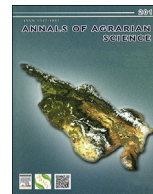




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## Prospects of ecotourism development in recreation areas of South Georgia



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## ABSTRACT

This paper reviews the opportunities of ecotourism development in South Georgia, in particular, in the Gujareti valley located in Samtskhe-Javakheti region which has a rich tourism and recreation potential. Recreation areas with unused potential are strengthening the tourism and recreation cluster of Samtskhe-Javakheti with new capabilities. For this purpose the example and experience of Borjomi-Kharagauli National Park, natural conditions, balneology resources and medieval cultural heritage of the Gujareti valley have been studied. In the SWOT-table the supporting and obstructing factors of the development were analyzed.

The general concept for landscape planning of spatial zoning were worked out, which envisages the protection of natural diversity, prospects of cultural, educational, healthcare tourism and supports interests of local communities, in terms of ecotourism promotion and creates a positive environment for organic agriculture.

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## Introduction

According to the National Tourism Strategy 2025, there are 87 protected areas in Georgia, including 11 national parks encompassing more than 8.62% of the country's total land area, which create opportunities for the development of world-class ecotourism/nature tourism [1].

At the same time, there are several places in Georgia, which can additionally enrich and serve to the ecotourism development, protection of unique natural diversity of the country and to the well-being of the population of adjacent settlements.

Samtskhe-Javakheti Region of South Georgia is famous with its climate and balneology spa-resorts, also with a numerous tourism and recreation places. There are several natural protected areas: Borjomi Strict Nature Reserve, Borjomi-Kharagauli and Javakheti National Parks, Budgasheni, Tetrobi, Kartsaskhi, Madatafa, Nedzvi, Sulda, Ktsia-Tabatskhuri and Khanchali Managed Reserves; Goderdzi petrified forest natural monument [2]. As one of the first, Borjomi-Kharagauli National Park should be noted, which was created in 1995 around Borjomi Strict Nature Reserve and unified

natural landscapes of six regions [3]. The establishment of the National Park played an important role in the protection of natural diversity [4]. At the same time there are less developed areas in this region, whose tourism and recreation potential is quite interesting for the economical support and additional development of the ecotourism in the region. Between them might be considered Gujareti valley.

This valley provides a serious potential for the development of ecotourism and differs from other beautiful valleys of Georgia with its connecting location between Samtskhe, Kartli and Javakheti, excellent nature, mineral water resources, number of historical monuments, good conditions for mountainous agriculture (pastures, fertile soils).

Historical monuments of the Gujareti valley are reviewed in scientific researches [5]; also mineral water potential is investigated [6].

Generally, numerous studies were performed for ecotourism development [4,7,8]. In these studies are mainly discussed the issues of existing protected areas. So, the development of new multifunctional areas from the point of view of ecotourism is a novelty.

The current situation in the valley is a problem that is to be solved; the solve it, it is necessary to create the clear vision of the state towards to this issue. Gujareti is not only one of the regular for Georgia mountainous valleys with beautiful nature, but also the

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**Table 1**  
SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats).

Strengths	Weaknesses	Opportunities	Threats
Unique nature, biodiversity	Destroying of forests by illegal loggings	Creation of protected area	Difficulties in management of protected areas
Big number of historical monuments	Heavy damage of monuments	Conservation of the heritage	The need for large funds
Significant number of healthy mineral water sources	Destroying of spa infrastructure	Creation of new healthcare tourism and recreation places	Difficulties in attracting visitors
Historical ways, strategic location	The peripheral location towards Borjomi, damaged roads, their high maintenance costs, destruction of electricity transmission communications	Road development, restoration of communications	Investments can bring economic benefits in the long run
Existing tourist routes that could be restored	The lack of tourism infrastructure	Restoration of tourist routes, making maps, tourist information boards and labels, creation of marked tourist trails and shelters	The ways of continued maintenance of infrastructure are unclear
Good conditions for mountainous agriculture	The lack of agricultural machinery	Establishment of mountainous agricultural equipment and machinery station in the municipality	High costs, management difficulties

**Table 2**  
Chemical composition of mineral water sources of Gujareti group [6].

Components	Water sources					
	480-Ramniskhevi			481-Gujareti		
	Mg/L	Mg. Eq.	% Eq.	Mg/L	Mg. Eq.	% Eq.
K'	1	–	–	43	1,1	0,4
Na'	157	6,8	8,5	2577	112,0	42,5
Mg''	226	18,6	23,6	158	13,0	5,1
Ca''	280	14,0	17,7	106	5,3	2,0
Fe''	6	0,2	0,2	2	0,1	–
Sum	670	39,6	50,0	2886	131,5	50,0
Cl'	22	0,6	0,8	2439	68,8	25,9
Br'	No	–	–	9	0,1	–
J'	No	–	–	1,3	0,01	–
SO <sub>4</sub> ''	9	0,2	0,2	3	0,07	–
HCO <sub>3</sub> '	2379	40,0	49,0	3891	63,8	24,1
Sum	2410	40,8	50,0	6343,3	132,8	50,0
SiO <sub>2</sub>	8	–	–	28	–	–
Total	3088	80,4	–	9257,3	264,3	–
Mineralization	927	–	–	723	–	–
CO <sub>2</sub>		6,5	–		6,8	–
pH						

strategic place, the right development of which will bring big benefits to the local communities, and generally, will support the peaceful regulation of occurred difficulties.

#### Objectives and methods

The objectives of the study are as follows: elaborating development prospects for less investigated tourism and recreation potential areas of South Georgia; awakening interest to this subject; investigation of ecotourism development opportunities; creating theoretical zoning concept for landscape planning in order to keep biodiversity conservation and protection; supporting science and education; bringing cultural and economical benefits to local communities.

The following methods were used: comparative and critical analysis, use of Geographic Information Systems, working on maps; analyzing existing researches in fields of resort development and balneology; SWOT-analyse (strengths, weaknesses, opportunities and threats) (see Table 1).

#### Theory/calculation

Learning of the existing characteristics of mineral water springs

allows us to conclude that Gujareti valley is quite rich in mineral water resources [6,9]. Most of the mineral water springs are cold, with carbon dioxide, hydrocarbonate type; this kind of water is equal to the type of Essentuki<sup>1</sup> water; containing iodine and bromine; also data about thermal water containing nitrogen and methane exists. In scientific sources following water springs are described: Gujareti group, No.: 480, 481; Tsinubani-Vardevani group, No.: 482, 484; Machartskali group No.: 485, 486, 487, 488; Telovani No.: 489 [6]. As for the thermal, Nitrogen and Methane water springs, in the Atlas of Resorts and Resort Places of Georgia one source of thermal water is mentioned, located in the village named Tsitelopeli, which is noted there as No.: 710 [9]. But according to the information from local population there are several warm springs and they were used intensively for the treatment of articular diseases. It should be noted that the research data about mineral water resources in Gujareti valley belong to years 1961 and 1989, therefore the location, capacity and other data could be partially changed. (For detailed view of the composition of chemical elements see Appendices, No 1, Tables 2–4).

“At the end of the mineral water review it's necessary to emphasize the existence of very valuable water sources of Essentuki type and their combination with especially spectacular landscape and terrain, healthy climate and other favorable natural conditions of this valley” [6].

Mineral water data analysis allows us to conclude that the resources of the Gujareti valley are quite valuable and it is desirable to create possibilities to use them through initiation of renewed studies and rehabilitation of communication systems.

In Appendix 2 the historic heritage and tourism attractions of Tsagveri community and the Gujareti valley are listed. According to these materials, valley and surroundings are very rich in cultural heritage, which is partially well known and have high cultural and artistic value, like Virgin Mary Dormition Monastery of Timotesubani (XII-XIII cc AD) or St. George Church of Daba (XIV c AD). Another part of the historic heritage is heavily damaged, but these monuments are an important material for cultural, historical and archaeological research.

<sup>1</sup> Essentuki water source – famous mineral water in North Caucasus.

**Table 3**  
Chemical composition of mineral water sources of Tsinubani-Vardevani group [6].

Components	Water Sources					
	482-Vardevani (First source)			484-Tsinubani		
	Mg/L	Mg. Eq.	% Eq.	Mg/L	Mg. Eq.	% Eq.
K'	2	0,04	–	2	0,04	–
Na'	221	9,60	11,9	193	8,40	12,7
Mg''	145	11,90	14,7	80	6,55	9,9
Ca''	370	18,50	22,9	352	17,60	26,5
Fe''	12	0,40	0,5	16	0,60	0,9
Sum	750	40,44	50,0	643	33,19	50,0
Cl'	22	1,40	1,7	22	0,62	0,9
Br'	No	–	–	–	–	–
J'	No	–	–	–	–	–
SO <sub>4</sub> ''	23	0,50	0,6	3	0,05	0,1
HCO <sub>3</sub> '	2342	38,40	47,7	1989	32,60	49,0
Sum	2415	40,30	50,0	2014	33,27	50,0
SiO <sub>2</sub>	46	–	–	44	–	–
Total	3211	80,74	–	2701	66,46	–
Mineralization	2094	–	–	1736	–	–
Solid waste	1917	–	–	1638	6,4	–
CO <sub>2</sub>	–	6,4	–	–	–	–
pH	–	–	–	–	–	–

**Table 4**  
Chemical composition of mineral water sources of the Gujareti group Matchartskali<sup>a</sup> [6].

Components	Water sources					
	486 - Matchartskali			487- Matchartskali		
	Mg/L	Mg. Eq.	% Eq.	Mg/L	Mg. Eq.	% Eq.
K'	26	0,70	0,3	9,0	0,24	0,1
Na'	2270,0	98,70	44,9	1324,0	57,60	32,5
Mg''	84,0	6,90	3,1	196,0	16,10	9,1
Ca''	76,0	3,80	1,7	280,0	14,00	7,9
Fe''	3,0	0,10	–	23,0	0,80	0,4
Sum	2459,0	10,20	50,0	1832,0	88,74	50,0
Cl'	1966,0	55,40	25,3	1351,0	38,10	21,5
Br'	4,0	0,05	–	4,5	0,06	–
J'	0,8	0,01	–	0,4	–	–
SO <sub>4</sub> ''	4,0	0,08	–	206,0	4,30	2,4
HCO <sub>3</sub> '	3318,0	54,40	24,7	2830,0	46,40	26,1
Sum	5292,8	109,94	50,0	1391	88,86	50,0
SiO <sub>2</sub>	16,0	–	–	44	–	–
Total	7767,8	220,14	–	6267,9	77,60	–
Mineralization	6204,0	–	–	5034,0	–	–
Solid waste	584,0	–	–	1707,0	6,4	–
CO <sub>2</sub>	–	6,8	–	–	–	–
pH	–	–	–	–	–	–

<sup>a</sup> The composition of these water sources of Matchartskali contains Iodine.

## Results and analysis

The article embraces issues of ecotourism development, historic heritage, mineral water resources, peaceful development initiative. Research of these topics is actual from many points of view: educational, cultural, healthcare, recreational, multicultural cooperation, etc.

As a result, ecotourism development possibilities were analyzed; especially for this article Gujareti valley sightseeing map was created, where existing historical monuments and mineral water springs were marked; theoretical Zoning concept of spatial and landscape planning and recommendations for the implementation of considered topics were carried out.

## Brief description of Gujareti valley

The Gujareti valley is located in Samstkhe-Javakheti Region, belongs to the Borjomi Municipality and is stretched for 40 km-s to the east of resort city Borjomi. It is a part of historical province named Tori.

“Gujareti is a place in eastern Georgia, a current part of the Borjomi district territory. Archeological materials found there (Kolkhis axes moldes, bars, hoes) proved that Gujareti canyon was assimilated by the human from the Bronze age. In the historical past Gujareti was a part of Tori area”. During medieval wars the valley were emptied, but “In the 30-s of XIX century repopulation of this area begins. From monuments of material cultural heritage are remarkable Uznariani, Totkhami, Momtsvara and Sarbiela fortresses; Timotesubani, Daba, Magaljvari and numerous other big or small churches, chapels and caves to hide in. Gujareti was crossed by the roads that connected Javakheti and Trialeti with Shida Kartli”<sup>2</sup> [10,11].

The Gujareti valley is connecting Borjomi gorge with Kareli Municipality, in particular, there is a passage into picturesque Dzama valley, where a tourist route runs along. However, due to the road damage it is quite difficult to use this route. From the north-west side Gujareti valley is bordered by Nedzvi Managed Reserve. There is also a way to the Nariani vale, adjacent to Ktsia-Tabatskuri managed reserve.

## Natural conditions

The Gujareti valley begins from resort Tsagveri, based on approximately 1100 m above sea level, and the highest point of the terrain is located on the 2357 m altitude. Bardzimjvari peak, or Barzonjvari peak, as locals called it, where the river Gujaretistskali originates, has a height of 2256 m above sea level. The valley is located in subalpine and alpine zones [12].

First village on the way to the Gujareti valley after Tsagveri and Timotesubani is Matchartskali. Characteristics of natural conditions are as follows: “ In the Gujaretistskali river valley of the Borjomi region, at an altitude of 1480 m there is located a mountainous village named Matchartskali. It is 14 km away from Tsagveri and 29 km away from Borjomi. The climate is an average to high level. Winters are cold and snowy. The average January temperature is -4 °C. Summers are moderately warm and dry. The average August temperature is +18 °C. Matchartskali areas are covered by coniferous forests. There are two springs of carbonaceous chloride sodium calcium mineral water. According to the data of 2002, 6 families live in the village. Types of treatment: climatic treatment and treatment with mineral water.” [13].(see Fig. 1).

Next village is Gverdisubani, where was tourist camp until the 90-s of the past century. The last inhabited settlement is Tsitelso-peli, which is located in alpine zone.

Forests surrounding Matchartskali and Gverdisubani are heavily damaged by illegal loggings. The problem of forest management and unlawful loggings in forested areas of Georgia are evidenced by scientific studies [14]. The road is out of order, what is caused by neglect and timber wood transportation by heavy trucks during many years.

Valley has been inhabited since ancient times, what is proved by archaeological excavations and early medieval historic castles, churches and monasteries [5,15]. The Gujareti valley, as a part of

<sup>2</sup> Names of Georgian historical provinces.

<sup>3</sup> Map is compiled by the author of this article based on the mentioned sources.

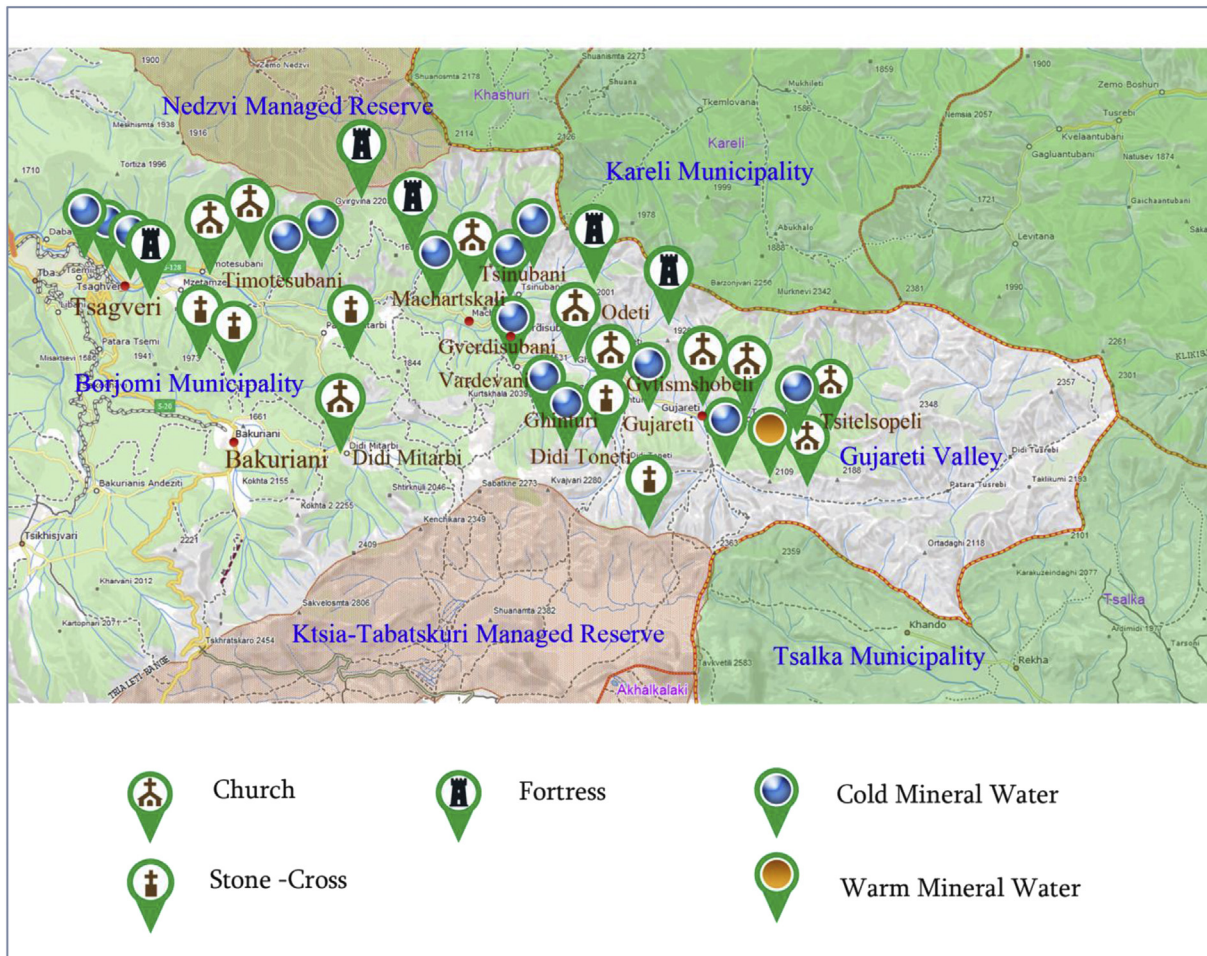


Fig. 1. Map of the Gujareti Valley Sightseeings [5,6,11].<sup>3</sup>

historical Tori, was strategically developed place, what can be concluded according to the placement and big number of fortresses. “In the north of upper settlements – Gujareti and Tsitselopeli, on the crossroads passing along valleys of rivers Dzama and Tana, located on the 2300 m high mountain hill fortress of Totkhami had an important strategic position. By its building the head of the fortress from upper part of the valley took control for entire area on the way from provinces of Kartli until Javakheti and Trialeti pastures” [5]. During the period of late medieval wars, the Gujareti valley as well as many provinces of South Georgia, was abandoned by its residents. From the 50-s of the XIX century, since Borjomi valley was deprived from noble family of Avalishvili and was given in the ownership to Russian royal court, intensive resort and spa development of Borjomi valley has begun [15]. At the same time, the Russian Kingdom started compact settlement of various nationalities in Georgia – in Javakheti Armenian population was settled, and in Borjomi valley, together with local residents coming mostly from Imereti (West Georgia) - Ukrainian, Greek and Osetian people were accommodated. The formation of Ossetian villages in the Gujareti valley should be related to these events.

In Soviet times, in the Gujareti valley there were 9 villages with developed agriculture, especially cattle breeding and horticulture. These villages are: Matchartskali, Tsinubani, Gverdisubani, Gvtismshobeli, Didi and Patara (big and small) Toneti, Vardevani, Gujareti and Tsitselopeli. The Gujareti Valley farms made significant contribution to the local food supply in the resorts of Borjomi. In 1991, during crisis period in the country, the valley was

leaved by the population again.

Nowadays, the Gujareti valley is a seasonal shelter for farmers working in cattle breeding and beekeeping. Sheep flocks from Kakheti are brought to its rich pastures. Recently, with the support of state aid programs cultivating of the farmlands has started.

Notable is the existence of preserved gold mine in the Gujareti valley [16].

When we talk about the development of the valley, it is necessary to evaluate its strengths and weaknesses which makes more clear real and logical possibilities for the planning of development ways.

Based on this comparative table it should be concluded which activities could be implemented for the development of the Gujareti valley. From our point of view, for the valley with conditions like Gujareti the ecotourism development is a perfect opportunity.

Below we will consider the definition and main provisions of ecotourism. It should be noted that the definition of ecotourism had a variety of changes over the years. However, the definition articulated by the World Conservation Union (IUCN) is formed as follows:

“Environmentally responsible travel to natural areas, in order to enjoy and appreciate nature (and accompanying cultural features, both past and present) that promote conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local peoples” [17]

Development of ecotourism in the Gujareti valley will significantly contribute to the natural diversity protection and preservation; to the improvement of the basic factors of sustainable development – ecological, economical and social; to the enhancement of scientific knowledge in historical, archeological, environmental, spatial planning fields and to the education of locals, especially young people; to the economical and social benefits for local communities. At the same time, peacekeeping factor should be important in the state strategy towards the valley development. It will offer new opportunities for multicultural cooperation. Good precondition for this is the rehabilitation of nearby to the Gujareti valley Mitarbi ski resort, that was implemented by the government and private sectors collaboration and ceremonially opened on December 25, 2016 [18].

The most critical issue is a restoration of the communications. At the same time, with the rehabilitation of the main road, all other communication systems should be arranged. It is desirable to introduce alternative sources of energy. Most suitable should be the usage of solar energy in agricultural buildings and tourist shelters. Related to the communications, very interesting recommendation can be found in the work by S. Chikhelidze “Natural Resources of Georgian SSR, Mineral Waters”:

“It can be noted that none of the areas of Adjara-Trialeti system could be compared by its prospects of resort building capacity with mentioned region. Extension of highway Tbilisi-Tsalka to the west direction at 20-30 km-s and its connection through Gujareti valley with Tsagveri would be a quite reasonable measure - it would open the short way to the Borjomi health resorts complex and would stimulate large planned resort development in this exceptional, beautiful, healthy and rich in hydroresources region.” [6].

So, ecotourism development in the Gujareti valley will reflect the principal requirements that are defined for this sector of tourism: “Ecotourism is about uniting conservation, communities, and sustainable travel. This means that those who implement, participate in, and market ecotourism activities should adopt the following ecotourism principles:

- Minimize physical, social, behavioral and psychological impacts.
- Build environmental and cultural awareness and respect.
- Provide positive experiences for both visitors and hosts.
- Produce direct financial benefits for conservation.
- Generate financial benefits for both local people and private industry.
- Deliver memorable interpretative experiences to visitors that help raise sensitivity to host countries' political, environmental and social climates.
- Design, construct and operate low-impact facilities.
- Recognize the rights and spiritual beliefs of the Indigenous people in your community and work in partnership with them to create empowerment” [19].

#### *Zoning concept for landscape planning*

Zoning concept is limited by theoretical recommendations, because its graphical implementation depends on the updated Geographic Information Survey, which might be initiated in case if the Project of Gujareti valley development will be realized. Exactly, one of the objectives of this article is awakening interest to this subject.

In the concept we consider such kind of the zoning model that

the natural diversity would be preserved as much as possible. Also interests of local people should be protected, and better conditions for their employment in tourism sector would be created. We propose two directions to solve the problems.

1. Due to the characteristics of the valley it is possible to define three spatial zones: agricultural, tourism-recreation and protected area. In this case it will be necessary to clarify the status and registration of land plots; delimitation of geographical boundaries of the zones; arrangement of tourism and recreation infrastructure – marking trails, installing information boards, planning and restoring or building new shelters.
2. Another possibility is to give to the Gujareti valley the status of the multiple use area. Also for this case planning activities and arrangement of tourism infrastructure are needed.

It should be noted that according to the information of the Agency of Protected Areas such protected areas do not currently exist in Georgia, however, the legislation allows this:

“Multiple use areas are established for economic activities that are organized in accordance with the requirements of environmental protection and for use of renewable natural resources. Multiple use areas require a relatively large area or/and aquatory, which represents natural foundation for accumulating water, productivity of forests and pasture, hunting, fishing, spread of flora and fauna, as well as tourism. It is acceptable for the areas to be partially modified and to include populated areas. The area should not include unique natural formations of national importance” [20].

In case of recognition of the Gujareti valley as multiple use area, very specific regeneration measures are required for the restoration of the damaged ecosystem.

In cases of both above described proposals, for the implementation of the zoning concept, the project of spatial planning of the Gujareti valley should be created. Also it would be necessary to establish the Administration of the valley, to employ specialists, foresters, guides, rangers, for the care and protection of the valley. Resort settlement Tsagveri with adjacent communities can offer the best conditions for this. Cooperation with the Administration of Borjomi-Kharagauli National Park, exchange of experiences will be very important.

#### **Conclusion and recommendations**

The Gujareti Valley, due to its location, natural conditions, historical and cultural heritage, the number of mineral springs, presents the outstanding place for further eco-tourism development in Georgia. Based on this study, following recommendations are proposed:

- Creation of the spatial landscape planning project of the development of the Gujareti valley;
- Zoning, delimitation of boundaries for agricultural, tourism-recreation zones and protected area, or granting the status of multiple use area, considering necessary planning, protective and restoration measures (forest, biodiversity).
- Restoring cultural relationships with groups of the population, who leaved the Gujareti valley in the 90-s c. Invitation of their representatives together with international organizations for the participation in the renewing of the valley. Initiation of mutual environmental and educational projects.
- Rehabilitation of the roads; restoration of tourist paths.

- Planning tourist routes, restoration of existing and creation of new routes.
- Arrangement of tourist infrastructure: information boards, trail marks, shelters.
- Establishment of the administration.
- Renewed investigation and conservation of historic monuments.
- Updated hydrogeological survey of mineral water resources.
- Use of renewable energy sources in tourist and agricultural infrastructure.

## Appendix 2

List of the historic monuments and sites of the Gujareti valley and nearby Tsagveri community.

### *Historic monuments of Tsagveri community*

1. North Church of St. George, 1333. Village Daba.
2. Monastery of Dormition of Virgin Mary, Church of St. Barbare, XII–XIII cc. AD., Village Timotesubani.
3. Church of Virgin Mary (ruins), Mariamtsminda, village Daba, Early Middle Ages.
4. Church of St. George, village Mzetamze, Late Middle Ages.
5. Fortress Uznariani, Early Middle Ages.
6. Eiffel bridge, 1902. Railway bridge between Tsagveri and Tsemi, Engineering heritage, does not have official status yet. Touristic attraction.

### *Historic monuments of Gujareti valley*

Materials of the Department of Culture of Borjomi Municipality and of Borjomi Local History Museum 2010–2012 [21].

1. St. Nicholas Church of Gujareti, Middle Ages, village Gujareti. On the west side.
2. Gujareti fortress, Church of “Magali Jvari” (High Cross), Middle Ages, village Gujareti. 3 km to the north.
3. Church of Didi Toneti “Sakhdelis Jvari”, Middle Ages, nearby to village Gujareti, settlement Didi Toneti.
4. Church of Didi Toneti, Middle Ages, nearby to village Gujareti, settlement Didi Toneti.
5. Church of Virgin Mary, Middle Ages, village Matchartskali, cemetery.
6. Church of “Sakhdelis Khevi”, Middle Ages, village Matchartskali, 1 km to the northwest.
7. Fortress of “Sakhdelis Khevi”, Middle Ages, village Matchartskali, 1 km to the northwest.
8. Fortress “Kardzeni”, Middle Ages, village Matchartskali, 1,5 km to the north.
9. Fortress “Gvirgvina”, Early Middle Ages, to the northwest of village Matchartskali, on the mountain Gvirgvina, settlement Veli.
10. Church of Tkemlovana, Middle Ages, nearby to village Matchartskali, settlement Tkemlovani.
11. Church of St. Elias, Early Middle Ages, Telovani, nearby to village Patara Mitarbi.
12. “Red Church”, Middle Ages, village Tsitelsopeli, 1 km to the west.

13. Church of Virgin Mary, XVI–XVII AD. Village Tsitelsopeli, Late Middle Ages, to the west, Cemetery.
14. Church of St. Theodore, XII–XIII cc. AD. Village Tsitelsopeli, 7–8 km to the southeast, village Tsitelsopeli.
15. Fortress “Aletsi” (Ali), Middle Ages, village Tsinubani, 4 km to the northeast.

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## References

- [1] Georgia Tourism Strategy 2025, Georgian National Tourism Administration, World Bank, Tbilisi, 2015.
- [2] Agency of Protected Areas, <http://apa.gov.ge/ge/protected-areas>, 2017, (accessed 25.01.2017).
- [3] L. Gotsiridze, Development of Forestry, Establishment of Borjomi Strict Nature Reserve and Borjomi-kharagauli National Park in Borjomi District, Tbilisi, 2001 (in Georgian).
- [4] M.O. Azmaiparashvili, T.K. Patarkalashvili, L.D. Kvaratskhelia, The prospects of ecotourism development in Borjomi-Kharagauli National park, *J. Ann. Agrar. Sci.* 13 (no.4) (2015) 68–71.
- [5] Berdzenishvili D.K., Giorgidze M.V., Chanishvili G.V., Gujareti, Mecniereba, Tbilisi, 1987. (in Georgian).
- [6] S.S. Chikhelidze, Mineral Water, Natural Resources of Georgian SSR, vol. 3, Academy of Sciences of Georgia, publication of Academy of Sciences of USSR, Moscow, 1961 (in Russian).
- [7] A. Supatashvili, I. Tarkhan-Mouravi, N. Saakashvili, N. Goginashvili, B. Tavadze, E. Khelashvili, L. Kobakhidze, G. Lazarashvili, Healthy Forests and Prospects of Eco-tourism Development in Borjomi Municipality, Universal, Tbilisi, 2016 (in Georgian).
- [8] J. Sirse, L. Kharstishvili, Strategy for Tourism Development in Protected Areas in Georgia, Assessing and Developing the Eco-tourism Potential of the Protected Areas in Georgia, Transboundary Joint Secretariat for the Southern Caucasus, Österreichische Bundesforste AG Consulting, 2015. [http://tjsc-caucasus.org/wp-content/uploads/2015/04/Ecotourism-PA-Georgia-Strategy\\_Final.pdf](http://tjsc-caucasus.org/wp-content/uploads/2015/04/Ecotourism-PA-Georgia-Strategy_Final.pdf). (Accessed 22 January 2017).
- [9] Group of Authors, redacted by N.M. Khatiashvili, G.A. Ushveridze, E.D. Kobakhidze, Atlas, Resorts and Resort Resources of Georgian SSR, I.G. Koniasvili Research Institute of Curortology and Physiotherapy “Gruzcurort”, Georgian SSR, Vakhushti Institute of Geography, Academy of Sciences Georgian SSR, Tbilisi, Main Administration of Geodesy and Cartography under Council of Ministers of the USSR, Moscow, 1989.
- [10] Historic and Geographic Sites of Georgia, <http://saunje.ge/index.php?id=109>, (accessed 26.01.2017) (in Georgian).
- [11] The Agency of Protected Areas, Map of Protected Areas, 2016. [http://mygeorgia.ge/Default.aspx?map=Apa\\_Geoland\\_Physical&target=43.42.42.37.3&session=70d06247-d06249d13-430a-b246-728d3bb6a548](http://mygeorgia.ge/Default.aspx?map=Apa_Geoland_Physical&target=43.42.42.37.3&session=70d06247-d06249d13-430a-b246-728d3bb6a548). (Accessed 29 January 2017).
- [12] L. Maruashvili, Physical Geography of Georgia, 1964 (in Georgian).
- [13] Travel in Borjomi, Matchartskali, 2016. <https://travelinborjomi.ge/ka/minerals/26/matchartskali>. (Accessed 23 January 2017).
- [14] T. Patarkalashvili, Some problems of forest management of Georgia, *J. Ann. Agrar. Sci.* 14 (2016) 108–113.
- [15] V. Abuladze, Past and Present of Borjomi Gorge, Sabtchota Sakartvelo, Tbilisi, 1983 (in Georgian).
- [16] Gujareti Gold Mine, Open Data of Ministry of Environment and Natural Resources Protection of Georgia, <http://opendata.casebox.org/ka/download/52251>, (accessed 28.01.2017) In Georgian..
- [17] The Nature Conservancy, Eco-trips and Travel, what Is Ecotourism? <http://www.nature.org/greenliving/what-is-ecotourism.xml>, (accessed 08.02.2017).
- [18] Mitarbi Ski Resort & Borjomi-bakuriani Railroad Open, 2016. <http://georgiatoday.ge/news/5486/Mitarbi-Ski-Resort-%26-Borjomi-Bakuriani-Railroad-Open->. (Accessed 23 January 2017).
- [19] Principles of Ecotourism, 2017. <https://www.coursehero.com/file/p55sjsps/13-Principles-of-Ecotourism-Ecotourism-is-about-uniting-conservation/>. (Accessed 8 February 2017).
- [20] Agency of Protected Areas, Multi Purpose Use Area, 2016. <http://apa.gov.ge/protected-areas/Multi-Purpose-UseArea>. (Accessed 27 January 2017).
- [21] Materials of the Department of Culture of Borjomi Municipality and of Borjomi Local History Museum, 2010–2012 (in Georgian).