do-narodniho-hrebcina-v-kladrubech/; (2) – http://www.czechtrack.cz/en/snezka-krkonose#. WjfqeVWWYdU; (3) – http://www.ceske-sjezdovky.cz/stredisko/32\_pec-pod-snezkou.html

The methodological approach was conducted in several steps as demonstrated in Figure 2. The proposed methodology was then applied to the Giant Mountains region and the results were compared.

1) Interaction with experts. Fifteen experts<sup>2</sup>, were interviewed in three rounds using the Delphi method. This was to identify sustainable tourism

activities applicable to the Giant Mountains. The experts agreed on the following sustainable tourism activities including landscape suitable for *hiking* and mountain tourism, cycling, cross-country skiing, natural sightseeing, fauna and flora observation, rural tourism, forest tourism, equestrian tourism, natural history exploration and geocaching. Moreover, they were asked about attributes reducing sustainability and they emphasized the following: excessive & inappropriate infrastructure and housing, insufficient environmental education, unprofessional destination management, and insufficient environmental & conservation legislation.

<sup>&</sup>lt;sup>2</sup>Experts from CzechTourism, Giant Mountain National Park, Czech Union for Nature Conservation, Ministry of Regional Development and researchers from four Czech universities: Mendel University in Brno, University of Hradec Králové, Polytechnic University of Jihlava and University of South Bohemia.

2) A questionnaire for tourists. In total, a sample of 150 tourists were asked to complete a questionnaire regarding the attractiveness of the ten sustainable forms of tourism and the four attributes reducing sustainability, as proposed by the experts. We used a Likert scale (1 – being the most attractive, 5 - the least attractive). The

respondents were chosen by simple random sampling.

3) Determination of Points. The points on the Likert scale were translated and averaged, with the highest rated activity having the greatest number of points, and the attributes most reducing tourism sustainability, the most negative points (Figs. 3, 4).

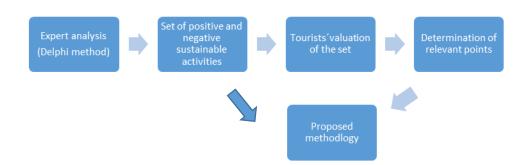


Fig. 2. Scheme of the methodology, author's own elaboration

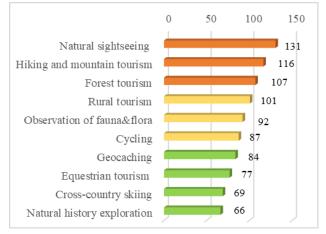


Fig. 3. Attractiveness of the activities of sustainable tourism for visitors, author's own elaboration

4) The scale of points used for evaluation of tourism potential is expressed in Table 1, and was determined according to BÍNA (2002) and PLŠKOVÁ (2014). Only attributes of "fauna and flora" and "insufficient environmental education" are not included because the distinction between the degrees of significance is not relevant (BÍNA, 2002). Points for evaluation of tourism potential were allocated to the categories according to the following scale: the most significant (3), very significant (2), and significant (1). The first degree of significance (1) was derived from the average of the obtained points - totally 131 points (see Fig. 3), and the two subsequent degrees being multiples of this value (second degree - double: 262 points, third degree - treble: 393 points).

5) Evaluation of the potential for sustainable tourism in each resort. The evaluation concerning the potential of the region for sustainable tourism (Table 2) was done by analyzing the following

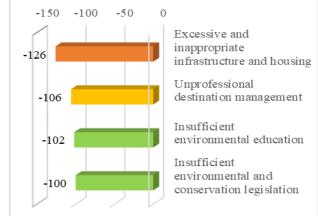


Fig. 4. Values of the degree of severity of attributes reducing the sustainability of tourism, author's own elaboration

documents and databases: the Czech Statistical Office (CZSO), the Environmental Protection Agency of the Czech Republic (AOPK CR), the National Heritage Institute (NPÚ) and the National Information and Consulting Centre for Culture (NIPOS). Furthermore, publications of FLOUSEK & VANĚK (2012), VYSTOUPIL ET AL. (2008), VYSTOUPIL & ŠAUER (2011), ŠTURSA (2011, 2012) and data from the map of the Czech Tourist Club (KČT, 2014) were referred to. Key documents for analysis of the characteristics reducing the sustainability of tourism, included: a) mandatory disclosures (official decrees and regulations of the municipality; resolutions of the municipal council - objections, intentions, demands, contracts and tenders) b) territorial plans of individual municipalities, c) data from tourist information centre webpages, d) data from Czech Tourism and e) Czech environmental and conservation legislation.

Landscape suitability for various activities	1 <sup>st</sup> degree	2 <sup>nd</sup> degree	3 <sup>th</sup> degree	
Natural sightseeing	Significant landscape elements, nature parks,	Significant and larger natural attractions and	Nationally and internationally important natural creations	
	NATURA 2000 protected elements	protected areas of regional level (LPA)	and specially protected areas	
Points	131	262	393	
Hiking and mountain	Slightly rugged hills and	Landscape with higher	Mountain and foothills with	
tourism	highlands with watercourses,	altitude and relief, higher	continuous forests, extensive	
	forests and agricultural	proportion of forests,	agricultural land-use, lookout	
	areas. Diverse terrain with	meadows and pastures. Any	points, hiking trails	
	tourist marked paths	hiking trails		
Points	116	232	348	
Cycling	Plains and hillsides in	Plains, hillsides or open	Mountain, foothills or high	
	agricultural areas without	valley with a higher	plateau with a larger share of	
	significant ecological damage;	proportion of forests;	forests; low population density	
	small proportion of forests,	watercourses or ponds	and distinctive landscape	
	compact settlements,		aesthetics	
	suitable off-road routes		244	
Points	87	174	261	
Cross-country skiing	Partly suitable terrain,	Suitable terrain; long-lasting	Ideal terrain in cold climatic	
	altitude approx. 500 m with	snow cover and natural	areas; long-lasting snow cover	
<b>D</b>	suitable climatic conditions	attraction	and high natural attraction	
Points	69	138	207	
Rural tourism	Rural landscape with medium	Rural landscape with sparsely	Mountainous landscapes	
	populated settlements in flat	populated settlements in	(or lower altitude landscape i	
	or slightly uneven terrain;	more rugged terrain of	exceptionally attractive) with	
	smaller proportion of forests,	highland characteristics;	sparsely populated	
	water areas and tourist	higher proportion of forests,	settlements; high proportion	
	marked paths	water areas and tourist	of forests, grasslands and	
Delate	101	marked paths	hiking opportunities	
Points	101	202	303	
Forest tourism	Municipalities with 25 -50%	Municipalities with 51 -75%	Municipalities with $\geq 76\%$	
	forested area, with tourist	forested area, with tourist	forested area, with tourist	
Points	infrastructure 107	infrastructure 214	infrastructure 321	
Equestrian tourism		Regional horse riding paths	_	
Equestrian tourism	Local horse riding paths and circuits of several tens of	with tens of kilometres	International horse riding paths with hundreds of	
	kilometres (secondary paths	(regional paths)	kilometres	
	from regional paths)	(regional pacits)	kiloineu es	
Points	77	154	231	
Natural history exploration	Museums and exhibitions with up to 10,000 visitors	Museums and exhibitions with 10,000 to 30,000	Museums and exhibitions with over 30,000 visitors per year	
exploration	=	visitors per year	over 50,000 visitors per year	
Points	per year 66	132	198	
Observation of fauna		currence of rare species or large		
and flora	and animals	currence of rare species of large	i numbers of species of plants	
Points		276		
Geocaching	Dependent on the density of g	eocaches: regions with the high	act doncity racaiva 2rd dograa	
Geocucining	of significance; lowest density		est defisity receive sid degree	
Points	84	168	252	
ronnes	04	108	232	
	he sustainability of tourism			
Excessive &	New housing or infrastructure	New housing or infrastructure	New housing or infrastructure	
inappropriate	in environmentally sensitive	in environmentally sensitive	in protected areas, irretrievable	
infrastructure and	areas, without objections	or protected areas where	damage despite objections	
housing		objections (protests) were		
-		recorded		
Points	-126	-252	-378	
	1 <b>* *</b> • • • • • • • • •	Municipalities under the	Municipalities that are not	
Unprofessional	Municipalities under the			
	auspices of destination	auspices of destination	under the auspices of	
Unprofessional	auspices of destination management, participated	auspices of destination management that did not		
Unprofessional destination	auspices of destination management, participated in EDEN competition, but	auspices of destination	under the auspices of	
Unprofessional destination	auspices of destination management, participated	auspices of destination management that did not	under the auspices of	

Table 1. Proposed methodology (Author's own elaboration)

Insufficient environmental education	Municipalities where Tourist Information Centres provided neither information nor activities relating to ecology			
Points	-306			
Insufficient environmental legislation	Developed legislation with minor deficiencies	Legislation with serious deficiencies	Non-existent environmental legislation	
Points	-100	-200	-300	

Table 2. Resulting potential of the Giant Mountain region for sustainable tourism (Author's own elaboration)

Components	Harrachov	Rokytnice/Jizerou	Špindlerův Mlýn	Pec pod Sněžkou	Janské Lázně	Ø
Natural sightseeing	393	393	393	393	393	393
The territory of all monit of the UN, forms part of N						eserve
Landscape suitable for hiking	348	348	348	348	348	348
The Giant Mountains hav mountainous and the pop						ta /lrm2)
Landscape suitable for	261	261	261	261	261	261
cycling	-		-			201
The territory is mountain aesthetics, suitable off-ro		rger share of forests;	low population de	nsity and distincti	ve landscape	
Landscape suitable for cross-country skiing	207	207	207	207	207	207
The territory is located o					g snow cover,	the
terrain is suitable for cro					-	
<i>LS for rural tourism</i> The Giant Mountains are	303	303	303	303	303	303
municipalities have a sha Jizerou) and 99% (in Pec population density (see a	re of perman pod Sněžkou	ent grassland from th	e agricultural land	area of between 8	38% (in Rokytr	
Landscape suitable for forest tourism	321	214	321	321	321	300
This component is measu municipalities is high: be						
Landscape suitable for equestrian tourism	0	0	0	0	154	31
Landscape suitability for						
the 12km long trail know	n as "Beyond	the Mountain Views"	, which begins in tl	he resort, and end	s in Horní Albe	eřice
Landscape suitable for natural history	66	0	0	0	0	14
<i>exploration</i> Harrachov achieves a gra				tory exploration c	ategory becau	se of
mining museum, which h	as a visitor ra	te of up to 10,000 peo	ople per year			1
Landscape suitable for observation of fauna	276	276	276	276	276	276
<i>and flora</i> There is a great diversity	of plants and	animals in the territo	ry under consider	ation: there are at	least 15 000 s	necies
of invertebrates, 1 cyclos						
birds, 76 species of mam						
and flora are considered			01		1	
Landscape suitable for geocaching	252	252	252	252	252	252
The Giant Mountains reg	ion belongs pa	artly to Liberecký and	partly to Hradec I	Králové regions, w	hich are ranke	d
second and third in geoca	aching density	(1.05 and 0.72 cache	es per km2) in the	Czech Republic		
Excessive infrastructure	-378	-378	-378	-378	-378	-378
This component was me consideration by the loca threats to vegetation alo extension of downhill sk subterranial karst pheno	al authorities ng the watero iing slopes in	For example land an course; risk of floodir the first zone of GMN	nnexation in natur ng; interference wi NAP; the possibilit	ally valuable local ith species-rich m y of irreversible d	lities and subs eadows and fo lamage of	1
Insufficient environmental education	0	-306	0	0	-306	-122
			1		1	

Insufficient environmental education was found in both Rokytnice nad Jizerou and Janské Lázně, where Tourist Information Centres provided neither information nor activities relating to ecology						
Insufficient environmental legislation	-100	-100	-100	-100	-100	-100
As a result of the accession of the Czech Republic to the European Union, the environmental legislation was transposed to an almost developed one. Nevertheless, shortcomings in the Czech environmental legislation are caused mainly by too rapid development. Analysis of the Czech environmental legislation was realized with help of experts from GMNP and Czech Union for Nature						
TOTAL	1,949	1,470	1,883	1,883	1,731	1,785
% of the total potential	69.9%	52.7%	67.5%	67.5%	62.0%	63.9%

## 3. Discussion and conclusions

According to secondary data sources (point 5, above), all Giant Mountain resorts attained the highest number of points in the components of: *natural sightseeing, landscape suitability for hiking and mountain tourism, landscape suitability for cycling, landscape suitability for forest tourism, landscape suitability for cross-country skiing, landscape suitability for rural tourism, landscape suitability for observation of fauna and flora and landscape suitability for geocaching (Table 2).* The Giant Mountain resorts received an average of 1,785 points. This represents a score of 64% of the maximum possible attainable points (2,790).

Unprofessional destination management is not mentioned in Table 2 because it has not been identified in any resort. All municipalities falling under the auspices of destination management, participate in the EDEN<sup>3</sup> competition and all have previously been finalists in this competition. The key feature of destinations selected for the EDEN competition is their commitment to the social, cultural and environmental sustainability of tourism. This is therefore a credible form of certification.

As mountain resorts have only a limited influence on the natural potential and landscape suitability for tourism activities, it is necessary to focus on factors reducing sustainability. The most important is *excessive and inappropriate infrastructure and housing*. We propose that local development plans and their updates should be subjected to mandatory review by two environmental experts. The resulting independent environmental impact assessments and conclusions must then be respected by local authorities and tourism management. Environmental legislation and impact must be strictly adhered to in the case of granting building permits or amendments and serious consideration should be given to the objections and opinions of residents.

At present, the Ministry of the Environment is undertaking steps to integrate new European legislation on Environmental Impact Assessments (EIA) into Czech law. Such a move will undoubtedly lead to an improvement in the hastily created Czech environmental legislation.

We state that the Giant Mountains region is one of the more saturated destinations in the Czech Republic and its environmental and social capacity for facilitating tourism has become overstretched. This is in sharp contrast to the results of VYSTOUPIL ET AL. (2017), who conclude that, in most cases, the development of tourism in the Czech Republic does not place excessive pressure on environmental and socio-cultural aspects. They propose that government investment should focus only on selected locations with the highest potential for tourism development. We are closer to the position taken by YAN ET AL. (2017), who propose developing regional tourist sites to attract new tourists seeking authentic heritage experiences. We stress the necessity of ensuring that the limited financial resources of municipal or provincial governments are allocated to the sites and activities that are both sustainable and have relatively high tourist potential. Destination management should distinguish the sustainable tourism activities and expand their offering, while non-sustainable tourism activities should be suppressed. The sustainable tourism activities should be both recommended by experts and highly valued by tourists. The tourist

<sup>&</sup>lt;sup>3</sup>In 2014, the European Commission published guidance that assessing sustainable tourism potential should be the first step in preparing tourism products, stressing the importance of stakeholder groups in tourism and local development. European Destinations of Excellence is an initiative promoting sustainable tourism development models across the EU. The initiative is based on national competitions that take place every other year and result in the selection of a tourism 'destination of excellence' for each participating country. Through the selection of destinations, EDEN effectively achieves the objective of drawing attention to the values, diversity and common features of European tourist destinations (EUROPEAN COMMISSION, 2018).

valuation plays a crucial role since tourists are the consumers of tourism activities. The proposed methodology for assessing sustainable tourism potential, with respect to the character of mountainous areas, is systematic and could be reproduced in other mountain regions in the Czech Republic. It has extended the current methodological approach (e.g. BÍNA, 2002, PÁSKOVÁ, 2008) by incorporating attributes which reduce sustainability.

We are, however, aware of a certain number of shortcomings. The "*environmental education*" component should not only consider tourist education, but also education programmes for residents of all age groups (e.g. campaigns for children and students in school) as well as education programmes for tourist operators.

The "*Excessive and inappropriate infrastructure and housing*" component is measured only by their location and objections presented by residents. It should also consider the energy efficiency and environmental impact of each new construction. However, irrespective of its feasibility, this goes beyond the scope of our current study.

The opinions of residents and local businesses, as the main stakeholders, should be taken into consideration. In our article we have suggested activities that increase the potential of sustainable tourism and the opinions of local communities are considered only through content analysis of the municipal resolutions on objections, intentions, demands, contracts and tenders. The Czech legal system incorporates mechanisms to ensure local control over planned development projects and public contracts, but construction law is currently being reformed. This will make it easier for developers to build, while conversely making it harder for residents, or local civil associations, to control or resist their intentions.

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#### References

- Alcívar I., Bravo O. 2017. Turismo sostenible: una alternativa de desarrollo comunitario desde un componente cultural. *Espirales Revista Multidisciplinaria de investigación*, 9: 31–44.
- Alvarez-Sousa A. 2018. The Problems of Tourist Sustainability in Cultural Cities: Socio-Political Perceptions and Interests Management. *Sustainability*, 10: 503–516.
- Barreno C. 2011. *Zygmunt Bauman y la sociedad líquida, Esfinge apuntes para un pensamiento diferente.* Retrieved from https://www.revistaesfinge.com/filosofia/corrientes-de-pensamiento/item/757-56zygmunt-bauman-y-la-sociedad-liquida [16.11.2019].

Bauman Z. 2013. Vida líquida. Paidos.

- Bína J. 2002. Evaluation of tourism potential in the municipalities of the Czech Republic in Czech. *Journal Urbanismus a územní rozvoj*, 5, 1: 2–11.
- Bizzarri C. 2016. Opportunities and Costs of Tourism for a new Humanism. *Miscellanea Geographica*, 20: 13–18.
- Bujalský L., Březina S., Matějíček, L., Frouz, J. 2014. Light pollution caused by artificial lighting of slopes in the Giant Mountains National Park – in Czech. Opera Corcontica, 51: 109–124.
- Cardoso C., Castillo M., Hernández C. 2014. Sosteniendo al turismo o turismo sostenible. *Estudios y Perspectivas en Turismo*, 23, 2: 376–395.
- Chhetri P., Arrowsmith C. 2008. GIS-based Modelling of Recreational Potential of Nature-Based Tourist Destinations. *Tourism Geographies*, 10, 2: 233–257.
- Corte V.D., Gaudio G.D., Iavazzi A. 2014. Managerial Approaches to Sustainable Tourism and Destination Development. [in:] Proceedings of the International Conference on Tourism (ICOT 2013). Trends, Impacts and Policies on Sustainable Tourism Development. Cyprus University of Technology, Editors: Konstantinos Andriotis: 147–159.
- Cortez S.L. 2010. Strategies for the Development of Sustainable Tourism in the Amazon Rainforest of Bolivia. *Worldwide Hospitality and Tourism Themes*, 2, 136–143.
- Cottrell S.P., Cutumisu N. 2006. Sustainable Tourism Development Strategy in WWFPan Parks: Case of a Swedish and Romanian National Park. Scand. *Journal of Hospitality and Tourism*, 6: 150–167.
- European Commission 2007. Agenda for a sustainable and competitive European tourism, Brussels.
- European Commission 2014. Using Natural and Cultural Heritage for the Development of Sustainable Tourism in Non Traditional Tourism Destinations, Brussels.
- European Commission 2018. *EDEN European Destinations of Excellence*, Brussels.
- Flousek J., Vaněk J. 2012. *Fauna Krkonoš*. Správa Krkonošského národního parku, Vrchlabí.
- Frank S. 2016. Dwelling-in-motion: Indian Bollywood tourists and their hosts in the Swiss Alps. *Cultural Studies*, 30, 3: 506–531.
- Glavan V. 1996. *Tourist potential and its capitalization*. Fundației România de Mâine, Bukurest [in Romanian].
- Chlapek J., Hušek J., Jaskula F., Lehký J. 2009. Lyžování ve světle ochrany přírody. Ochrana přírody, 1: 22–24.
- Iatu C., Bulai M. 2010. A critical analysis on the evaluation of tourism attractiveness in Romania. Case study: the region of Moldavia. Proceedings of the 5th WSEAS International Conference on Economy and Management Transformation Timisiora (Romania). West University of Romania: 145–150.
- Jaros H. 2014. The public and economic aspects of the functioning of protected areas within a commune. *Miscellanea Geographica*, 19, 1: 24–28.
- Joo D., Tasci A., Woosnam K., Maruyama N., Hollas Ch., Aleshinloye K. 2018. Residents' attitude towards domestic tourists explained by contact, emotional solidarity and social distance. *Tourism Management*, 64: 245–257.
- KČT/Club of Czech tourists 2014. Krkonoše, turistická mapa 1:50 000. Praha: TRASA.
- Kisi N. 2019. A Strategic Approach to Sustainable Tourism Development Using the A'WOT Hybrid Method: A Case Study of Zonguldak, Turkey. *Sustainability*, 11: 964.
- Klapka P. 2008. Krkonoše a udržitelný turismus. *Krkonoše a Jizerské hory*, 41, 3: 24–25.
- Kliskey A.D. 2000. Recreation terrain suitability mapping: a spatially explicit methodology for determining recreation

potential for resource use assessment. *Landscape and Urban Planning*, 52, 1: 33–43.

- Krippendorf J. 1980. Marketing im Fremdenverkehr. Verlag Peter Lang, Bern and Frankfurt am Main.
- Kučera T. 2017. Krkonoše jsou podle sčítačů navštěvovanější než americký Yellowstone, Statement of Jan Hřebačka, Director of the GMNAP Administration, Retrieved from https://hradec.idnes.cz/navstevnost-krkonos-v-roce-2016dkq-/hradec-zpravy.aspx?c=A170221\_2307294\_hradeczpravy\_the [16.11.2019].
- Mamun A.A., Mitra S. 2012. A Methodology for Assessing Tourism Potential: Case Study Murshidabad District, West Bengal, India. *International Journal of Scientific and Research Publications*, 2, 9: 1-8.
- Mikulec J., Antoušková M. 2010. Use of GIS to analyse tourism burden – case study of protected landscape area Kokorinsko. [in:] UCLIO 2010: University conference in life sciences – proceedings: 278–286.
- Muntele I., Iațu C. 2003. *Geography of tourism: concepts, methods and forms of spatio-temporal manifestation.* Editura Sedcom Libris, Iași. [in Rumanien].
- Nestoroska I. 2012. Identifying tourism potentials in Republic of Macedonia through regional approach. *Procedia* – *Social and Behavioral Sciences*, 44: 95–103.
- Novotná M. 2007. Methodology of the evaluation of the geographic potential for tourism in the Plzeň region. *Moravian Geographical Reports*, 15, 2: 32–39.
- Nowacki M., Kowalczyk-Aniol J., Krolikowska K., Pstrocka-Rak M., Awedyk M. 2018. Strategic Planning for Sustainable Tourism Development in Poland. *International Journal of Sustainable Development World Ecology*, 25, 562–567.
- Oprea-Gancevici D., Cheia G. 2011. Touristic potential, management and development in the Rarău Massif. *Journal of Tourism*, 11: 76–85.
- Pásková M. 2008. Environmentalistika cestovního ruchu. *Czech Journal of Tourism*, 1, 2: 77–113.
- Paunovic I., Jovanovic V. 2017. Implementation of Sustainable Tourism in the German Alps: A Case Study. *Sustainability*, 9, 226.
- Pechlaner H., Tschurtschenthaler P. 2003. Tourism Policy, Tourism Organisations and Change Management in Alpine Regions and Destinations: A European Perspective. *Current Issues in Tourism*, 6, 6: 508–539.
- Plšková L. 2014. Hodnocení potenciálu řeky Orlice a okolí pro udržitelný rozvoj cestovního ruchu. [in:] *Dobrá praxe a udržitelnost v cestovním ruchu*. Univerzita Hradec Králové: 12–18.
- Potocki J. 2010. Pressure on natural environment in major tourist locations of the Karkonosze Mts in light of demographic trends and expansion of the tourist function of the region. *Opera Corcontica*, 47: 277–282.
- Prinskin J. 2001. Assessment of natural resources for nature-based tourism: the case of the Central Coast Region of Western Australia. *Tourism Management*, 22, 6: 637–648.

- Reichel A., Uriely N. 2003. Sustainable Tourism Development in the Israeli Negev Desert: An Integrative Approach. *Journal of Park and Recreation Administration*, 21, 14–29.
- Ruda A. 2016. Exploring Tourism Possibilities Using GIS-Based Spatial Association Methods. *Geophia Technica*, 11, 6: 87–101.
- Saarinen J. 2003. The Regional Economics of Tourism in Northern Finland: The Socio-economic Implications of Recent Tourism Development and Future Possibilities for Regional Development. *Scandinavian Journal of Hospitality and Tourism*, 3, 2: 91–113.
- Saiz-Álvarez J. 2018. Turismo sostenible y emprendimiento social. El pueblo mágico de Tequila, México. *Revista de Ciencias de la Administración y Economía*, 5, 8: 51–67.
- Špatenková I. 1996. Sledování vlivu sjezdového lyžování na vegetaci v subalpínském stupni Krkonoš. [in:] Monitoring, výzkum a management ekosystémů na území Krkonošského národního parku. Proceedings of the International Conference held on the occasion of the 45th Anniversary of Opočno Research Centers, VÚLHM, Opočno: 335–337.
- Štursa J. 2011. Velké kauzy: Labská a Luční bouda -Novodobé osudy bud na krkonošských hřebenech. Časopis Krkonoše – Jizerské hory, 5: 22–24 [in Czech].
- Štursa J. 2012. Flora Krkonoš. Správa Krkonošského národního parku, Vrchlabí.
- Telfer D. 2002. Tourism and regional development issues. [in:] D. Telfer, R. Sharpley (eds.) *Tourism and Development: Concepts and Issues.* Channel View, Toronto: 112–148.
- Timčák G.M., Vizi L. 2006. Tourism potential mapping and a dedicated GIS. [in:] *Trends, impacts and policies on tourism development*, International conference, Heraklion.
- Truhlička I. 2007. Krkonoše: příroda, nebo obří sídliště? [Giant Mountains: Nature, or giant housing estate?] Retrieved from http://cestovani.idnes.cz/krkonose-priroda-neboobri-sidliste-d7f-/pocesku.aspx?c=A071104\_130052\_ig igcechy\_tom [16.11.2019].
- Tsaur S.H., Wang C.H. 2007. The Evaluation of Sustainable Tourism Development by Analytic Hierarchy Process and Fuzzy Set Theory: An Empirical Study on the Green Island in Taiwan. *Asia Pacific Journal of Tourism Research*, 12: 127–144.
- Vystoupil J., Holešinská A., Kunc J., Šauer M. 2008. Teoreticko-metodologické a praktické přístupy k regionalizaci cestovního ruchu. *Ekonomická revue* cestovného ruchu, 41, 2: 105–117.
- Vystoupil J., Šauer M. 2011. *Geografie cestovního ruchu České republiky*. Aleš Čeněk, Plzeň.
- Vystoupil, J., Šauer M., Repik O. 2017. Quantitative Analysis of Tourism Potential in the Czech Republic. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 65, 3: 1085–1098.
- Wall G., Mathieson A. 2006. *Tourism: change, impacts, and opportunities*. Pearson Education.
- Yan L., Bo W., Zang M. 2017. Mathematical model for tourism potential assessment. *Tourism Management*, 63: 355–365.