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Thermal Springs of Bënja-Albania: Possibilities for Tourism Development

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Abstract

Thermal springs have long been recognized as a significant natural resource for recreational tourism development. A number of natural hot springs with important health and wellness values are located in Albania. This paper analyses the benefits of thermal springs of Bënja, located in the south part of country and the opportunities it offers to tourism development. The physical and chemical characteristics of springs water are used from locals to treat many diseases such as rheumatism, nerve pains, skin disease, stomach ache, etc. The combination of the curative powers of thermal waters with natural environment (National Park) and cultural monuments makes the area very attractive for visitors. Recently the number of visitors both domestic and international is increased.

Yet, the substantial values these thermal springs are not further developed or promoted. Unfortunately, the lack of the touristic facilities and health resorts is evident. Bathing programs and other treatment activities in the different thermal pools are not carried by trained and qualified staff. Based on the results of the research, the interest of the visitors about the development of wellness and recreational tourism in this destination is evident; therefore, it is necessary that the available facilities are further developed for medical and tourist purposes.

Keywords: thermal springs, Bënja, tourism development, natural values, physical and chemical characteristics, tourist facilities.

1. Introduction

According to A.Waring any spring or well water "whose average temperature is noticeable above the mean annual temperature of the air at the same locality may be classified as thermal"(Waring A,1965). The author noted that only those springs whose temperature is higher than about 20ºC are classified as thermal in Europe. Another classification defines thermal springs as hot and warm natural springs

generally above 25ºC, whose content of minerals waters is used for bathing and medical purposes (Erfurt Cooper&Cooper, 2009). Geological research states that during the underground movement, natural waters contact the layers of soil and surrounding rocks and rise to the surface enriched with mineral and trace elements (Bryan, 1919). These mineral springs waters are distributed and used all over the world for baths and therapeutic treatments.

According to John W. Lund (1993), the archeological findings in Asia indicate that the practice of using natural mineral spring water is known as *balneology* and has a long history back to the Bronxe Age, about 5000 years ago (W.Lund, 1993). The analysis of scientific written records goes back to approximately 3000 BC, in the Indus Valley Civilizations such as Mohenjo-Daro and Harappa, who used the natural hot spring for various purposes. (Erfurt Cooper&Cooper, 2009). In the Roman Empire, the use of mineral and thermal baths extrended not only to hygiene and therapy, but also to medical purposes in cases of injuries in the battlefield (the city of Bath in England) (Erfurt-Cooper, 2010).

In ancient Greece, natural mineral waters were utilized for hygene and beauty, as well as a cure for diseases such as, rheumatoid and inflammatory arthritis, neuritis, backaches, tendonitis, vessels diseases, diseases of the endocrine cycle and post traumatic inflammation. Since the time of Hippocrates, it was found that the hydrotherapy in warm water (30-31ºC) promotes muscle relaxation by reducing sensitivity to pain. (WordPress.com)

According to scholars, the usage of natural thermal springs for health benefits also has a long history in Japan, China, India, Turkey, New Zealand, America and North Africa. The curative effects of thermal waters led to the usage of the word "*spa*", whose origin in traced back in 1326 to a town near Liege in southern Belgium near the German border *(*Lund, 1996). Alongside with the development in the following centuries, spas attracted a large number of people, becoming so important centers of health improvement, wellness and recreational tourism. Many European countries, such as France, Iceland, Germany, Italy, Austria, Czech Republic, Switzerland, Hungary, Portugal, Croatia, with a long tradition in natural thermal springs have become popular destinations, attracting millions of tourists into a large number of thermal spa resorts (Rudnick & Gracan.2009).

Although Albania lies in a small geographical area (28 748 km²), it is rich in hot and thermal waters, which have been known since the ancient times. Refering to geological studies, the presence of high mountain chains and active fault systems favors the rise of deep waters that discharge at the surface as thermo mineral springs (Eftimi&Frashëri, 2016). In Albania, there are three geothermal areas with resources and wells of low enthalpy reaching up to 83º. A number of important thermal springs rich in H2S, mostly located in the Kruja geotectonic zone, rises from deep karst aquifers related to bury anticline carbonate structures (Eftimi&Frashëri, 2018). The most common usage of thermal springs is limited to the treatment of various illnesses in balneological centers known as Spa. Actually, thermal water resources are used by some health spas, like the well-known spas of Peshkopi, Elbasan, Hidraj and Bilaj. The oldest and the most important one is Elbasani Llixha, which is located in Central Albania. The spa (llixha) found near of the old road "Via Egnatia" that passed by Durresi, Ohrid to Constantinople, has been known for about 2000 years. The first hotel/hospital providing usage of natural resources for health care was built there in 1932 (63 rooms and 133 beds). Utilizing curative properties of thermal waters, the centre has actually 500 beds and is used mostly for medical treatment (Bejtja, 2014).

Peshkopi's thermal waters, where a geothermal balneological centre is constructed for medical treatment, are located in the northeastern part of the country (Cena, 2016). There are also many thermal springs located in the southeastern and south regions of Albania known as Bënja's thermal spring, Postenani steam spring and Sarandaporo springs.

A number of Albanian authors including Prof. A. Frashëri, S. Bushati and N. Pano have made a valuable contribution to the study of geologic, geothermic and hydro chemical background of natural thermal springs in Albania. Scientific important studies on the geothermal field and an evaluation of geothermal energy in Albania were carried out during the preparation of the Atlas of Geothermal

Resources in Albania in 2004. Many of these scientific studies constitute a reliable database for tourism scholars researching thermal tourism, balneology, health, recreational tourism, geotourism, etc.

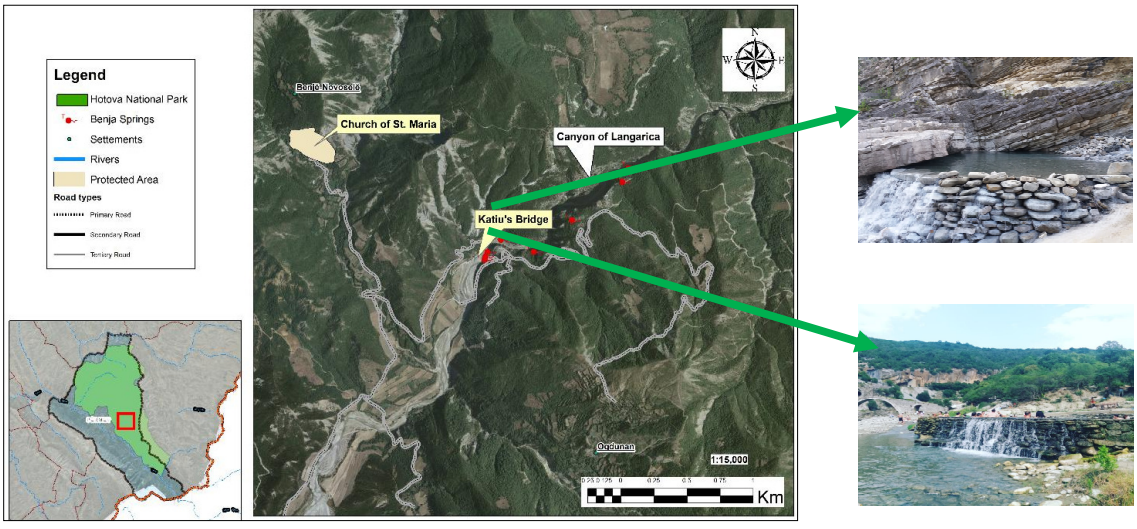
2. Methodology

This research has involved literature review and fieldwork. Research methodology has focused on the usage of some quantitative and qualitative research methods for the implementation of the object of study. The description of the physicochemical properties of the thermal springs through the literature review, aims to point out their curative and therapeutic effects in health benefits. Research fieldwork is based on study area observations and personal interviews through structured questionnaires carried out with visitors of thermal springs. The questionnaires have designed by the authors based on main research literature. The personal interviews were conducted to provide accurate and additional information, as well as to avoid ambiguity. The interpretation of results confirms the importance of thermal springs, which is related not only to balneological -therapeutic effects, but also to other types of tourism that can be developed in the given area of study. In this regard, we have put forward some opportunities and alternatives for a better use of these resources for medical and other touristic purposes. The thermal spring location is presented through the Argis 10 map.

3. Study Area

Bënja's thermal springs, have been very popular since the Roman era. From the geographical point of view, the thermal springs are located on both shores of Langarica river valley, 6 km from the national road connecting southern part to the southeastern part of Albania (120 km from the city of Saranda and 146 km far away from Korça). In terms of territorial administration, the thermal springs are located near the village of Bënjë (Përmet Municipality) at a distance of 8 km from the city of the same name. Langarica valley, itself, lies on the territory of the national park "Bredhi i Hotovës", which is also the largest park in Albania with 34 361 hectares.

Map 1: Location of Bënja Thermal Springs Waters (40º14'36" N 20º26'E)



(source: authors)

The park lies in a shrubby mountain relief (230-1663 m) with territory covered by flysch formation in limestone layers. It is also distinguished for high biodiversity values, diversity of ecosystems, including an important collection of Macedonian fir trees (Abies boriisii-regis) (Qiriazi, 2017). From the geological perspective, the thermal springs of Bënjë are located in the southern part of

the Kruja geothermal area (180 km in length and 4 km in width), which represents a range of anticline structures of carbonate nucleus of the Cretaceous Eocene Age, covered by Paleogene flysch formation (Frashëri, 2004). In an area of 500 m, there are found 8 sources with a temperature of 23-30ºC and a flow rate of 8-> 40) l /sec each. The waters come from the bottom, climb through the cliffs of the tectonic and karstic phenomena and flow to the surface in the form of springs, 1-2.5m above the river level. Due to the upward movement of the Lengarica River, it has managed to cut off the terrestrial cover and transverse the carbonate eocene nucleus, forming the canals of Lengarica, 4 km in length 20m in width and 20-70 m in depth (Qiriazi, 2006).
The physicochemical characteristics of mineral waters depend on the nature of the geologic materials through which the ground water flows (Frashëri, 2004). The waters are different in mineral content. The water of one of the sources is drinkable and researchers believe that it has curative effects on the stomach and in the digestive system.

Table 1: Mineral composition of waters

Spring name	Province lithology	Ql/s	TºC	TDSg/l	Parameters, g/l									Chemical type
					H_2S	Ca	Mg	Na	Cl	SO4	HCO3	Br	J	Cl-Na-Ca
Bënja	Kruja, I	70-150	30	1.6	5.8	127	35	398*	702	157	212			

*the value is the sum of Na and K
Source: (Eftmi&Frashëri 2016)

In terms of mineral resource compositions, sources have Chloro-Sodium-Calcium (Cl-Na-Ca) water-type (with elevated HCO3) that is usually accompanied with limestone ***(Eftmi&Frashëri, 2016).*** According to scientific research, the springs on the right side of the river have a lower temperature (23-26ºC) and mineralization of 1.3g / l, while the springs of the left river basin have a higher temperature of 30ºC and mineralization of 1.65 g / l. On average, the water of these springs have TDS 1.568 gr/l and contain traces of H_2S. Most of the gases disolved are CO_2, nitrogen and hydrocarbons (Pano, 2008). Water from one of the sources is drinkable and has curative effects on the stomach and digestive system.

Former studies conducted on these thermal waters conclude that there is a complete geological and mineralogical background and there is a lack of determined values of these minerals in relation to the beneficial effects on health treatment. Research based on simple analytical studies assert that these minerals and trace elements emerging from the groundwater reservoir present therapeutic value for the treatment of rheumatic diseases and skin (Psoriatic desease). However, it is emphasized that medical observations are needed for the qualification of the waters of spring as therapeutic or medical (Varga, 2010).

As reported by medical research carried out internationally, mineral springs naturally rich in chloride (Cl) are beneficial for rheumatic conditions, arthritis, central nervous system, post-traumatic and post-operative disorders, as well as orthopedic processes and gynecological problems. Likewise, the presence of Calcium (Ca++) strengthens bones preventing osteoporosis and helps regulating bodily functions. Drinking a particular mineral water rich in calcium and magnesium at the spring may aid digestion and promote regularity (Altman, 2000).

The presence of Magnesiun (Mg) in the natural mineral waters can also bring health benefits. It contributes not only to the structural development of bone, but it is also considered co-factor in more than 300 enzyme system that regulate diverse biochemical reactions in the body, including protein synthesis, muscle and nerve function, blood glucose control, and blood preasure regulation (Abbott, 2014).

During baths in thermal springs, trace amounts of these minerals are absorbed through the skin increasing immunity and providing among others even physical and mental relaxation. The waters of eight thermal springs are collected in eight natural stone pools which are built by local residents of the

area and which serve for bathing. The valley and the river bed are covered with stones of varying proportions. From field observation along the valley on both sides, there are found clay fragments covered in surface among the gravel. In the natural state the masses appear wet and creamy. Natural clays have been used for skin treatment for centuries, and continue to be a popular ingredient in beauty products today. According to research studies clays treat acne, reduce scars, treat psoriasis, regenerate skin tissue, draw out toxins from the skin and more *(*Abott, 2014).

After the clay was naturally tested by a group of people (male and female), kept on the face for a few minutes and cleaned off afterwards, the skin was claimed to be softer and smoother than before the application. However, it is indispensable to carry out specialized analyzes in the respective laboratorios for a precise definition of therapeutical and esthetic effects.

The area of Bënjë's thermal springs is also rich in natural and cultural values. Lengarica Canyon is located in the river valley of the same name, several meters away from the thermal springs, 400 m above the sea level. Narrow cramped relief along the canyon has been formed from the karst erosion of limestone structures. Limesters are much karstified especially on the right slope of the river, where there are also several cavities and caves which are 10-15m in length. The Pigeons Cave (160m in length, 2-3 m in width and 3m in height) located in the canyon area, is also formed from karst (Qiriazi, 2017).

In terms of the cultural monuments, it is worth mentioning the Katiu's bridge dating in the 18th century, built with stones and particular architecture. Close to the springs, there lies the Village of Bënja (an historical center) situated on a mountainous terrain, also distinguished for the special architecture of stone constructions. There are the church of St. Maria (18th century), the churches of Leusas (14th century) and St. Mary in the village of Kosina (12th century). The urban center of Permet, with numerous cultural traditions, is also nearby. The entire area around the springs is distinguished for culinary traditions, especially for the preparation of various fruit gourds, wine and raki.

4. Results and Discussions

Tourist Activity

In many parts of the world and Europe, natural thermal springs are an important resource for tourism development. It is understandable that people who visit thermal springs are attracted by the mineral content as well as the therapeutic and curative effects they have on various diseases. Importance increases when the area contains diverse natural and cultural attractions that favour the development of several types of tourism.

Although Bënjë's thermal springs are known since antiquity, they are explored and used very little. During the period 1945-1990 the sources were used as therapeutic places for the treatment of rheumatic diseases. A treatment center was built to meet the demands of the springs' visitors. After the 90's the use of the springs continued to be spontaneous. Currently, there is no service structure built near the springs. Since the springs are located in the "Protected Area" (the National Park Hotova Fir, the second category according to IUCN), it is claimed by the relevant institutions that the management and usage of the area will be made in accordance with the Law on Protected Areas in the Republic of Albania and the Management Plan of the Park.

With regard to touristic attendance, recently the area has not only been a subject of attendance by residents, but it also has attracted the attention of visitors from all over Albania. Situated in a favourable geographic position, with natural beauty and cultural attractions, Bënjë's thermal springs have become a favourite place for foreign tourists visiting Albania.

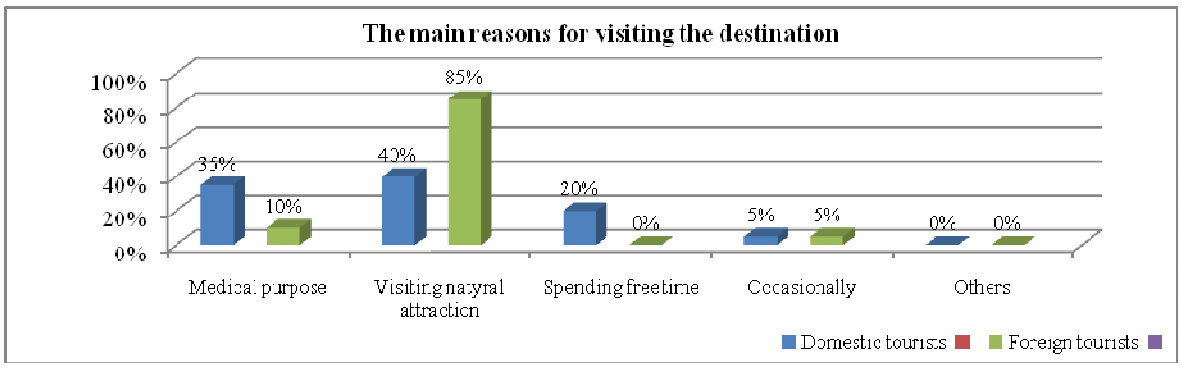
As far as institutional data are concerned, there is no accurate number of tourists visiting the area. It is claimed from interviews with local residents who have frequented the springs during the last 5 years that the number of tourists has increased significantly, highlighting the growth of the number of foreign tourists from different countries of the world. Bathing attendance begins noticeably in April with rising air temperatures and continues until the beginning of November. The attendance of the spa

is spontaneous for the rest of the year, which corresponds to the winter season (during this period in 2017, thermal springs were visited by about 13,000 domestic and foreign visitors).

To better understand the profile of tourists, the motivations of area attraction and their activities, we conducted a study in the form of a survey and interviews with domestic and foreign visitors. A look into demographic profile of the interviewed visitors (domestic and foreign visitors) indicates that from 60 participants in the research, 53% are male and 47% are female. It is observed that over 55 % of visitors are young, under 40 years of age. While visitors aged 41-60 are 32%, the visitors over 60 years are the smallest group only 10%. Regarding the country of origin 57% of respondents are from Albania and 43% from abroad especially from European countries (Italy, Germany, France, Czech Republic and Kosovo 4%).

The main reasons or motivations for visiting thermal springs focus on: "medical purpose", "natural attraction", "spending free time", "occasionally" and "others". It is evident from the graphic that most of both domestic (40%) and foreign (85%) visitors have visited the destination "as a natural attraction". Related to "medical purpose" 35% of domestics and 10% have frequented the springs for this reason. The interviews also had visitors (20%) who spent their free time and they were mostly from the regions of Tepelena and Gjirokastra.

Graph 1: The main reasons for visiting the attraction



Being asked about the frequency of visiting the area most of respondents (70 %) have visited the thermal springs once, followed by 17 % of the respondents that have visited 2-3 times and 13% more than four times. Regarding the duration of their stay, the majority of the respondents 47 % stayed one day, 37% of them 2-3 days and only 16 % more than 4 days.

As we have observed the area within the park in at a distance of 4 km from the sources, there are two hotels-restaurants with a capacity of 5-10 rooms. The city of Përmet, located 7- 8 km from the springs, offers some hotels with capacities ranging from 10 to 40 rooms. The analysis of the type of accommodation showed that the majority of the respondents, 54%, accommodated in the hotels of the area, while 46 % didn't stay in the hotels. It is obvious that 26% of them who didn't stay in the hotels travelled with catering.

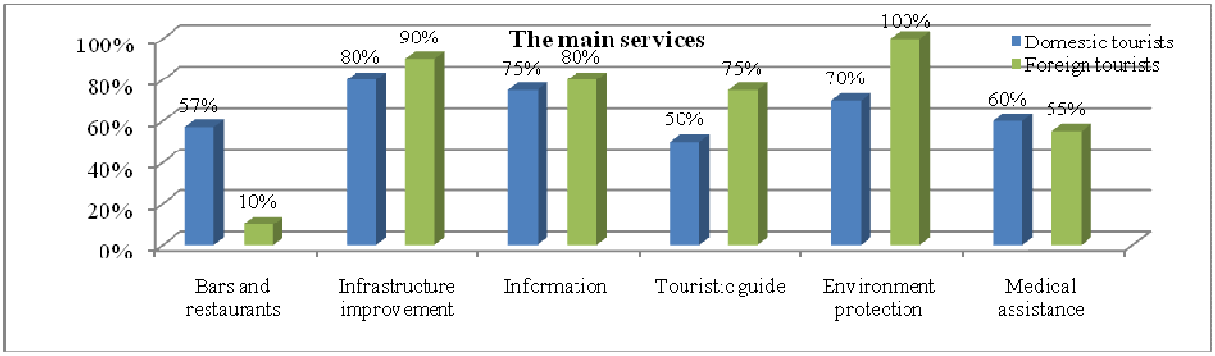
All respondents, 100 % , claimed that there is no health or therapeutic assistance in the area of baths, meanwhile 86% of them agreed for the necessity of the therapeutic specialists in the utilization of thermal pools. During our stay in the study area, we noticed that many visitors come to the thermal springs with their families. The presence of many children from 5 to 12 years old, bathing in the thermal waters pools for hours was not controlled. What is more, people that suffer from special diseases (heart, hypertension, ect.) should bath under the supervision of specialists.

Concerning information about therapeutic and curative effects of thermal waters, it is necessary to mention that almost 60% of the respondents did not have specific information about the curative effects of each of the thermal pools, excluding general information about curative effects on rheumatism, stomach and skin. Over 40 % of the respondents do not even have this information.

Regarding the effectiveness of water resources, the majority of respondents 53% believe in the curative treatment of thermal waters followed by 43% of the respondents who were not sure. As reported by some regular users of one of chlorides-rich pools, people suffering from osteoarthritis knee feel improvement after a regular attendance of 15 days each year.

Interviwed about the natural attractions (canyon, cave and culture monuments) in the area, only 30% of respondents were informed about them. Similarly, only those interviewed have visited them, while the majority of respondents answered they could not enter the area due to the difficult relief. It is important to mention that the majority of visitors interviewed (93%) agree or strongly agree about the possibilities that the natural area of thermal spring offers as touristic attraction.

Graph 2: The main services needed from tourists



At the end all respondents, both domestics and foreigners, interviewed about the necessary services in the area have emphasized the following needs: infrastructure improvement, information, environmental protection, and touristic guide. We can mention the the fact that while 57% of *domestic* visitors need bars and restaurants to rest and eat in the area, only 10% of *foreign* visitors need these services. All the foreign visitors (28) or 100% are very interested in the environmental protection of the area. The majority of respondents highlight the need to provide toilet services and dressing rooms.

SWOT Analysis

According to observations in the study area and the direct interviews with tourists, the importance of these natural resources for the tourism development is evident. A SWOT analysis (evaluation of the strengths, weaknesses, opportunities and threats) considering internal and external environment conditions, is used to evaluate the possibilities of tourism development in thermal natural springs in our study area. (Source: author's research).

Strengths

- Important geographical location (6 km from the national street);
- Beautiful natural scenery around the thermal springs;
- Different therapeutic values and health benefits of thermal waters;
- Located in a "Protected Area", the National Park (rich biodiversity);
- Rich in natural resouces, canions and caves;
- Cultural heritage and traditions in the area/religious attractions to visit (churches);
- Healthy local culinary and tradition in preparing jams, raki and wine;
- Friendly local people;
- Cheap accomodation and food in all the area.

Weaknesses

- Difficult accessibility and trasportation from the southeastern part of Albania;
- Poor marketing and promotion of the área;
- Not suitable for old age;
- Lack of information about curative and therapeutive benefits of the thermal waters;
- Lack of management of medical and curative activity;
- Lack of touristic guide to the natural and cultural attractions of the area surrounding thermal springs;
- No strategic plan for the development of the area;
- Lack of some touristic services;
- Environment pollution.

Opportunities

- Transforming the area into a touristic destination;
- Developing balneotherapeutic and health tourism;
- Stimulating some type of tourism (adventure, sports ecotourism), because of attractive nature and diverse relief;
- Logistic and information services;
- Organizing a management plan about the springs;
- Thermal springs of Bënja are frequented mostly from young people who don't need many services;
- Touristic facilities that protect the environment;
- Positive impact in the local economy.

Threats

- Increasing environmental pollution;
- Uncontrolled usage of thermal waters by visitors;
- Risk of constructions in the area of thermal springs;
- Lack of a strategy for development of curative and balneological tourism in Albania;
- Lack of government funds for scientific research in areas with touristic potencial.

5. Conclusion and Recommendation

This study aimed the identification of the potentials, as well as the investigation the possibilities for tourism development offered by the thermal springs of Bënja. The thermal spring area has a great location, wonderful natural relief and rich cultural heritage. The physic-chemical properties and the mineral content of the springs make it possible to use them for health benefits. Based on relevant literature and field observation, we can confirm that thermal springs constitute a natural attraction for the development of certain types of tourism such as health, wellness and recreational tourism, natural tourism, tourism of adventure, geotourism and ecotourism.

Currently, the area is in its exploration phase, the number of visitors is limited and there is no service facility built in the area. The growing interest of visitors and their profile towards the destination raises the need to undertake actions aiming at the development of a destination in the function of tourism. Regarding touristic services, we recommend that they should be made according to an action plan in harmony and balance with the preservation of natural balances.

It is utterly important to control the curative activity of baths in natural water pools, through increased information about the area. This would request the presence of an information center during the visitors' attendance season. At the same time, information provided for each natural thermal pool is crucial. Since there are some thermal springs, information signals about values and curative treatment

of each source would facilitate their usage by the attendants, for example: Thermal spring No.1: water temperature, mineral content, medical treatment, age allowed and duration of pool attendance.

The presence of young visitors and their touristic motivation "visiting the natural attraction", as well as the desire to explore the surrounding nature of the thermal springs require the necessity of guides in the area. In conclusion, we want to emphasize that the tourism development in this area can increase local income from accomodation and services needed by tourists in the urban and rural area.

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