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GEMSTONES IN GEOTOURISM

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Abstract: The study deals with the opportunities how to connect mining sites with precious gemstones exhibited in the museums. Seemingly unrelated fields, especially at first sight, display various pieces of information, which are mutually connected and inseparable and this way they both create an integrated concept about precious gemstones, which is truly important for geotourism, mining tourism and modern museology. Through examples and specific illustrations, the work points out to a specific connection of Dubnik opal mining site, as a significant mine, on one hand and precious gemstones represent central exhibitions in several European museums, on the other hand.

Key words: gemstones, geotourism, mining tourism

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INTRODUCTION

Gemstones have always fascinated people, therefore, they are partly responsible for fights and arguments about their ownership. They represent beauty, value and at the same time social status maybe not today but definitely in the old times. Thus, the possession of jewellery with gemstones have always been the privilege of wealthy, well-off and the most influential people. This might be also the reason why are contemporary people interested in jewellery with gemstones so much, this way they might come closer to the most famous people from the history. Whatever reasons for fascination by gemstones we may find, today, people visiting museums admire the beauty of gemstones on one hand, however, they also try hard to find as much information as possible to quench their thirst for knowledge about gemstones and become knowledgeable (Bell, 2008; Eckert, 1997; Köroğlu et al., 2009).

One way how to get to know gemstones is the geological genesis and here we must mention the study of geo-science, this way we come closer to geotourism (Gerner et al., 2009; Rybár et al., 2010a; Rybár et al., 2010b; Yolal, 2012; Hronček, 2013). The aim of the work is to point out to the invisible interconnection of two, at first sight not related worlds - gemstones and jewellery on one hand, and geotourism with the

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geological origin, on the other one. Nowadays, similar topics are the subject of interest of many researchers, not only in the field of geotourism (Domaracká & Muchová, 2013; Kršák, 2011; Toredas, 2010; Weis, 2012).

RESEARCH

The insight of the visitors to the gemstones have always developed, however their beauty fascinated people equally 10 or 100 years ago, of course the range of information that is interesting for the tourists is higher and higher. They are interested not only in the history but at the same time they search for thematic information. This way a lot of pressure is put to the tourist guides in the museums. Sometimes, even a knowledgeable person cannot answer all the questions from various fields.

To reveal what fascinates the tourists and what catches their attention, a research has been conducted, where our respondents have answered 12 questions. There was no influence as the questions were not in groups. Respondents could choose 5 questions that caught their attention and then they stated numbers 1-5, with 1 for the most interesting question and 5 for the least interesting one.

Later we put these questions into 3 groups, each group consisting of 4 questions. The first group included historical questions, the second one –technical questions and the last one consisted of geological and mining questions.

Before the final analysis, it was expected that historical point of view will be most interesting – as we are used to hearing a lot of historical information during the visits of the museums. The largest number of people was actually interested in geological point of view – specifically: What gemstone is it? Regarding the number of people interested, this question was the second one most often asked. The research proves that the respondents are interested in geological or possibly mining background of the gemstones. This is the reason why we want to point out to the geological and mining background of the chosen gemstones used in jewellery.



Figure 1. Connection between museum and mining area

DUBNÍK REGION MINES

Dubník mining deposits of gemstone are extraordinary from global point of view. We cannot find it anywhwre else in the world, in such numbers and so early in history as it was here in Slovakia. In the 19th century opal deposits were found in Mexico and Australia. And despite the fact, the mining in that region in Australia today is comparable with the opal mining in Slovak Dubník region 150 years ago, where we had more than 25 000 karat.

Regarding beginnings of opal mining in Slovakia, we have no written records and no evidence. Ancient authors wrote about gemstones, as strange and unique gemstones of 60 colours allegedly with magical power hidden in them.

Their original place of occurence was India, since according to records they were colourful and other features typical for Dubník region opal proved that they 8

might possibly be from that region - Dubník. The first written records about the opals in that region are from the 14th of May 1597, when the emperor Rudolf II, gave an obligation for mine maintanance to Albert Magnus from Vratislav. Another record is a rescript from the 5th November 1603, given again by Rudolf II to Štefan Kecer, the owner of the land above the mines. A personal doctor of the emperor Rudolf II, Anselm Boetius de Boot mentions an old mine with gemstones in his work -Gemmarum et lapidum historia from 1609, which proves the mining history of that region, as stated in the written records. Another information about the gemstone opal comes from the pater Brown from 1673.

According to him, we could find unformed opal, expensive one, and larger than a fist in the collection of the emperor's mineral room. In 1771, the largest well-known opal with the weight 607g, which was for its beautiful and original colours named Harlekýn (Vienna Imperial Opal) was found, allegedly not far from the stream Olšavka, flowing from Šimonka and today it can be found in a Vienna museum.

In the 17th and 18th century the owners of the land were changing, however nobody led the mining activity effectively till the 19th century. In 1830 - 1845 Gabriel Fejerváry hired the mines in the region. Mr.Fejerváry, an amateur geologist and archeologist, who established the basis of new effective opal mining, started to use modern mining technologies and this way he made the process of mining much more effective. At the end of this period we could see prosperity of the mine however it was not under his administration.

According to an auction process, in 1845 - 1880 the mine was hired by the Goldschmidt family. Salomon G. – a Vienna jeweller and a businessman brought some other positive changes. This is the time when Dubnik opal mining came to its zenith and we could record enormous prosperity. Adolf, the jeweller's son, was awarded for his contribution to the development of mining here by noble (aristocratic) predicate "Libanka". There were employed over 400 miners and mining activity was done in a larger range. For example, a little mining railway in the tunnel Viliam was constructed. At the same time, new mining pits and tunnels were created.

The period of mining led by small businessmen was finished because of the financial problems at the end of the 19th century, when the maintainance of the mine was given to the state. After the initial revival of the mining activity, stagnation was recorded mines were still in use however we cannot see any special results in mining activity. During the WWI the world trade was influenced badly, which had bad impact on the opal trade as well. In 1914 the state set regulations upon the opal production purposefully. The last mining work was recorded in 1918. Symbolic end of this so called "only crucial survival" came together with the end of the WWI. During the period between years 1918 – 1922, there were various unsuccessful attempts for the revival of opal mining in that region. Anyway, finally, the process of opal mining in Dubnik region was stopped in 1922.

Consequently, Dubník opal mines were labelled as protected area in 1964 and later changed to protected area with the occurence of wintering bats, being one of the largest in central Europe. In old mining buildings, it is worth seing secundary sulphates and disulphates, limonite pseudokasrt, colourful little lakes of acid solutions (liquids) and beautiful ice decoration occuring frequently (Budkovič, 1970).

Regarding the protection of this historical and natural treasuure, at the end of 1999 a Charity - Dubnik opal mines - was created. Since 2005, Dubník opal mines have been hired again. Nowadays, there is higher interest in revival of opal mining, the prettiest Slovak gemstone (Opal mines Dubnik). The current time of industrial downsizing allows one to discover the cultural and tourist features of the mining towns, where increasing numbers of tourists are attracted every year, eager to visit the industrial heritage assets (Iancu & Stoica, 2010).

Prepared mining plans including research results, soon will be used in practical way. There is still possibility to use mining area similar to other closed mines, as the object of montain tourism. We can have as model regions in Germany (Drebenstedt & Domaracká, 2011). A current owner of the mine is planning mainly to put the unique Slovak gemstone to the world market.

PONTIFICAL RING WITH GEMSTONE OPAL

Dominant part of the ring, created from massive cast and cultivated gold, is precious opal, which was refined into an oval shape. Opal is surrounded by 19 little gemstones - brilliants out of which 17 are diamonds, 2 missing diamonds were substituted by zircons in 1940.

Precious opal of yellow-greenish and bluish phosphorescence is with regard to its size (13 x 17mm) special and remarkable gemstone. The central stone is carried by a couple of angels (with wings coming from their heads). Archbishop Theodor Kohn (1893–1904) asked a well-known Roma jewellery company Orazio Negri & Co, to create a ring with the precious opal for him, probably during his first journey *"ad limina apostolorum*". In the period church annals, regarding its cost, the value of the ring was evaluated as high as 2 000 golden coins.

According to Kohn last will in Ehrenhausen from the 8th of April in 1915, it can be seen that the ring with the diamonds was inherited by former ceremonialist and assistant secretary František Botka. At the present time, this artefact is the property of Olomouc Archdiocese and is currently in a Museum of Art in Olomouc.



Figure 2. Pontifical ring with gemstone opal (Source: Museum of Art in Olomouc, 2013)

A BROOCH AND A BRACELET WITH GEMSTONE OPAL

It is a bracelet and a brooch with gemstone opal in gold 580/1000. The diameter of the bracelet is 6,6cm and the weight is 10,45g, while the length of the brooch is 5cm and its weight is 4,9g.

The jewellery is labelled- Rosenberg 7893, Austrian import carat mark, used in 1872. A bracelet is composed of the decoration of oval opal, four flashing ruby knobs and little pearls and beads. The brooch is created in the same motive like the bracelet. The jewellery was created in the western or central Europe between the years 1890 - 10

1900. The jewellery is put in the original box-etui. It was bought by antique shops in 1965 for 1 150 Sk. Nowadays, a bracelet and a brooch with precious gemstone opal can be seen in Morava gallery in Brno.

HARLEKÝN – VIENNA IMPERIAL OPAL

In 1873, in Vienna a whole range of various precious gemstones and opals was exhibited on a world exhibition. Spectacular collection of opals, which was introduced here, was exceptionally interesting not only from the jewellery and shaping (hewing) point of view, but at the same time it was a great example of treasure regarding geological, mineral and mining attitude.

The world-famous exhibition in Vienna meant a real flashpoint and a top of rising opal price. We could watch such high price even after the end of the Goldschmiedt hire period (So for instance a cameo from opal, beautified by flashing knobs (ruby stones) and emeralds on the edges, decorated by a design of Queen Elisabeth, cost 26 000Ft. Another cameo with a design of František Jozef I, beautified by brilliants, cost 15 000Ft. A gemstone necklace from expensive opals cost 65 000Ft Golden head-band with precious opals cost 20 000Ft and so on).

Some artefacts which were valuable have changed their owner over the centuries. It can be claimed that a carat-mark of a colourful precious opal was estimated for 25 to 30 Ft. During the exhibition in Vienna, the Goldschmiedts practically showed all sorts of opal, which were being mined in Dubník region during a 28-year-long hire period.

So not only those refined opals embedded in gold or silver and the accesories with other precious gemstones (at that point we must mention that opal goes perfectly well with brilliants, sapphires and topaz and is therefore valuable - it was valued as much and estimated around 500 000 golden coins), but also the opals in their crude form in their maternal trachyte, together they offer great experience for any gemstone lovers. It is also well-known that previously mentioned opal "harlekýn" weighing 600g (3000 caratmark), 12cm long, 6cm wide, 2-7cm thick, was interesting also as a wedding present for English queen for its period price and beauty.

A Dutch merchandiser with gemstones offered half a million Ft. for this masterpiece. However, it was said, that they chipped the stone, and separated only a smaller part, about as big as an egg. In other materials, we see that extremely precious opal can be seen on the buckle of the corronation coat of a French king. That time, they allegedly bought it for 30 000 golden coins (Eckert, 1997).



Figure 3. Opal milky together with gemstone opal (Source: Slovak mining museum in Banská Štiavnica, 2013)

OPAL IN A SLOVAK MINING MUSEUM

In Slovakia we can find expensive opal in Slovak national museum in Banska Štiavnica. Precious opal belongs to more important collections, which was bought by the doctor Samuel Bothár, who was a Banska-Bystrica doctor and a mineral collector, a part of his great collection can be seen in the Slovak mining museum and a part also in Tihányiovsky mansion in Banska Bystrica. Samuel Bothár owned also milky opal with gemstone opal with the measurements 12x7x4 cm. Allegedly bought for 220 Kč. It was original in the collection of the State Mining Museum of Dionýz Štúr. A beautiful collection of gemstone opal is 7x7x6cm. The original owner was Mrs.Wittichová, M. Later Mr.Ľudovít Cseh, a mining gelogist in Banska Štiavnica got it and finally Mr.František Fiala obtained it for the State Mining Museum of Dionýz Štúr.

POSSIBLE CONNECTION BETWEEN GEMSTONES AND GEOTOURISM

Regarding time horizon, possible interconnection of museum exhibits with geological or possibly mining sights within two horizons.

Short-term horizon:

- creation of informational system, consisting of information about precious gemstones and their origin, creation and mining from 2 different points of view, the first one available for the broad public, offering information, pictures, videos and maps for the visitors (Hvizdák, 2013). This part of the informantional system would be published in popular but educational (science) style, and it would be easily and freely affordable through the web application;

- the second part would represent detailed information about the gemstones, exclusively in scientific form. As this piece of information would be addressed to tour guides in the museums, geological or mining sights, it would be a closed system with controlled access privileges. However, to make it affordable for these people, it would be online alike;

- mutual promotion and advertising - leaflets and brochures about similar sights suitable for visitors. This informational material would refer to original land - mining region, where the gemstones were mined, or possibly would refer to similar gemstones.

Long-term horizon:

- proposal and encouragement of strong cooperation between museums, mining or possibly geologal regions, in terms of informnation exchange and lending of museum collection;

- workshops and conferences organization, with the opportunity to exchange priceless experience;

- organisation of sight-seeing tours for museums where the tour guides would be offered a chance to see the original place of gemstones occurence and the genesis of mining would be presented to them.

CONCLUSION

At present, we live in the period of information, thus, the amount of information about particular exhibits, interesting for the visitors of museums, is equally constantly growing. This tendency can be similarly observed also in the increase of the interest in precious gemstones and jevellery. During the research, it has been discovered that the growth occurs not only in the quantity of information, but also in the aspect of visitors' involvement or public interest, regarding mainly fields like geology and mining history. This creates the possibility for connection of precious gemstones and jewellery as museum exhibits with mining tourism and geotourism.

Museum exhibits of precious Dubnik opal mined in our chosen area are a great example of the previously mentioned relation between these two fields. Since these exhibits can be seen not merely in Slovakia, but also in other European countries, it is 12 necessary to create certain informational system – for example a web apliccation, which would be a huge contribution to the spreading of information for common users speaking several foreign languages. This would lead to a natural opening of opportunities how to get to know these attractions and how to become familiar with them in much broader sense, not only within a regional area, but also in a wider European concept.

It is indeed essential to create partnership of the relevant institutions, which would encourage and supplement each other, consequently they would establish the knowledge interconnection themselves and hence they would extend the opportunities for their visitors. Regarding the tourists' visiting rate, it can be considered only later whether the visit rate grew or not. Only after the realization of these proposals we can judge how effective they were.

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A CURRICULUM FOR LEARNING NATURE VALUES. CASE STUDY: LEARNING GEODIVERSITY FROM BISTRIȚA ARDELEANĂ GORGE (BISTRIȚA-NĂSĂUD COUNTY, ROMANIA)

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Abstract: In the process of conservation of geological heritage should be involved, in addition to specialists, local communities, rangers, authorities and tourists. This requires an appropriate educational setting to organize and coordinate the activities of identification, evaluation and protection of geodiversity. This framework can be assured by the curricula for learning the values of nature, which is a concept proposed by Grundtvig project "Lena-Learning nature values in Europe" in the period 2012-2014, under the "Lifelong Learning" Program funded by the European Commission, with the participation of environmental associations, groups of specialists and learners from Estonia, Italy, Finland and Romania. A curricula for learning nature values it `s a document structured in such a way to allow all interested parties of nature the acquisition of knowledge and skills to identify, evaluate, promotion, development and preservation of natural elements belonging to biodiversity and geodiversity. This study proposes a curriculum for learning geodiversity, i.e. geological structures (rocks, minerals, fossils), soils and landforms with scientific, ecological, aesthetic, cultural and economic values. The application in practice of this curricula was done with the opportunity of setting up the Action Plan for conservation of geodiversity from Bistrita Ardeleană Gorge (Bistrita-Năsăud County, Romania), which was attended by several stakeholders (county and local authorities, local community, students, pupils, mountain rescuers).

Key words: geodiversity, geosite, geomorphosites, geoheritage, geoabundance, geotourism, geoparks, geoconservation, curricula, lifelong learning, Grundtvig

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INTRODUCTION

The geodiversity is a concept used by geologist in the 1990s to describe the variety of abiotic nature. Meanwhile, this new term has received numerous definitions, as follows:

- the link between people, landscape and their culture: it is the variety of geological environments, phenomena and processes that make those landscapes, rocks, minerals, fossils and soils which provide the framework for life on Earth (Stanley, 2001);

-geological diversity or the variety of rocks, fossils and minerals and natural processes (Prosser, 2002);

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- geodiversity underpins biodiversity (Burek, 2001), and represent the abiotic factors, which together with biodiversity give a holistic view of the landscape (Burek, 2002);

- the variety of earth materials (minerals, rocks, sediments, fossils, soils and water), forms (folds, faults, landforms) and processes (tectonics, sediment transport, pedogenesis) that constitute and shape the Earth, either the whole or a specific part of it (Gray, 2003).

The geodiversity, as part of geosystem, has an economic, social, cultural, environmental and educational importance, highlighting by follow aspects:

-it provides the raw materials for building (stone, clay, gravels, sand), the fuel (coal, oil, gas), metals for industry, and the soils for agriculture;

-the location of many settlements is influenced by the distribution of mineral resources (coal, oil, metals), water (ground waters, surface waters), soils (fertile, less fertile), and landforms configuration (altitude, energy, fragmentation, slope, orientation);

-geodiversity plays a major role in defining the landscapes (landforms, soils, natural and anthropic processes);

-the complex relationships between geology, natural processes, landforms, landscape, soils and climate are fundamental to the distribution of habitats and species;

-geodiversity plays a key role in environmental regulation (absorbing pollution, buffering climate change, filtering, purifying and storing water);

-spectacular geology forms the backdrop to many of most popular tourist locations, and the geosites are often of great recreational and tourism value, inspiring people to enjoy or learn about nature;

-many geodiversity sites are used for outdoor education, because they provide a chance to study ancient volcanoes, caves, landslides, environmental change, and collect and record fossils or minerals.

Along with biodiversity and cultural creations, geodiversity it's part of the total assets of a geographical area, and its knowledge is needed to establish the geological and geomorphological sites and to elaborating the strategies for protection and conservation of natural heritage. The geodiversity concept is associated with other two terms: geoconservation (intention and action to conserve natural abiotic values) and geoheritage (significant abiotic elements to be preserved). In this context, geodiversity is the basis for geoconservation and a way to preserve the geoheritage of a region, because Value + Threat = Conservation Need.

Inventory of geodiversity and geoconservation has strong traditions in Australia, Tasmania, the Nordic countries (Sweden, Norway, Finland, Denmark, Iceland), the United Kingdom and the United States, where it have been drawn up Geodiversity Audits and Action Plans for the conservation of the various geosites. There are many geoconservation method, such as secrecy, physical restraint, reburial, excavation/ curation, permitting/licensing, supervision, benevolent ownership, legislation, policy and education (Gray, 2008b).

The last of this methods, education, can be applied to all elements of geodiversity, because knowing the nature is first step towards geoconservation, and the greatest threat to geodiversity is ignorance (Gray, 2003). In the Action Plans for geoconservation are more themes, among which we can mention the following three, aiming learning geodiversity values: to enhance local understanding of geodiversity, raise awareness, understanding and inspire people to value their local geodiversity, and collecting and managing information on local geodiversity.

Gray (2008 b) argues that education on geodiversity issues can be done in school and university using a suitable Earth science curricula. In addition with the systematic study of geodiversity other forms of learning can be organized, such as: training courses for local government and planning officers, politicians, nature conservation and ranger staff, etc.; television shows; magazine and newspaper articles; websites; museums; visitor centres; parks and geoparks; site-interpretation panels; visitor activities such as fossil and mineral collecting; geological trails with accompanying leaflets; special events such as geology weeks etc. (Gray, 2003), and learning projects for natural values.

One such project it`s Grundtvig: Learning natural values in Europe (LENA), during the period 1 August 2012 - 31 July 2014 in the framework of "Lifelong learning" Program, funded by the European Commission, with the participation of environmental associations, specialists and learner from Estonia, Italy, Finland and Romania.

The project aims to implement nature conservation activities in Europe through education and providing opportunities for adults to improve their own lives, and the objectives of the project are:

- bringing together people of different target groups who are interested in nature and its values;

- educating people with long-term experiential experts on nature and outdoor learning methods (biologists, geographers, geologists, guide managers, curators, etc.);

- improving knowledge of people about the nature and values in Europe;

- helping adults people improve their way of living;
- development of educational methods of nature conservation;
- knowing people through international cooperation;

- raising awareness about environmental issues and providing advanced solutions to address them through education (www.learning-nature.eu, http://harta-verde.ro/proiecte/learning-natural-values-europe).

The final result of this project will be the development of a curriculum for learning natural values in Europe to serve all those who perform nature-related activities such as geoconservation, ecotourism planning etc.

In this context, the present study proposes a curriculum model for learning natural values of the geodiversity, which can be used both by local communities, specialists and other stakeholders who want to gain more knowledge about their abiotic environment, to act the protection and conservation of natural values.

METHODOLOGY

To accomplish this study were taken the following steps:

-consulting literature in geodiversity (Azevedo, 2006; Bâca, 2011; Brilha, 2005; Burek, 2001; Burek & Potter, 2002; Burek & Potter, 2006; Farsani et al., 2011; Gordon et al., 2012; Gray, 2003; Gray, 2008a; Gray, 2008b; Ilieş, Josan, 2007; Ilieş et al., 2009; Ilieş, Josan, 2009a; Ilieş, Josan, 2009b; Martinez-Frias et al., 2009; Kiernan, 1996; Kiernan, 1997; Kozlowski, 2004; Nieto, 2001; Pemberton, 2000; Piacente & Coratza, 2005; Prosser, 2002; Ruban, 2010; Soutberg, 1990; Sharples, 1993; Stanley, 2001);

-consulting some Geodiversity Audits and Action Plans and Reports drawn up for specific areas (Australian Natural Heritage Charter, 1997; Australian Natural Heritage Charter, 2002; Durham Geodiversity Audit, 2004; Doncaster Geodiversity Assessment, 2007; Local Geodiversity Action Plans–Setting the context for geological conservation, 2006; North Pennines-Geodiversity Action Plan, 2010);

- participation to Grundtvig project LENA-Learning nature values in Europe 2012-2014;

-conducting field research to establish the practical methodology for learning natural values;

-camp theme for inventory, assessment and learning geodiversity in Bistriţa Ardeleană Gorge (Bistriţa-Năsăud County, Romania) and to elaborate The Action Plan for this geographic unit;

-consulting papers about Bistriţa Ardeleană Gorge area (Naum & Butnaru, 1989; Bâca & Şteff, 2010; Bâca & Ştefănescu, 2014).

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RESULTS AND DISCUSSION

The curriculum for learning geodiversity is a document that can be used by people involved in the act of ecotourism (guides, instructors, animators, planners, local communities), in geoconservation action, in landscaping, and in learning activities for different age groups.

The structure of a such curriculum was discussed and outlined in the Grundtvig project LENA-Learning Nature Values in Europe 2012-2014 (Lifelong Learning Programme, with reference number GRU-12-P-LP-220-BN-EE) in meetings in Rome (Italy, Figure 1) and Haapsalu (Estonia, Figure 2) and is as follows (table 1):



Figure 1. A learners group at Ostia Beach in Italy, 2012

Figure 2. A learners group at Salajoe Karst Area in Estonia, 2013

Table 1. The structure of curricula for learning natrual values

Chapter of curricula	Specificity
Argument	Developing a curriculum for learning natural values, in this case the number and complexity of geological features and landforms, is particularly important because the landscape is the support of all components of environment (water units, plants, animals, soils, human settlements, economic activities), and an attractive target during any type of recreational outdoor activities (hiking, cycling, climbing, etc). Once developed, this curriculum will help educate local communities and specialists in planning, and will support the actions of the inventory and evaluation of geodiversity.
Objectives	a) General objective The general objective of this curriculum is the acquisition of knowledge about the genesis, evolution, typology, distribution, impact, economic exploitation, protection and preservation of geodiversity in a reference area.
	 b) Specific objectives As specific objectives for this curricula can be mentioned: to learn more about landforms, geological and geomorphological processes; to identify landforms, rocks, mineral and soil types; to learn about the effects of human impact to lanforms and geomorphological landscape; to protect the landforms, the geosites and the geomorphosites; to educate local communities, local government and planning officers, politicians, nature conservation and ranger staff.

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Learning tools	-representative places of learning (protected areas, geomorphosites,
	geological structures, outcrops, etc.);
	-DOOKS;
	-topographic geological geomorphological and tourism maps:
	-equipment (clothing, footwear, photo camera, video camera, binoculars,
	GPS, notebook, etc.).
Learning methods	-explanation;
	-direct observation;
	-non-unect observation;
	-demonstration:
	-discussions.
Stages of learning	a) Indoor stage:
0 0	-consultation of specialized materials about rocks, minerals, fossils,
	landforms (genetic types, models of evolution, environmental impact,
	-setting the parameters characterizing landforms geomorphometry
	(altitude, slope, fragmentation, energy) and attractive features (peaks,
	ridges, cliffs, beaches, waterfalls, gorges, canvons, rock formations, etc):
	-watching photo and video materials about specific geomorphological
	processes (erosion, accumulation, volcanic eruptions, etc) and landforms;
	b) Outdoor stage:
	-study trip and camps in nature;
	-completion of routes and representative field identification of rocks,
	numerals, lossils, soils, landiornis, present peuologic, geologic and
	-performing hiking thematic camps or trips
	-establish the regional geosites.
Actions	-preparation of materials and equipment;
	-establish the route or place of learning;
	-identification of landforms, minerals, rocks, soils and providing
	specialized information related to it;
	-observation, analysis and comparison of the landforms, rocks, soils and minerals:
	-taking pictures and video with landforms and rocks encountered;
	-mapping landforms, rocks and processes;
	-completion of observation sheet;
	-creating portfolios (conventional and digital);
	-creating the local geodiversity map or geotourist map.
Assessment of	a) Quantitative aspects
learning process	-enumeration of rocks, minerals, fossils, soils and fandforms identified on
	-the development of the inventory sheets or portofolias for rocks minerals
	soils and landforms types.
	b) Quality aspects
	-genetic and evolutionary classification of rocks, minerals, soils and
	landforms;
	-mentioning the attractiveness of rocks, minerals, solis and landforms;
	-description of modeling processes and anthropogenic impact acting on the
	rocks and fandorins;
	-establish the relationship between geodiversity and hiodiversity
Results	-acquisition of knowledge and skills to identify rocks, minerals, fossils, soils
	and landforms in the field, to specify their economic, environmental and
	attractive potential and to establish the recovery and conservation mode.

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This curriculum model is general, but it may be adapted, in particular, depending on targeted field (rocks, minerals, fossils, soils, landforms, geological and geomorphological processes, etc.), and purpose (inventory, evaluating, planning, conservation) (Figure 3).

Participants in this project for learning the values of nature will be able to convey this curriculum to others in their environment, interested in the natural values, on different occasions (travel, visits in protected areas, development of recreational areas, conferences, symposiums, etc.).



Figure 3. The implement model of curricula for learning nature values and rise public awareness



Figure 4. Geographical position of Bistriţa Ardeleană Gorge in Easthern Carpathian Chain of Romania (source: http://www.welcometoromania.ro-with changes)

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This model of curriculum for learning geodiversity were applied for inventory and assessment of geodiversity from Bistrița Ardeleană Gorge, and to elaborate The Action Plan for geoconservation in this area.

The Bistriţa Ardeleană Gorge are located in the eastern part of the Bistriţa-Năsăud County, in Bistriţa Bârgăului commune (Figure 4, 5), are oriented in the WNW-ESE direction, have a length of 6 km and connecting The Bistriţa Bârgăului Depression and Colibiţa Depression. This geographical unit were carved in the volcanic conglomerates of Călimani Plateau (ashes, sands, gravels, andesitic blocks) from the upper pliocene by paleo Bistriţa River.

In this project attended by volunteers from the local community Bistriţa Bârgăului, City Hall Bistriţa Bârgăului employees, students from Faculty of Geography and Phisical Education and Sport from Babeş-Bolyai University, Bistriţa Extension, Mountain Rescue Team of Bistriţa-Năsăud County.



Figure 5. Geographical localisation of Bistriţa Ardeleană Gorge in Bistriţa-Năsăud County (source: http://hartaromaniei.eu/judete/Bistrita-Nasaud.jpg-with changes)

The project has completed the following steps:

a) the presentation of the area and its geodiversity represented by landforms carved on volcanic conglomerates (video and photo);

b) the development of inventory sheets for identify the main landforms (Figure 6);

c) field trip in Bistrița Ardeleană Gorge to identify the geodiversity and to complet the inventory sheets;

d) establish of regionaly geosites in Bistrița Ardeleană Gorge;

e) achieving of an indicative map with the main elements of geodiversity (Figure 7);

f) drafting the action plan for geoconservation of this area.

After inventory and assessment operation were established the following geosites: Soimu Valley, Stegea Valley, Repedea Valley and Piatra Mare Massif, wich was evaluated by few criteria (table 2). At the end of this project, at Bistrița Bârgăului City Hall, was 20 A Curriculum for Learning Nature Values. Case Study: Learning Geodiversity from Bistrița Ardeleană Gorge (Bistrița-Năsăud County, Romania)

structurated The Geodiversity Action Plan for Bistriţa Ardeleană Gorge which will form the basis of the proposal to create a geopark and an adventure park in this area (table 3).

Lo cation	
First and last name	
Ageyears	
Organization	
Identified landforms:	
1) residual sb pes	
2)cliffs	
3)residual ridges	
4)residual peaks	
5)cryonival lanes	
6)ravines	
7)excavations	
8)caves	
9)falls	
10)steps in the riverbed	
11)rapids in the riverbed	
12)blocks acumulation in the riverbed	1
13)debris embankment	
14)aluvial fans	
15)gullys	
16)landslides	
17) fo rest roads	
18)ero sional levels	
Number of identified land forms	

Figure 6. The model of the inventory sheet for geodiversity of Bistrița Ardeleană Gorge

	5		, 8	
Geosite	Şoimu Valley	Stegea Valley	Repedea Valley	Piatra Mare Peak
Acces	Forest road	Forest road	Forest road	Paths
Scientific	Erosional	Erosional	Erosional	Erosional
value	processes in	processes in	processes in	processes in
	volcanic	volcanic	volcanic	volcanic
	conglomerates	conglomerates	conglomerates	conglomerates
Ecological	Forests, mammals,	Forests, mammals,	Forests, mammals,	Forests, mammals,
value	birds, reptiles	birds, reptiles	birds, reptiles,	birds, reptiles
			protected area	
Aestetic	Residual rocky	Residual rocky	Residual rocky	Scenic point,
value	formations	formations	formations	residual rocky
				formations
Educationl	Residual	Residual	Residual	Residual
value	landforms, forest	landforms, forest	landforms, flood	landforms
	ecosystem,	ecosystem,	erosion	Observation point
	consequences of	consequences of	consequences,	
	deforestation	deforestation	protected area	

Table 2.	Regionaly	geosites in	Bistrita	Ardeleană	Gorge
		0			~ ~ ~ ~ ~ ~ ~

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Economic	Forest	Forest	Forest	Collect the berries
value	exploitation, capture hydropower plant, collect the berries and mushrooms	exploitation, collect the berries and mushrooms	exploitation, collect the berries and mushrooms, capture hydropower plant	and mushrooms
Threats	Deforestation, floods erosion	Deforestation, floods erosion	Deforestation, floods erosion	Deforestation



Figure 7. The geomorphological map of Bistrița Ardeleană Gorge

Table 3. The structure of	Geodiversity Actio	on Plan for Bistrița Ardelean	ă Gorge
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Themes	Objectives	Actions	Timescale	Costs	Partners	Obs.
Enhance local	Rise	Field trips,	2014-2016	in the	Primary School of	
understanding	awareness and	video	-	course of	Bistrița	
of geodiversity	interest of	projections,		establish	Bârgăului, Babeş-	
	local	symposium,		ment	Bolyai University,	
	communities,	development			Bistrița Bârgăului	
	local	of brochures,			City Hall,	
	authorities,	location of			Local Action	
	and tourists	information			Group Bârgău-	
		boards			Călimani	
Collecting and	Implementati	Development	2014-2016	in the	Primary School of	
managing	on of a	of		course of	Bistrița	
information on	database	questionnaires		establish	Bârgăului,	
local		Processing		ment	Prundu Bârgăului	
geodiversity		information			Highe School,	
		from the locals			Babeş -Bolyai	
					University	
					Harta Verde	
					Association	

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Conserving and managing local geodiversity	Development of strategies	The establishment of thematic routes, identify high-value geosites	2014-2016	in the course of establish ment	Bistriţa Bârgăului Forest administration Bistriţa Bârgăului City Hall Babeş-Bolyai University	
					Harta Verde Association	
Construction of facilities for tourism and leisure	Tourist exploitation of the area, increasing the income of the local population, promoting the image of the area	Arranging places to rest, observation towers, information boards, camping	2014-2016	in the course of establish ment	Bistriţa Bârgăului Forest administration Bistriţa Bârgăului City Hall Local Action Group Bârgău- Călimani	
Achiving geopark status	Protection and conservation of geodiversity	Drawing up the specific documents	2014-2016	in the course of establish ment	National Agency of Environment, County Council Bistrita-Năsăud	

CONCLUSIONS

Learning natural values of biodiversity and geodiversity is a necessity, because education is the basis for all planning activities, recovery and conservation of natural heritage. Community awareness of the natural values of its life is a task that must be well established methodological framework with which must operate all who developed cultural and educational activities, management, planning and conservation (teachers, students, guides and tourist entertainers, tourists, managers, planners, nature rangers, professionals, volunteers).

Therefore, a curriculum for learning natural values is particularly important because it provides learning algorithm and ensure goals and objectives for rational use of natural elements and their conservation. The function and utility of this curriculum has been demonstrated in the project Bistriţa Ardeleană Gorge Geodiversity-Action Plan where were involved numerous persons and institutions who have contributed to the identification and evaluation of geodiversity of this area.

Aknowlegements

This contribution presents some results from researches Grundtvig Project LENA-Learning nature values in Europe 2012-2014, and The Geodiversity Audit and Action Plan of Bistrița Ardeleană Gorge Project, developed in partnership between Bistrița Bârgăului Local Council and Babeş-Bolyai University, Faculty of Geography-Faculty of Physical Education and Sport, Bistrița Extension. The author wished to thank to Harta Verde Association Bistrița, Romania, for opportunity to participate at this project, and to anonymous reviewer for their thoughtful suggestions and comments.

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GEOHERITAGE AS THE BASIS FOR GEOTOURISM DEVELOPMENT: A CASE STUDY IN JELI DISTRICT, KELANTAN, MALAYSIA

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Abstract: Jeli is a district in the state of Kelantan, Malaysia, which blessed with many beautiful geological landforms/landscapes, unique geological phenomena and precious earth materials. They are potential geological heritage of the area. Identification, mapping, and description have been conducted to establish the new inventory of geoheritage sites within the district. Some potential geoheritage sites of Jeli district have been inventoried such as Gunung Reng (mogote hill), Jeli Hot Spring, Pergau Lake (dam), gold deposits in Kampung Kalai, Lata Janggut (cascade), Sungai Rual (river), Lata Renyok (waterfall), Lata Chenai (cascade) and Setir Cave complex. All these spots should be conserved and developed to maintain and protect natural and geological attractions while supporting the geotourism development in the state of Kelantan.

Key words: inventory, geoheritage, geotourism, Jeli district, Kelantan

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INTRODUCTION

Geological heritage (or usually called 'geoheritage') is defined as an applied scientific discipline which focuses on unique, special and representative geosites. This discipline supports the science of geology. Geoheritage is an integral part of the natural heritage which encompasses the special places and objects that have a key role in our understanding of the history of the Earth (its rocks, minerals, fossils, and landscapes).

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Those localities and objects (geosites, specimens in situ and in museum) will give special insight into the evolution of the Earth (ProGEO, 2011). The Geological Society of America (GSA, 2012) defines 'geoheritage' as a generic but descriptive term applied to sites or areas of geologic features with significant scientific, educational, cultural, or aesthetic values. Among the most recent definition of 'geoheritage' is clarified by Brilha (2013) by which geoheritage is defined as particular occurrences of minerals, rocks, fossils, soils, landforms and geological processes with exceptional values.

Many countries from different regions concern about the conservation and development of their geoheritage sites, mainly for the geotourism purpose. In China, geoheritage and geotourism resources are abundant. The research projects on geoheritage and geotourism have been carried out in China since the mid of 1970s and are boosted by the strong and continuous support from the Ministry of Land and Resources and Chinese Academy of Geological Sciences.

With such support, Chinese geologists successfully promote and propose the Geopark concept for geoheritage conservation and geotourism development since 1985, for which China had already established 138 national geoparks, 20 of which have already been accepted as global geoparks. In the process of moving from geoheritage to geopark establishment, China has cooperated closely with UNESCO and has created some categories of geopark, including stratigraphic, paleontological, structural geology, geomorphic, volcanic, glacial, hydrogeological, engineering, and geological disaster. For example, geoheritage sites related to volcanoes and volcanic rocks are mainly found in the West Pacific coastal and Southwest China regions, while those related to paleontology and archeology are primarily found concentrated in the East China region. The Huangshan landforms with granite peaks, peak-clusters, and spheroidal-weathering and the Yuntai landforms of stepped valleys are concentrated in the East China region (Jianjun et al., 2005; Ting & Xun, 2008).

Romania is one of European countries which concern about this issue. One of geoheritage and geotourism resources in the country is the Bucegi Mountains which are located at the easternmost edge of Romania's Southern Carpathians and are almost entirely encompassed within the Bucegi Natural Park. Their overall geological configuration is influenced by the syncline, thus creating a trough bordered to the west and east by steep escarpments. With the growing numbers of tourists in this geomorphosite especially during the summer time, the area is currently regarded as Romania's top mountain destination. However, during the last years, tourism activities generated negative impacts on the environment, such as littering, intense soil erosion, and deforestation. Consequently it is necessary that public awareness should be raised to protect the area (Neches, 2013).

According to Reimold et al., 2005, geoheritage and geotourism can make a major contribution to the poverty alleviation in rural areas of southern Africa, as in many other parts of the developing world. Southern Africa consists of a number of countries including of South Africa and Namibia.

The region reveals a great diversity of geological resources, for example, the coastline of South Africa and its scenic coastal mountain ranges. Namibia is a country that a vibrant tourism industry which is based on natural assets, such as mountain ranges, coastal beauty, desert geomorphology, dune formations, the deep and extensive Fish River Canyon as well as the famous sandstone erosion features called 'Finger of God', which had been a geological icon of the country. Overall, countries in the southern Africa have come close to recognizing the potential values that their geoheritage sites can provide. The countries generally have not realized that their geological resources are potential to be developed and marketed, form another attractive approach to tourism, complementing the existing tourism forms.

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In Australia, there has been significant growth in tourism industry since 1970s, with the development of both traditional and emerging markets including of geotourism. Both international and local tourists are attracted to a number of sites where Australia's unique geological heritage is exhibited. Australia's rocks are remarkable with three major groups of rocks – igneous, sedimentary, and metamorphic – are all represented in the country. Australia also has great mineral resources, such as gold, diamond, coal, lead, aluminium, cooper, etc. Australia is well endowed with a number of outstanding geological sites that underpin the country's geotourism. Some examples of geoheritage and geotourism sites include the Great Barrier Reef, Uluru (Ayers Rocks), Shark Bay, Wave Rock, the Remarkable Rocks, the Naracoorte Caves, Sydney Harbour, the Blue Mountains, tessellated pavement, and volcanic landforms (James et al., 2005).

Malaysia also actively conserves and develops its geoheritage resources. Early efforts on geoheritage conservation in Malaysia began in the Third Malaysian Plan (1976-80) through the provision for the need to protect geological monuments and landscapes (Ibrahim, 2004). Systematic efforts toward promoting geoheritage conservation started in 1996 with the establishment of the Malaysian Geological Heritage Group. Afterwards, many research works have been conducted to study and describe many geoheritage sites for conservation and development.



Figure 1. Location map of the study area. Jeli district is situated in the western part of Kelantan state, Malaysia

The state of Kelantan in Malaysia possesses many quite interesting natural and geological attractions. One out of 10 districts in the state namely Jeli district, where this study was conducted, is blessed with beautiful geological landforms/landscapes, unique geological phenomena and precious earth materials, including of hills, caves, rivers, waterfalls, cascades, the hot spring and gold deposits. They are all potential geological heritage of the area. Jeli is situated in western part of Kelantan, strategically located near Kelantan – Perak state border and Malaysia – Thailand international border (Figure 1). This district is approximately 129,680.26 hectare and consists of 3 sub-districts: Jeli, Batu Melintang, and Kuala Balah (MDJ, 2011).

The district is managed by the Jeli District Council. This paper presents the new inventory of potential geoheritage sites in Jeli district. The new inventory is based on the previous listings by Yong, 1989; Amran & Hairul, 1998; Tanot et al., 2001; MDJ, 2011 and complemented by some new proposed potential geoheritage sites through this study. This inventory includes the identification, mapping and description of those geosites. Special attention is given to the possibility of geotourism development by utilizing the potential geoheritage sites of the district.

GENERAL GEOLOGY OF JELI DISTRICT

Jeli district is located in the foot of the Main Range, the backbone of Peninsular Malaysia. The range consists mostly of granitic rocks with several enclaves of sedimentary/metasedimentary rocks. The Main Range granite is located roughly in the west of Kelantan stretching along western of the state up to the state boundary of Perak and Pahang. Based on the general geology of Kelantan (Department of Minerals and Geoscience Malaysia, 2003), Jeli district is generally composed of three rock types: (1) Triassic sedimentary rocks (Gunong Rabong Formation), which consists of shale, silstone, sandstone, and limestone; (2) Permian sedimentary rocks (Gua Musang Formation) which consists of phyllite, slate, sandstone and limestone; and (3) Granitic rocks (acid intrusives). The general geology of Kelantan and Jeli district can be seen in Figure 2.

Geomorphologically, the state of Kelantan can be divided into four types of landscape, they are: (1) Mountainous areas; (2) Hilly areas; (3) Plain areas; and (4) Coastal areas (Tanot et al., 2001). All these types of landscape exist in Jeli district except the coastal areas which only form in the northern part of Kelantan. Mountainous landscape forms in the west and north of the district. This landscape is composed of the Stong Migmatite Complex, the Main Range granite and schist. Some features of this landscape are mountain ridges and mountain valleys. Hilly areas in Jeli are distributed in the foot of mountain ranges. This landscape forms two types of hill, they are isolated hills and elongated hills. The limestone isolated hills usually exposed in the low lying areas, such as Gunung Reng. Elongated hills are ridges but usually lower than mountain ridges. Plain landscape forms in the central and east of the district.

Tectonic activities in Peninsular Malaysia during the Paleozoic and Mesozoic era affect the land mass principally on the formation of faulting and folding. Faulting and folding have been observed as regional as well as localised structures. Localised structures include folding, jointing and faulting in the sedimentary rocks and jointing and faulting in the granitic rocks (Department of Minerals and Geoscience Malaysia, 2003). The dominant structural pattern in Kelantan is along a north-south to northwest-southeast directions. However, the dominant local structures in Jeli district is along northwestsoutheast and northeast-southwest directions.

MATERIALS AND METHODS

Materials of the research include map, photographs and literatures related to geoheritage and the study area.



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Method used for this study is the inventory of potential geoheritage sites which includes identification, mapping and description of those geosites and their relations to tourism development of the study area. The identification is based on the occurrences of important geological and geomorphological features of the sites. Some geoheritage sites have been identified by previous researchers and some others are the new proposed potential geoheritage sites. The mapping is based on the fieldworks to determine the locations of all those features and their recent geological conditions.

Meanwhile for the description of these geosites, attention was especially given on the scientific value of the sites, but many sites were also chosen because of their aesthetic as the new proposed potential geoheritage sites. The mapping is based on the fieldworks to determine the locations of all those features and their recent geological conditions. Meanwhile for the description of these geosites, attention was especially given on the scientific value of the sites, but many sites were also chosen because of their aesthetic as well as recreational values. A few sites have also their additional cultural value. All the information from the previous literatures and the field were collected for the descriptions of every geosite. The biological aspects (animal and plant life) of the sites will only be mentioned briefly to support the description of the sites.

POTENTIAL GEOHERITAGE RESOURCES IN JELI DISTRICT

There are at least nine (9) potential geoheritage resources have been inventoried in Jeli district, Kelantan, Malaysia. They are Gunung Reng (mogote hill), Jeli Hot Spring, Pergau Lake (dam), gold deposits in Kampung Kalai, Lata Janggut (cascade), Sungai Rual (river), Lata Renyok (waterfall), Lata Chenai (cascade) and Setir Cave complex (see Figure 3 for the location map of each site). Descriptions of each potential geoheritage site in Jeli district are as follow:



Figure 3. Location map of potential geoheritage sites in Jeli district, Kelantan, Malaysia

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1. Gunung Reng (mogote hill)

Though the local people designated it as a *'gunung'* (the Malay word for 'mount'), Gunung Reng is not a mount in the true definition but it is actually a karst landform, i.e. a mogote hill, which is an isolated, steep-sided and residual hill towering above the flat alluvial topography (Figure 4). It is located in Kampung Gunong, Batu Melintang subdistrict, along the East-West Highway in the northwestern corner of Kelantan (coordinates: $5^{\circ}43'0''$ N, $101^{\circ}44'38''$ E). The beautiful landscape and some unique features that occur in the area attract visitors to come there. This hill is composed of limestone and metamorphosed limestone (marble) sitting on the intrusive body (granitic rocks) and surrounded by quarternary alluvial deposits. This hill is about 200 m in height and possesses some caves such as Gua Payong and Gua Badak (Yong, 1989), where the main cave goes through the top of the hill. The height of the main cave's mouth is 10 - 12meters, and the length of it is about 21 meters. There are some interesting features inside the caves, such as stalagtites, stalagmites, and colomns/pillars.



Figure 4. (A) Gunung Reng is a mogote hill; (B) The main cave of the hill; (C) Features inside of the main cave; (D) Features in the roof of the cave; (E) Pinnacle structure on the wall of the hill; (F) Dyke (intrusion) and white marble nearby the hill

The caves are the habitats for bats and doves. In the hill, we can see another interesting feature i.e. the pinnacle karst structure as the result of chemical weathering of a limestone hill. Another attraction of the area is Sungai Pergau (the Pergau River, the main and the largest river in Jeli district) flowing through the flat alluvial plain in the south of the hill which significantly beautify the area. In this river, we can observe the outcrop of andesitic dyke (intrusion) and white marble.

This area has become a recreational area, and is also equipped with infrastructures such as a community hall, a playground, public toilets, and food stalls. Some possible activities can be done here such as rock climbing, cave exploration, and hiking. The flat alluvial plain in the area is often used as the camping site. Yong (1989) stated that Gunung Reng is the only geological feature in Peninsular Malaysia featured in a Malaysian postage stamp issued in 1983 to commemorate the opening of the East-West Highway. Because of its beauty and uniqueness, it is proper if we propose Gunung Reng as the landmark of Jeli tourism.

2. Jeli Hot Spring

There is a unique and rare geological phenomenon in Jeli, which is the one and only hot spring in the area, called Jeli Hot Spring. Hot spring is one manifestation of the geothermal where hot water flowing out of our Earth as the form of spring. Jeli Hot Spring is located near the river valley of Sungai Helai (the Helai River) and surrounded by the hilly area in Kampung Bendang Lawa (the Bendang Lawa village), Batu Melintang sub-district, around 1 km from the East-West Highway (coordinates: 5°39'58.5" N, 101°42'51.1" E). There is a rubber plantation near the hotspring. In general, the occurrence of the hot spring in Kelantan is controlled by the geological structure and closely associated with the granite intrusion and magmatic activity in Peninsular Malaysia (Azmi & Azmer, 1998).

The origin of Jeli Hot Spring is still unknown exactly, but from the preliminary study of this hot spring (Azmi & Azmer, 1998), it can be interpreted that this hot spring is associated with the Main Range granite. The hot igneous rock heat groundwater at relatively shallow depths.

geothermal Production from the system may be primarily from sedimentary/metasedimentary rocks and fractured granitic rocks where water can seep throughout the Earth's surface. The water temperature of this hot spring is about 42°C -50°C. The flowing water will be collected in three ponds (Figure 5). Visitors can enjoy the fresh hot water and the natural "sauna" that might give freshness to the body. The content of sulphur in the water is believed to be able to cure some skin problems. There are some infrastructures in the area such as roofed huts equipped with tables and chairs provided for visitors. This hot spring has been developed so far as a tourism spot in Kelantan, but the maintenance of the site is very poor. The accessibility of this site is poor since the road there is very narrow and guite steep.



Figure 5. (A) The recent situation of the Jeli Hot Spring, (B) The vent,
(C) The water temperature measurements show that the temperature of Jeli Hot Spring is around 42°C (min) - 50°C (max)

3. Pergau Lake (Dam)

Though Pergau lake/dam (Figure 6) is an artificial (man-made) lake, it exposes some geological features which have potential geoheritage values. It is located around 30 km from Jeli town, on Mile 16 of the East-West Highway, in Batu Melintang sub-district (coordinates: 5°37′52.3″ N, 101°41′28.3″ E). The area is dominantly composed of granitic rocks. The lake is surrounded by tropical rainforests (Gunung Basor Forest Reserve) in the hilly area. The dam was built in 1990 with its original purpose as a catchment area of Pergau River flow (reservoir) for hydroelectric power generation undertaken by *Tenaga Nasional Berhad (TNB)*, a national electric generating and supplying company.

However, because of the beauty of this dam and its surroundings, its functions can be developed into a tourist destination that offers not only the beauty of this lake, but also a quiet and comfortable environment. There are several small islands scattered in the lake namely Pulau Risda, Pulau Polis, Pulau KESEDAR, and some others where some activities can be organized there. The main visitors' activity here is fishing as there are many common species of freshwater fish. In additions, this lake also contains many *etoks*, a local name for freshwater shells which often become the snack of Kelantan people. Many residents from the surrounding areas, even from outside of Jeli, come to this lake for fishing and netting.

There are some other activities possible to be organized here such as boating, kayaking, swimming, jungle trekking, hiking, training and motivation camp. The lake is equipped with various facilities and infrastructures, including jetty, boats, chalets, dorm as well as hostel. Visitors can choose either want to stay at the floating chalet, dorm or hostel. This lake is governed by *Lembaga Kemajuan Kelantan Selatan* (KESEDAR, the South Kelantan Development Authority).



Figure 6. (A) The peaceful atmosphere of Pergau Lake,(B) The outcrop of granitic rock in the area,(C) The dam was constructed for electric generating and supplying in Jeli area

4. Gold Deposits in Kampung Kalai

Various mineral resources have been discovered and exploited in Malaysia and a large number of them is related to granite intrusions and hydrothermal activities. In Malaysia, gold is the most important metallic mineral that has been mined for years. In Kelantan, gold mining activity has started since the 1920's. Starting from here, mining activities were widely distributed throughout the state from Sungai Galas (the Galas River) and Sungai Pergau (the Pergau River) areas up to the Kalai area along the border of Kelantan State (Malaysia) and Narathiwat Province (Thailand). Kampung Kalai area (Figure 7) is underlain by metasedimentary rocks, which are close to the granite intrusion. Prior to 1923, prospecting and mining in the Kalai area were carried out mainly for gold (MT-JGSC, 2006). Kampung Kalai is located in Batu Melintang sub-district. Gold mineralization zone in Kampung Kalai is interpreted to be affected by the Kalai Fault, a fault along the upper part of Sungai Tadoh (the Tadoh River) trending north-south direction. The occurrence of gold deposits is very rare, so it is very valuable for us to be able to see the gold directly in the field.

Based on the interview with some local villagers in Tadoh River area, they said that Kampung Kalai is a historical gold mining site. They have ever discovered ex-gold mining site, mining machine, Chinese pottery and crockery since 1960. They also believe that the gold mining operation was started since the period of British colonial. In addition, according to the villagers, they have discovered an old and abandoned tunnel which is about 20 meter long and has been used for mining gold since a long time ago. The tunnel is now fulfilled with bushes and wild animals. There was a private company using mining machine 10 years ago. At present, the activity has stopped due to less reserve of gold deposits (not economic any more).

However, local people are still working for gold by a traditional way of panning. Most of the villagers carry out the panning activity after finishing their main job, i.e. rubber tapping. They also said that they will do the panning more during the rainy season since they cannot do the rubber tapping then.



Figure 7. (A) Gold panning activity by locals in Tadoh River, Kampung Kalai,(B) The outcrops of granite and white marble in the river,(C) Gold grains obtained from the panning activity

5. Lata Janggut (waterfoll)

Lata Janggut (coordinates: 5°40'9" N, 101°46'12.5" E) is one of some enchanting cascades in Jeli district. It is located in Kampung Lata Janggut (the Lata Janggut village), Batu Melintang sub-district, around 15 kilometers from Jeli town. It is part of 34

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the Long River, a tributary of Pergau River, and situated within the Gunung Basor Forest Reserve (Figure 8). The formation and development of the Long River is influenced by a major fault, i.e. the Long Fault which trends northeast – southwest along the river. This cascade is formed on the exposed body of granitic rocks (batholith). Going through the upper of this cascade, we can find a waterfall as high as 5 meters and the water current here is relatively swift. The water here is very clean and cool. However, visitors should be careful when they visit this area since there are some slippery and deep spots here.

There are a few pothole structures in some parts of the igneous body. The downstream of the cascade is shallow and looks like a swimming pool. Swimming, jungle trekking, and barbecues are some main activities in the area. Quite spacious parking lot and cemented walkway are the only good condition facilities here, whereas other facilities are very poor.



Figure 8. (A) The cascade is composed of intrusive igneous rock (granitic rocks), (B) A waterfall in Lata Janggut, (C) The flow of Sungai Long (the Long River)

6. Sungai Rual (River)

Sungai Rual (Figure 9) is a river flows from Kampung Sungai Rual to Kampung Baru Sungai Rual before entering the Pergau River as the main river in Jeli. This river extends from the longitude of $101^{\circ}47'30.0$ "N to $101^{\circ}51'.0$ "N and the latitude of $5^{\circ}39'0$ "E to $5^{\circ}41'25.0$ "E. Some geomorphological features occur along the river such as cascade and rapids, meanwhile geological features include fault, joints, and magma mixing evidence. Rual river area is dominantly composed of granitic rocks and topographically surrounded by hilly areas.

The hilly areas surrounding the river give a magnificent view that make the area more interesting and enjoyable to be explored. The cascade here has originally clean water, but it will be cloudy after the heavy rains due to sediments transported through the river. Sungai Rual is suitable to visitors for swimming. Visitors so far come from the nearby villages. Kampung Sungai Rual is a settlement for indigenous people of Jahai tribe which is located around 22 km from Jeli town. The combination between natural and cultural resources of this area becomes a unique attraction to visitors.

7. Lata Renyok (waterfall)

Seri Bongor waterfall or more often called as the Lata Renyok waterfall (Figure 10) is a beautiful waterfall which is located in Kampung Renyok (the Renyok village), Kuala Balah sub-district, nearby Jeli – Dabong Road (coordinates: 5°34'47.1" N, 101°52'28.5" E). This waterfall is a part of the Renyok River, a tributary of Pergau River. This waterfall is around 100 meters long and 8 meters high, and surrounded by the forest (Gunung Basor Forest Reserve) in the hilly area.

The beauty of this waterfall comes not only from the waterfall itself and its surrounding area, but also from the rock there. Combination between the bright and dark-coloured rocks has made this waterfall more interesting. This geosite is a part of the Stong Migmatite Complex, which represents a cluster of rocks that are unique and rarely found in Malaysia (Tanot et al., 2002a).

According to Tanot et al., 2002b, this waterfall is composed of leucogranite with the enclaves of metasedimentary rocks. The formation of this geosite was affected by both endogenic and exogenic processes. The uplifting has created the waterfall, and the subsequent weathering and erosion processes occurred on the fractured rocks have produced some geomorphological features in the waterfall area such as stream/channel, cascade, rapids, pond, and river terrace. The Fractures/cracks here are intensive and systematic, and trending west – east direction which is parallel to the river flow direction. The compression has produces some mini folds, otherwise the continuous stretching (extension) has formed boudinage structures (boudins).



Figure 9. (A) A cascade in Rual River; (B) The rapids, (C) The panoramic view of the river area which is surrounded by hilly area, (D) A magma mixing evidence shows the different kinds of granitic rocks, (E) Some parts of this river has clear water and it is suitable for swimming 36
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We can also observe a lot of veins within the rocks, mainly quartz veins. This geosite can be accessed through Jeli - Dabong Road. Visitors have to pass through the village and will find the rubber plantation before reach this waterfall. There is a mini hydroelectric station in the area which is operated by TNB that generates electricity from the waterfall and supplies it to nearby residents. Based on an interview with the engineer from TNB in the site, this mini station can generate 900 kilowatt (kW) and 3,300 Volt electric power. Other than electricity, residents in this village can also get the clean water directly from the waterfall. Due to the natural beauty of the area, this waterfall is quite popular among the locals in Jeli. There are several facilities provided in this area such as multi-purpose hall, praying room, public toilets, gazebos, and parking lots, however, their management and maintenance are very poor. Some activities are possible to be done here such as hiking, swimming, and fishing. However, visitors must be careful if they come to this waterfall since some spots here are relatively deep and the current will be swift mainly during the rainy season.



Figure 10. (A) Lata Renyok waterfall, (B) Some systematic fractures and a channel in the area, (C) A boudinage structure, (D) The mini hydroelectric station, (E) Fishing is an activity usually done by locals in the area

8. Lata Chenai (waterfall)

Another interesting cascade in the district is Lata Chenai (coordinates: 5°28'48.1" N, 101°52'33.8" E), also known as Lata Chenor or Lata Chenang by locals. This cascade (Figure 11) is a part of Sungai Terang (the Terang River), a tributary of Pergau River. It is situated in Kampung Relak (the Relak village), Kuala Balah sub-district, nearby Jeli – Dabong Road. It has several rapids and cascades.

Lithologically, like Lata Renyok waterfall, this cascade is also a part of the Stong Migmatite Complex (Tanot et al., 2002a). Based on the field observation,

approximately 90% of this geosite area is composed of porphyritic granite. The porphyritic granite here is light in colour, i.e. gray and pink (because of the existence of alkali feldspar as the phenocryst), with the coarse phenocryst. Tanot and Ibrahim (2004) stated that the rock diversity in the site includes biotite-hornblende schist, porphyritic granite, microgranite, leucogranite, syenite, and granite. The uniqueness of this cascade is the existence of many pothole structures (potholes) of different sizes in the large body of granitic rocks.



Figure 11. (A) A rapid in Lata Chenai cascade, (B) A close-up view of porphyritic granite, (C) A big pothole structure, (D) Joints, (E) Some fault lines, (F) The downstream area of the cascade which is shallow and suitable for swimming

Other geological features include joints and faults. In addition, veins can be seen in some parts of the cascade. This geosite is still in the remote area and surrounded by the tropical rainforest (Gunung Basor Forest Reserve). The river flow at the downstream is very wide but is not so deep that it is suitable for swimming. Fishing is another possible activity can be done here. Unfortunately, the accessibility is very poor where the road to this site is very narrow and in poor condition. No facility provided in this area.

9. Setir Cave (Gua Setir) Complex

The Setir Cave (coordinates: 5°39'38.88" N, 101°55'31.8" E) is a large cave complex located in the eastern part of Jeli district, near Kampong Pasir Dusun. We call it as a cave complex because it consists of many caves inside and decorated by complex structures. According to locals, there are around 40 caves combined to form the Setir Cave complex. This cave complex is composed of limestone and forms an elongated limestone hill. We can observe many cave structures inside, such as stalagtites, stalagmites, columns (pillars), dripstone, etc (Figure 12). The caves become the home for bats, so we can see bat's droppings scattered everywhere inside of the cave. Local people usually collect the bat's dung for the fertilizer. Geoheritage as the Basis for Geotourism Development: A Case Study in Jeli District, Kelantan, Malaysia



Figure 12. (A) A passageway of the cave, (B) A column, (C) The limestone hill where the Setir Cave complex occurs, (D) Structures inside the cave, such as the stalagtite, (E) The dripstone structure

GEOHERITAGE VALUES AND GEOTOURISM DEVELOPMENT

Resulted from geological processes, geological heritage is diverse in form and size that have geoheritage values including of scientific/educational, aesthetical, recreational, and cultural values. Geoheritage resources have also different levels of significance, such as international, national, state to district levels. Table 1 presents the existence of geoheritage values of some potential geoheritage sites in Jeli district and their respective significance level.

No.	Potential Geoheritage sites	Scientific/ value	Aesthetical value	Recreational value	Cultural value	Significance level
1.	Gunung Reng	+	+	+	+	State
2.	Jeli Hot Spring	+	+	+	-	Local/District
3.	Pergau Lake	+	+	+	-	State
4.	Gold deposits in Kg. Kalai	+	-	+	+	State
5.	Lata Janggut	+	+	+	-	Local/District
6.	Sungai Rual	+	+	+	+	Local/District
7.	Lata Renyok	+	+	+	-	State
8.	Lata Chenai	+	+	+	-	State
9.	Setir Cave complex	+	+	+	-	Local/District

Table 1. The geoheritage values and significance level of some potential geoheritage sites in Jeli district

Note: + exist - not exist

One of the utilization of geoheritage sites is for geotourism development. Geotourism is a new concept for tourism development all over the world. According to Newsome and Dowling (2005), geotourism in the field of geology is defined as a kind of tourism based on geological features which are potential to attract visitors to come and enjoy them. Through geotourism we hope a better understanding of the Earth can be achieved so that its geological attractions can be acknowledged.

Jeli district possesses many potential geoheritage resources which in the same time also become the attractions of this area. All these resources are going to be utilised to stimulate the geotourism development of the district. A geoheritage site should be so attractive that visitors and geotourists are interested in visiting the area. The sites should also be provided with a space, support, tools, facilities and infrastructures to be able to organize tourism and recreational programmes and activities.

Jeli is the gateway to the state of Kelantan from the West Coast of the Peninsular. Based on direct observations in all geotourism sites in Jeli, mostly visitors (tourists) are local people of Jeli district and people from surrounding areas. Their main motivation for visiting these geotourism sites is to enjoy the beautiful landscapes and unique features. Some locals also come to some sites for fishing and netting in the lake and rivers. Other visitors are those who are travelling across the country on the East-West Highway and stop in the sites close to the highway to take a rest and enjoy the beautiful and unique views such as Gunung Reng, Pergau Lake, Jeli Hot Spring and others. Lecturers and students of geoscience/geology from local universities visit the sites routinely for teaching and learning as well as research works.



Figure 13. (A) Rock climbing is possible to be conducted in Gunung Reng hill, (B) Cave exploration in Setir Cave complex, (C) Camping activity in Gunung Reng area, (D) Gold panning in Tadoh River, Kampung Kalai, (E) Hiking along the Lata Janggut area, (F) Boating in the Pergau Lake

Some possible geotourism programmes and activities which can be conducted in potential geoheritage sites of the district among others are rock climbing, cave exploration, camping, hot water bathing, gold panning, jungle trekking, hiking, swimming, boating, kayaking as well as fishing (Figure 13). Table 2 shows the possible programmes and activities in each potential geoheritage site of Jeli district.

N 0.	Programmes and activities Potential Geoheritage sites	Rock climbing	Cave exploration	Camping	Hot water bathing	Gold panning	Jungle trekking	Hiking	Swimming	Boating	Kayaking	Fishing
1.	Gunung Reng	\checkmark	\checkmark	\checkmark	-	-	-	\checkmark	-	-	-	-
2.	Jeli Hot Spring	-	-	-	\checkmark	-	\checkmark	\checkmark	-	-	-	-
3.	Pergau Lake	-	-	\checkmark	-	-	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
4.	Gold deposits in Kg. Kalai	-	-	-	-	\checkmark	-	-	\checkmark	-	-	-
5.	Lata Janggut	-	-	\checkmark	-	-	\checkmark	\checkmark	\checkmark	-	-	-
6.	Sungai Rual	-	-	-	-	-	\checkmark	\checkmark	\checkmark	-	-	-
7.	Lata Renyok	-	-	-	-	-	-	\checkmark	\checkmark	-	-	\checkmark
8.	Lata Chenai	-	-	-	-	-	\checkmark	\checkmark	\checkmark	-	-	\checkmark
9.	Setir Cave complex	\checkmark	\checkmark	\checkmark	-	-	\checkmark	\checkmark	-	-	-	-

 Table 2. Some possible geotourism programmes and activities in potential geoheritage sites of Jeli district

Note: ✓ possible - not possible

There is no research work on number of tourists visit geotourism sites in Jeli so far, however, based on field observations during several days in each site, around 15 to 20 visitors come to the sites daily. The number of visitors increases during the weekends and holidays. Other than geological heritage, Jeli is also a quite unique district in term of cultural heritage, since there is a settlement for the indigenous people (orang asli) of Jahai tribe located in Kampung (village) Sungai Rual. The existence of this indegenous people has so far become another attraction for visitors (Figure 14).



Figure 14. (A) The settlement of the aboriginal people in Kampung Sungai Rual, Jeli, (B) Some visitors with some kids of Jahai tribe in the village

Many visitors come to the area to study about the indigenous people or to organize programmes with the people. Most of the potential geoheritage and geotourism sites in the district, however, face several problems or constrains, such as low level of accessibility, lack of facilities and infrastructures, and problems on management, maintenance, and cleanliness.

Geotourism programmes and activities should contribute to the conservation and development of geoheritage sites. Programmes and activities that we will organize in a geoheritage site should be in line with the protection of the area, and combined with the promotion of sustainable development. Geotourism is also expected to encourage and empower local community to improve their welfare while conserving and developing their area. There should be a collaboration among the authorities/governments, private sectors, NGOs, educational institutions/universities, and local community towards this planning.

CONCLUSION

Geoheritage is one of the beneficent branches of the natural heritage which needs to be conserved and developed. Some geosites in Jeli district have been inventoried recently as potential geoheritage sites, namely Gunung Reng (mogote hill), Jeli Hot Spring, Pergau Lake (dam), gold deposits in Kampung Kalai, Lata Janggut (cascade), Sungai Rual (river), Lata Renyok (waterfall), Lata Chenai (cascade) and Setir Cave complex. Geoheritage resources in Jeli district can contribute for geotourism development through some possible programmes and activities such as rock climbing, cave exploration, camping, hot water bathing, gold panning, jungle trekking, hiking, swimming, boating, kayaking as well as fishing. The following research works should be done for the establishment of all these potential geoheritage sites including of their classification, characterization, assessment, evaluation as well as promotion.

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THE COASTS OF KAPIDAG PENINSULA IN TERMS OF GEOMORPHOTOURISM

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Abtract: Geomorphotourism is a form of tourism that has been developped all over the world in recent years. Focusing on geomorphological site, morphological and landscape features, it is little known in Turkey. However, many landforms, which possess cultural, historical and environmental values, can be found in Kapidag Peninsula as well as all over Turkey. Kapidag Peninsula should be studied for its environmental significance in addition to its cultural, historical value and morphological heritage. The study area, located in the northwest of Turkey, has a significant potential for geotourism. The main purpose of this study is to assess geomorphotourism and geomorphological sites of Kapidağ Peninsula.

Key Words: Kapidag Peninsula, Coast, Geomorphotourism, Geomorphosite

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INTRODUCTION

Geomorphotourism is a type of tourism based on scientific and cultural use of geomorphological sites. It includes landforms such as volcanoes, fairy chimneys, caves, canyons, pothole lakes and cliffs unlike geotourism or geological tourism which includes the formations of rocks, minerals, sediments, fossils, etc. on earth (Ekinci & Doğaner, 2012; Gates, 2012). These landforms have been included within natural tourism up until recently. However, vegetation constitutes the basis of natural tourism since biological content is at the forefront. Geomorphotourism analyse landforms since it is related the earth's crust. It is people's curiosity and their efforts to know that originated this type of tourism.

Landforms that have higher scientific, aesthetic and cultural values within geomorphotourism is called "geomorphosite" (Panizza, 2001; Reynard, 2002; Reynard et al., 2007; Panizza & Piacente, 2008). The preservation status of large areas, which include different geomorphosites and geosites, are known as "geo-parks" (Reynard et al., 2007; Pereira et al., 2007; Necheş, 2013; Gavrilă & Anghel, 2013; Lazzari & Aloia, 2014). Geomorphotourism concept, which was implemented in the 2000s by UNESCO known as List of World Geological Heritage, is still new concept in the international literature. In Turkey, Geological Heritage Conservation Society was established in 2000 and the first geo-park was created in 2010 in Kizilcahamam-Camlidere (Ekinci & Doğaner, 2012; Yolal, 2012; Koçan, 2012). However, there are no geo-parks, geosites and gemorphosites under conservation status by law in Turkey. Landforms in Turkey are protected under the

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conservation status specified for natural sites, natural memorials, national parks, natural parks, nature conservation area and natural monuments. Geosites, located at Kizilcahamam-Camlidere, have been attempted to be preserved by General Directorate of Nature Conservation and National Parks after registering them as natural monuments. It is necessary to look at these attempts still conducted under the hegemony of geologists with a geographical perspective, to evaluate and to clarify them on scientific basis by the people concerned with geomorphotourism (Ekinci & Doğaner, 2012; Akyol, 2012).

Even though there are many positive effects of tourism activities, unveiling landforms to tourism brings some downsides alongside with it. Placing landforms that are intended to be unveiled to tourism primarily within a conservation status is an important factor in preventing these adverse effects. It is also necessary for a landforms to fulfill conditions such as rarity, having value in terms of paleogeography, and becoming a sample in order to be able to represent a formation for being taken under protection and assessed within the scope of tourism. Today, geomorphosites are grouped under headings in terms of structural shapes as rivers, morphoclimatic shapes under the control of glaciers and winds, volcanic shapes, karstic shapes and coastal forms and in terms of details as canyons, lagoons, fairy chimneys and rocks etc (Panizza, 2001; Dingwall et al., 2005; Ekinci & Doğane, 2012). However, it is necessary to assess these landforms with geographical perspectives by classifying them separately under the umbrella of geomorphologic tourism. Awareness should be created in terms of geomorphotourism and conservation by classifications such as the most beautiful cave, the most beautiful fairy chimney and the most beautiful cliff after determining the most beautiful and the most characteristic examples (geomorphotop) of landforms in the country or in the region.

For this purpose, field work was conducted on July 2012 after administering office task for determining and evaluating of the geomorphologic characteristics of landforms with tombolo properties in Kapidag Peninsula. Landforms and their characteristics, which were formed along the coastal line in Kapidag Peninsula, were determined in the study. Then size features of identified landforms, their vegetation, their relations with hydrography, damages that were inflicted by physical and human causes and future threats were examined.

THE STUDY AREA

Kapidag Peninsula, situated in the northweast of Turkey and in the south of the Marmara Sea, and has an area of 300 km² and coastal length of 90 km, is within the boundaries of Balikesir province (Kurt, 2013; Uysal et al., 2010). The Gulf of Bandirma is located on its east and the Gulf of Erdek is on its west. The study area is situated at 35th Zone according to UTM Coordinate System and between 27° 40 30° - 28° 02 30° Eastern longitudes and 40° 22 30° - 40° 31 30° Northern latitudes with regard to Geographic Coordinate System (Figure 1).

GENERAL GEOGRAPHICAL FEATURES OF THE STUDY AREA

Being connected to the mainland by a narrow and low isthmus (tombolo), Kapidag Peninsula is an old part of land and its highest point is 803 m (Adamkaya). The area, formerly an island that was very close to the shore, is connected to the mainland by two separate cords both from west and east. The width of this alluvial plain, which separates the Gulfs of Bandirma and Erdek from one another, is 1700 m and its is length is 1500 m. There are sand dunes on the east, beach on the west and alluvial fields with terraced morphological characteristics on the north and the south. While gap between these two cords was a lagoon in the beginning, it turned into a swamp later on and was merged with a land in the end. There is a swamp called Belkis which covers an area of approximately 1 km² and is situated in the middle.



Figure 1. Location of the study area

Kapidag Peninsula is a part of body of southern Marmara islands in terms of its geological structure. There are mainly granite, quartzite, mica schist, and gneiss in its structure. Its coasts are mostly steep and sinuous (Ardel & İnandık, 1957; Ertin, 1994; Zortul, 2001; Hızal, 2008). Leveled areas are usually between around Erdek and Belkis tombolo. The climate of the Peninsula is under the influence of "Marmara Transitional Type" which has transitional characteristics between the Mediterranean and the Black Sea climates (Koç, 1996). Even though it was generally covered by shrubs, woodlands and brushwood can be seen in some regions. The major center of settlements is Erdek situated in the southwest. This part was covered by olive groves, fruit orchards and vineyards. Forest cover, consisting of oak species, maple trees, ash trees, quaking aspen, white aspen, elm trees, alnus, willow, sycamore, redbud, Calabria pines, Daphne and other species, can be found starting from the coasts to the inland of the Peninsula.

METHODS

Located on G19-c3, G19-c4, G19-d3, H19-a2, H19-b1, H19-b2 and H2O-a2 sheets of 1: 25000 scaled Turkey topographic map, the data used for this study consist in topographic map (1:25000), geological maps (1:100000), color digital orthophotos (0.45 resolution) and field data obtained from field campaigns (carried out in July 2012). After geological map sheets (1:100000) were scanned in high resolution in JPEG format (UTM, WGS 84, Zone 35N), database was created by digitizing them and was determined the distribution of lithological units by using ArcGIS 10 CBS software.

Sheets in 1:25000 scale and vector format were used as a main layout in the determination of geological features of the field. Main geomorphologic units were identified from 1:25000 scale topographic maps within the boundaries of the study area 46

off the coasts of the Marmara Sea. Color digital orthophotos (UTM, WGS 84, Zone 35N) in 0.45 cm resolution produced by General Command of Mapping were used during the creation of the maps.

GEOLOGICAL AND GEOMORPHOLOGICAL FEATURES

The coasts of Kapidag Peninsula are generally, in terms of lithological properties, composed of metamorphic rocks with crystal and schist properties and partly from marble and limestone. However, the presence of metamorphites that metamorphosed prior to Permian and old Quaternary alluvium that cut them have been identified in recent geological research (Güneysu, 2000; Aksoy, 1998; Figure 2).



Figure 2. Geological map of the Kapidağ casts (Kurt & Ekinci, 2013)

Rocks that extend from Dalyan Burnu to Cakil village in the northeast and show metamorphic and schist structure along an area of approximately 11 km can be found. A more straight coastal line stretches out along the coast with the disappearance of bay since these rocks are more open to erosive effects in comparison with granite rocks. Gnays continue from Kestanelik village in the east to Ormanli village in the east. Crystallized and schist metamorphic rocks are formed from Ocaklar to the southeast of Erdek. Gravel, which lie between the southwest of Ilhan village and Balyozfeneri Burnu, were formed from amphibolite schist, granite, andesite and marble. Valley slopes of Kavakli Creek, situated in the southeast of Ocaklar, consisted of gravels that contain amphibolites schist, basalt, andesite and granite. Kavakli Creek, Muhla Creek and Katirkirman Creek flow over crystalline and schist featured rocks in this region (Ardel & İnandık, 1957; Ertin, 1994; Aksoy, 1998; Zortul, 2001; Hizal, 2008; Figure 2).

Kapidag Peninsula has occurred as a result of attachment of a large island that was situated near the coast with the land through a spit in the last periods of the Fourth Time. Being one of the islands that water could not cover during the recent rise on the sea-level known as Flandrian Transgression, Kapidag Peninsula is an old island that was later connected to the land through a tombolo by the accumulation of sediments brought by waves occurring due to the dominant winds and coastal currents (Ardel & İnandik, 1957; Aksov, 1998; Güneysu, 2000; Erinc, 2001). The base level (sea-level) changes, stream movements, structural features, lithological characteristics of formations and young tectonic movements performed an important role in obtaining tombolo and its surroundings that formed the island to assume its geomorphologic appearance today in addition to waves and coastal currents. Edincik Paleozoic Massif, which consists of metamorphic crystallized schist, is located in the south and Kapidag Granite Massif in the north of the tombolo composed of two narrow and short spits. The mass, on its north, is mid-size, grainy, amphibole and biotite. The Upper Cretaceous end and age of Kapidag Granite Massif formation that coincides with the beginnings of Paleocene was estimated to be 73.9 ± 8 million years (Cürebal et al., 1998). Outernary and alluvium in little clay, sandy and gravel character were recognized to be old and youngest units of the tombolo. The thickness of the alluvial material in this area increases from 2 m up to 45 m from the north and south towards the Belkis swamp. This alluvial plain that also separates the Gulfs of Bandirma and Erdek from each other is 1700 m in width and 1500 in length. Surrounded by sand dunes in the east and beaches in the west as well as a swamp covering approximately an area of 1 km² (Belkis swamp) in the middle, alluvial fields, with a morphological character, are located in the north and in the south. Eroded surfaces, which were split by narrow and deep valleys, are located on its north in elevations of between 200-250 m (Cürebal et al., 1998).

Coasts of the Peninsula have properties of high coasts composed of steep cliffs with elevations up to 10 meters (Figures 3, 4, 5). Schist-structured layers, which form the area, are immersed into the sea with a slope of 40-70 degrees. 100-500 meter wide crescent-shaped coves and sandy beaches behind them can be seen in the areas where wave erosion is effective due to quite evident retrogression (Figures 3, 4, 5). Low-marine terraces are located in some parts of the coves at different elevations. Marine terraces are found near freshwaters with 5-10 meter elevations and in the northeast of Edincik with 65 meter elevation (Güneysu, 2000; Artuz, 2007).

Kapidag Peninsula has been exposed to the tectonic events such as the elevation of Kazdagi and its surroundings in the Oligocene, to the separation of North Anatolian Fault zone into northern and southern arms in the Marmara region and the activation of the Aegean expansion system during the neo-tectonic development of Turkey (Seyitoğlu & Scott, 1991; Aksoy, 1998; Okay & Satir, 2000;). High and rocky coasts were formed in the area of the Marmara Sea due to expansion of the existing fault lines parallel to the coast since it is the most active tectonic sea area of northern arm of the North Anatolian Fault (NAF) zone passing on the direction of east-west (Figure 3). North Anatolian Fault of east-west direction led to the narrowing of the shelf area by affecting the coasts of the area. Therefore, coasts that develop under the control of tectonism and lithology are faulty coasts particularly in the regions where faults can be found (Erol & Sencan, 1996; Kurter, 2000).

Southeastern coasts of the Peninsula extend along relatively low cliffs (approximately 20 km) from Asagiyapici village to Cakil village in the northeast (Figures 4, 5). Broad-based and flat-sloped valleys were also formed at times in this part. The dominant wind becomes effective in northwest of Bandirma on the direction of Southeast-Northwest and continues to blow on the direction of Northeast and parallel to the coast starting from Asagiyapici.

Major rivers that would ensure the alluvial accumulation on the coast are not located in this part. Marine terraces, whose heights range between 2 m to 5 m, are found from the northeast of Asagiyapici village to the close surroundings of Dalyan Burnu and 48 Tatlisu (Güneysu, 2000; Erinç, 2001). The northern coasts of the Peninsula, which are about 40 km in length, begin from the northeast of Cakil village and continue as steep and rocky coasts until the settlement in Ilhanli in the west (Figures 4, 5). This region constitutes the most sinuous part of the peninsula. Here, erosion has also become quite effective at the same time depending on the accessibility of the winds on the sea and North-Northeast direction.



Figure 3. Coasts with cliffs in North of Kapidag Peninsula (between Ormanli-Ballipinar) (Source: http://gezginkopek.com/?p=748)

While there are, at times, cliffs on the coast extending from Narli to the west of Ocakli cove, marine terraces have occurred at the levels of 15 m - 18 m in the southeast of Ocaklar and in the slopes of Kavakli Dere valley located in the northwest of Erdek. These terraces are thought to be related to the Tyrrhenian period when considering the Neotectonic features of the Marmara Region (Güneysu, 2000; Erinç, 2001). Marine terraces have also been identified in the northeast and southeast of Erdek with the heights of 20 m, 30 m, 60 m and 65 m. The presence and heights of these terraces show that the sea penetrated inwards before the formation of coastal valleys (Güneysu, 2000; Erinç, 2001).

The heights of marine terraces, located in the northwest of alluvial coastal plains in the south of Kapidag Peninsula and closer to Çeltikçi village, are at the level of 20 m, 25 m, and 50 m. The height of terrace in the south of Hamamli village is 110 m. Coastal terraces are located in the region extending from the southwest of Ilhan to Narli in Kapidag Peninsula at the level of 30 m and 80 m and in the elevation near Tatlisu at the level of 5-10 m. There are three terraces from Upper Pleistocene and Holocene periods which are developed at different levels from one another on the alluvial floor in the south of Belkis village and in the west of Asağıyapıcı and whose average heights range between 2.5-3 m, 7-8 m and 12-15 m.

There are marine terraces, whose heights range between 2 m and 5 m, starting from the northeast of Asagiyapici up to the close surroundings of Dalyan Burnu and Tatlisu (Ardel & Inandık, 1957; Cürebal et al., 1998; Güneysu, 2000). It was thought that some of these terraces occurred as a result of tectonic and some occurred as a result of eustatic movements (Erinç, 2001).



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Figure 4. Coasts with cliffs in the North and West of Kapidag Peninsula



Figure 5. Coasts with cliffs in the North and East of Kapidag Peninsula

Marine terraces can be found, at the levels of 45-50 m close, to Celtikci village in the north of coastal plain formed by the alluvial materials deposited by Gedevre Dere, Degirmen Dere, Celtikci Dere and Hamamli Dere located in the south of Kapidag Peninsula. A terrace, at the level of 110 m, can be identified in the south of Hamamli village located in the north. There are two terraces at the levels of 20-25 m and 70 m in the south of the coastal plain (Güneysu, 2000).

The area, where Kapidag Peninsula merges with the mainland, has a feature of flat coast since the coastal line does not have much sinuous places. A straight coastal line extends, instead of coves, in the coastal part that continues from Dalyan Burnu up to the northeast of Cakil village and is in 11 km in length. The reason for this is the further sensitive (rocks that show metamorphic and schist structure) of lithological structure that forms that coast to the effects of erosion. The coastal region, extending from Buyukakca Cove up to Ilhan village, also has a feature of lower coast where there are no deep valleys and sinuous places. The effects of northeastern winds decrease depending on the exposure in addition to the effects of lithological structure in the formation of this situation. The southwestern coasts of Kapidag Peninsula, which start from Ilhan village and continue up to Belkis locality and where mostly accumulated forms are seen, are places where the coastal lines extend the most straight among the coasts of Kapidag Peninsula. Coastal arrow, located in the southwest of Ilhan village and in the west of Narli, have low coast features as can be understood from their forms. The coastlines, extending from the south of Ocaklar Cove up to Erdek, are low-coastal areas upon which beaches, and width ranging between 30 m and 75. Mostly accumulated formations are effective in this region. The coastal line extends through a more straight line because of its lithological features.

The eastern section of Belkis Tombolo, which overlooks the Gulf of Bandirma and connects Kapidag Peninsula to the mainland, is covered by a swamp 1700 m in length and 600 m in width (Figure 6). The discovery of salty and dirty water, found in water-wells deeper than 9 meters and opened at agricultural fields around the swamp, indicates that groundwater in the alluvial area is fed from the sea through Belkis swamp.

Sand dunes, which are formed in the section of Belkis tombolo known as northern tombolo that connects the Peninsula to the mainland, are blown the northwest in the direction of the dominant wind after being dried with the effect of the sun. Blown sand dunes form sand hills in the direction of the prevailing wind. These sand dunes, some of which become stable and some are still moving, cover the surrounding agricultural fields as well as fill the swamp. Blanketing fertile soil layers with sand dunes adversely affects the quality of the soil. Coastal arrows, which form the connection points of Kapidag Peninsula to the mainland, draw attention as one of the most important geomorphologic formations. The development directions of the spits in this region has been in opposite direction to one another based on the sediment loads carried by surface currents that develop over the Gulf of Erdek on the west and the Gulf of Bandirma on the east.

Coastal arrows in the west, which starts from the northwest of Erdek and is of 7 km in length, connects to the mainland that is in the feature of tombolo in the south of the Belkis. Surface current, which caused the formation of this spit, is a surface current of 0,5 knot coming from the west of Pasalimani Island and is located in the direction of northwest-southeast. A sandy beach was prospered in the width between 30-80 m on the spit. The spit, which was formed on the east, starts from the southeast of the Belkis settlement and ends in the feature of a tombolo in Asagiyapici settlement after continuing for approximately 1,5 km in the northern direction. Surface current, which caused the formation of the spit, is an arm of a surface current of 0,5 knot coming to the Gulf of Bandirma from the direction of northeast-southwest. A beach cover was also formed on this spit throughout the coastal line (Ardel & Inandik, 1957; Cürebal et al., 1998; Güneysu, 2000).



Figure 6. Belkis Tombolo

The section connecting Kapidag Peninsula to the mainland has a feature of high coast that drifts with sharp angles. The section, which extends up to the Gulf of Bandirma, is included within the groups of high coasts with cliffs over 10 m. Here, rivers are shorter in size due to this feature of the coast. Coasts, which overlook the Gulf of Erdek, extend in Northeast-Southwest direction. Cliffs, whose elevations range between 3 m and 10 m, have been identified (Güneysu, 2000; Erinç, 2001). Small beaches have been formed in this region by the accumulation of some of the sediments carried by the surface currents of northeast-southwest direction on the coastal line, interrupted at times and having no continuity.

GEOMORPHOTOURISM FEATURES OF THE COASTS OF KAPIDAG PENINSULA

The coasts of Kapidag Peninsula have 3 values according to their geomorphosite features. These are scientific, aesthetic, cultural and economic values. The scientific values of the landforms should primarily be higher in order for them to be geomorphosite. Landforms, in the southern, northern and eastern coasts of Kapidag Peninsula, have interesting topographic characteristics such as tombolo and cliffs. Even though tombolo and cliffs are forms of accumulation and erosion, they are not formations that can easily be formed everywhere. Some conditions primarily need to come together in order for these landforms to occur. Belkis Tombolo was formed by connecting Kapidag mass (Old Bear / Arktonnessos Island) to the Anatolian coast through spits that develop from east and west at the same time between two gulfs (Gulfs of Erdek and Bandirma) (Ardel & Inandik, 1957; Curebal et al., 1998; Güneysu, 2000; Ceylan, 2011). Acquiring its name after historical city of Kyzikos/Belkis, tombolo is a unique example known as twin tombolo in Turkey (Kurt & Ekinci, 2013; Figure 7). It has scientific importance from this perspective.



Figure 7. Belkis Tombolo and view of Kapidag Peninsula from the direction of Edincik Source: http://rota360.net/otomobilrotalari.asp?id=31

In terms of geomorphology, the Belkis Tombolo is situated between Edincik Paleozoic Massif and Kapidag Granite Massif. Parts of the erosional surface, dead cliffs and alluvial plans, which are split by rivers and are at different levels, are located on the north and south of tombolo. Alluvial plans have a gradual morphology that shows changes at sea-level. There are agricultural fields on the western tombolo and sand dunes and plants that undertook the task of a set against erosion on the eastern tombolo. Belkis swamp, upon which reeds can be found, is formed between two tombolos. The area of this field is about 1 km². While the west of tombolo is an agricultural area covered by vineyards, olive and fruit trees, its eastern edge is completely enclosed by sand dunes. Tombolo area with these different aspects has a feature that renders it capable to be assessed as a sample area in geologic and geomorphologic researches and educational purposes applications.

The second important feature of geomorphosites is their high aesthetic values. Coasts of the Gulf of Erdek, located on the west of Kapidag Peninsula, has one of the most beautiful natural beaches of Turkey whose shores are entirely surrounded by non-pebbled sand strip. Beach starts from the coasts of Edincik and extends up to Cugra. The population of the district center of Erdek, the most developed district of the Peninsula in terms of tourism, increases 5 times in the months of summer. The population of the district in 2013 is 21,042. After Erdek, coasts of Ocaklar, Narli, and Ilhan village are also other important beaches surrounded by natural sands. The coast, between Narlu-Ocaklar is partly rocky. Ocaklar Cove, one of the largest coves of Kapidag Peninsula, is located in this region (Figure 3).

The width of the cove, where the sea penetrates 1,5 km inward, is as much as 2,5 km. The coastal line toward the cove is covered with cliffs. Coastal line, in the region from Fatya Burnu up to Erdek, has a flat appearance based on the lithological features. A pebbled and sandy beach, 6 km in length and 30-75 m in width, extends throughout the coast and marine terraces, at the levels of 5m, extends at the back of it. Seyitgazi (Wish) Hill (103 m), which is located on the southeast of Erdek, and connected to Kapidag with a pass of 350 m in width and 25 in height, Tavsan Island (45 m), which is located 800 m on

the southwest of this hill and has entirely a rocky and non-woody appearance and Zeytin Island, which is located at a 250 m distance from Erdek coast and has a marble-structure, increased the visual value of the coast (Kurt & Ekinci, 2013; Figure 8).



Figure 8. Coasts of Erdek Gulf of the Kapıdağ Peninsula (Source: http://kenan-akyol.blogspot.com)

Turan village is one of the places, which is calm and possesses beauty unknown by many people, located on the north of Kapidag Peninsula. Historical ruins can be found in this village that has a beach entirely located within a large cove and has a lush nature. Ballipinar village, which stands on the east of Turan village, established in a small cove and is known as Kocaburgaz among the people, is located at an area of Kapidag Peninsula overlooking the Sea of Marmara. Ballipinar is one of the best examples that can be attributed to a place that merges its green and blue with its nature. Kestanelik village is the first village on the direction of northeast.

It is known among the people as Kestel. People lead a completely self-oriented life since there are no activities in the village for touristic purposes. The reason for this village to retain the name of Kestanelik is the chestnut trees in its high slopes. Kestanelik exhibits a beauty with its nature that is worth-seeing. Asagiyapici village, on the southeast of the Peninsula, is one of the largest villages in the peninsula. Small waterfalls, streams, and natural beauties consisting valleys, which are unexplored in terms of eco-tourism and extend throughout the road when proceeding from Asagiyapici village to Yukariyapici, are also important aesthetic values of the peninsula.

Third important feature of the coasts of Kapidag Peninsula is their high cultural values. The Peninsula has so many natural and cultural values throughout its coasts that can be visited and seen for touristic purposes. Three city-states, called Cyzicus, Arteka and Prokonesos, were historically established on the southwest of Erdek and its surroundings. One of them is Cyzicus which is located 9 km away from Erdek and is one of the important places worth-seeing with its historical city ruins. Artifacts of Roman 54

Period can especially be found in the area known as Belkis Ruins. Ruins of Adrianus Temple, the amphitheater ruins and theater location, called Belkis palace, are the most important ruins. The ruins of the historical city were spread in an area of about 11 km² starting from Belkis Tombolo and extending towards the north. Temple of Hadrian, which still remains today among these ruins with its vaulted foundation scattered around in pieces, provides information about the splendor of the city during the Roman period. Temple of Hadrian is recognized as the 8th Wonder of the world (Arslan, 2005). Foundations of a small church can be found on Seyitgazi Hill located on the southeast of Erdek district. The offering place, known as the Tomb of Seyitgazi among people on the hill, is also another one of interesting places.

Zeytin Island, Turkey's first Archeopark island (island museum), is located on the southwest of Kapidag Peninsula (Figure 9, 10). Being used as a camping and resting place by the Department of Physical Training since 1957, excavations began on the island when it changed hands within the framework of Protected Area and Conservation Plan initiated by the Ministry of Culture and Tourism in 2006. The only olive tree on the island has also been placed under protection in this regard. The ruins of Virgin Mary Church are also found on Zeytin Island that has been a place of ancient ruins for 2300 years. Island was opened to visitors in 2012 after the completion of the works and the project prepared by Erdek Tourism Foundation being approved by the South Marmara Development Agency.



Figure 9. The only olive tree under preservation in Zeytin (Olive) Island (Source: http://www.haberimport.com/haber/tarihi-zeytinliadanin-tek-zeytin-agaci-koruma-altina-alindi-118186.htm)

The fourth geomorphologic value of the coasts of Kapidag Peninsula is their economical significance. Tourism generates an economical resource in a place that it gets into. Settlements on the coasts of Kapidag Peninsula have the characteristics to become an importance source for Balikesir province as well as the country's economy. Having a transitional feature between the climates of Mediterranean and Black Sea (with an average temperature about 14,6 °C), the coasts of Kapidag Peninsula provides unique beauty with their small villages, rich-vegetation, and secluded coves. Regions closer to the coast are covered by olive groves, mid-lands by hills with shrubs and mountainous regions by forests. Its coasts are full of holiday resorts followed by one after the other.



Figure 10. Erdek coast and Zeytin Island (Archeopark Island) (Source: Ortofotos and http://erdekkonaklama.com/locations/erdek/)

Settlements, which are on-course and easily-accessible, such as Ilhan (412 people), Narli (625 people), Ocaklar (1555 people), draw attention as suitable places to be used for touristic purposes. Acquiring its name after granite quarries found on the mountainous regions, Ocaklar experiences a great mobility during summer season with its 3 km long beach and attractive sea even though it is located 5 km north of Erdek and is a settlement with a population of 1555 people. Absence of industrial facilities around and the capacity of northeasterly winds, which blow from land to sea, to prevent natural contamination by sweeping the sea ensure the sea to remain clean. All kinds of water sports and wind surfing can be also done in the cove. Hot and cold water supplies in Zeytin Island are also important for health tourism. Waters of hot-water supply, whose temperature is 23° C, are thought to be good for skin and eye diseases since they are one of the rare thermal waters that are salty and contain 26354.118 mg/lt. of minerals and (ra 0.4) radon gas at low levels. Hot water beds can be found from these spring waters and they can be introduced to thermal tourism. Sale-oriented efforts can be spent for cold water supplies by bottling method. 56

CONCULSION

Extensive credit and incentive opportunities, provided for the coasts in the Mediterranean and Aegean Regions due to changes carried out in tourism policies in the periods after 1980 in Turkey, drew the interests of investors as well as tourists away from the coasts of the Gulf of Erdek. The relative shortness of touristic season, 2-3 months, led investors to divert interests to the Mediterranean and Aegean coasts where summer season lasts longer like 6-9 months. When looked at the touristic activities and tourism types in the coasts of Kapidag Peninsula, the area remains limited to marine tourism. However, Kapidag Peninsula, particularly the coasts of the Gulf of Erdek, has a rich structure with its features of geomorphotourism and historical and cultural values. It is a major problem to be unable to promote a destination that includes many touristic values within itself in the country as well as in abroad.

Therefore, the promotion of geomorphotourism areas in the coasts of Kapidag Peninsula is of great importance. Promotional billboards can be placed in suitable places, especially on the roadsides, brief information and sketches can be provided regarding the formation and characteristics of Belkis tombolo that especially has an interesting appearance and various functional features. It is necessary to preserve tombolo area in various statuses, to plan the use of land and to unearth historical values by conducting archeological excavations.

One of the geomorphologic problems of the coasts of Kapidag Peninsula is the dispersion of sand dunes, which are formed at a region of Belkis tombolo known as the northern tombolo connecting the peninsula to the mainland, by the dominant winds in the direction of southwest after being dried under the influence of the sun. Dispersed sand dunes create sand hills in the direction of the dominant winds. Mobiles ones of these sand dunes, some of which became stable, cover the surrounding agricultural areas as well as fill the swamp. Covering of fertile soil layers by sand dunes adversely affects the quality of the soil. It is necessary to take measures in this respect.

Changes primarily taking place at the level of waves and currents, activities of streams, structural features, lithological features of formations and young tectonic movements played an important role in the formation and development of the research area. Therefore, seismic features should be taken into account in the determination of new places of settlements by making development plans of existing settlements since the area, at the same time, is included in the first-degree earthquake zone. Geomorphotourism is a new and important concept that is being spread all over the world. Therefore, there is a need for carrying out state-funded projects and planning with the purpose of preserving and promoting coastal heritage. This study is only carried out in the coasts of Kapidag Peninsula approximately 100 km in length located in the coastlines of Turkey surrounded in three sides by coasts and having a coastline of 8333 km (Altinok & Ersoy, 2000).

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SOLUTIONS FOR THE DEVELOPMENT OF LEISURE TOURISM BY SPECIFIC ARRANGEMENTS (CYCLOTOURISM) IN THE ALBAC – ARIEŞENI TERRITORIAL SYSTEM (ALBA COUNTY, ROMANIA)

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Abstract: The natural attractions of the territorial system Albac – Arieşeni are important due to their beauty and originality. These were all analysed in other articles and in the PhD thesis, therefore, we consider that a detailed overview is not necessary. This study aims to present aspects of leisure tourism within the territorial system Albac – Arieşeni. Through its content and its role, tourism represents today a distinct field of activity, a component of primary importance of the economic and social life. Due to the fact that the touristic resources are practically inexhaustible, tourism is one of the economic sectors with real prospects of long-term development. Tourism has major implications on the economic and social dynamics, on the national and international relationships, by means of its extent and complex content, because it implies the natural and material potential, as well as the human potential.

Key words: cyclotourism, mountain biking, development of tourism activity, improvement, mountain, tourist locations, areas

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INTRODUCTION

Leisure tourism takes the most diverse forms and enhances, first of all, the esthetical potential of the geographic area; it is easily associated with all the other types of tourism and is suitable for all ages (Ilieş et al., 2008, 2014; Ciangă, 2006; Cocean & Dezsi, 2001; Gaceu et al., 2012; Gheorghilaş, 2011; Hall, 2008; Holden, 2008; Herman, 2014, Ilieş et al., 2013; Cocean, 2000, 2007, 2010, (coord.); Pop, 2013; Walker & Walker, 2011; Gaceu et al., 2013; etc). The main forms of leisure tourism appropriate for the Albac – Arieşeni territorial system are: hiking, horse riding, speleotourism, mountaineering, mountain biking or cyclotourism, paragliding, skiing, ski touring, canoeing, recreational fishing, as well as playgrounds for children, with various equipments.

This article is a follow-up of a larger study, published in 2012 and it includes some issues which were not tackled at that time. We are making some suggestions concerning the promotion, the development and the exploitation from touristic point of view of this area, especially regarding the trails for cyclotourism and mountain

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biking located within, but also in the surroundings of the Albac – Arieşeni territorial system. The natural resources which exist in the Albac – Arieşeni territorial system are plentiful, they are highly original and attractive, but the lack of some necessary conditions, essential in order to satisfy the needs of the tourism services consumers – much below the value of the natural landscape – limits much of the touristic circulation in this area.

In order to ensure the development of the touristic activity and to make the most of the touristic patrimony, investments which focus especially on the development of the means of communication and transportation and of the recreational areas are needed.

OBJECTIVES. METHODOLOGY. DISCUSSION

Cyclotourism and mountain biking are becoming more and more popular in Romania too (Figure 1, 2); they represent an opportunity to avoid sedentariness and have little impact on the environment. Mountain-biking is a form of sport tourism applied on mountain trails, with appropriately equipped bicycles and characterized by a stronger sense of adventure (in order to avoid unpleasant accidents, it is recommended to wear a biker helmet and personal protective equipment), according to the degree of difficulty of the chosen track.



Figure 1. Mountain-biking in Bistriţa Năsăud (Source: http://www.timponline.ro)

Figure 2. Mountain-biking (Source: http://www.dirtbike.ro)

One of the objectives included in the Master Plan for National Tourism Development 2007-2026 is the promotion of cycling, the creation of maps for cycling itineraries along the Danube and the production of a promotional campaign for this itinerary, which should function as a prototype project. This should attract more tourists in the relatively underdeveloped regions of the country. Also, it should increase the interest in the development of additional cycling itineraries in other regions. According to the Ministry of Tourism a national network of touristic tracks for bikers will be established; these tracks will be covered in 5 up to 12 days or in maximum one day in the case of a local track. As stated in the Law no. 755/2001, the degree of difficulty of the track will be marked in blue for easy, red for medium, black for hard and yellow and black for experts (Gozner, 2012).

Cyclotourism can be a profitable affair not only by the opening of shops and service centres, but also by the organization of events, competitions, camps, etc. The President of the Romanian Cyclists' Federation stated that "in Switzerland, this 60 branch exceeded the income obtained from skiing. In Germany, during the last five years, the bicycle market has constantly grown with over 10% and on the Danube track between Germany and Austria 100 000 tourists travel every year, who wouldn't come but on bicycles".

The territorial system Albac – Arieşeni doesn't have especially arranged tracks, so cyclists must use the existing communication infrastructure: county roads, forest roads, as well as parts of the hiking paths. The arrangements which are necessary are linked to the infrastructure, roads and paths accessible to the cyclists, marked by specific signs, as well as halting places provided with wooden benches and tables, but also the development of the springs on the tracks (Bleahu & Bordea, 1981).

Other necessary elements are: boards with the tourist map for cyclotourism at both ends of each track, centres where one can hire bicycles, bicycle parkings near the tourist attractions etc. Also, stands where tourists could buy traditional products, maps and tourist guides, documentaries about the tourist attractions of the region etc. can be created. For those who love the trips "on two wheels", here propose some tracks for cyclotourism and mountain-biking.

Description of the tracks:

Cyclotourism track 1: Gârda de Sus - Arieșeni - Bihor Peak- Pătrăhăițești - Gârda de Sus (Figure 3);

Tourist attractions: Buciniş Waterfall, Bihor Peak (1848 m) and the Folkmuseum of Pătrăhăițești (Figure 4, 5).

Lenght: 30 km; undeveloped track.



Figure 3. Cyclotourism track 1: Gârda de Sus - Arieșeni - Bihor Peak - Pătrăhăițești - Gârda de Sus

In order to develop this track, first of all the wood should be removed from the road and the road should be repaired in some sections difficult to access; other suggestions: the opening of a center for hiring and repairing bicycles, halting places provided with wooden benches and tables, recycle bins for collecting rubbish, some belvedere points marked with tourist signs etc. The track for the circuit Gârda de Sus - Arieşeni - Bihor Peak- Pătrăhăiţeşti - Gârda de Sus starts in Gârda de Sus, ascending on the National Road 75 towards Arieşeni.

From Arieşeni, following the National Road 75, the tourist can ascend to the village Galbena, on the Cepelor Valley, passing through the Pătrăhăiţeşti Forest, towards Bihor Peak, by the foot of the Cucurbăta Mică Peak (1769,3 m). When the tourist arrives on the Bihor Peak, he can admire a 360-degree panorama towards the Mountains Vlădeasa, Gilău, Codru Moma, Muntele Mare and the scattered villages of the communes Arieşeni, Gârda de Sus, Scărișoara, Criștioru de Sus, Criștioru de Jos; if the weather is stable and the sky is clear, one can see the Retezat, Parâng Mountains etc. Going back, the tourist descends through Pătrăhăiţeşti Forest, until he gets near the village Galbena (the first crossroads of forest roads before entering the village Galbena). The track passes through a part of the forest from the village Stei-Arieşeni, then it arrives in the village Pătrăhăiţeşti and at Buciniş Waterfall. From Buciniş Waterfall, the track descends on the Bucura Valley, passes through the village Dealul Bajului before arriving to the national road DN 75. The road descends then on Arieşul Mare Vally, till Gârda de Sus the from where the trail (route) started. Whatever area, the routes start and end at the same point, all are proposed in circuit system.



Figure 4. Images from the route passing through Bihor Peak (1848 m)



Figure 5. Folkmuseum of Pătrăhăițești

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Figure 6. Buciniş Waterfall



Figure 7. Cyclotourism track 2: Route Vârtop Mountain Pass - Groapa Ruginoasă

Cyclotourism track 2: Gârda de Sus - Arieșeni - Vârtop Mountain Pass - Groapa Ruginoasă - Gârda de Sus (figure 7).

Tourist attractions: Groapa Ruginoasă, Vârtop Mountain Pass, the wooden church of Gârda de Sus.

Lenght: 24 km; undeveloped track.

The arrangements which are required for the track Gârda de Sus - Arieşeni -Vârtop Mountain Pass - Groapa Ruginoasă - Gârda de Sus do not imply great expenses because the largest part is on the national road DN 75. It would be necessary to mark the cyclists' tracks, to develop the springs on the trail, to create halting places provided with wooden benches and tables and a belvedere point marked with tourist signs, to install recycle bins for collecting rubbish, etc. The route starts in Gârda de Sus, mounting on the DN 75 to Vârtop Mountain Pass.

Before arriving at the ski slope on DN 75, the route turns right, passing near the pension Castelul Alpin, mounting to the La Trei Morminți Peak (1318 m), then the ascent becomes gentler on a well-defined path which arrives at Groapa Ruginoasă. Then the trail approaches the foot of Țapu Peak, descends towards Pietrele Negre to the crossroads with DN 75, near the village Băița Plai. In figure 7 is shown the route from pension Castelul Alpin (Pasul Vârtop), Groapa Ruginoasă, Vârfului Țapu, Băița Plai, Castelul Alpin. The rest of the route overlaps DN 75.



Figure 8. Groapa Ruginoasă

Cyclotourism track 3: Gârda de Sus - Arieșeni - Cobleș - Călineasa Glade - Scărișoara - Gârda de Sus

Tourist attractions: Galbenă Valley, Padiș Plateau, Biserica Moțului Peak, Călineasa Glade, Scărișoara Cave, Ursoii Glade.

Lenght: 90 km; undeveloped track.

The arrangements required for the track Gârda de Sus - Arieşeni - Cobleş – Călineasa Glade – Scărişoara - Gârda de Sus are not different from those necessary for the two tracks analysed above. Taking into account that the track is lenght 90 km, the costs for developing this track could be a little higher than for the previous tracks. The third track recommended for development starts in Gârda de Sus too. From Arieşeni, the track will ascend on the commune road DC 131 which follows the Cobleş Brook and passes through the village Poieniţa.

At the confluence of Luncşoara Valley with Cobleş Brook, the track continues to ascend on the Luncşoarei Valley until it arrives at the hamlet Faţa Glăvoaiei. The track 64

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continues to ascend on Galbenă Valley up to the confluence with Crişul Pietros Brook, following the track which leads to Padiş Plateau, passing near the foot of Bălulesei and Biserica Moţului. At the confluence of Izbucul Mic Valley and Izbucul Brook, the track starts to descend on the Izbucul Mic Valley, passing through Călineasa Glade, Ursoii Glade, Ocoale village, Scărișoara Cave, Gârda Seacă and Gârda de Sus.



Figure 9. Images from the route passing through Călineasa Glade



Figure 10. Scărișoara Cave

CONCLUSIONS

These tracks for cyclotourism and mountain biking are a way of spending the free time for the tourists who come to Arieşeni and Albac resorts. The arrangements which are necessary do not imply exaggerated costs which could not be borne by the town halls of the communes which are part of the territorial system Albac – Arieşeni.

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The touristic development of an area can be made by finding some solutions in order to capitalize on the natural and anthropic resources, because nowadays tourism plays an important role in economy and this thing becomes very necessary. The touristic development, as well as the economic progress must take into account the characteristics of the natural and anthropic environment and the touristic development must be made in accordance with these two variables. The natural and anthropic resources which exist in the territorial system Albac – Arieşeni are plentiful, they are highly original and attractive, but the essential conditions for tourism are much below the value of the natural landscape limiting the touristic circulation in this area. These problems can be noticed at the level of the infrastructure and the touristic development of the area.

In the end, we express our hope that this paper will influence in a positive manner the local actors in the layout and the drawing up of the future strategies for the evolution and the development of the territorial system Albac – Arieşeni.

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NEW TRENDS IN MOUNTAIN AND HERITAGE TOURISM: THE CASE OF UPPER SVANETI IN THE CONTEXT OF GEORGIAN TOURIST SECTOR

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Abstract: Upper Svaneti, a mountainous region of Georgia located in the north-west of the country and surrounded by the spectacular peaks of Greater Caucasus mountain range, is a good example of tourist potential deriving from the interaction between natural and cultural features. In this paper we will first outline an introductory framework of tourism in Georgia. Then we will analyse the case study of Upper Svaneti, which is nowadays undergoing a phase of early tourist development, thanks to a combination of factors: the pathway of Georgia towards a greater political and economic stability; an increased accessibility of the area thanks to the improvement of the road network and the establishment of air connections with Tbilisi; an intensive process of rehabilitation of the human settlements, combined with the creation of tourist facilities; a growing image following the inclusion, in 1996, of its famous medieval stone towers in the UNESCO World Heritage, which make the mountain landscape of Upper Svaneti extraordinarily interesting from the cultural, architectural, ethnographical - and therefore tourist - points of view.

Key words: Georgia, Upper Svaneti, mountain tourism, heritage, landscape

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INTRODUCTION

Globalization is characterised, among other things, by the simultaneity and the multiplicity of experiences, identities, models in what has been called the "global village" (McLuhan, 1964). At the same time, globalization has accelerated the transition from closed to open systems, from fixity to mobility, from isolation to interdependence. Hence comes the desire of the contemporary individual - that someone would define post-modern (Minca, 1996) - to belong to a socio-cultural system that is wider than local or national ones, and therefore to broaden his horizons through the experience of different

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realities, cultures and territories: in one word, with the "other". Such an experience becomes possible primarily through the practice of tourism.

One of the main features of contemporary tourism is the increasing segmentation of the demand, in terms of income, age, consumptions, habits, origin of the flows, educational levels, motivations, attitudes. Analysts agree, moreover, that the world demand for tourism will further diversify in the medium and long terms (Wilson, 2011). Supply, therefore, is moving towards an increasing customization: on the one hand, new types of tourism arise and develop; on the other hand, new destinations emerge for the traditional types. All of this represents an alternative to mass tourism. Consequently, if the related targets may be considered as small market niches from a local viewpoint, at the continental or global scale they represent a potential market which is wide enough to generate profitability for emerging destinations, if visibility, image, accessibility, attractiveness and usability are insured (Viken & Granås, 2014).

The causes can be technological (increased accessibility of a growing number of places due to the development of transport networks, especially the low-cost flights; wider and real time information, thanks to the Internet), motivational (search for alternative destinations; desire to meet the "other", as long as perceived as genuine; aspiration to expand one's own sphere of action to new, unusual or just trendy experiences), but also geopolitical (e.g., the collapse of Soviet Union and communism in Eastern Europe and the subsequent opening of the borders – and of the markets - to inbound and outbound tourism). Therefore a growing number of destinations, that just a few years ago were left out of the tourism market because lacking of major tourist attractions (sea, lake, snow, spa, monuments), or peripheral to mainstream tourist routes, or difficult to access due to geopolitical reasons, are now experiencing a growing reputation and a promising development through a combination of effective promotion and increased accessibility.

Under this respect, the most substantial evolution of the last decades (especially since the late nineties) has been the fast growing international tourism headed for the Eastern European countries and the post-Soviet space, especially for the traditional types of tourism (beach, mountain, lake, thermal, cultural, rural etc.), but also, to a certain extent, for the innovative ones (heritage, memory, adventure, medical, dark etc.). The main destinations of these emerging flows are the historical towns of Eastern Europe¹ (such as Prague, Budapest, Moscow, St. Petersburg, Gdansk, Baltic capital cities) and the seaside resorts of Adriatic Sea (Slovenia, Croatia²), followed by the Black Sea (Romania, Bulgaria, Ukraine). As far as mountain tourism, ecotourism and rural tourism are concerned, the Slovenian section of the Alps (Kranjska Gora), the Tatra Mountains (between Slovakia and Poland) and the Carpathians³ (Romania, Ukraine) are showing an interesting evolution.

Further east, some countries of the Southern Caucasus (Armenia⁴ and Georgia) and Central Asia (Uzbekistan and Kyrgyzstan) are entering the international tourism markets, thanks to a combination of natural and cultural tourist resources that can successfully address traditional market segments (such as the cultural, mountain, rural ones), as well as more innovative segments like adventure and heritage tourism. Heritage tourism⁵ can be defined as an immersion in the natural and cultural history of a place, made perceptible to human senses by a specific mix of tangible and intangible resources that represent the basic elements upon which values, memories and identities are built. Under

¹ See, at this regard, Czepczyński, 2008.

² For Croatia, see Albolino, 2014.

³ For Romanian Carpathians, see Bădulescu & Bâc, 2009; Gaceu et al, 2012; Gozner & Zarrilli, 2012; Ilieș et al, 2014; Gozner, 2010.

⁴ For Armenia, see Cappucci & Zarrilli, 2008.

⁵ On this topic, see Timothy & Boyd, 2007; Marcos Arévalo & Ledesma, 2010.

this respect, a central role is played by the "cultural landscape"⁶, which can be regarded as the specific product of the interactions between natural features (climate, vegetation, orography etc.) and human activities (agricultural structures, human settlements, social organizations etc.). Such an interaction gives the territory its unique character, its individuality (Wallach, 2005; Smith, 2006; Zarrilli, 2007; Roca et. al., 2011). Cultural landscape, therefore, is a key resource for heritage tourism, as defined above.

A very good example of tourist potential deriving from the aforementioned interaction is represented by Upper Svaneti (Georgia). In the following chapters we will outline an introductory framework of tourism in Georgia, which is experiencing a quick growth phase. Then we will analyse the case study of Upper Svaneti, which is a mountainous region of Georgia located in the north-west of the country on the border with the Russian Federation, surrounded by the spectacular peaks, ranging from 3,000 to 5,000 meters, of the southern side of the Greater Caucasus mountain range. Upper Svaneti is nowadays undergoing a phase of early tourist development, thanks to a combination of factors which will be discussed further, one of which is represented by its cultural landscape, which is unique and extraordinarily interesting from the naturalistic, architectural, ethnographical - and therefore tourist - points of view (Figure 1).



Figure 1. The settlement of Ushguli, about 2,100 m.a.s.l. (Source: Luca Zarrilli, 2009)

Georgia as a tourist destination

Located in the Southern Caucasus, along the Black Sea coast, Georgia has a huge tourist potential: about 100 mountains (Abastumani, Bakuriani, Bakhmaro, etc.), seaside (Kobuleti, Ureki, Batumi, etc.), balneotherapeutic and mud health resorts (Borjomi, Sairme, Likani, Akhtala, etc.). Furhermore, more than 12.000 historic-architectural monuments are counted (Pavliashvili, 2003) – some of which included in UNESCO "World Heritage Sites" list (Upper Svaneti, Bagrati Cathedral, Gelati Monastery,

⁶ On this topic, see Mitchell et al., 2009.

Mtskheta) – and several nature sanctuaries. All of these are concentrated within a small territory, occupied by hospitable and distinctive people (Prikhodko, 2014). There are 103 resorts and 182 so called "resort places", which means that in such places there are enough natural factors for treatment and organisation of resort, but for the moment they do not have any tourist infrastructure7.

Georgia is also distinguished for its share of pristine natural environment, which represents 14% of the territory. Pristine natural landscape can be found both in protected and high mountain areas (Elizbarashvili & Kupatadze, 2011). The country also provides unique opportunities for birdwatchers. Based on the information of Galvez (2005), it is possible to watch more than 200 species in a two-week period. Georgia, as part of the Caucasus, is one of three "Endemic Bird Areas" of Europe.

In addition to its natural features, the country boasts an age-old human history that competes with, or even surpasses, most European countries (Metreveli & Timothy, 2010). Georgia was part of several ancient civilizations including the Hittite, Persian, Greek, Roman and the Byzantine empires. In ancient geography, Colchis was an ancient kingdom in Western Georgia. According to Greek mythology, it was the home of Medea and of the golden fleece, the destination of Jason and the Argonauts (Zurabishvili, 1987). The country is also one of the world's most ancient Christian countries, dating back as early as the fourth century (Goldstein, 1999).

Furthermore, it was probably here that humans started to domesticate grapevine and make wine for the first time in the history, over 8,000 years ago (McGovern, 2003; Chilashvili, 2004). Over 500 varieties of vines have been recorded in Georgia. Furthermore, the ancient Georgian tradition of winemaking method using the Kvevri clay jars has been added to the UNESCO Intangible Cultural Heritage in 2013. The wine, together with a very specific cuisine and a strong tradition of conviviality, is a vital part of Georgian identity and culture. As a result Georgia has a strong tourist potential to offer and develop: among the others, eco-friendly, cultural, heritage, leisure and gastronomy tourism.

The country was one of the most popular holiday destinations in the USSR, due to its scenic beauty, its mild climate and a large number of health resorts. Data on Soviet tourism are difficult to find. The most reliably figures assume that in the late 1980s Georgia counted approximately 4.5 million visitors annually (Pavliashvili, 2003), of which about two millions headed to sanatoria and health resorts. With the collapse of the Soviet Union and the ensuing ethnic fragmentation and civil strife in Georgia, the conditions for tourism in the country underwent deep constraints. Only in recent years the number of visitors in the country reached, and even surpassed, that of Soviet period.

Tourism in today's Georgia: opportunities and challenges

Georgia has experienced dramatic increases in the number of tourists over the past decade. According to the Georgian National Tourism Administration (GNTA) in 2014 the number of international visits was about 5,49 million (Figure 2) and exceeded the country's total population, which amounts to 4,6 million people.

The World Tourism Organization's report, "UNWTO World Tourism Barometer"8, highlighted that, in 2013, the increase in the number of international arrivals in Georgia (about 22% over the previous year) was rated as the highest in Europe. From a statistical point of view the increase of visitors was even higher in 2012, when the number of international arrivals increased by 57% over the previous year. More in general, from

⁷ Gudauri, one of the most import ski resort of the country, has both natural resources and tourist infrastructure, but it doesn't have the resort status yet.

⁸UNWTO Volume 12, January 2014, retrieved on: http://accounts.unipg.it/~fpompei/UNWTO Barom14 01 Jan.pdf 70

2009 to 2014 inbound tourism increased over 3.6 times. The outlook for the industry is highly optimistic and as a matter of fact the Lonely Planet travel guide elected Georgia one of its top-10 Best Value Destinations for 2013⁹ while, for Rough Guides, Georgia ranks 5th among the "Top Ten Countries to Visit in 2014"¹⁰.

Such a positive result is mainly due to both public and private political priorities in tourism industry after the Rose Revolution. Since 2004 - year in which, according to the GNTA, the number of international arrivals was only 368,312 – the Georgian State considers tourism as one of the major economic sectors, and has quickly adopted reforms in developing and modernizing infrastructures: building of new airports, railways, roads, hotels, recreational spas, swimming pools, water parks, aquariums, national parks, etc.; reconstruction of historic monuments and settlements on a large scale. The development of tourism in Georgia was also stimulated by providing a high degree of security and by the easing of visa restrictions which opened the country to a great amount of visitors (Alasania, 2013).

For the Georgian government, tourism plays an important political role, also because it often involves and gets support by foreign aids and banks. For example, in 2012 the GNTA, together with the World Bank, implemented a regional development program for the western part of Georgia, with a financial support amounting to USD 60 million (TTG, 2014:16-17). As a consequence of this development, tourism in Georgia has become one of the major sources of income. Services, including tourism, comprise approximately 60% of GDP, followed by industry and agriculture (Metreveli & Timothy, 2010).

Tourism contributed 6.5% to Georgia's GDP in 2013 and employed about 169.000 persons in the fourth quarter of 2013, the 10% of total employment (GNTA, 2014).

However, despite big investments and efforts, it should be said that modern physical infrastructure is still critical for the tourism industry. In particular, considering that in 2013 most of foreign travellers came to Georgia by land (87%), but only a much smaller fraction by air $(11\%)^{11}$, building of modern airports and improving the existing airports should be a priority.





⁹ http://www.lonelyplanet.com/themes/best-in-travel/best-value-destinations/

¹⁰ http://www.roughguides.com/best-places/2014/top-10-countries/

¹¹ GNTA, 2014:7.

Furthermore, in order to become a more competitive and attractive destination for western travellers, Georgia is still lacking tourism international standards and visibility: in effect, one of the aspect of Georgia's tourism industry is that most of the tourists come from four neighbouring countries such as Turkey (30%), Armenia (24%), Azerbaijan (20%), Russia (14%), and only 10% of visitors arrive from other countries (Figure 3).

Anyway the number of tourists from western countries – European Union countries in primis – is increasing year by year (in 2013 there were 208,754 international arrivals from EU countries, representing a 4% share of total arrivals and an increase of 22% over the previous year).



Figure 3. International Arrivals in 2013 - Top Countries (Source: Georgian National Tourism Administration - GNTA)

Another interesting aspect is related to the length of stay: in 2013, according to the GNTA, out of the total number of visits, 39,6% were made by same day visitors, 22% were made for the purpose of transit and only 38,4% lasted longer than 24 hours with an average stay of 5 days (GNTA, 2014).

Looking at the purpose of the visit (figure 4), international visits were mostly undertaken for holiday, leisure or recreation purposes (37%). Other frequently observed purposes included visiting friends or relatives (26%), transit (17%), shopping (9%) and business/professional trips (4%). Only 7% of visits were made for other purposes.



Figure 4. Main purposes of the visitFigure 5. Tourism types(Source: Georgian National Tourism Administration - GNTA)(Source: Georgian National Tourism Administration - GNTA)72
Data included in figure 5 are of great interest for the aim of this paper. As mentioned above, Georgia has very good conditions for the development of environmental tourism thanks to its location, geography, landscape diversity, climate, history and culture. Indeed the great majority (52%) of tourism activities in the country are "nature-based", such as camping, hiking, hunting, bird watching, swimming, fishing, skiing, and mountain climbing, among others. Then, since "adventure tourism" (caving, paragliding, rock climbing, etc.) can be considered in a way as "nature based", it can be said that over 65% of tourists going to Georgia are strongly attracted by its pristine natural environment and landscape. Also cultural and ethnic aspects – including the traditional cuisine and the good quality and variety of the local wine – play an important role in choosing Georgia as a tourist destination.

Upper Svaneti

The myth of the Greek Argonauts' voyage to Colchis is thought to be connected to the gold of Svaneti which was brought to the region by the rivers' currents. At that time Svaneti was part of the Colchis Kingdom and was the only territory that supplied King Ayet with gold. Svans (inhabitants of Svaneti) used sheep skin to capture gold – the skin was fixed to a board that was placed into water wool side up. Once removed from the water and dried, the gold would fall from dry wool. The legend of Golden Fleece comes from this method of gold producing.

Svaneti is one of the most beautiful geographical provinces of Georgia. It comprises of two parts – Upper and Lower Svaneti, which are divided by the Svaneti range and belong to two municipalities – Mestia and Lentekhi. As Upper Svaneti has always been secure and independent because of its isolation between high mountains, it preserved its historical traditions and ethnographical peculiarities. Throughout history during hostilities it was the depository for the whole Georgian cultural treasures and until now the locals, especially old people, consider it their duty to defend them. That is why the Upper Svaneti is of great interest to all visitors.

Greek historian and ethnographer Strabo wrote about the Svans that "They are noteworthy for their courage and power, they reign over almost everything around them and control the peaks of the Caucasus".



Figure 6. Mt. Ushba, 4,710 m.a.s.l. (Source: M. Tutberidze)

Upper Svaneti ("ZemoSvaneti" in Georgian) has a rich history, picturesque natural beauty and is located in the northern part of the country on the southern slopes of the Caucasus in the upper part of the river Enguri stream. The region has plenty of tourist resources, both natural and cultural. It is surrounded by wonderful high (more than 4,000 meters) white-capped peaks such as Shkhara (5,068 m – the highest peak of Georgia), Tetnuldi, Ushba (Figure 6), Ailama, etc. There are wonderful forests, rivers, several waterfalls (in the valley of the river Dolra), speleological caves (near Khaishi) and lot of trekking and hiking areas all over the region.

Upper Svaneti is famous for its cultural tourist resources as well. Ancient Svans are known for their tower settlements (Figure 7), cultivating unique species of wheat and their own style of mural painting. Svans created musical instruments unique for the region and also developed a tradition of woodcarving, examples of which can still be found in some homes and churches. Svans have great respect for rituals. Their polyphonic songs and specific dances are also unique for the region.

Since the Middle Ages the tower settlements of Svaneti served both as defense and dwelling structures. Most of them are 20-25 meters high and have 4 or 5 floors connected to each other by the internal wooden staircases.



Figure 7. Towers in Ushguli (Source: M.Tutberidze)

In almost every village there is a small church. Many of them have ancient mural painting inside; some of them have also facades with such paintings (e.g. churches in Adishi, Lenjeri, Ushguli). Priceless ancient icons, crucifixes and valuable manuscripts are still kept in those small churches.

The Svaneti Museum of History and Ethnography in Mestia is a remarkable tourist attraction (Figure 8). It was founded in 1936. Nowadays it has unique archaeological, numismatic, ethnographic and photographical collections, manuscripts, jewelry, vessels, weapons, painted and engraved crosses and icons. The items belong to different periods from Neolithic to Middle Ages. Among the photographical exhibits noteworthy are the works of significant Italian scholar, mountaineer and photographer Vittorio Sella, who travelled to the Caucasia in 1889, 1890 and 1896 and whose photos of landscapes, towers and humans compiles a richest archive. The museum affiliation is located in a tower of Ushguli. It has very valuable artefacts on display; the edifice itself though is in need of serious restoration.



Figure 8 – Svaneti Museum of History and Ethnography in Mestia (Source: G. Khomeriki)

One of the most frequently visited destinations in Svaneti is village Chazhashi (Ushguli community). Its architectural complex of towers was added to the UNESCO World Heritage List in 1996. In accordance with this organization a 5 year project of the village restoration has started this year. Noteworthy is the fact that mostly the local dwellers are employed on these works, and slate, tower building main material, is mined locally, from the banks of the river Enguri.



Fig. 9 – Queen Tamar Airport in Mestia (Source: G. Khomeriki)

Lately the number of tourists has been growing rapidly. The reason is that people in many countries get better informed about this picturesque region – its interesting architecture, nature and inhabitants, their traditions and folklore; so the significance of a recently constructed motorway to Mestia (the administrative center of Upper Svaneti), which increased the region's availability, cannot be overestimated. The works in other destinations continue. For the last two years the main tourist flows have been coming to Mestia from the Kutaisi King David Agmashenebeli Airport and the Tbilisi International Airport. Short-time flights on comfortable small planes are performed three times a week from Natakhtari (near Tbilisi) to Mestia, the Queen Tamar Airport (named among top 10 unusual airports by the architects of Novate web-site, Figure 9). The service is rendered by the "Service Air", a Georgian operator.

The number of tourists has been increasing yearly. Three years ago the number of tourists in Upper Svaneti was less than 9,000. In 2013 the region was visited by 13,431 tourists (Source: Svaneti Tourism Center in Mestia). In 2014 the trend was the same and the number of tourists (16,053) exceeded the previous year's data (Table 1). Simultaneously it was mentioned that about 60% of all tourists come to the Tourism Center for registration. So if we take this in account the real number of tourists would be more than 26,700.

month	number of tourists					
montii	2011	2012	2013	2014		
January	151	57	56	165		
February	38	17	21	101		
March	35	22	272	158		
April	177	59	308	108		
May	525	572	1243	1767		
June	1002	983	1784	1750		
July	1431	3128	2820	2778		
August	2610	2806	3222	4465		
September	1817	2279	2641	2868		
October	1031	949	694	1398		
November	92	89	263	444		
December	45	74	107	51		
total	8954	11035	13431	16053		

 Table 1 - Number of tourists by months, 2011-2014 (Source: Svaneti Tourism Center)

During the Soviet period the Upper Svaneti was the destination basically for domestic tourists and Russian visitors who came from the Northern Caucasus by mountain passes of Becho, Tviberi and Nakra, stayed there in shelters for a while and later continued on their way to the Black Sea shore of Georgia. It was a very popular route for tourists in that period. In 1986 there was one hotel in Mestia with capacity of about 375 beds, and two shelters in Nakra and Tviberi with 70 and 45 beds respectively, but in 1996 only one tourist hotel ("Ushba", with just 203 beds) was functioning.

Now as the number of tourists is growing fast, more accommodations are needed and many Svans turn their habitats into guest houses, farm houses or hostels and run them successfully, offering B&B on demand. Nowadays there are more accommodations in the region than years ago: 249, among them 10 hotels, 102 guest houses, 136 farm houses and 1 hostel (Table 2, Figure 10). It is hard to calculate their general capacity though: most guest houses have 5 or 6 rooms of different sizes, so that the number of beds that owners put in them varies significantly.

Community	total number	hotel	guest house	farm house	hostel
Mestia	70	10	59		1
Ushguli	34		7	27	
Mulakhi	25		9	16	
Becho	19		6	13	
Ipari	15		6	9	
Nakra	14			14	
Chuberi	14			14	
Kala	13		2	11	
Lakhamula	9			9	
Lenjeri	8		2	6	
Etseri	7		2	5	
Pari	6			6	
Tskhumari	4		4		
Khaishi	3			3	
Latali	3		2	1	
Tsvirmi	3		3		
Idliani	2			2	
Total	249	10	102	136	1

Table 2 – Accommodations in Upper Svaneti(Source: Svaneti Tourism Center)

Upper Svaneti -Tourist Accommodations

Map compiled by David Sichinava (david[at]sichinava.ge)

Accommodations Data sources: Svaneti Tourism Center, brochure "Travel to Svaneti". "Svaneti Tourism Center" Union, 2014, OSM, CGIAR-CSI, ESRI, own work, NGA gaz 0 5 10 20 Km.

5 10 201



Figure 10 – Upper Svaneti – Tourist Accommodations (Compiled by David Sichinava)

The most popular tourist destinations in Svaneti are following: Mestia, Adishi, Kala, Ushguli, Becho. The best months for visit are in summer (second part of July, August and partially September), when the number of tourists is several times more than in winter. But it should be emphasized that the winter tourism has great potential for development: the Hatsvali complex on the mt. Zuruldi (8 km from Mestia), with 2,400 meters alpine skiing track for skiers of all capabilities is already functioning, Tetnuldi complex is under construction and is said to be good especially for skilled skiers.

Regarding the main tourist generating countries, the majority of tourists come to Svaneti from Poland, Israel, Russia, Germany and Ukraine and their number is diligently increasing (Table 3). The aforementioned countries have been top of the list for several consecutive years.

	aountry	number of tourists					
country	2011	2012	2013	2014			
1.	Poland	1169	2120	3173	4771		
2.	Israel	2848	3133	3267	4016		
3.	Russia	155	655	1058	1173		
4.	Germany	590	547	746	934		
5.	Ukraine	321	488	930	701		

Table 3 - Main generating countries(Source: Svaneti Tourism Center)

It is remarkable that development of tourism in the region caused those Svans, who years ago for ecological reason moved to Southern Georgia (Dmanisi municipality), to return to their homeland, particularly to Ushguli and Khalde.

The government is involved in road construction, organization of water supply in settlements. Besides it attracts investors and supports training of locals as tourist guides.

Food supply for the visitors in this region, at such high altitude, is no problem whatsoever: locals grow potatoes and produce dairy products, while fruits and vegetables are brought from Kutaisi.

Unemployment is the main problem in the region – young people are leaving because of lack of jobs. Night life or eating out are alien notions for the region. Meanwhile there are no swimming pools, only 2 spots (Becho and Chuberi) can boast with their mini stadiums and souvenir shops are found only in Mestia and Ushguli. Public WCs are scarce and of very poor quality.

Khaishi hydroelectric power station, which is under construction, presents a major problem since it will supposedly cause partial inundation of the Khaishi area which causes population's anxiety. The year 2014 will see the completion of 12 towers' roof restoration, providing its quality is adequate.

Conclusions

Upper Svaneti can be considered a "newcomer" in the international tourist market. Due to geographical and cultural reasons, it has suffered a long-lasting isolation, barely mitigated, during the Soviet period, by overnights of transit tourist flows coming from Russia and bound for the Black Sea coast.

Thanks to a combination of factors, Upper Svaneti is nowadays experiencing a preliminary phase of tourist organization and development that could be defined "pioneer", according to the model of Miossec (1976). It's worth noticing that the growth of inbound tourism is quite significant: international arrivals increased from almost 9,000 to more than 16,000 in just four years (2011-2014). If the present trend is intended to continue, a 78

stable – although niche – presence in the international market of both mountain and heritage tourism is foreseeable in the near future.

As pointed out above, foreign tourists are coming mainly from Poland and Israel, followed by Russia, Germany and Ukraine. In the case of Russia, notwithstanding the difficult political relations, geographical proximity and economic viability are certainly playing a leading role; furthermore, it's also worth mentioning that in 2012 Georgia unilaterally abolished the existing visa system with Russia (operating since 2000), which has simplified travel to Georgia for Russian citizens. For Ukraine and Poland cultural and "geopolitical" affinities can probably be an explanation; moreover, the sharp decrease of Ukrainian tourist between 2013 and 2104 is certainly due to the political turmoil that is affecting that country.

In the case of Germany and Israel the "otherness" and the "exoticism" of Georgia in general, and of Upper Svaneti in particular, are presumably the key factors; they are associated, in the case of Israeli tourists, to a special interest in adventure tourism and "off roading", the latter being quite easy to experience in Georgia due to the features of the territory and, maybe, to a more flexible approach by the authorities. In addition, it can be argued that some of them come to Georgia because of nostalgia of the country where they lived for about 26 centuries without any persecution or harassment.

The reasons for the ongoing development are manifold: the pathway of Georgia towards a greater political and economic stability and stronger ties with the European Union (Cappucci, 2013a, 2013b), which are fostering the overall inbound tourism in the country; an increased accessibility of the area thanks to the improvement of the road network and the establishment of air connections with Tbilisi; an intensive process of rehabilitation of the human settlements, combined with the creation of tourist facilities; a sharper presence in the international tourist imagery – and market – thanks to the inclusion, in 1996, of the medieval stone tower complex of the village of Chazhashi in the UNESCO World Heritage. However, it should be underlined that, notwithstanding the big steps forward undertaken on the path of tourist development, still much remains to be done for what concerns tourist image, which is still weak and lacks an adequate international promotion, and civil and tourist facilities which, with few exceptions, are still far from matching international standards.

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INDUSTRIAL TOURISM IN THE CONTEXT OF THE INDUSTRIAL HERITAGE

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Abstract: Industrial tourism is the field that is focused on the recognition of the historical industrial monuments and abandoned facilities. Recently the rising trend in the interest in this branch of tourism can be observed especially in the industrially well developed countries. This field of tourism was just recently a domain of only a limited group of technical enthusiasts but that happens to change as the larger public is beginning to find interest in technical monuments. The industrial legacy of our ancestors is worth our attention especially in our busy time as they represent their skills, resourcefulness and ingenuity. In our modern era it is often beneficial to just "switch off" and observe the marvellous contributions of the past to the development of present society. In this paper the examples of successful utilizations of abandoned industrial facilities are presented. They are great example of conversion of the often dilapidating buildings and compounds into the facilities which plays beneficial and also educational role in society that can be followed not just in Czech Republic but also around the Europe. In many cities or towns some industrial facilities which remained without the employment since their abandonment can be found. Even that they usually don't represent culturally significant monuments they are often buildings which are technically interesting and which are contributing to the local character. The example of Vítkovice ironworking compound and other selected facilities can serve as the inspiration for the similarly affected cities.

Key words: industrial heritage, industrial tourism, technical monuments, Ostrava city

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INTRODUCTION – INDUSTRIAL HERITAGE

The issue of utilization of the industrial heritage (with the focus on the industrial tourism) is not the matter of just late fashion in the Czech Republic. Since 1987 the Section for the Preservation of Industrial Heritage (SOPD) founded under the National Technical Museum by Professor Emil Hlaváček is professionally involved in this field in the Czech Republic. The original plan for the SOPDs functioning was inspired by the activities that took place in the Great Britain. Germany and France where the conservation of the industrial heritage started several decades earlier. These countries were influenced by the cardinal changes in the heavy industry and also mining industry sector since late 1970s. The industrial transformation and introduction of the modern technologies led to the abandonment of the existing facilities that eventually began to be utilized for tourism, expositions, conferences and conventions. The industrial regions of Germany are great example of such transformation. In 1989 the Landtag of North Rhine-Westphalia agreed on the conceptual programme Emscher Park that originated at the Internationale Bauausstellung (International Building Exhibition) which comprised of the 800 km² area with 17 cities that were influenced by the industrial transformations. During the 10 years of the programme lifespan there were implemented about 120 projects in the social, cultural, environmental and civil engineering sectors that formed the foundations for the restructuring of the region. The framework of Emscher Park 1989-1999 programme included the conservation and plan for re-utilization of 150 industrial monuments in cooperation of many state and cultural institutions. It led also to the establishment of "Route der Industriekultur", the 400 km long Industrial Heritage Trail which connects 25 industrial locations.

In the Czech Republic the activities of SOPD were followed by the Research Centre for Industrial Heritage (VCPD) under the Czech Technical University in Prague (ČVUT) which was established in 2002. Since its foundation its main goal is to keep records of industrial heritage on the territory of the Czech Republic. Among other activities the VPCD collects data for various establishments such as Industrial Heritage Register of the Czech Republic, National Heritage Institute, Ministry of Culture, CzechInvest – the agency of the Ministry of Industry and Trade, etc. These institutions cooperate with each other and collected information is assembled in the Industrial Heritage Register. Collected data allows setting the guideline e.g. for the new architectonic proposals on the abandoned industrial facilities re-employment and deeper comparison of the different alternatives.

It is necessary to emphasize that it is required to apply identical criteria for the industrial heritage as for other sights and monuments as this effort demands expert knowledge of various fields such as preservation, urban planning, architecture, ecology, social science and culture. The transformation of North Rhine-Westphalia showed that even the knowledge political aspect is indispensable. The mapping, understanding and especially formation of the remains of the industrial epoch is such a demanding task that it can't be handled by just a single expert institution (Janata, 2009; Fragner & Šenenberg, 2007). In above mentioned countries it is common that this assignment is carried out by the national institutions (e.g. English Heritage) with close cooperation of departments of universities, development agencies and museums which tend to be very active in this matter.

In the Czech Republic the efforts put into the industrial heritage led to the foundation of the Council for Technical Monuments ČKAIT & ČSSI (Czech Chamber of 82

Chartered Engineers and Technicians Engaged in Construction & Czech Union of Civil Engineers) which in cooperation with VCPD and SOPD organized first biennial congress "Vestiges of Industry" in 2001. These events went on in following years in various locations and cities with significant industrial history (Janata, 2009; Orsillo, 2007; Valchářová, 2003). Eventually these regional or local events and conferences grew into the national scale with participants from foreign countries and their essential content was comparison and exchange of experience in the field of industrial heritage.

Good example of such event from Czech Republic is the 2005 edition of Vestiges of Industry. The city of Kladno intensively participated there and the highlight of the conference was its closing part, the Industrial safari in former ironworks Vojtěšská. Also the 2011 edition which took place in Ostrava, where the main topic was "Architecture Through Transformation – The Equilibrium of Preservation, Creative Innovation and Destruction". Another great example of research results is the publication of the above mentioned Council for Technical Monuments ČKAIT & ČSSI that was published in 4 volumes, named Technical Monuments of the Visegrád Countries. It was released in four languages of the Visegrád Group countries (Czech, Hungarian, Polish and Slovak) and also in English language (Fragner, 2005; Šírová & Šír, 2012; Wirth, 2010).

"The Council" published in 2002 another very interesting guide (see Ferris, 2010; Chorzepa, 2005; Wirth, 2010). This work of the group of experts deals with technical and industrial monuments. Great significance bears also the project that was realised during the period of 4 years which consisted of applied research of Ministry of Culture of the Czech Republic under the programme NAKI (National and Cultural Identity). The name of the project was "Industrial Topography of the Czech Republic – The New Utilization of the Industrial Heritage and Cultural Identity". The project was carried out by the VCPD and among its practical outputs belongs the series of publications "Industrial Topography" that is focused also on the excursional tourism and its development (Januszewski, 2004; Wirth, 2010).

INDUSTRIAL TOURISM

Abandoned industrial facilities and their purpose-built infrastructure are often in the focus not only of those involved in the preservation of the sights and monuments of industrial and historical origin but recently they also began to attract other parties by their unusual character. The new and quite interesting branch of tourism, known as the **industrial tourism**, emerged as a consequence of this interest. It allows tourists to recognize a typical industrial environment and its evolution by knowing the industrial monuments of various kinds.

This approach proved that it is not necessary to put abandoned industrial objects through the demolition and that their disposal would deprive the touristic potential of the region of valuable features. Nowadays as the public begins to lose its touch with the manufacture the industrial monuments provides the lessons about the progress of the mankind and industry as well as about inventiveness and creativity of our predecessors. The preservation of industrial heritage is in this context not only the matter of experts but also of the modern society.

Nevertheless saving existing industrial object from demolition works is just the first step that has to be followed up by their preservation and restoration as well. The third succeeding step is the complex of activities that allows the access of the public onto these abandoned fascilities which again brings them to life (Januszewski, 2004). The last step is also the intersection point of activities of tourist industry with efforts of preservationist as the industrial monuments significantly enrich the supply of attractive visiting possibilities which draw attention of public.

THE CITY OF OSTRAVA - PRIMARY DATA

The city of Ostrava is the capital city of the Moravian-Silesian region and the seat which lies on the borderline between Moravia and Silesia at the northeast of the Czech Republic not far from the Czech-Polish border. It is the third largest city in the Czech Republic not just by its population of 300,000 residents but also with its area. It is the second biggest city of Moravia and the biggest one in Silesia. It is still very important industrial and university town. Ostrava is situated at the junction of the Lučina, Oder, Opava and Ostravice rivers in the geomorphological unit Ostrava basin. The location of the city can be seen on the Figure 1.

It was originally a small settlement that was founded above the Ostrá river (present Ostravice river) from which the name Ostrava is derived. Today this river divides the city into two parts, the Moravian Ostrava and the Silesian Ostrava as it also forms a natural border between these historical regions of Moravia and Silesia. First written reference to the village of Silesian Ostrava is dated in year 1229 in the document of the pope Gregorius IX. The settlement Moravian Ostrava is mentioned for the first time in the year 1267 in the testament of Bruno von Schauenburg the Bishop of Olomouc. It received town privileges on the year 1279. The city of Ostrava experienced a significant development in the Middle Age mostly due to its position on the Amber Road which connected central Europe with the Baltic countries. However, after the Thirty Years' War the importance of the city decreased.



Figure 1. The location of the Ostrava city with the outlined position of the Lower Area of Vítkovice (Source: Google Maps, 2014)

The Ostrava city again achieved greater magnitude in 1763 by the discovery of the black coal of high quality in the Burňa valley. This year marked the starting point that led to the mining expansion in the 1840s. In 1828 the leader of the dominion the 84

archbishop of Olomouc Rudolf of Austria founded the ironworks in Ostrava. This ironworking facility later fell under the ownership of the Rothschild family and its name was changed according to its location to the Vítkovice iron works. This step was the beginning of the industrial expansion in the city and Ostrava began to be known by the nickname *The Steel Heart of the Republic* even until the late 20th century (Matěj et al., 2009; Volf, 2013).

THE LOWER AREA OF VÍTKOVICE - HISTORY

The foundation of the iron works in the Ostrava-Vítkovice in the 1828 began with the construction of the puddling facility by the order of the archbishop of Olomouc. It was put into operation in 1830 and experienced a significant growth in 1835 when its ownership went on the banker S.M. Rothschild and his company Vítkovice Mining and Iron Corporation. In the year 1836 there was built the coke blast furnace which was the first of its kind in the whole Austro-Hungarian Empire at that time. For example the local production of rails for the construction of the Emperor Ferdinand Northern Railway, which connected Vienna with the salt mines in Bochnia and Wieliczka, was among the most notable contracts of that time. In 1847 after the growth of demand on the market the rolling mill Anselm was established. Later in 1857 the Hlubina coal mine was developed and served as a source of high quality coal for surrounding colliery and ironworks for a long following years (47 mil. tons of coal was extracted during its operation). Thus the unique complex came to existence where the whole technological process took place within one facility and under the one company.

The transport between each technological unit was realized by means of belt conveyors, transporting bridges and loading devices. Next distinct expansion of this ironworking business originated in 1873 from the fusion of the Rothschild company with the Gutmann brothers and who together established Vítkovice Mining and Iron Corporation (Vítkovické horní a hutní těžířstvo). The production grew especially thanks to the arms industry by e.g. fabrication of the armour plates for Austro-Hungarian battleships (Jičínský, 1875; Majer et al., 1985).

After the Czechoslovakia declared its independence from the Austro-Hungarian Empire (in 1918) the ironworks produced especially seamless containers, boilers, propeller shafts for ships or components for power plants. Originally only an ironworking facility grew to the gigantic scale on the market and expanded even on the field of mechanical engineering. The post-war development brought the transformation of the production and after the nationalization (in 1950s) the facility fell under the government ownership and was also renamed to the Vítkovice Ironworks of Klement Gottwald (Kárníková, 1958; Šuf, 1952; Suldovský, 2006). Until just recent decade it would be nearly impossible to find city or village on the Czech territory without e.g. a bridge, silo or some industrial object that was made in Ostrava-Vítkovice.

However this tradition ended as the ironworks in Vítkovice stopped its production quite unexpectedly in 1998. Due to the reduction of the industrial production the manufacture was at that time almost immediately transferred to the less advanced southern facility called New Ironworks regardless the fact that the Vítkovice Ironworks belonged amongst the most developed facilities in the ironworking industry in Europe at the end of 1980s (Světlík, 2012; Pleskot, 2013).

The coal mining in the above mentioned coal mine Hlubina, one of the deepest coal mines in the Ostrava-Karviná coal basin (1022,6 m), was suspended in 1992. After its abandonment and the closure of the ironworks the remaining industrial objects began to fall into disrepair. Fortunately the thoughts of its demolition were replaced by the proposal of the revitalisation of the area in order to preserve it for the future generations.

REVITALISATION OF THE LOWER AREA OF VÍTKOVICE – VISION AND PRACTICE

On the 4th edition of biennial congress Vestiges of Industry in 2007 the managing director of the Vítkovice Company Jan Světlík introduced the vision of the revitalisation of the abandoned industrial facility. During his speech he said: "At the turn of the year 1994 even before the production stopped there was established the extensive monument protection zone around the Lower Area of Vítkovice facility. The Ministry of Culture of the Czech Republic proclaimed the zone of the Hlubina coal mine, the Vítkovice coking plant and the blast furnace as a cultural monument in year 2000 (Figure 2).



Figure 2. Aerial photograph of the national cultural monument area with with the outline of its main objects (Source: www.mapy.cz, 2014)

Later in 2002 it was declared a National Historic Landmark with the idea of a tourist educational trail leading through the part of the complex with the other part being a controlled ruin. In 2004 the privatized Vítkovice Company then rejected the plan of controlled decay of the part of objects. Since the second half of the year 2006 the activities for re-utilization of the whole area began to expand (Figure 3). The vision of our company is to bring back the life to the Lower Area of Vítkovice, the part of the Ostrava city centre." After consideration of arguments Jan Světlík proposed a strategy for the re-employment of the northern part of the Lower Area of Vítkovice where the National Historic Landmark area is situated (Ferris, 2010; Světlík, 2012). Inside the area of the protected monuments will be situated the research facilities and university campus. The central and southern part of the industrial complex will be adjusted so it can be used by engineering companies. These companies are meant to provide the Vítkovice company, which is in the possession of the premises, with the products that are needed for company's 86

development. However the Lower Area of Vítkovice is not meant only for business purposes but also as a residential area with leisure objectives as well. Since 2008 the Lower Area of Vítkovice is inscribed in the European Cultural Heritage list.

Under the non-profit special interest associations of legal entities "Lower Area of Vítkovice" comes also the technical monument Landek Park that includes a coal mine Anselm (currently the largest mining museum in the Czech Republic) in the Ostrava-Petřkovice part of the city. Together with the coal mine Michal, which lies in the Ostrava-Michálkovice district, this complex of monuments is nominated for a place in the UNESCO World Heritage List.

In September 2009 the project of the revitalisation and re-utilisation of the blast furnace and other protected objects (Energy Central Station, Gas Container) of the Lower Area of Vítkovice was granted 500 million of CZK from the EU programme and also from the state budget. The project for the reactivation of the Lower Area of Vítkovice aims to the new employment of the main objects and to make them accessible for public. Eventually the complex should then serve as an educational and socio-cultural centre. Therefore it is obvious that "mere" preservation of the industrial complex is not the main goal and that the efforts are made to enhance the former ruin to the valuable property – the heritage of industrial age. The first part of the above mentioned project for reactivation ended in 2012 and three main objects of the industrial complex were made accessible, the Blast furnace No. 1, the Gas container and the 6th Energy Central Station (Valchářová, 2003; Volf, 2013). In the present day the Lower Area of Vítkovice is the largest industrial sight complex in the Czech Republic.



Figure 3. The sight of the part of the Lower Area of Vítkovice as seen from the historical train station Ostrava-Střed (Source: Martin Klempa, 2014)

Blast furnace Nº 1

The history of furnace dates back to the year 1871. In the place where nowadays is situated blast furnace N° 1, was ignited the first of this kinds (blast furnace) known as Scottish type. This metallurgical furnace functioned, with some interruptions, until the year 1902. A new and more efficient furnace was built over the following three years. In the years

1910 – 1911 it went through a very essential modification, an incline elevator driven by a steam engine was introduced. After an overhaul of the blast furnace, was obtained its final version in 1988 (Majer, 1983; Stenberg, 2003). At that time this blast furnace was one of the most modern of its kind in Europe, and at maximum performance was able to produce up to 300 000 tons of special and iron foundry. The last tapping of blast furnace occurred in 1998. According to the project of architect Josef Pleskot, in the years 2011 - 2012 the furnace was structurally adapted as an interactively educational and sightseeing route that leads up to a height of 64 m (Volf, 2013) (Figure 4). Part of the route can be done by using the reconstructed incline elevator. The interior of the furnace can also be viewed.

Gas holder (container)

The construction of the so-called wet gas holder was finished in 1924. The gas holder had a capacity of 50 000 m³, its function was collect cleaned blast furnace gas and maintain the pressure in the gas network. The blast furnace gas, as a by-product in the production of iron, was conducted to a dust catcher, where it was cleaned and an eighty percent of dust was removed, after that was led into the gas cleaning system, where the remaining particles of dust were taken away. The cleaned gas was used as heating medium of air heating; coking chamber of the coking plant was heated by this cleaned gas which served as a fuel for engines of gas piston blowers. In 1998 the operations of the blast furnace were finished and so the operations of the gas holder.



Figure 4. Blast furnace N° 1 (middle) with the "sightseeing" adaptation (Source: Martin Klempa, 2014)

In November 2010, according to the design of the architect Josef Pleskot, preparatory work for the reconstruction of the building was begun. The gas bell was lifted in about 1492 cm. This value corresponds to the year, in which America was discovered; but for the Lower Area of Vítkovice symbolizes the discovery of new possibilities for unique technical sites. Inside the gas-holder were placed installations such as conference rooms, foyer (lobby), coatroom, gallery, and a big hall with a capacity of 1500 visitors. In the year 2012, a multifunctional hall named Gong (Světlík, 2012) was opened (Figure 5). 88

Later in 2013 the hall Gong was elected as the Construction of the year in Czech Republic; in the same year at the International Trade **Fair** EXPO REAL in Munich was ranked among TOP 10 constructions in the World.



Figure 5. The reconstructed gas holder – now a multifunctional hall named Gong (Source: Martin Klempa, 2014)



Figure 6. The entrance to the reconstructed building VI. energy center - nowadays "Little world of technology U6" (Source: Martin Klempa, 2014)

VI. Energy central station

This center was built in the 1930's as a covered area for a pair of gas piston blowing engines which produced compressed air using the blast furnace gas. These historical treasures together weigh 1800 tons and have a cylinder capacity of 13,870 m³. The compressed air was led, by external pipes, to the blast furnace number one, where at preheat temperature up to 1200°C supported combustion in the production of pig iron. Based on the project of Helena and Václav Zemánek and in the final phase of architect Zdeněk Fránek, in the *Little World of Technology U6* (Figure 6), the VI. energy central station was reactivated. This is an exposition that tries to explain to children and people in general (using funny, accessible and interactive methods) key technical advances that have influenced the scientific and technological development in Czech Republic and abroad.

The exposition was opened in 2012. Eight themed worlds, situated in two floors and inspired by books of Jules Verne (e.g. Journey to the Center of the Earth, The Begum's Fortune), welcome the visitors. As can be seen, the famous French writer, who was born in the same year in which Vitkovice ironworks was established, guides the visitors throughout the entire exhibition (Světlík, 2012, Pleskot, 2013).

Besides the exhibition, teaching and learning rooms were constructed. This area consists of three classrooms and a large lecture hall (Volf, 2013). Here the lessons are focused on promoting the interest to study in natural science and technical fields.

In the zone of Lower Vitkovice, in September 2014, a completely new building named "Big World of Technology" was opened to the public.



Figure 7. The new building "Big World of Technology" (Source: Martin Klempa, 2014)

The new building Big World of Technology

The expression of the name of building **Big world of technology** is scanty – minimalist, but offers rich – maximalist experience. Its unforgettable form consists of two main materials, building mirror glass walls and classical fired bricks. It has the shape of an isosceles triangle whose hypotenuse constitutes a glass facade of 125 m long and 12,5 m tall. One hundred and fifty flat glasses which together weigh almost 115 tons compose this facade (Figure 7).

It has been termed as the largest industrial mirror in the World, because it reflects the surrounding industrial buildings and also the nature (Pleskot, 2013). This building with its untypical shape will function as a space to promote the interest in science and technology, and also for an unconventional type of education for the students. Results of the most advanced technologies, scientific discoveries and how the natural laws work are among the topics presented in interactive exhibitions using an attractive and entertaining 90 form. Appropriately this will be complemented by the features of an interactive playroom U6 called "Little World of Technology".

MAKING THE AREA OF HLUBINA COAL MINE ACCESSIBLE AND THE NEW USE OF THIS ZONE (PART OF NCM – NATIONAL CULTURAL MONUMENTS)

The aim of the project is remodeling the buildings of zone Hlubina coal mine into studios, clubrooms, testing rooms, teaching & learning rooms, areas and halls for presentations; and its fulfillment with non-profit-making activities (e.g., educational, social, cultural and recreational) in the fields of arts, environmental and social sphere. All the objectives and activities in the project are focused on the fact that after the project is completed, the NCM will become an integral part of the urban and regional educational infrastructure with the meaning of use technical monuments for cultural and social activities (Světlík, 2012; Pleskot, 2013). The construction of a public space in the area of NCM and the connections of the technical and road infrastructure are expected. Another element of the end of the project is the connection to the area of Lower Vítkovic with a common sightseeing route that encompasses, inter alia, a tour of Mining tower which forms a visual landmark of the area in question (Figure 8).



Figure 8. Mining tower of Hlubina coal mine (Source: Martin Klempa, 2014)

Figure 9. New facelift of Triple Hall Karolina (Source: Martin Klempa, 2014)

DEVELOPMENT IN FOLLOWING (SUCCEEDING) AREAS Triple Hall Karolina

Triple Hall Karolina is another project of this area, which is also a work of architect Pleskot. After destruction of the former coking plant Karolina, only the above mentioned historical buildings remained. These historical constructions are the central office and the electric central station (Figure 9) and together create an area covered by a roof for a variety of sporting, social and entertainment events.

The triple hall is situated near to the city center. The remaining part of the coking plant occupies a large, and still under construction, complex of stores and place services called Nova Karolina. This part went through eight years of a continuing and very costly remodeling and includes a habitation and administration (services).

Nova Karolina in Ostrava (NK) with its 32 hectares of area is one of the largest and most interesting development projects in Czech Republic. Besides the shopping and entertainment center Forum NK that is already open, the first stage of the development area NK in Ostrava includes office buildings NK Park and almost two hundred apartments.

SUMMARY

For European Communities, industrial tourism came to the fore in the last 15 years. This type of tourism not only offers to visitors the opportunity to know local history with sightseeing tours of industrial sites, but also proposes attractive experiences and adventures while discovery. Tourist routes across the continent help to connect industrial heritage and are one of the forms to represent the indispensable values of the European continuity.

The program of the cultural routes of the Council of Europe (officially created in 1987) is managed by an executive agency of the Council of Europe since 1998. This executive agency (The European Institute of Cultural Routes), through new propositions, projects, improvement of job offers and contacts, aims that the Council of Europe and its different members will be successful in the long term applications of scientific, technical and social criteria in industrial heritage in order to protect and develop information about this matter.

The program of the European cultural routes has been presented for example by Laurie Holzer; these are trajectories which based in a specific cultural topic, connect two or more regions. The principle is not new (e.g. Amber Road), but the development of this principle can lead to interesting changes in the promotion and development of these places.

The International Committee for the Conservation of the Industrial Heritage (TICCIH) took place on July 2003 in Nizhny Tagil, Moscow. The Nizhny Tagil Charter for the Industrial Heritage is a document written in this committee and passed by the assembled delegates of TICCIH. The document summarizes the essence of industrial heritage, brings social values into focus, and defines the main priorities and forms how this important part of our cultural heritage can be protected and preserved (Fragner, 2008).

Life to the rhythm of industry creates of Ostrava a metropolis. The city Ostrava guides the visitors into routes which are very different from the typical touristic routes of Czech Republic. These are industrial routes of the 21st century.

The zones of The Lower Area of Vítkovice Company can be proud of the record attendance they recently had. According to statistics, in 2013 places like Blast furnace No. 1, Multifunctional hall Gong, Little World of Technology in U6, and Landek Park were visited by nearly 680 000 people. If is compared to the last year, is approximately 150 000 more visitors.

Social events that take place at the Lower Area of Vítkovice and Landek Park attracted the attention of the visitors and there is no difference between the type of event that the people attend, it can be an international conference about a specialized topic of engineering or medicine; or annual music festivals like Colours of Ostrava, Beats for Love (style Drum and Bass, Techno, House), Rock Ostrava with performances of international stars like Phillip Glass or Gregory Porter; but also can be the student party Majáles.

CONCLUSION

Many groups of prospective clients or tourist in this case, are interested in Technical monuments, and is not about the so called "Steampunk" trend or technical fans of all types, but is about students of engineering and technological disciplines, who are interested to seeing these monuments with the aim to learn the basics of their fields: at this point are established different cooperative links between public sectors and diverse organizations. What is the meaning of steampunk? Well, is a sub-genre of science fiction that typically features steam-powered machinery, especially in a setting inspired by industrialized Western civilization during the 19th century. The steampunk is also introduced in the movie industry and music. It is not a surprise that people is getting tired of the penetrating high technology and for this reason they are looking for a romantic way to the beginnings of technology. This trend only shows how great the touristic potential in our technical sites is. Indubitably, the path from a closed factory or closed mine to a successful touristic product is very long, complicated and financially challenging; nevertheless, give it a try worth. Czech Republic has huge potential in this area.

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WATER-BASED TOURISM AS REFLECTED IN VISITORS TO HUNGARY'S LAKES

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Abstract: Beaches are the most popular destinations in the world. As Hungary has a lot of surface water, it is excellent for lake tourism. The main purpose of our research is to show the developmental trends of Lake Tisza and Lake Balaton. How they managed to increase the number of visitors and how they managed to overcome the difficulties which affect tourism? The state of development of the study areas was quantified by the Bennett Index. We confirmed these results by correlation analysis. In the case of Lake Tisza nearly the same level of development can be demonstrated as with the study area at the Balaton.

Key words: lake tourism, Hungary, Lake Balaton, Lake Tisza, developmental trend

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INTRODUCTION

All lakes provide different possibilities which can be exploited, depending on their absolute location (i.e. their geographical position, which in turn determines the climate), on their relative situation (i.e. their distance from other tourist destinations), on their formation (which influences the area and the depth of the lake), and also on the ecosystem (i.e. the presence of economically valuable or protected species) (Newsome et al., 2002). In many cases, experts must consider the water both as a habitat and as an exploitable asset in a very careful way. For instance, water sports can often destroy the

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water ecosystem and also, indirectly, its popularity as a tourist destination (Jennings, 2007). In most cases lakes are considered recreational areas in the countryside; however, many countries have natural or artificial lakes in (or around) cities and towns which are also suitable for recreation (Hall & Härkönen, 2006). These types of lakes also require appropriate treatment.

In Europe, and also in Hungary, tourism is considered as a means to escape from economic recession and one possible approach includes the exploitation of lakes. According to Horváth Z. (2011) a lake becomes a tourism destination if it is visited by tourists; prior to this every lake is just a body of water, which is only relevant as a component of the physical environment and from the perspective of the local inhabitants' social and cultural traditions. Consequently, the first step is to make the target in question widely known - a marketing strategy is needed. However, the popularity of lakes is influenced by other factors independently of marketing intentions: the climate and the geographical and economic environment are also important elements in these destinations' popularity.

The climate zone of a lake is also considered a significant factor for lake tourism (Lin & Matzarakis, 2008). The climate has a great effect on the temperature of lakes and their flora and fauna and also on the water temperature, which is not a negligible factor for bathing. The climate affects the seasonality of visitors, too. It is not only lakes with a warm climate which are the most visited; lakes in high mountains are also popular because of the surrounding scenery (e.g. the Alpine Lakes). However, the areas which have the highest density of lakes and are situated in a cold climate zone, such as Finland and Canada, have no significant lake tourism (reasons are detailed in Vuoristo, 2002). Furthermore, lakes in semi-desert zones, which are often periodic and have salt water, are not very popular as target destinations. In contrast, the lakes of Central Europe are favoured places of recreation (Lake Boden, Lake Maggiore) (Dávid & Baros, 2007; Dávid et al., 2011). In terms of the predicted effects of climate change, several researchers have already dealt with this phenomenon and its effect on tourism (Tervo, 2008; Scott et al., 2005).

Economic geography factors also influence demand for lakes; for instance, the economically active areas around lakes, such as busy cities, are significant attractions. Lake Boden, which is situated on the border between Switzerland, Austria and Germany, is an excellent example of this, since its height above sea level - 400 m makes it very popular among tourists (Horváth, 2011). The areas surrounding lakes are often cultural destinations, too, so this aspect is also used for marketing purposes. Furthermore, the Mazuri Lakes can be mentioned because they feature scenic and historical sites, such as German castles or Hitler's command post (www.euroresthotels.com). In many cases lakeside pop or rock music festivals are held around the lakes (e.g. Balaton Sound and Abádszalók Summer in Hungary, or similar events in Turkey and Switzerland). The physical and economic surroundings of the lakes also have an influence on the tourism infra- and superstructure established on their shores (accessibility, the quality and quantity of accommodation, other suppliers; Dredge, 2001), although changes arising from the increased number of tourists can be detrimental (Hiltunen, 2007). In the case of Lake Balaton (Hungary) this has meant the large-scale erection of offshore camping sites. A European Union survey showed that of different types of accommodation camping sites make up 15% on average in the European Union. The Central Transdanubia Region in Hungary is a good example; here camping sites provide 22.3% of the total accommodation offered, thanks to the proximity of the Balaton. In other countries, however, the ratio of camping sites (Bulgaria, Romania and Slovakia) hardly reaches 5% (Demunter & Dimitrakopoulou, 2010).

Water is the formative factor in a region. In lake destinations the natural and anthropogenic effects develop together, forming one functional unit (Csorba, 2000), since there are only a few water areas around the world where mankind has not intervened in

some way. The degree and direction of human intervention largely influences the formation of the lake, and so they also determine the direction tourism takes. According to Kokkonen (2003), the destination is "the component of tourism supplies which are established in an area for functional reasons".

If the interaction between people and nature is in harmony in the area, it can be considered a system in good working order. Lake Fertő (Hungary), as a good example of this, was listed as a UNESCO World Heritage site in the cultural landscape category (www.fertotaj.hu). For those cultural landscapes in which the sole component of landscape formation is an open water surface, the degree of human intervention encounters barriers (Constable, 2007; Dávid & Baros, 2007) but the use and inappropriate maintenance of the surrounding area (for example, if the sewerage treatment is not developed, the garden traps are incorrectly isolated or not isolated at all, or the angling jetties are built without permits) can involve further danger. For instance, the whole water area can be polluted.

Consequently, lakes themselves are only potential tourist sites, rather than actually existing demands. Their existence and development are influenced by their environment (Hall & Härkönen, 2006). Demand mainly depends on which factors are considered by tourists when they choose their travel destinations. However, lake destinations, if they grasp the opportunities offered to them, can market themselves with an abundance of tourism facilities because a lake destination can be a paradise for sports-fans (swimming, water-skiing etc.), ornithologists and for those seeking "aqua-experiences" (bathing, water-chutes, water-banana, boating, sailing).

Our aim was to examine Lake Tisza as the most recent representative of Hungarian lake tourism from the following perspective. How well is it suited to be an independent region (Lake Tisza Tourism Region)? What developmental progress has it experienced in lake tourism? How can it compete – if this is possible - with Lake Balaton?

DATA AND METHODS Study sites

Our study areas include the lake shore settlements of the territory around Lake Tisza and Lake Balaton. The settlements involved in our research are the shore settlements because the most attractive element is the lake itself and not the features in the surrounding areas. Excellent examples of this second type of settlement are Karcag and Tiszaújváros (Eastern Hungary). The former, as "the capital of Nagykunság" is popular because of its kurgans, the latter for its sports centre and thermal bath and not for the lake itself. In the case of Lake Tisza, the twelve settlements around the lake were chosen as study areas (Figure 1).

Our other research area was the Balaton, which is well-known throughout Europe as a recreational area. We wanted to find settlements in the Balaton Tourism Region which are similar to those in Lake Tisza in their tourism demand, as well as in their renown, population, settlement hierarchy and physical environment. Thus twelve settlements on the northern shore and a further twelve settlements on the southern shore were included in our research. In order to investigate possible differences between the demands of the northern and southern shores the settlements of the north and south were examined separately (Figure 1). Our lakes, together with their background settlements, form tourism regions. Of the nine Hungarian tourism regions the visitor numbers for the Lake Tisza Tourism Region are the lowest (Figure 2). The Balaton Tourism Region is the second in terms of visitor numbers, only preceded by the Budapest–Central Danube region. Its main towns (Siófok, Balatonfüred) are among the most visited in Hungary (www.itthon.hu). In the following we survey the features and characteristics of, and the similarities between, Lake Tisza and the Balaton. 96



Figure 1. The settlements studied at Lake Tisza and Lake Balaton based on the number of visitors in 2010 (Source: Own construction, based on the Central Statistical Office)



Figure 2. The number of domestic and foreign visitors in tourism regions 1. Budapest and Central Danubian Region; 2. Northern Hungary; 3. Northern Hungarian Plains; 4. Lake Tisza-tó; 5. Southern Hungarian Plains; 6. Lake Balaton; 7. Central Transdanubia; 8. Southern Transdanubia; 9. Western Transdanubia (Source: Own construction, based on the Central Statistical Office)

In several cases tourism marketing uses names which arouse our interest in the tourism attraction on offer. Slogans describing the Balaton as 'the Hungarian Sea', or Lake Tisza as 'the Balaton of the Great Plain', are already well-known. However, most tourism experts, such as Michalkó, G. (2005), think there is no point comparing the Balaton and Lake Tisza in terms of tourism geography. From the quantitative and qualitative results based on research into Hungarian lakes it is also clear that the Balaton and Lake Tisza cannot be placed in the same category to satisfy some trivial rivalry between them (Sulyok, 2010).

Subject	ject Lake Tisza Lake Balaton		References	
Area, age, formation	127 km², 35 years, artificial lake	594 km², 5000 years, tectonic origin, natural lake	Szilassi, P., 2002; Martonné, E. K., 2004; Marosi, S., Szilárd, J., 1981	
Location	Eastern Hungary	Western Hungary		
Temperature	Hot and dry summers, warmer water temperatures	Positive temperature anomaly	Bodnár, R. K., 2008	
Natural reserves	Ramsar area, World Heritage area (Tiszafüred Bird Reserve)	Ramsar area	bfnp.nemzetipark.gov.hu; www.info-tourist.com	
Anthropoge nic effects	Agriculture, cyanide and heavy metal pollution	Cultivated land, fertilizer, eutrophication, soil degradation, Little Lake drainage, sludge formation	Vasvári, M., Dávid, L. Szabó, Sz., 2011; Föstös, G., 2008; Jordán, G.Van Rompaey, A., Szilassi, P., Csillag, G., Mannaerts, C., Woldai, T., 2005; Van Dessel, V., Van Rompaey, A., Poelmans, L. Szilassi, P., 2008 ; Bora, Gy. Nemerkényi, A., 1999	
Economic environment	Economic dichotomy (negative balance) Tourist infra- and superstructure undevelopedEconomic dichotomy (positive balance) Tourist infra- and superstructure developed		Pénzes, J., 2010	
Effect area	catchment, individual tourism regions, economic geography - four counties and two statistical regionsGeographical water- catchment area, individual tourism region economic geography - three counties and three statistical regions		Buday, Sántha, A., 2008	
Availability	A main road (33), the railway line (between Debrecen and Eger) Main roads (7, 71), Highway (M7, E71), rail access to every point of the lake (main line between Budapest Nagykanizsa)		Tóth, G., Dávid, L., 2010	

Table 1. Main characteristics of the lakes studied

We agree with these statements, and the purpose of our research is not to examine the lakes as mutual rivals but to analyse them on the basis of their particular 98 developmental tendencies and, at the same time, to demonstrate the place of Lake Tisza in relation to the larger and better known tourism destination. The geographical position (Figure 1) and the socio-economical environment of the lakes differ widely (Table 1), so their comparison would not be valid.

People around the world identify Hungary with the Balaton, and in this sense the renown of Lake Tisza is insignificant. Our results for Lake Tisza would have been descriptive and would not have given an authentic account of its degree of development. Thus, the Balaton settlements were included in our research and this data acts as a base for comparison to help our research and also readers of this article.

From the list above it can be stated that the features of the lakes are difficult to compare (age, physical features, economic character, etc.) but in many areas there are similar parameters (lake character, water habitats – nature reserves, anthropogenic risk, climate factors, the functional division of administrative units, the local authorities, the council which supports the environment of the lake etc.).

Methods

Due to the differing aspects of the areas – above all in terms of their economic characteristics - the exploration of the state of development of local conditions was considered important. To achieve our goal we applied Bennett's complex index (Bennett, 1951) as an indicator of regional development. Indices were calculated as the unweighted arithmetical mean of the variables, where values were expressed as a percentage of their maximums by region. Among the index components (r) we chose the density of population and the number of hotels, and private rooms and other accommodation.

The degree of local development can be described by this index. The index counts of each settlement were calculated from the values normalized with the maximum of the annual data for every single study area. Relating to each study area and every examined year the following calculations were made.

Based on the components of data for 12 settlements belonging to the single study area the highest value was considered to be 100%. The other values were calculated in relation to this. Then, for each single settlement we added the values for the 4 components (B_i^{year}) . The Bennett's indexes of the examined area related to the given year are determined by averaging the totals (B_{year}) .

$$B_{\downarrow}i^{\uparrow}year = \sum_{\downarrow} (j = 1)^{\uparrow}r \equiv (x_{\downarrow}(i, j)^{\uparrow}year) / \max\{x_{\downarrow}(i, j)^{\uparrow}year \mid i = 1, ..., N\}$$

$$B_{year} = \frac{\sum_{i=1}^{N} B_{i}^{year}}{N}$$

Where: N=number of settlements (12) r= number of components (4) $i=i^{th}$ settlement $j=j^{th}$ component

$$B_{j}^{\acute{e}v} = \sum_{j=1}^{N} \frac{x_{i,j}^{\acute{e}v}}{\max\{x_{i,j}^{\acute{e}v} | i = 1, ..., N\}} B_{\acute{e}v} = \frac{\sum_{j=1}^{N} B_{j}^{\acute{e}v}}{N}$$

To determine the factors which affect the number of visitors, we carried out correlation analysis using SPSS 15 (SPSS Inc., Chicago IL). The calculations were made separately for the whole data set and for the data for each single area.

RESULTS

Visitors to Lake Tisza and Lake Balaton

Our research mainly focused on changes in the number of guests, and on the parameters which influenced these changes. Our prime factor was provided by the number of guests between 1990 and 2010 (Figure 3). The data showed the turnover of businesses offering commercial and private accommodation in the settlements we selected -12 from Lake Tisza and 12+12 from Balaton. The data for accommodation offered by non-registered businesses and for visitors who came for a single day had to be left out of consideration because their numbers only can be roughly estimated.



Figure 3. Data based on the number of guests in the settlements studied between 1990–2010 (Source: based on the Central Statistical Office)

Lake Tisza

Lake Tisza was less-visited by tourists but their numbers were more balanced than in the case of the Balaton. During the last two decades the average number of guests was 40,651. The lowest number of guests was recorded in 1992 (20,631); the maximum in 2003 (59,467), and the relative standard deviation was 23.3% considering the total number of guests in the examined period. However, taking into consideration the guest numbers according to settlements and periods, we can observe a significant difference in relative standard deviations (Table 1).

We calculated this value for 1990 and 2010. It indicated a spatial heterogeneity among the settlements, since the higher the relative standard deviation, the higher the lack of homogeneity in the distribution of the guests. During this period the differences in standard deviation increased from 63% to 156%. The number of guests in each settlement was more or less steady until 1995. Thereafter, the guest-nights for Tiszafüred and Abádszalók showed outlier values due to a deviation in a positive direction, so they took precedence over all the other settlements. These two settlements played the most significant role in the tourism of Lake Tisza, since they provide a wider variety of recreational possibilities.

Lake Balaton

Over the twenty years, statistics for guest-nights on the northern shore of the Balaton showed a 12.4% relative standard deviation. The average number of guests was 333,372. The lowest number of guests was in 1998 (280,534) and the highest in 2008 (398,956 persons). The relative standard deviation by settlement was 1.33 in 100

1990 and 1.28 in 2010. This value indicated that the distribution of the guests varied widely, emphasizing the relevance of Balatonfüred. Nevertheless, this heterogeneity did not increase in this period. The average number of guests on the southern shore of Lake Balaton was 458,641 and the relative standard deviation of this area was the highest at 35.4%. Considering data by settlement, the relative standard deviation was 83% in 1990, while it was 144% in 2010. This, and the chart shown in Figure 3, also showed that the fluctuation in the number of guests was the largest on the southern shore of Balaton. Thus, the local providers found it difficult to estimate the expected number of guests. Examining the combined data for the Balaton, the relative standard deviation in guest numbers was 23.6% over the twenty year period. Of the settlements studied, Balatonboglár and Siófok had the highest number of guests compared to the others.

The number of visitors to Lake Tisza was 33,257 in 1990, but this number increased by 49.7% in 2010 (49,796), so it was nearly one and a half times what it had been twenty years previously. The southern shore of Balaton managed to achieve a 70% increase (336,257) in 1990, but demand for the northern settlements only showed a 20% increase based on the registered data for commercial and private accommodation. The conspicuous increase for the southern shore was related to the fact that the lake on this shore gets warm sooner because it is shallower, thus it is more popular among families and in summer more light music festivals attract tourists (Zamárdi, Siófok). Examining the combined data for both the northern and southern shores of Lake Balaton it can be stated that the number of guests was 645,107 in 1990, but the number of registered visitors had increased by 46.3% by 2010. Based on this data, the increase in tourist traffic at Lake Tisza was 3.4% greater over twenty years than it was at the Balaton.



Figure 4. Trends in the percentage of the Bennett number of accommodation sites and guests (Source: based on the Central Statistical Office)

Bennet's index

Bennett's index was applied to determine further factors which influence the trends in guest numbers. Based on our calculation, the development of the total index-number was influenced by the number of facilities of the index components. The Bennett number of the facilities and the percentage growth rate of guest numbers were compared. From the charts it appears that the change in the number of facilities and guests follows each other in an annual shift (Figure 4).

Bennett's index as a tool for identifying factors biasing visitor numbers

Bennet's index showed a strong correlation (r=0.79, p<0.05) between the number of guests and accommodation sites. In the case of the settlements around Lake Tisza this comparative relationship was much stronger, with a value of 0.838 (p<0.001). For the northern shore of the Balaton the value of r=0.741 (p<0.001) showed a weaker relationship but was still considered a significant factor. For the southern shore we also found a high value of 0.855 (p<0.001).

The correlation between the number of tourists and hotels was also considerable. The number of hotels had the largest influence in all three areas, as was also shown by the 0.870 correlation coefficient. At Lake Tisza the correlation recorded (r=0.545) was weaker (which can be explained by the low number of hotels), but the results for the northern (r=0.881) and the southern (r=0.811) shore of the Balaton followed the results for the total study area.

The next statistic of interest was the regional correlation coefficient between the trend in the number of guests and Bennett's index: for Lake Tisza this was 0.839, for the northern Balaton 0.869, and for the southern Balaton 0.813. Based on these results it can be stated that the degree of local development in all three areas had a significant influence on the trend in guest numbers and vice versa. In the area of Lake Tisza nearly the same level of development can be observed as in the sample area at the Balaton.

DISCUSSION

Examining the tourist traffic data for Lake Tisza, the first period of stagnation occurred in 1992. The low point following the political changes of 1989 was marked all around the country and can be explained by a reduction in both salaries and free time (Michalkó, 2008). The next decrease in tourist numbers was in 1996. The data shows that domestic visitors turned away from the lake, a phenomenon which we are unable to account for. Several factors might influence this drop in popularity, including the fact that the increase in salaries allowed more and more families to visit the Balaton. In addition to this, due to the decreasing erosion as a result of the afforestation in the catchment area and the rehabilitated filter function of the Kis-Balaton wetland (Buday-Sántha, 2007; Jelenka, 2008), the water quality of the Balaton was also improving.

At that time the number of foreign visitors (6397 persons) showed no change in relation to 1994 (6615 persons) and 1995 (6433 persons). At the same time, the political changes had a positive effect on all countries in Europe, so while in the 1980's tourists from Eastern and Western Germany met in Hungary, especially at Lake Balaton, after 1990 they were able to meet anywhere (Gertig, 1985). This was reflected in the data for guests from other countries: their number decreased to a half of what it had been 20 years before. Similarly, the number of foreign guests at Lake Tisza was 2.3 times higher in 1990 than in 2010. This proves that it was not only the Balaton that was known to the German public, but it was also the case that the relevance of Lake Tisza was significantly smaller.

Lake Tisza suffered its next decrease in guest numbers in 2000 due to cyanide pollution (Fleit & Lakatos, 2003). It was mainly the number of anglers which fell, but this negative reputation affected the entire tourist sector at Lake Tisza. After the 102 cyanide pollution episode there were fewer visitors, not only to Lake Tisza but to each destination along its shore, too. The number of visitors in the regions (in the settlements of Hajdú-Bihar County) far from Lake Tisza increased noticeably, by 15.6% (Prommer & Skwarek, 2001). The proportion of foreign visitors was 6% in 1990, but had fallen to 0.4% by 2010.

However, the significant changes in Lake Tisza's tourism were not only negative. Both the decline in 1995 and the significant increase in 1999 were attributed to political conflicts in neighbouring countries. The former was the result of the Bosnian war; the latter as a consequence of the Kosovo conflicts. During that period more visitors came to the Balaton instead of more uncertain target destinations, such as the Adriatic. The peak in the number of guests in 2008 was linked to the opening of the Balneum Hotel and the Spa Center in Tiszafüred.

This became the highest quality accommodation around the Lake Tisza area. After the slump of 2008 the number of guests at Lake Tisza hardly decreased. Moreover, due to the lower cost to value relationship guests could afford to stay around the Lake. From 2010 the number of guests decreased at Lake Tisza but not to such a large extent as at the Balaton. The decline of Lake Tisza in terms of guest numbers was 11% for 2010 compared with 2008, but in the same period at the Balaton this figure was 27%.

Our results from the Bennett index were also justified by the results obtained by correlation calculations. Accordingly, if tourists appear in an area, accommodation will be soon established to serve them. The tourism superstructure attracts many more visitors which increases the establishment of tourism enterprises in the given area. If, however, the number of guests decreases for any reason, the means of subsistence for providers of accommodation becomes uncertain and impossible and these sites are either closed down or converted. However there are cases when a new service component appears in a destination and manages to generate an increase in the number of guests in a short time. This statement is particularly true for our study areas.

This observation is not new, as several authors have previously researched the life of tourism areas and their development (Butler, 1980; Martonné, 2008, Milne & Ateljevic, 2010). Several other factors can influence the trend in the number of guests. For example, one of them is the attractions on offer in the area. Determining their appeal is a subjective judgement, but their attractive force must be mentioned. We also conducted correlation analysis in relation to quantifiable data, which can influence the demand of an area (Table 2).

	Lake Tisza-tó			Balaton (north)			Balaton (south)		
	All	Domestic tourists	Foreign tourists	All	Domestic tourists	Foreign tourists	All	Domestic tourists	Foreign tourists
Area of the settlements (ha)	0.89	0.90	0.72	0.44	0.47	0.37	0.86	0.85	0.83
Number of the inhabitants	0.89	0.87	0.93	0.65	0.63	0.65	0.95	0.94	0.93
Tourism income of the local authorities	0.89	0.89	0.67	0.91	0.92	0.86	0.88	0.85	0.90

Table 2. Relationship between the number of guests and the influencing
factors studied, 2006–2010 (Pearson's correlation, N=~30, p<0.05)</th>

A close relationship between the territorial extent of the settlements and the number of visitors to the lakes can be shown for Lake Tisza and the southern part of Balaton. One probable reason was that the physical environment of the two shores was nearly the same. There were only a few densely urbanised territories, the typical pattern being houses with gardens, and large, open shore areas dissecting the lakes. Furthermore, in most cases a larger a settlement meant a larger population. We observed what we

consider a strong relationship between the numbers of the local population and guests. In the case of Lake Tisza this relationship was very strong for foreign guests, but on the southern shore of the Balaton it had a similar significance for both domestic and foreign tourists. This can be explained by the fact that the urban regions were the most complex tourism destinations, and so they had a wide range of tourist facilities. The larger population created better infrastructure, but tourism developed the superstructure, which increased the demand of highly-populated regions.

These locations were mainly mass tourist destinations (Michalkó, 1999). On the northern shore of Balaton neither the territory nor the population was correlated with the number of guests (Table 2). In all three study areas there was also a strong relationship between the tourism incomes of local authorities and the trend in the number of guests. The higher the number of guests the larger the income, but the same is also true in reverse; the expected effect will appear if the local authorities assign this income to tourism development. It was common for popular tourism locations (the centre of the settlement, resorts, beaches, etc.) to be developed, but for other areas of the settlement not to receive similar investment. Thus, the image of the settlement may be distorted in qualitative and/or functional respects (Martonné & Szilágyi, 2008), although a detailed examination of this issue is not part of our research. Our results were in strong agreement with Remenyik et al. (2012).

CONCLUSIONS

Divergent physical, economic and social-geographical conditions characterize our examined study areas, and all influence their tourism development in special ways. We cannot leave out of consideration the history of lake areas in the study of tourism because several researchers have referred to the fact that the lakes can be compared. Therefore, the data for guest numbers from 1990 were chosen and we tracked changes in visitor numbers. In truth, in terms of their tourist facilities and popularity the Balaton and Lake Tisza cannot be rivals, but Lake Tisza's surroundings makes it a significant attraction. As lake destinations a joint examination of them is justified.

The characteristics of our lakes, which have effects on their development paths (Table 1), create difficulties for our lake destinations, and the unexpected economic and physical processes generate further challenges, too. However, as a result of our research it can be stated that the achievements of Lake Tisza proved that it was better able to overcome obstacles. It was able to react better and faster to changes and this could be measured in the number of guests. Based on the number of guests in the areas we studied, and considering the geographical extension and economic situation of the lakes, in 2010 visitors to Lake Tisza increased by 3.4% more than did visitors to the Balaton. In comparison to the 1990s, Lake Tisza has increased the number of guests by 49.7%, while for Lake Balaton the figure is 46.3%.

Examining the trend in the number of guests at Lake Tisza compared to Balaton it seems a state of equilibrium has been reached over the last twenty years. Although visitors to Lake Tisza are fewer, the lake's tourism has been less influenced by the current economic decline, and the service providers of the area can carry out their activities in a more stable environment. Moreover, this stability can boost the intensity of investments. The Tisza Balneum Hotel, built in 2008, is a good example of this, as are one or two other attractions which were opened in 2012, such as Robin Kalandsziget (Robin Adventure Island) in Tiszafüred and the Ökocentrum (Eco-Centre) in Poroszló.

After the loss of visitors in 1992, 1996, 2000 and 2008 Lake Tisza was able to recover and became a popular resort again. The stability mentioned above is also shown by the fact that after the slump in 2008 only an 11% drop in the number of visitors for 2010 was recorded, while at the Balaton this figure was 27%. The results for Balaton were 104

not only due to the higher cost to value relationship, but also to the carry-over of the recession in Europe and the fact that foreign visitors turned away from the lake. The faster and repeated revitalization of Lake Tisza is linked to the successful cooperation between the organizations which direct tourism around the lake, as well as to an efficient management due to its more compact area, and to the significant motivating factors it offers for tourists (it is unknown, less crowded, cheap and a pro-family resort, etc.) which may justify a comparison with the Balaton. The strong appeal of the Tourism Region of Lake Tisza is considerable, not only in the eastern part of Hungary but among anglers from Slovakia, Romania and the Ukraine. It is outstandingly attractive for those in search of a trip extending over several days.

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NYMPHAEA LOTUS VAR. THERMALIS (PÂRÂUL PEȚEA NATURE RESERVE), BRAND NEAR EXTINCTION OF THE BĂILE FELIX - BĂILE 1 MAI (ROMANIA) SPA TOURISM SYSTEM

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Abstract: The *Pârâul Peţea* Nature Reserve from Băile 1 Mai, Bihor County, is a protected area of *IUCN IV*¹ category and a *Natura 2000 Site, ROSCI0098*. It is an ecosystem with thermal waters of European importance, unique by the presence of the species: *Scardinius racovitzai, Melanopsis parreyssi* and *Nymphaea lotus var. thermalis.* Through specific analysis methods and tools of interdisciplinary character, the brand value was evaluated, and also the importance of this unique tourism resource for the spa tourism system Băile 1 Mai-Băile Felix. The danger of this symbol extinction due to the thermal water flow decrease in the reserve area requires this scientific approach, aiming in the same time at finding ways to save, protect and promote it.

Key words: Pârâul Pețea Nature Reserve, Nymphaea Lotus var. Thermalis, tourist brand, tourism

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INTRODUCTION

In 1931 Nymphaea Lotus L. var. Thermalis (the thermal water lily or Drețe in the colloquial speech) was declared a nature monument, and in 1932 for its protection as a

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¹ International Union for Conservation of Nature

Tertiary relic, the *Pârâul Peţea* Nature Reserve was established (ICM No. 1149/1932). Subsequently, the Bihor County Council Decision no. 19/1995 and the Law No. 5/2000, define the protected nature reserve on an area of 4 hectares, of IUCN IV¹ category and included in the *Natura 2000* (ROSCI0098) network of sites of European importance (Berindei et al., 1979, 14; Blaj et al., 1979, 37, 251), with the legal custodian the *Țării Crișurilor Museum* from Oradea.

Geographical outline

Pârâul Pețea Nature Reserve is a natural, thermal aquatic ecosystem, being located in the area of contact between the Crișurilor Plain and the prolongation of Pădurea Craiului Mountains, at the North-West part of Şomleu Hill. Positioned at an altitude of about 140 meters, the Pețea stream source is the place called the *Eye of Gypsy*; the stream collects water from several springs in the area, crossing further the settlements Sânmartin and Oradea, finally discharging in the Crișul Repede River downstream of the second settlement (Figure 1).



Figure 1. Pârâul Pețea Nature Reserve location in Bihor County and Romania

The Peţea Lake covers an area of about 600 m² (the value is currently lower due to the flow decrease of the main sources), with a constant water temperature of around 30° C throughout the year thanks to the hot springs supply. The lake is populated with species, scientifically known under the name *of Nymphaea Lotus L. var. Thermalis* (Figure 2 and 5). The inestimable value of this reserve is given by the unique existence through the European area, of tropical plant species living naturally in temperate climate conditions. Among other rare species we mention: *Melanopsis parreysii*² - relict endemic snail (Neubauer, 2014; Figure 4) and *Scardinius erythrophtalmus racovitzai* - Rudd's Racoviţa (Figure 3), endemic species of freshwater fish adapted to thermal waters (Mohan et al., 1993, 94-95). All three elements of flora and fauna are on the International Union for Conservation of Nature³ red list of endangered species. As indicated, this Natura 2000 site ROSCI0098⁴ includes the following species of amphibians and reptiles: *Triturus cristatus, Bombina variegata, Emys orbicularis, Bombina bombina*; fishes: *Cobitis*

² http://www.iucnredlist.org/details/155737/0

³ http://www.iucnredlist.org/details/full/19948/0

⁴ http://natura2000.mmediu.ro/upl//formulare/ROSCI0098%20-%20F.pdf
Nymphaea Lotus var. Thermalis (Pârâul Pețea Nature Reserve), Brand Near Extinction of the Băile Felix - Băile 1 Mai (Romania) Spa Tourism System

taenia, Sabanejewia aurata; invertebrates: Unio crassus; Chilostoma banaticum; Callimorpha quadripunctaria; flora and fauna: Hyla arborea, Pelobates fuscus, Rana dalmatina, Rana ridibunda, Triturus vulgaris, Mesovelia thermalis, Cricetus cricetus, Ranunculus aquatilis, Lacerta agilis, Lacerta viridis, Natrix natrix, Natrix tessellata, Vipera berus. To all these we add, the existance in the Pețea riverbed of the sapropelic fossil mud and peat, important first as a living environment and secondly, as a therapeutically valuable resource (Posea 1997, 252).



Figure 2. The *thermal water lily* (source photo: Laszlo Dezso, winner of the first place at the Picturesque Bihor exhibition⁵)



Figure 3. Stamps with Scardinius racovitzai (issued Romanian Post: December, 8th 2008)



Figure 4. Stamps with Melanopsis parreyssi (issued Romanian Post: December, 8th 2008)



Figure 5. Stamps with Nymphaea lotus var. thermalis (issued Romanian Post: December, 8th 2008)

METHODOLOGICAL FRAMEWORK

The present research represents an interdisciplinary approach of the actual state of the reserve and uses sociological methods for a deepened investigation in this sense. The use of focus-group method in Geography and related fields is revealed by several researches (Burgess, 1996; Zeigler, Brunn & Johnson, 1996; Pratt, 2002).

The *main objective* of the study was to offer a realistic image of the current state of the natural reserve Pârâul Pețea. In this sense, three specific research objectives were delineated:

⁵ http://www.photomagazine.ro/castigatorii-salonului-foto-bihorul-pitoresc/premiul-i-color-laszlo-dezso-afiap-gheorgheni-nufarul-termal

SO1 – identifying the degree in which the reserve is known among local population from Oradea;

SO2 – highlighting the main causes of degradation;

SO3 – identifying ways of revitalizing the reserve.

In order to achieve these objectives, we used the *focus-group method*, a sociological research path. This qualitative method is often used when the researcher aims to understand and explain a certain issue in a more profound and complex way (Krueger & Casey, 2005). Up to 12-15 people with similar socio-cultural characteristics are grouped and interviewed together on a certain subject, during 1 or 2 hours (Babbie, 2010). The questions asked during a focus-group are directed and structured in order to obtain quality information from various perspectives.

Our research was based on one focus-group with people of different professions, who can provide competent information and opinions regarding the actual state of Pârâul Pețea nature reserve. We consider that this method is suitable for our investigation due to the fact that the information gathered is more complex and relevant. Thus, the group consisted of 6 specialists in tourism, geology, hydrology, geography, sociology and one representative of local authorities. Discussions exceeded 60 minutes and were moderated by a sociologist.

Research instruments. In order to conduct the focus-group, we have elaborated the research instrument, an interview guide containing 12 questions structured on four major themes of discussion:

1. *The degree in which the reserve is known among local inhabitants* - this section contained 2 questions aiming to capture the degree in which the reserve is known among local inhabitants and their knowledge about the current state of the reserve.

2. The causes of its degradation - 2 questions were posed within this section: outlining the main natural and anthropic causes of reserve's state of degradation (including the negative effects generated by tourism).

3. Methods of revitalising the reserve - 3 questions were mentioned in this part referring to most efficient measures of revitalising the reserve; the way in which tourism could contribute to this revival and who should be directly involved in this process (authorities, companies etc).

4. Touristic promotion of the reserve - the last section of the interview contained 5 questions aiming to outline the degree in which the reserve is promoted and what are the most efficient forms of promoting it (in terms of tourism).

All questions were open, so that participants could express freely their opinion and knowledge about the subject. All questions were discussed according to their logical structure and each participant provided us relevant responses. Responses were registered on an electronic device, in order to capture the entire information.

ELEMENTS OF IDENTITY AND REPRESENTATION

Over time many promotional materials were elaborated, among the *graphic advertising* forms (Ielenicz & Comanescu, 2013, 203-208) used for the informationdocumentation of tourists and all parties involved, we mention for the *Pârâul Pețea* Nature Reserve: *maps and tourist guides* (Baias et al., 2011 (Figure 6); Pop, 2010, 33-34; Pop, 2014, 88-89; Chiriac-coord., 2015, 166-167 (Figure 7)); *Tourist Guide with map included. Oradea and the Băile Felix and Băile 1 Mai tourist area*, 2010⁶; *posters and billboards* (Figure 9a and 9b); Romanian Tourist Guide⁷; *books, scientific articles* (Gaceu & Teodoreanu 2013, 212; Baias et al., 2012, 224; Lascu et al., 2003, 11); *atlases* (Ilieş coord., 2014, 242-243); *web-sites:* the Bihor County Council website referred at the

⁶ www.artmap.ro

⁷ http://www.ghidulturistic.ro/zone.php?j=5

Nymphaea Lotus var. Thermalis (Pârâul Pețea Nature Reserve), Brand Near Extinction of the Băile Felix - Băile 1 Mai (Romania) Spa Tourism System

landscape *elements*: the Reserve with the thermal water lily *Pârâul Peţea- Băile 1 Mai⁸*; *logos* of the University of Oradea (Figure 15), of the Sânmartin Sport Club (Figure 14), of the Apollo-Felix Spa (Figure 12); the issue of *postage stamps* (2008) entitled *Uniqueness from the Nature Reserve "Pârâul Peţea" – Băile 1 Mai – Oradea* (Figure 5).



Figure 6. The Geotourist Map Băile Felix-1 Mai-Betfia (Bihor County) (quoted in Ilieș et al., 2011, 224)



Figure 7. Bihor County Tourist Guide (frontpage), (Chiriac-coord; photo O. Pop, 2015, 166-167)

Figure 8. Illustrated monograph of Bihor County (2012, p. 193)⁹: Nymphaea Lotus var. Thermalis, Pârâul Pețea Nature Reserve, mentioned among the tourist attractions of Bihor County

⁸ http://www.cjbihor.ro/ghid.php?act=79#

⁹ http://issuu.com/vertigoro/docs/monografie_2012_issu/186

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Figure 9. The information panel of *Pârâul Peţea* Nature Reserve and of the future *Ecomuseum* project, (2010-photo left) and the trilingual panel of the *Pârâul Peţea* Nature Reserve (2014-photo right)



Figure 10. Pârâul Pețea Nature Reserve (photo Ilieș Dorina, 2010)





Figure 12. Nymphaea lotus var. thermalis in the Pârâul Pețea Nature Reserve, during low flow period (minimum number of thermal water lilies) (photo Ilieș A., April 2015)

Figure 11. *Pârâul Pețea* Nature Reserve, gated and closed for visitors (photo Ilieş Dorina, April 2015)

The Pârâul Pețea Nature Reserve is present in the tourism offer of several guesthouses and hotels from the Băile 1 Mai - Băile Felix spa tourism system (Ilies & Josan, 2009): the *Thermal Hotel*¹⁰, the *Parmena Pension*¹¹ from Băile Felix; from Băile

Nymphaea Lotus var. Thermalis (Pârâul Pețea Nature Reserve), Brand Near Extinction of the Băile Felix - Băile 1 Mai (Romania) Spa Tourism System

1 Mai: the Hotel Ceres¹², the Hotel Perla¹³, the Pension Mona Lisa¹⁴, the Guesthouse Porojan¹⁵, the Pension Selina¹⁶, the Pension Thermalis¹⁷, the Pension Regal¹⁸, the Elim Villa ¹⁹. The thermal water lily is a tourism brand for the Băile 1 Mai and Băile Felix resorts and can be found in the name of guesthouses, pensions, hotels: the thermal water lily (Băile Felix; Figure 10), the Lotus Five Star Complex, presently under (re)construction (investment exceeding 30 million Euro for the modernization of Lotus Hotel, previously two-star, closed in 2006), for turning it in a five-star spa complex (Figure 11); the Apollo spa from Băile Felix-Felix (Figure 12) and the Nymphaea Aquapark complex (under construction) etc.



Figure 10. The *Nufărul (thermal water lily)* Hotel from Băile Felix



Figure 11. The *Lotus* Complex (five stars; under construction; 2015) in Băile Felix



Figure 12. The Băile Felix pool having as symbol the thermal water lily



Figure 13. The Venus pool from Băile 1 Mai, having a thermal water lily shape (Source: Google Earth, 2015)

The environmental problems of the *Pârâul Pețea* Nature Reserve require activities for the *thermal water lily* brand regeneration, an image-element of the Spa system Băile

¹¹ http://www.promo-romania.ro/Week-end-de-poveste-la-Baile-Felix-Trei-zile.

¹⁶ http://www.turism-360.ro/cazare_pensiunea-selina_2568.html.

^{240.}html#sthash.iGwc093b.dpufhttp://www.promo-romania.ro/Week-end-de-poveste-la-Baile-Felix-Treizile-240.html#sthash.iGwc093b.dpuf.

¹² http://www.etur.ro/cazare-in-romania/bihor/baile-1-mai/hotel-ceres.html.

¹³ https://www.eximtur.ro/hotel-perla-baile-1-mai-romania-874.html.

¹⁴ http://www.mergilasigur.ro/detalii.php?tip=pensiune&nume=pensiunea-mona-lisa-baile-1-mai.

¹⁵ http://www.turism-360.ro/cazare_pensiunea-casa-porojan_2569.html.

¹⁷ http://www.thermalis.ro/?page=5.

¹⁸ http://www.cazare-1mai.ro/despre-baile-1-mai.html.

¹⁹ http://www.vilaelim.ro/atractii/1-mai-1.html.

1 Mai - Băile Felix. Unfortunately, it is *endangered*, leading therefore to the disapearance of a local brand of leisure and hospitality destinations. The diminishing of the lake water (drainage thereof) because of the current activities, make this brand disseapearing process possible. *The prospects for the brand represented by the thermal water lily will have to take into account the fundamental rules on ensuring the brands immortality, and in terms of future threats and opportunities we mention the social trends, the economic, political, environmental issues and globalization* (Pringle & Field, 2011, 42, 299).





Figure 14. The thermal water lily symbol found on the Sânmartin football team flag

Figure 15. The thermal water lily logo symbolized on the University of Oradea logo

IS STILL THE RESERVE WHAT WE HOPE IT IS? THEMATIC ANALYSIS ON FOCUS-GROUP DISCUSSIONS

The focus-group method implies a qualitative analysis of the entire discussion on the theme of interest, guided and structured on the thematic conceptualisation of the interview guide (Rabiee, 2004). This analysis reveals the most important ideas and opinions expressed by participants, and enable us to formulate specific and relevant conclusions regarding the subject of investigation.

1. The degree in which the reserve is known among local inhabitants

Unfortunately, the Pârâul Peţea nature reserve from Bihor County does not benefit of a high degree of knowledge among local inhabitants, even if we take into consideration people from Oradea, Băile 1 Mai or surrounding areas. We must mention that this information is related to common people, whose professions do not imply a contact with this reserve whatsoever. But, an interesting fact is being outlined from the discussions: there is a high number of students in Geography and connected fields of study who have not heard about this reserve; therefore, in order to the degree in which the reserve is known, numerous campaigns and practice activities are being conducted within institutional frameworks, especially through higher education institutions. One cause that led to a low degree of knowledge in this sense is the lack of info panels outside the area of the reserve (eg. in the center of the city, on main traffic roads etc).

The current state of the reserve was outlined during the discussions, although it's condition and the real causes of the ecological issues in the area cannot be scientifically determined with certainty. Nevertheless, the reserve seems to be in an advanced state of degradation: the lake is drained and on the former ground of the lake there are many weeds that invaded the area. Also, the access for the visitors in the area is restricted and more, the surface of the reserve is locked with chains. As an effect of its degradation, the protected species of flora and fauna are in real risk of extinction. Lately, specialists from the local museum tried to save these species by conserving them in special containers.

"The protected species were taken from the reserve and conserved in special containers at the local museumand also at aquarium Galați, in a project framework. 114 The water is not sufficiently hot anymore in order to maintain proper habitats for these species during winter" (representative of local authorities).

2. The causes of its degradation

We can outline two categories of causes that negatively affected the reserve and led to its current state of advanced degradation: natural and anthropic causes. Referring to the first category, the main factor was the drought present in the area in the last year. It drained out the water in the lake and, as a consequence, the species of flora and fauna entered in the phase of extinction. Anthropic causes came to accentuate the negative dynamic of the reserve; the irrational way in which the thermal waters were exploited through numerous drillings in the area was the main cause in this sense. Other causes were identified are the lack of interest regarding the re-injection of water in the areas were the degree of exploitation reached high values and also the lack of sewagesand treatment pointsfor used water and high degrees of water usage by unauthorized touristic resorts. Tourism and tourists have indirectly contributed to the degradation of the reserve, creating a vicious chain: tourism – touristic resorts – drillings – excessive usage of thermal water – ecological issues for the reserve.

3. Methods of revitalising the reserve

The fundamental and vital methods for revitalising the reserve are related to a rational usage of the thermal water and implementing specific systems for recycling and treating used water. An important role is given also to local and central authorities in reversing the process of degradation, which are responsible, in the first place, of not properly amending people who use thermal water in an irrational way.

"There should be legal regulations...When they (n.a. owner of hotels, guest houses etc.) are authorized to drill, they should also be compelled to have equipment for recycling and treating used water" (hydrologist).

Ongoing information campaigns regarding the negative evolution of the reserve could help increase the degree of awareness among local community members and could promote a real mechanism of civic engagement in this sense. This could also determine authorities to access and implement more projects granted by European Union in order to revitalise and promote the natural reserve.

4. Touristic promotion of the reserve

A subsequent phase after revitalising the reserve is to promote it at local, national and international level, due to the fact that it is a unique reserve in Europe. Even when the reserve was not in the current state of advanced degradation and when it was still opened to visitors, its touristic promotion suffered from low interest: lack of visual promoting materials as touristic panels, advertising banners etc. Even more, tourism agencies did not have any brochures or info materials for visitors and clients.

"Tourism agencies are specialized in promoting local areas....we have authorized touristic guides who can present and develop an organized tourism in our country and in protected areas. If not, everyone comes and promotes Oradea and Bihor County as they wish...chaotic" (representative of touristic agency). The discussions outlined the need for a comprehensive local strategy for touristic development and promotion in Bihorcounty, which should include Pârâul Pețea nature reserve as one main focal point. The major role that the custodian of the reserve has in the promotion process was also stated by focusgroup participants, but in the same time, the financial issues that become a real obstacle in this sense are well known. Oradea city and Bihor county could be very efficiently promoted if they could benefit of a new branding by using symbols representing protected species of flora and fauna – for example the water lily. The use of these symbols on certain visual elements could surely provide a constant level of income and could even increase it, generating also beneficial social and cultural effects in the area.

CONCLUSIONS

Among the protected elements of the *Pârâul Peţea* Nature Reserve, the *thermal water lily* is a brand for the Băile Felix and Băile 1 Mai Spa Resorts, promoted and publicized through various tourism offers in hotels, pensions and other accommodation units from the two resorts. Having a good graphic representation in general, some of these materials still add beyond the accurate and useful elements for tourists and all those interested, inaccurate, outdated or unsuitable information. The low amount of advertising material in connection to the reserve (an information panel, several older outdated flyers) and available for the general public, requires new maps and information boards, to be place in the City of Oradea and in various other strategic points in the neighboring settlements located along the access roads to the two resorts.

The awareness of the local people, considering the local natural values is needed; also producing a material for students, such as the *local geography horizon*, with a chapter dedicated to nature reserve, ways to protect and promote it is also necessary.

The actual degraded state of the natural reserve represents a complex situation influenced over time by different factors. It is also true that among local inhabitants, extended even to national level, the degree of ecological awareness is very low, thus people do not feel responsible for conserving nature and do not act accordingly.

We must state that local and central authorities are beginning to focus on elaborating management plans for the next ten years, in order to protect and revitalise natural reserves in our country. Related to this, we emphasize the need for a more pronounced sociological involvement regarding the study of different touristic processes and phenomena. A detailed analysis in this sense could fundamentally contribute to the creation and implementation of a realistic development strategy in the local area.

Aknowlegments

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