

30 May 2024

Scientific Conference

2024 Regional Transformation by Tourism

Renovation and Reforms Triggered by Tourism: Case of Georgia

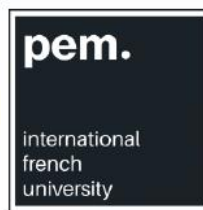
ORGANIZED BY:

Université Paris 1 Panthéon-Sorbonne (IREST)
Caucasus University (School of Tourism)

LOCATION:

Salle Goullencourt
12 Place de Panthéon 75005 Paris

CONFERENCE PROCEEDINGS



Introduction

Welcome to the 2024 International Conference on Regional Transformation by Tourism: Renovation and Reforms Triggered by Tourism - Case of Georgia, held at Université Paris 1 Panthéon-Sorbonne in collaboration with Caucasus University. This conference, supported by the UNWTO, UNECE, International French University (PEM), Georgian Embassy in France and the Department of Tourism and Resorts of the Autonomous Republic of Adjara, serves as a key platform for exploring the role of tourism in driving economic and urban transformations.

The conference provides an opportunity to learn from the city of Batumi, Georgia, a success story in regional transformation through tourism. With contributions from both academic and industry leaders, the event highlights the potential for tourism to foster growth and modernization across Eastern Europe and West-Central Asia.

The proceedings include a collection of double-blind refereed papers that explore a wide range of topics including urbanization, economic and social effects, destination management, and public-private partnerships. Special attention is given to the Georgian case, notably the transformation of the city of Batumi from a post-Soviet backwater into a modern, thriving tourism hub.

We hope this collection of papers inspires further research and practical applications in sustainable tourism development and regional transformation.

It is worth to mention, that several papers from the conference are not included to the Proceedings of the Conference, since they are following other academical publication paths. These papers are:

Tourism as an Economic Sector -by L. Lachkepani, M.Kiladze, M. Lomisvli, M.Tananashvili

Harmony in Urbanization Integrating Tourism for Peaceful Progress-Insights from Batumi's Success Story -by Ana Razmadze

Strategic Directions of Georgian Tourism for Spatial Optimization of the Country's Tourism Value Chain -by Mariam Sharia

Sustainable Development of Tourism and Its Positive and Negative Economic Effects-by Nino Samchkuashvili, T.Margiani

Tourism Crisis Management in Georgia and Parallels with Ukraine -by Nino Jintcharadze

Wine traditions in Georgia and its Global Influence on the example of the Kakheti and Adjara Regions -by Teona Taboridze

“Mountainous Adjara” as a Tourist Attraction Product -Analysis and Opportunities-by Levan Tsikarishvili

Regional Research for Post-Crisis Tourism Destination Recovery: Case of Imerti Province (Western Georgia) -by Ia Iashvili, Tsitsino Davituliani, Tatia Doghonadze);

Investigating Strategic Marketing Approaches for Developing Gambling Tourism in Adjara (a Case of Georgia) -by Ana Elizarova

The Importance of Tour Guides Training in Adjara Region (Case Study)- by Tamari Karbaia

Contents

Diversification of the Rural Economy by Developing Sustainable Food Tourism Sector (Case Study of Adjara mountain Region, Georgia) by Manana Vasadze	3
Aspects of Sustainability: Regional Tourism and Opportunities of Highland Adjara by Nana Akhalaia and Sani Inauri.....	14
Tourism-Led Transformation: A Comprehensive Analysis of Georgia's Renewal, Urban Development, and Institutional Reforms by Nikoloz Siradze	21
Exploring Sustainable MICE Tourism Development Opportunities in Batumi by Natia Surmanidze, Sopiko Tevdoradze and Maia Amashukeli	33
Ethnographic Tourism and Social Media in Georgia: Urban and Rural Perspectives by Natia Tavdgiridze, Manuchar Loria, Nugzar Mgeladze	49
Natural events related to hydrological processes and ways to avoid them in the tourist area of Adjara by Sophio M. Gorgijanidze, Gocha A. Jincharadze, Mirian Silagadze and Zaza Gulashvili.....	61
The Impact of Digital Technologies on the Management of Georgian Tourist Destination by Maka Piranashvili, Maia Meladze and Lizi Dzimistarishvili	75
Impact of Expected Climate Change on Batumi Tourism Sector by Tamar Koblianidze, Noe Khozrevanidze, Olga Kharashvili, Nino Mebonia, Shorena Kupreishvili	88
Sustainable tourism and waste management optimization in Batumi city by Nargiz Phalavandishvili, Nino Devadze and Natia Beridze	99
Erosion of Black Sea Coastline: An Emerging Threat to Maritime Tourism by Mariam Mgeladze.....	112

Diversification of the Rural Economy by Developing Sustainable Food Tourism Sector (Case Study of Adjara mountain Region, Georgia)

by Manana Vasadze

Abstract

For sustainable economic development and inclusive economic growth of the country, great importance is attached to the development of agriculture and rural areas. Since 2012, the Government of Georgia has taken important and unprecedented steps for the development of agriculture and rural areas, which was manifested in large state investments in these directions. Nevertheless, the rural area of Georgia is still facing many challenges.

Maximizing the potential of Georgia's agriculture and making targeted use of it is vital for the Country's economy. That is why the primary guarantee of achieving positive results is given to the development of a clearly defined agricultural policy aimed at competitive production and the promotion of attracting financial resources to this sector of the economy. At the same time, the issue of ensuring the country's food security and food safety is particularly important, which is the main obligation of the Georgian government. The development of rural areas of Georgia is important for solving such tasks as: food security, environmental protection, economic development, creating a high standard of living and state security.

An important role in rural development is the introduction of integrated management of natural resources in the Country and the functioning of various sectors of the economy, the well-being of people, the elimination of poverty and the sustainable development of the country. (Agriculture and Rural Development Strategy of Georgia, 2021-2027, 2019).

Tourism is an activity that contributes directly and indirectly to the development of rural areas. But this development needs to be sustainable. To do this, appropriate policies that positively influence these areas from an economic, social and cultural point of view must be implemented in accordance with the Sustainable Development Goals.

Gastronomy tourism fosters inclusive and sustainable economic growth, social inclusiveness, employment and poverty reduction, resource efficiency, cultural values, diversity and heritage. This kind of tourism has become an additional economic activity, so they no longer depend exclusively on primary activities such as agriculture and livestock. There are extensive opportunities for agritourism, combining tourism with agriculture-related activities, which indicate the potential synergies between them. The local authorities managing rural tourism must therefore implement policies to promote its development.

Providing economic benefits to local people can bring alternative sources of livelihood. It is

important to use local suppliers and labor. e.g. employ locals where possible, use local facilities and purchase local services; Purchase, carry and supply locally grown food and beverages.

UNTWO suggests that Rural Tourism activities take place in non-urban (rural) areas with the following characteristics: a) low population density, b) landscape and land use dominated by agriculture and forestry and c) traditional social structure and lifestyle". Rural and mountain tourism have a high potential to stimulate local economic growth and social change because of its complementarity with other economic activities, its contribution to GDP and job creation, and its capacity to promote the dispersal of demand in time (fight seasonality) and along a wider territory (UNWTO, 2021).

In recent years, gastronomy has established itself as one of the key elements for the sustainable tourist destinations. Gastronomy is part of the cultural, social, environmental, sustainable and economic history of nations and their people.

The process of tourism development in Adjara is quite active, which has a strong impact on the number of tourists on the one hand, and foreign investments on the other. It should be noted that domestic tourists are mainly attracted to the sea while foreign visitors are interested in ecotourism (mountainous Adjara). The region is attractive for tourists in any season of the year.

Georgian cuisine has undergone a very interesting way of development. Each country has its own distinctive mark, which distinguishes it from another country, a nation. Due to the diversity of nature, over the centuries Georgia has developed a very interesting look of traditional Georgian cuisine. What makes this subject even more interesting is the radical difference between the corners of Georgia. It is not surprising that the existence and culture of the regions of the Country differ from each other.

Culinary tourism is to some extent a component element of all tours. But unlike other types of tourism, the main motive of gastronomic travel is to get to know the national cuisine. Supporting local farmers and producers is an integral part of any gastronomic tour.

The contribution of gastronomy tourism is in line with the main areas covered by the 2017's International Year of Sustainable Tourism for Development (UNTWO, 2017).

Based on the principles of sustainable development, economic opportunities in rural areas diversification/development, improvement of the standard of living of the social situation the direct beneficiaries of the strategy are the population living in rural areas and persons employed in the agricultural sector.

The paper represents a way to experiment with the local cuisine in Ajara mountain areas, Georgia. The major aim of the study was to identify the inbound tourists' perception of local foods and the factors that influence local food choice of inbound tourists in Ajara region, Georgia.

Primary data were collected from 76 tourists who visited Ajara by distributing questionnaires, besides in-depth interview method was applied to gather data from 45 local food vendors. Quantitative and qualitative data were applied to thematic and descriptive analysis.

Based on the outcome, local food has great potential to promote gastronomy tourism. The study confirmed that variety of local food in mountain region of Ajara is diverse. The purchase intention of inbound tourists is related to gastronomy. The study has proven that the promotion of local food depends on government involvement whereas a strategic marketing campaign could be used to bring traditional local food to the international level. Restaurant's environment should be familiar

to international tourists while maintaining the authentic features of the restaurants. Moreover, tourists were willing to taste healthy authentic local food. Therefore, this study investigates the vendors' perception on local food as a tourism product and tourist's intention specifically on Ajara mountain region, Georgia.

However, it is necessary to realize that sustainable development of culinary tourism is not only about preserving traditions, but it is also about creations of the future. (Senkova A., Sotak M. 2016). *A major component of history, tradition and identity, gastronomy has also become a major motivation to visit a destination. (UNTWO, 2017).*

Key words: Sustainable Economic Development, Authentic local food, Gastronomy tourism, Rural economy, Non-urban areas

Introduction

In fact, innovation and knowledge creation set new challenges both for policy makers and for governance models, as they have to find new ways to integrate strongly increasing numbers of new forms of businesses influenced by modern consumer lifestyles (Cavicchi & Stancova, 2016).

For sustainable economic development and inclusive economic growth of the country, great importance is attached to the development of agriculture and rural areas. Since 2012, the Government of Georgia has taken important and unprecedented steps for the development of agriculture and rural areas, which was manifested in large state investments in these directions. Nevertheless, the rural area of Georgia is still facing many challenges.

Maximizing the potential of Georgia's agriculture and making targeted use of it is vital for the country's economy. That is why the primary guarantee of achieving positive results is given to the development of a clearly defined agricultural policy aimed at competitive production and the promotion of attracting financial resources to this sector of the economy. At the same time, the issue of ensuring the country's food security and food safety is particularly important, which is the main obligation of the Georgian government. The development of rural areas of Georgia is important for solving such tasks as: food security, environmental protection, economic development, creating a high standard of living and state security.

An important role in rural development is the introduction of integrated management of natural resources in the Country and the functioning of various sectors of the economy, the well-being of people, the elimination of poverty and the sustainable development of the country. (Agriculture and Rural Development Strategy of Georgia, 2021-2027, 2019).

With the implementation of the 2021-2027 strategy of agriculture and rural development, existing challenges are dealt with and a significant turning point made in the direction of socio-economic development in rural areas. The Strategy of Agriculture and Rural Development for 2021-2027 covers the whole of Georgia's territory.

In terms of standard of living, there are significant differences between rural and urban settlements. There is also a significant difference between the capital and the rest between regions. e.g. The structure of employment by economic activity shows that in the agricultural sector 12,699 people are employed, that is, only 1.8 percent of the employed. According to the latest 2015 data, 50.5 percent of those employed in the agricultural sector are women.

Poverty in rural areas is even higher than in urban areas, especially in the Capital city. The number of operating enterprises of the business sector in the agricultural sector is low (1%). For Georgia, agriculture remains a priority sector in terms of contribution to GDP and economic growth. An assessment of the gender gap in the sector shows that women are more likely than men to be involved in low income activities such as subsistence agriculture. Compared to men, the participation of women in agricultural activities is small. The role of women in rural and agricultural development is important. However, the contribution of women living in rural areas to agriculture is often overlooked, since their work is mostly associated with family responsibilities and remains unpaid. A total of 1,021 cooperatives with agricultural status are registered throughout Georgia.

On the initiative of the Ministry of Environmental Protection and Agriculture of Georgia and the Danish International with the financing of the Development Agency (DANIDA) in 2018, the youth in rural areas started Support program for entrepreneurs - "Young entrepreneur"- the main task of the program Economic growth in the regions by providing financial and technical assistance to the youth, promotion and reduction of poverty, while the main goal is the development of the private sector in the regions, the promotion of youth involvement in business and the implementation of investments in the chain of production and sale of agricultural products. The program provides financing of agricultural and non-agricultural business directions.

A food safety system has been established and is functioning consumer market and the control of public catering facilities is constantly carried out by the state control. Protecting the interests of the customers, increasing their awareness and improving the situation in the market new regulations are enacted for this purpose.

The objectives of the strategy incorporate agricultural and non-agricultural sectors such as:

- Market integration of farmers/entrepreneurs;
- Development of tourism and related tourism products in rural areas.

Strategy objectives are based on the principles of sustainable development, economic opportunities in rural areas.

Tourism is an activity that contributes directly and indirectly to the development of rural areas. But this development needs to be sustainable. To do this, appropriate policies that positively influence these areas from an economic, social and cultural point of view must be implemented in accordance with the Sustainable Development Goals.

Gastronomy tourism fosters inclusive and sustainable economic growth, social inclusiveness, employment and poverty reduction, resource efficiency, cultural values, diversity and heritage.

This kind of tourism has become an additional economic activity, so they no longer depend exclusively on primary activities such as agriculture and livestock. There are extensive opportunities for agritourism, combining tourism with agriculture-related activities, which indicate the potential synergies between them. The local authorities managing rural tourism must therefore implement policies to promote its development.

Providing economic benefits to local people can bring alternative sources of livelihood. It is important to use local suppliers and labor. e.g. employ locals where possible, use local facilities and purchase local services; Purchase, carry and supply locally grown food and beverages.

UNTWO suggests that Rural Tourism activities take place in non-urban (rural) areas with the following characteristics: a) low population density, b) landscape and land use dominated by agriculture and forestry and c) traditional social structure and lifestyle". Rural and mountain tourism have a high potential to stimulate local economic growth and social change because of its complementarity with other economic activities, its contribution to GDP and job creation, and its capacity to promote the dispersal of demand in time (fight seasonality) and along a wider territory (UNWTO, 2021).

Diversification/development, improvement of the standard of living of the social situation and specific characteristics of gastronomic tourism are as follows:

1. Absolutely all countries have conditions for the development of culinary tourism and this is a unique tourist characteristic.
2. Gastronomic tourism is not characterized by seasonality. You can choose a suitable tour in any season.
3. Culinary tourism is to some extent a component element of all tours. But unlike other types of tourism, the main motive of gastronomic travel is to get to know the national cuisine. Supporting local farmers and producers is an integral part of any gastronomic tour.

Gastronomic tourism destinations include:

- Village tour. • Restaurant tour. • Educational tour. • Ecological tour. • Event tour • Combined tour etc.

A village tour is a type of tour that involves the temporary stay of tourists in a village with the purpose of tasting local cuisine and products produced in this region, and may also include participation in agricultural activities. Thus, in "green" gastronomic tours, it is offered to collect wild berries in the forest, and vegetables and fruits in the farms. Such tours are interesting not only from their culinary point of view, but also because through food and products it is possible to learn about the daily life, habits and culture of the local population.

Food Tourism can be considered in connection with ecotourism. Such a tour can be used by the country's national minorities as a chance to preserve and demonstrate their identity and traditions preserved in food culture. Tours - to local food producers, maybe with an emphasis on one specific product, for example wine, cheese, coffee, tea, vineyards, farms. The development of gastronomic tourism is changing global social attitudes towards people, seeing more broadly the role of nutrition and food in the history of human development and its future prospects in a shared world where everybody need food.

Literature Review

In recent years, gastronomy has established itself as one of the key elements for the sustainable tourist destinations. Gastronomy is part of the cultural, social, environmental, sustainable and economic history of nations and their people.

This is because it reflects a certain lifestyle of the different geographical areas, strengthening traditions in rural areas and modernity in urban areas, as it is something rooted in their own culture and tradition (Cohen, E.; Avieli, N.,2004), although this implies a constant need for innovation in products and services to provide greater value and thus achieve greater competitiveness in a given location in relation to other destinations (Harrington, R.J., Ottenbacher, M.C..2010). Therefore,

local and regional food could give added value to the destination and contribute in this way to the competitiveness of the geographic area (Ignatov, E., Smith, S., 2006) and, in this sense, many researchers highlight that each country/region/city should promote food as a central attraction to tourists (Lee, K.H., Scott N. 2015) as dining out and trying national and local cuisines are pleasant activities for most tourists (Lee, K.H., Scott N. 2015. Marzo-Navarro, 2017). In fact, gastronomy involves a transfer of knowledge and information about the people, culture, traditions and identity of the visited place (Mitchell, R., Hall, C.M. 2006).

Rural tourism can serve to sustainably develop the most depopulated rural areas (Marzo- Navarro, 2017). It is important to focus on the social and economic sustainability of this type of tourism, which should be translated into improving the quality of life of the indigenous population.

Gastronomy tourism has emerged as an indispensable resource, adding value and providing a solution to an increasingly pressing need for destinations to stand out amongst homogenous tourist offers by putting forward authentic products (UNTWO, Second Global Report on Gastronomy Tourism, 2017).

Describing Geographical Area

One of the most beautiful regions of Georgia – Ajara- is located in the south-western part of Georgia on the Black Sea coastline. Ajara, as an autonomous republic of Georgia, has its own flag and coat of arms. It is bordered by Turkey to the south. Adjara was the first center of the spread of Christianity in Georgia. It was Adjara where Apostle Andrew the First-Called and Nino of Cappadocia came to preach Christianity.

Adjara is mainly an agrarian region, where subtropical crops (tea, citrus) are cultivated. Important branches are also: oil industry, machine-building and tourism. According to the sources, Apostle Matata is buried in Adjara, specifically in Gonio. Gonio Castle, is a symbolic place of the land where Jason and the Argonauts arrived in search of the Golden Fleece, where the armies of the Roman and Ottoman Empires were fortified. The city of Batumi is known as the pearl of the Black Sea built by European architects at the beginning of the 20th century and is still a symbol of architectural innovation. Adjara is home of the beautiful beaches of Batumi, Kvariati, Sarfi, Gonio, Tsikhisdziri, Mtsvane Kontskhi and Kobuleti. They host many tourists in summer and promise an unforgettable vacation. The nature of Adjara is very diverse with wonderful mountains and sea landscapes, natural resources and beautiful parks, excellent cuisine and unique traditions attracting both Georgian and foreign vacationers.

The process of tourism development in Adjara is quite active, which has a strong impact on the number of tourists on one hand, and foreign investments on the other. It should be noted that domestic tourists are mainly attracted by the sea while foreign visitors are interested in ecotourism (mountainous Adjara). The region is attractive for tourists in any season of the year. Authentic local dishes might become a motive for visiting a particular destination.

Georgian/Ajarian Cuisine

Georgian cuisine is a culinary style that originated in Georgia and has been established in the country for centuries. There is a significant difference between the regional cuisines of the country.

Eastern Georgia has an abundance of meat, wine, breads and animal fats, while Western Georgian cuisine is distinguished by sauces, nuts and dairy products mixed with nuts and peppers. Georgia is the homeland of wine, here vine is almost everywhere, Georgian wine is kept into the vessel called Qvevri.

Adjarian cuisine is the most diverse. It has a whole palette of colours. Here, the aromas of the mountain and the gentle seaside are combined. Adjarian cuisine is experiencing the cultural impact of Turkish cuisine. Dairy products are prevalent in Adjarian Cuisine. There are several type of cheese produced in Adjara; the most typical Adjarian cheese is “spun” (dastnuli) cheese, which is primarily made in Adjara mountainous areas. Producing spun cheese requires special technique, its non-traditional shape and unique taste make the cheese attractive to all the cheese lovers.

Kaimagi is an exceptionally rich dairy dish throughout Adjara. The dish pairs well with cheese and a traditional corn bread called “mchadi”.

The warmth and genuineness of the hospitality one can experience during a traditional Supra or feast where tourists enjoy not only the amazing local food, but also experience local wine.

Regardless of wine tourism being included in food tourism, it can be seen as a category by itself (Charters and Ali-Knight, 2000), due to its capability of generating economic benefits to an array of local stakeholders and its complementarity with other service sectors as hospitality, arts and entertainment (Carlsen & Charters, 2006).

Traditions and Rituals

Food is a key aspect of the travel experience and essential to understand the culture of the place visited (Getz, Robinson, Andersson, & Vujicic, 2014).

The interest of visitors in food tourism is growing together with interest in culture, traditions, emotions, experiences and creativity (Kiralova & Hamarneh, 2017).

Adjara is actively working in the field of tourism development in different directions in order to make the region attractive for tourists in any season of the year. Adjarian traditions, customs, dialects, folklore have made a powerful branch of the united Georgian culture:

Shuamtoba - a celebration Shuamtoba is a holiday mainly related to cattle breeding, which coincides with the middle period of being in the mountains, and that is why it is called "Mid-Mountain" where sports and cultural events are organized. Therefore, on this holiday, one have the opportunity to taste various Adjarian sweets, including: baklava, shakarlama, Burme and others.

Dinner - the ritual of bringing the dinner on Wedding party. Five specially decorated large baskets are carried by five boys on their shoulders during the middle of the wedding. They cover the wedding tables with baskets and then place them in front of the table of the bride and groom. Family members bring a dinner consisting of sweets (baklava and sugar lama) to the bride. The tradition of serving dinner was established in Adjara after conversion to Islam. However, today it doesn't matter whether the wedding is performed by a Christian or a Muslim - dinner is an integral part of any wedding. "Dinner consists of baklava and shakarlama. Standard dinner baskets contain 300 pieces of baklava and 80 sugar lamas. Today also chocolates and champagne or liquor are added. The rule is as follows: Dinner consists of five baskets. One of these baskets is a special one- it belongs to Bride- Groom, the other four belong to the guests.

New Year tradition - according to the old Adjarian tradition, before the New Year, the family has to return the items or money borrowed during the year. A few hours before the arrival of the New Year, a ram decorated with colorful things is brought into the living room, which is considered a symbol of high income and luck. At 12 o'clock at night, as a sign of the continuation of life and joy, the man would go outside and shoot a gun in the air. New Year's table is full of traditional Adjarian dishes: kharcho, halwa, walnut-honey cake and the necessary attribute of the Adjarian New Year's table - boiled corn. "When corn increases in volume during cooking, it is associated with an increase in the family, this tradition has been preserved in the villages of Adjara to this day.

Marriage tradition - the most common form of marriage was a transaction. As a rule, parents of the girl and the boy participated in the transaction. Great attention was paid to family origin, wealth and honesty. The marriage was settled by a mediator. As a rule, in old days they mostly got married in such a way that the girl and the boy did not know each other. Their meeting was on the wedding day. A number of similar stories have been preserved in the cultural center of Kedi. This is what Lamara Khalvashi, who lives in the village of Kantauri, tells. "The engagement took place without the girl and the boy knowing each other. They got to know each other after the wedding. They had the wedding at night. If it was far, the bride was brought on a decorated horse, if it was close - on foot. The bride had a chador wrapped around her face. Groom had a fecha (mask) over his mouth so that no one could see him. The bride was accompanied by two dades (best men). They protected the bride so no one could see them. They used to bring her to the yard, call the mother-in-law and sang: "Mother-in-law, look out, we've brought you the daughter-in-law to your house, if you look with your eyes, the dog will break your bone." A not so common form of marriage was the so-called "sit down". If a woman liked a boy, she would get up, sneak out of the house, go to the boy's family and get married. The boy had the right to take her back. This was considered a great shame for a woman. That is why a matchmaker was involved in such a case. Matchmaker was called "Jazi Nene" in Adjara. It was through her that the relationship between man and woman was resolved. In ancient weddings, a competition was often held between the brides and grooms accompanying men in dancing, singing, poems, riddles and proverbs.

Unique events are designed in various regions of Georgia getting together authentic food, wine and folklore of local heritage. Important measures are required to keep the traditions alive and enrich the culture.

"As competition between tourism destinations increases, local culture is becoming an increasingly important source of new products and activities to attract and amuse tourists. "(Richards, G. 2002). " Foreign travelers' satisfaction has a positive influence on both their intention to revisit and their intention to recommend" (Nam, J.H.; Lee,T.J.2011).

Methodology

The paper represents a way to experiment with the local cuisine in Ajara mountain areas, Georgia. The major aim of the study was to identify the inbound tourists' perception of local foods and the factors that influence local food choice of inbound tourists in Ajara region, Georgia. In order to investigate the awareness of Adjarian dishes in Adjara, 2 types of research were conducted:

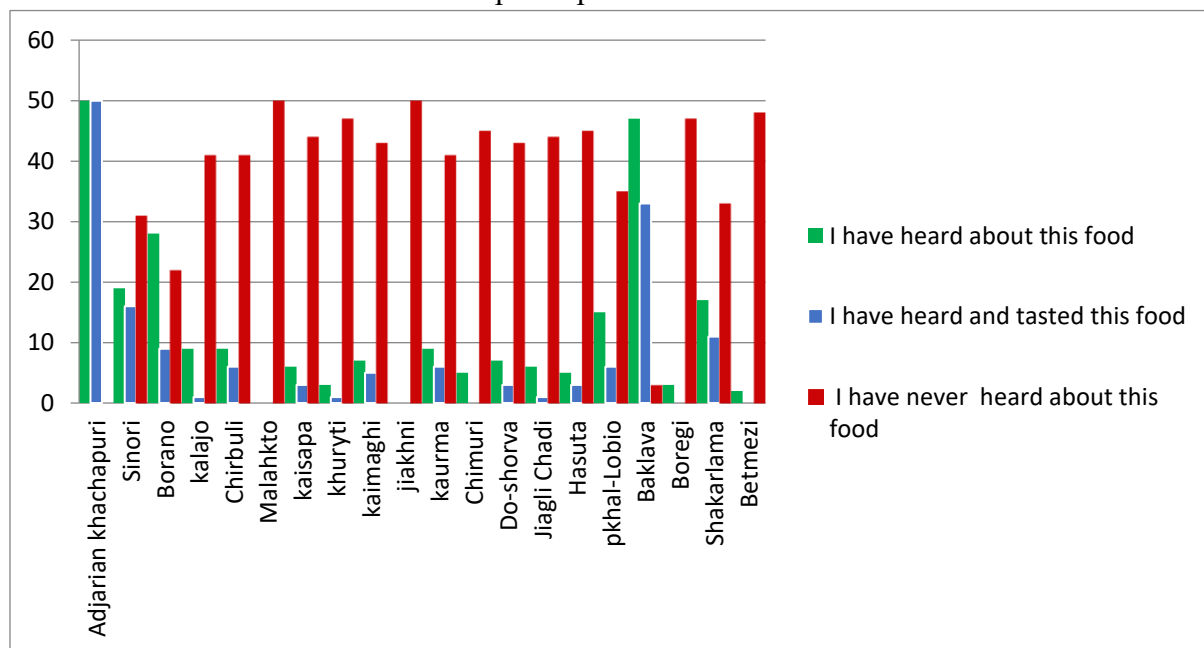
1) Studying the menus of restaurants in Adjara in order to determine whether Adjarian dishes are prepared and whether Adjarian restaurants promote Adjarian dishes.

2) Surveying the inbound tourists. The questionnaire listed 20 (out of 70) of the traditional Adjarian dishes prepared in restaurants. They had to correctly circle the blank: a) I have heard about this dish; b) I have heard and tasted; c) Never heard of this dish.

Primary data were collected from 76 tourists who visited Ajara by distributing questionnaires, besides, in-depth interview method was applied to gather data from 45 local food vendors. Quantitative and qualitative data were applied to thematic and descriptive analysis.

Results

The questionnaire mentions 20 traditional Adjarian dishes. The green column indicates the number of respondents who have heard of the dishes listed above. For example: Adjarian khachapuri is familiar to everyone, all 76 have heard about this dish. The blue column shows the number of tourists who have not only heard of but also tasted the dish. For example: 76 out of 76 tourists have heard of Adjarian khachapuri and have tasted it. And finally, the red column shows the number of dishes that the participants have neither heard of nor tasted.



- Out of 70 Adjarian dishes, only 30 are prepared in the restaurants of Batumi and high-mountainous Adjara.

- Only 42% of Adjarian dishes are prepared in Adjarian restaurants. The rest of the dishes are completely unknown to the public and are lost.

Conclusions

Based on the outcome, local food has great potential to promote gastronomy tourism.

The study has proven that variety of local food in mountainous region of Ajara is diverse.

Moreover, the study showed that tourists were willing to taste healthy authentic local food. Therefore, this study investigates the vendors' perception on local food as a tourism product and tourist's intention specifically on Ajara mountain region, Georgia.

Ensuring the constant growth of the quality of life and social condition of the rural population of Georgia, gastronomy tourism should be based on:

1. Diversification of the rural economy by strengthening the agricultural value chain and developing sustainable non-agricultural sectors
2. Development of rural specificity and unique cultural identity.
3. Government involvement in promotion of local food whereas a strategic marketing campaign could be used to bring traditional local food to the international level; Restaurant's environment should be familiar to international tourists while maintaining the authentic features of the restaurants.

Gastronomy tourism has emerged as an indispensable resource, adding value and providing a solution to an increasingly pressing need for destinations to stand out amongst homogenous tourist offers by putting forward authentic products. (UNTWO, Second Global Report on Gastronomy Tourism, 2017, v. 16). Therefore, Food Heritage can help to achieve the UN Sustainable Development Goals.

New stakeholders are increasingly involved and looking forward to develop cross-sectoral and trans-regional collaborations in order to generate innovative agro-food products and services (Cavicchi & Stancova, 2016).

References:

1. Agriculture and Rural Development Strategy of Georgia 2021-2027, www. Mepa.gov.ge, December,2019
2. Cavicchi A., Stancova K.,C., Food and gastronomy as elements of regional innovation strategies, DOI: [10.2791/284013](https://doi.org/10.2791/284013), Report number: JRC99987., 2016
3. Carlsen J., Charters S. (Eds.). (2006). *Global wine tourism: Research, management and marketing*. Wallingford, England: CABI
4. Charters S., Ali-Knight J. (2000). Wine tourism: A thirst for knowledge? *International Journal of Wine Marketing*, 12(3), 70-80.
5. Crouch, G.I.; Richie, J.R.B. Tourism, competitiveness, and societal prosperity. *J. Bus. Res.* 1999, 44, 137–152. [[CrossRef](#)]
6. Cohen, E.; Avieli, N. Food in tourism: Attraction and Impediment. *Ann. Tour. Res.* 2004, 31, 755–778.[[CrossRef](#)]
7. Getz D., Robinson R., Andersson t., Vujicic S ., Goodfellow Publishers Limited, Sep 30, 2014 - Business & Economics - 256 p.
8. Harrington, R.J.; Ottenbacher, M.C. Culinary tourism: A case study of the gastronomic capital. *J. Culin.Sci. Technol.* 2010, 8, 14–32. [[CrossRef](#)]
9. Ignatov, E.; Smith, S. Segmenting Canadian Culinary Tourists. *Curr. Issues Tour.* 2006, 9, 235–255. [[CrossRef](#)]
10. Kiralova A., Mamarneh I., Local gastronomy as a prerequisite of food tourism development in the Czech Republic., **Marketing and Management of Innovations.**,

DOI: [10.21272/mmi.2017.2-01](https://doi.org/10.21272/mmi.2017.2-01), 2017

11. Lee, K.H., Scott, N. Food tourism reviewed using the paradigm funnel approach. *J. Culin. Sci. Technol.* 2015, 13, 95–115. [[CrossRef](#)]
12. Marzo-Navarro, M. (2017). Desarrollo del turismo rural integrado desde la perspectiva de los residentes: modelo propuesto. *PASOS* 15, 841–859. doi: 10.25145/j.pasos.2017.15.057
13. Mitchell, R., Hall, C.M. Wine tourism research: the state of play. *Tour. Rev. Int.* 2006, 9, 307–332. [[CrossRef](#)]
14. Nam, J.H., Lee, T.J. Foreign travelers' satisfaction with traditional Korean restaurants. *Int. J. Hosp. Manag.* 2011, 30, 982–989. [[CrossRef](#)]
15. Richards, G. Gastronomy: An essential ingredient in tourism production and consumption? In *Tourism and Gastronomy*; Hjalager, A.M., Richards, G., Eds.; Routledge: London, UK, 2002; pp. 3–20.
16. World Tourism Organization (UNTWO), *Second Global Report on Gastronomy Tourism*, Madrid, Spain , 2017
17. World Tourism Organization (UNWTO) (2021). *Tourism and the Sustainable Development Goals*. Available online at: <https://www.e-unwto.org/doi/epdf/10.18111/9789284419401> (accessed May 3, 2021).

Aspects of Sustainability: Regional Tourism and Opportunities of Highland Adjara

by Nana Akhalaia¹, Sani Inauri²

Abstract

Sustainable development as a targeted, long-term, complex and synergistic process affects all aspects of our lives, institutional, local, regional and global. The term "sustainability" is related to such events or processes, when as a result of changes, the modern level of social development does not change, the ability to resist is not lost, the reliability of social events and processes is not violated. It means, first of all, the arrangement of natural or public events and processes, which does not disturb the existing balance in space and time. The current issues of sustainable development of tourism were first mentioned in the document adopted by the United Nations in 2000, which is dedicated to the strategic goals and objectives of poverty reduction. The essence of tourism and its role are discussed in the directions of the mentioned document, which are dedicated to overcoming hunger and poverty, protecting women's rights and promoting equality, ensuring ecological sustainability and global cooperation in sustainable development. Later (in 2004), the United Nations World Tourism Organization (UNWTO) and the United Nations Development Program (UNDP) issued guidelines defining tourism policies.

Tourism is a growing industry, distinguished by its complexity, popularity and multifaceted connections with the environment. The concept of sustainable development of tourism takes into account:

- o To align the interests of tourism development with the requirements of future generations
- o Interests of tourism, local business, population, administration and other interested parties
- o The connection of tourism development with the sustainable development of the environment (taking into account the interests of the development of its constituent parts – natural, anthropogenic and natural-anthropogenic)

¹ Gori State University, akhalaia.n@gmail.com, <https://orcid.org/0000-0002-9372-0562>

² Student of BTU, inaurisani@gmail.com

o Interrelated system of sustainable development of tourism and environment (impact of the sector on geographical systems and impact of the environment on tourism development).

According to the "Making Tourism More Sustainable" guide published by UNEP and UNWTO, there is an agenda that promotes the achievement of more sustainable tourism with two essential and inseparable components: First - the possibility of tourism to continue its activity in the future and provide appropriate conditions for it and Second - the ability of society and the environment to absorb and benefit from the impacts of tourism in a sustainable way. Based on these two points, of the twelve goals, the implementation of which will ensure progress towards more sustainable tourism is very important: Minimize the negative impact of the tourism industry on environmental, socio-cultural and economic aspects and maximize the positive contribution of the tourism industry to local residents and visitors by protecting natural resources and cultural heritage. The principles of sustainability refer to the ecological, economic and socio-cultural aspects of tourism development and an appropriate balance must be struck between these three dimensions to guarantee its long-term sustainability. Sustainable tourism seeks to maintain the quantity, quality and productivity of both natural and human resource systems in a dynamic manner.

People have been living, doing business, creating culture and customs in the mountains for thousands of years. Georgia's unique culture, historical and architectural monuments, pleasant climate, geographical location, famous hospitality form the components of the infrastructure that is the basis for the development of sustainable tourism. The establishment of a sustainable tourism industry in the regions is becoming especially relevant. Selection of the optimal strategy for the sustainable development of regional tourism.

Sustainable tourism is crucial especially in environmentally sensitive regions. The mountains are still distinguished by a healthy ecological environment, great fresh water resources, biological and landscape diversity, endemic species of cultural and natural vegetation, unique and interesting forms of agriculture, architecture, ethnocultural. The mountainous, peripheral regions of Georgia are far from economic centers or isolated geographically, economically and politically. They have traditionally relied on the extraction of natural resources through industries such as mining, agriculture, fishing or forestry.

The main goal of the paper is to explain the aspects and possibilities of regional tourism sustainability in the highlands of Adjara. Data for the study was collected from secondary sources.

The specific advantage of the mountainous Adjara region contributes to the development of sustainable tourism in the mountain area. With its natural resources, Georgia in particular the mountainous Adjara, can compete with developed countries in terms of tourism. The region of the Autonomous Republic of Adjara in addition to the sea resort, has a great potential for the development of mountain and ski resorts. In recent years, the development of mining resorts has started in the mountainous Ajara. They have both therapeutic-recreational and entertainment purposes and they are provided for all four seasons of the year. The development of sustainable tourism in the mountain regions of the Adjara provides a good opportunity for improving the economic and social conditions of the region, which can maintain a high level of tourist satisfaction and provide a meaningful tourist experience to raise their awareness of sustainability issues and to

promote among them the practice of sustainable tourism, which finds its expression in raising the standard of living of the local population.

Creating sustainable regional tourism means taking into account all needs and influencing factors, as well as the planning, development and implementation of a comprehensive system that will be the basis for the continuous improvement of all types of tourism. Based on this, sustainable tourism can be defined as tourism that fully considers its current and future economic, social and environmental impacts, meeting the needs of visitors, industry, the environment and host communities.

Key words: Sustainable Development, Regional Tourism, Aspects of Sustainability, Possibilities of Sustainable tourism of Highland Adjara

Introduction

Regional sustainable tourism refers to the implementation of sustainability principles in the tourism sector. Sustainable development plays a crucial role in ensuring the prosperity and viability of regional sustainable tourism. Sustainable development of regional tourism includes environmental protection, economic, social and ecological aspects, balancing them harmoniously for long-term sustainability and growth.

Sustainable tourism will serve as a catalyst for the economic development of the mountainous Adjara region, stimulating the local economy by creating employment opportunities and supporting local businesses. The economic aspect is crucial for a tourism-dependent highland region, which requires strategies that ensure an equitable distribution of tourism benefits.

From an environmental point of view, regional sustainable tourism in the highlands of Adjara implies the wise use and management of natural resources. The environmental pillars of sustainable tourism include protecting wildlife and natural landscapes, reducing pollution and waste, and promoting the use of sustainable energy sources.

This requires the implementation of strict environmental management systems that monitor and reduce the ecological footprint of tourism activities. Regions that prioritize environmental sustainability not only contribute to global conservation efforts, but also enhance their attractiveness as tourist destinations, using their natural environments as key assets.

Social sustainability of regional sustainable tourism in highland Adjara involves ensuring that the development of sustainable tourism in the region contributes to the well-being of local communities, cultural exchange and mutual respect between tourists and host communities, preservation of cultural heritage and ensuring that tourism does not lead to social exploitation.

Social sustainability also involves providing educational opportunities related to cultural and environmental awareness for both visitors and locals, which will promote a deeper understanding and appreciation of the region's heritage and natural resources.

The role of sustainable development in regional tourism is multifaceted and irreplaceable. By adopting sustainable practices, a region can not only preserve its natural and cultural values, but also ensure the economic and social well-being of its population.

Theoretical Background of Tourism Sustainability

The term "sustainability" is related to such events or processes, when as a result of changes, the modern level of social development does not change, the ability to resist is not lost, the reliability of social events and processes is not violated. It means, first of all, the arrangement of natural or public events and processes, which does not disturb the existing balance in space and time.

Sustainable tourism is based on the principles of sustainable development and has a fundamental goal of making tourism more sustainable:

- o To optimally use environmental resources, which are a key element in the development of tourism, in the maintenance of essential ecological processes and contribute to the preservation of natural resources and biodiversity
- o Respect the socio-cultural authenticity of the host communities, preserve their created and living cultural heritage and traditional values, promote intercultural understanding and tolerance
- o Provide viable, long-term economic operations that deliver socio-economic benefits to all stakeholders that are equitably distributed, including stable employment and income opportunities and social services to host communities that contribute to poverty alleviation.

Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to build broad participation and consensus. Achieving sustainable tourism is a continuous process and it requires continuous monitoring of impacts, introducing necessary preventive and corrective measures if necessary.

Sustainable tourism should maintain a high level of tourist satisfaction, raise their awareness of sustainability issues, and promote sustainable tourism practices among them. Everyone involved in tourism has a great responsibility to recognize the importance of its sustainable development. Tourism has enormous power to do good. Without sustainability, tourism can not only harm communities and the environment, it can also harbor the seeds of its own destruction.

Tourist Opportunities of Mountainous Adjara

According to geographical data, 65% of the entire territory of Georgia is mountainous. The mountainous area of Georgia is divided into three main parts - eastern, western and southern mountainous area. Mountain regions in Adjara are untapped by both Georgian and foreign tourists.

With its natural resources, the Autonomous Republic of Adjara can compete with such tourist-developed countries as: France, China, Italy.

All parts of Georgia are beautiful in their own way, but Adjara is a place where sea, mountain and interesting traditions come together. Adjara is a part of ancient Kolkata, a place where every monument preserves history along with attractive artefacts. A must-see of the world, Adjara is a destination for new dates, where entertainment and relaxation are convenient at any time of the year. It has amazing flora and fauna.

Tiered humid subtropical forests and their inhabitants, sand dunes, beautiful lakes, the sea and sky-high mountains - this is what being in harmony with nature is called. There is much to see and discover in Adjara.

Adjara is a well-known, competitive tourist destination with a hospitable population, independent culture, preserved unique nature and ecologically safe environment, where a variety of tourist products and high service standards are provided throughout the year, which is a sign of sustainable economic development of the region and well-being of the population.

In Adjara, it is possible to develop such directions of mountain tourism as: eco tour, recreational tour, hiking tour, mountain tour, field tour. It is very important that tourists can visit national parks, beautiful mountainous Ajara with its nature and hospitable people, enjoy rural tourism and engage in various activities such as: animal husbandry, poultry farming, beekeeping. Here it is possible to get acquainted with the types of folk crafts: making things spun from wooden products, processing wood and stone, making musical instruments and working instruments, and weaving.

In the highland villages of Adjara, tourists have the opportunity to ride horses, fish, organize hikes, taste local dishes made from ecologically clean products, and learn about local sights.

Mountain Adjara cuisine is an integral part of the well-known Georgian traditional cuisine in the world, which is influenced by the cultural influence of Asian cuisine. The mountainous region of Adjara has a great potential for the development of mountain and ski resorts. In recent years, the infrastructural development of the mountain-ski resorts of the Autonomous Republic of Adjara has been actively started. They have both therapeutic and recreational as well as entertainment purposes and are intended for all four seasons of the year.

The following resorts of Shuakhevi and Khulo municipalities are under construction: in Shuakhevi municipality: "Gomarduli" resort, "Kedlebi", "Goderdzi" and summer resort "Beshumi" in Khulo municipality.

Beshumi is located in Khulo municipality at an altitude of 1850-1900 m above sea level. The road from Batumi to Beshumi goes through the Goderdze pass (2000-2100 m above sea level). This road is especially beautiful. The resort area is covered with a rich coniferous forest. The temperature fluctuation of Beshumi is markedly different from that of the seaside. Beshumi is a climatic resort, therefore the sun as a healing factor is of primary importance. There are hydrogen Hydrogen sulfide and iron mineral springs in Beshum, which the population uses for various diseases.

As for the Goderdze resort, it occupies a special place due to its location and climatic conditions. It is located in the Khulo municipality on the Goderdze pass, 2350 m above sea level. The resort received its first tourist in 2012, and it was officially opened in 2015. Goderdzi will serve vacationers as a mountain-climate resort in summer and autumn, and as a mountain-ski resort in the winter season. In this way, the resort can work throughout the year and will significantly contribute to the load of tourists. Alpine mountain and forest hiking, cycling and horse riding, paragliding and golf are available at the resort in summer. Currently, Goderdzi resort has two types of cable cars - 2000 meters long with open seats and 1800 meters long - with gondolas. Resort Goderdze can receive up to 700 visitors at the same time. At this stage, the resort has 6 residential cottages, each cottage is designed for 12 people, a total of 72 people will be accommodated, and 1 hotel-type cottage, which can accommodate 36 people.

Hotel "Meteo" is also operating, which is located 4 km from Goderdze pass.

Travelers to the mountainous Adjara can walk on the Chvani arched bridge, visit the X-XI century Otolta fortress, buy millet-milled corn and honey from the Chvani valley. In August, the mountain of Jvarimindor is snowy with alpine plants. It should be noted that Adjara is distinguished by the genetic resources of medicinal plants. Among wild plants, 140 species are characterized by medicinal properties. Informing the public to promote ethnobotanical traditions and phytoproducts for sustainable use. "Goderdze Fossil Forest" located in the territory of Adigeni and Khulo municipalities is of great importance due to its location and unique museum specimens of petrified trees and is included in the "Red Book" as an inorganic monument of nature. The high level of tourist impressions and satisfaction in Adjara, which sustainable tourism should provide, is facilitated by the hosting of cultural events, specifically MICE (strategic meetings, meetings, conferences, congresses and corporate events) tourism. Traditional holidays, which are held every year in different parts of Adjara, are: "Shumamtoba", "Kolkhoba", "Kedeloba", etc.

Conclusion

In conclusion, it can be said that the potential of mountainous Adjara is immeasurably large, which should be used in every way. It is necessary to carry out certain measures in order to develop the resort infrastructure more and turn it into the biggest center of mining tourism. It is worth noting the fact that

every year of the development of mining tourism is better than the previous one. Highland Adjara has the greatest potential for the development of sustainable tourism. The development of sustainable tourism in the mountain regions of Adjara will provide a good opportunity for the improvement of the economic and social conditions of the region, which will be reflected in raising the standard of living of the local population. For an economically sustainable tourism practice in the mountainous Adjara, investments should be made in local infrastructure and services, which will enable the development of local entrepreneurship and small business. The multiplier effect of local spending can significantly enhance the economic benefits of tourism in the mountainous region of Adjara.

References:

1. Mamniashvili G., “Sustainable Tourism Development in Mountainous Regions of Georgia Bakuriani and Kazbegi Case Study” Dissertation For the degree of Doctor Agriculture, Giessen 2018
2. Elizbarashvili N., Meessen H., Khoetsyan A., Meladze G., Kohler T., “Sustainable Development of Mountain Regions and Resource Management” 2018
3. Vitalishova K., Borsekova K., Blam I., “Sustainable Tourism as a Driving Force in Regional Development of Remote Regions in Siberia: an Integrated Operational Framework” 2021
4. Khositashvili M., “Adjara Tourism Industry in terms of Sustainable Development Requirements” Tbilisi 2020
5. United Nations Environment Programme, World Tourism Organization “Making Tourism More Sustainable” A Guide for Policy Makers, 2005
6. Jenkins I., Schröder R ., (Eds.) “Sustainability in Tourism” A Multidisciplinary Approach University of Applied Sciences Iserlohn, Germany, 2013
7. Beridze T. “ State Regulator of Tourism Activities Mechanisms and Regional Tourism Development Perfection Issues” Batumi, 2016
8. National Tourism Administration of Georgia “Prospects of Tourism Development in Georgia and World Experience” Tbilisi, 2016
9. 2019-2023 Strategy for the Development of Highland Settlements of Georgia
10. Agriculture and Rural Development Strategy of Georgia 2021-2027

Tourism-Led Transformation: A Comprehensive Analysis of Georgia's Renewal, Urban Development, and Institutional Reforms

by Nikoloz Siradze³

Abstract

Over the past years, Georgia has changed a lot due to its growing tourism trade. This research aims to look into how tourism links to the shifts seen in Georgia, especially looking at how it affects saving nature, city expansion, and changes in how its systems work. As the 2000s rolled in, more tourists started coming to Georgia, which changed a lot of parts of its social and economic scene. This research seeks to figure out how the business of tourism connects with efforts to keep Georgia looking good, cities and especially Batumi getting bigger, changes in how things are run in the country and how to improve them.

Keywords: Georgia tourism impact, Georgia city expansion and tourism, Sustainable tourism in Georgia, Batumi and Georgia, Sustainable transport

Introduction

This project provides a comprehensive analysis of Georgia's renewal, urban development, and institutional reforms in the context of tourism-led transformation and gives ideas and ways of improving it. It examines challenges and chances which are met by societies in developing tourism as a path for sustainable progress. By exploring the scenarios of the tourism industry and identifying important problems, this chapter aims to suggest plans that can help harness the extreme potential of tourism in Georgia in a way that is effective, efficient, reasonable, and sustainable.

Tourism as a vector of Peace

Tourism, generally acknowledged as an instrument of tranquility, promotes comprehension, endurance and respect between nations and cultures. When tourists set off for unfamiliar

³ Caucasus Tourism school, Caucasus University, nisiradze@cu.edu.ge

destinations, they come across various customs, traditions and ways of life which help them get a wider view of things and dispel stereotypes and preconceptions. This interaction helps build empathy among travelers and allows them to appreciate the diversity present in human life thus creating room for peaceful coexistence.

Intercultural dialogue and reconciliation are among key impacts that tourism has on peace. The direct contact between individuals from different backgrounds facilitated by tourism creates an avenue for substantive engagement beyond political and ideological difference. This way, people will have experienced similar things such as visiting historical sites within regions or even eating local dishes making it easier for them to connect based on humanity.

Additionally, tourism can also foster economic development and poverty reduction which are integral parts of sustainable peace. When tourism generates income and job opportunities in host communities, people are empowered and social harmony promoted. Moreover, this revenue may finance education, health facilities as well as infrastructure hence addressing underlying root causes of unrest through social justice.

Likewise, tourism has the capacity to abate environmental destruction and encourage conservation that are crucial for lasting peace and stability. Sustainable travel does prioritize on conserving natural resources and cultural heritage with an aim of protecting ecosystems as well as promoting environmental thinking. By making awareness about ecological worries as well as supporting for lives that are sustainable in nature. Tourism helps to improve a sense of collective responsibility crossing the limits of nationhood and promoting global partnership.

In summary, tourism acts as a catalyst for peace through cross-cultural understanding, economic growth, environmental protection and integration within societies. As travelers go on discovery and exploration voyages, they become peace ambassadors whose role is to link nations while ensuring that there is increased global connection and harmony with nature.

Tourism Developments in Georgia: A Focus on the City of Batumi and Its Effects

In recent years, Georgia - positioned between Europe and Asia - has become a thriving tourist target, with Batumi starting as a city of light in terms of transformation and development. The city is located on the shores of the Black Sea and this has led to major tourism developments that have had far-reaching implications in society. I want to discuss how tourism development in Batumi have affected the growth and development in terms of urbanization, economic activity, society as well as environment impacts; it will also reflect on both positive sides and negative aspects of these changes caused by rapid population growth.

Urbanization Effects

The tourism boom being witnessed in Batumi has resulted in quick urbanization that has led to the expansion and modernization of infrastructure as well as the built environment. Present-day

architectural wonders have now become part of the city rising above it such as splendid skyscrapers, luxury hotels and avant-garde cultural centers. Consequently, there has been an increase in investments concerning transport networks like airports, roads and public means of transportation so as to cater for large numbers of tourists visiting this region each year.

However, this urban transformation has also posed challenges, including gentrification and the displacement of local residents. The trend towards rising value of property within few years along with many business enterprises geared towards tourism might destroy old communities' true culture. What is more, the pressure on housing markets has led to increasing rents and lack of houses thereby aggravating the community's socio-economic disparities.

Economic Aspects

Batumi's tourism industry developed a major engine of financial growth giving push to the creation of jobs, minor businesses and attracting foreign direct investment. On outcome, millions of dollars are being brought into the local economy by travelers who visit the city every year due to its wonderful landscapes, dynamic cultural life and favorable climate. Consequently, hotels, restaurants, tour operators and gift shops have mushroomed thereby providing employment opportunities for locals and generating demand for various products and services.

Furthermore, broader economic diversification and development initiatives have been set off by tourist related development in Batumi. The city has developed as a center for, exhibitions, international conferences and events joined by world's business leaders and stakeholders. This is in addition to the administration's promise towards improving infrastructure facilities and making strategic investments aimed at making Batumi a good tourist destination while promoting sustainable economic development through targeted interferences.

In matter of these economic advantages, Batumi's necessity of tourism makes it vulnerable to external shocks like political tensions, global monetary downturns or natural disasters. Also, uneven distribution of incomes from tourism and employment opportunities can worsen income differences while increasing the gap between rich tourists and poor locals within the same economics.

Social Effects

The rapid flow of tourists and foreigners has expanded cultural relations, social diversity and cosmopolitanism in Batumi. Multiculturalism characterizes the city as observed through its cuisine, artistry and social life hence enriching impact felt by both local and international visitors. Cultural festivals, music concerts, and international events serve as platforms for intercultural dialogue and understanding, promoting tolerance and mutual respect.

However, tourism developments have also sparked social tensions and cultural conflicts particularly on issues such as identity, heritage preservation and authenticity. With Batumi undergoing rapid modernization and globalization, some residents are apprehensive that traditional values might be eroded and local culture turned into a merchandise for tourists. Moreover, certain neighborhoods being concentrated with tourism-related activities may result into social exclusion and marginalization of poor residents.

Environmental Effects

Given Batumi's ecological sensitivity and susceptibility to climate change, the environmental implications of tourism development are becoming an increasing concern for many. Obviously, this construction work has involved itself with natural habitats infringement like building large-scale resorts, entertainment complexes and amusement parks among others on the coastal wetlands, forests as well as other places rich in biodiversity. As a consequence of expanded car use, litter production together with energy consumption related to tourism activities then contribute towards pollution of both air and water, destruction of natural habitats and emission of carbon dioxide.

To address these environmental stresses, different sustainability initiatives such as eco-friendly infrastructures, waste management systems and renewable energy projects have been initiated and must be multiplied. Moreover, environmental laws along with efforts made on wildlife conservation are meant to balance out between developing tourism and conserving natural resources. Nevertheless, attaining sustainability objectives will need collaborative approach involving governments, businesses even society organizations aimed at fostering responsible tourism practices alongside environmental care.

In conclusion, different aspects of urban, economic, social, and environmental dimensions have been radically changed by tourism developments in Batumi. The tourism industry however has got positives such as; economic growth, cultural exchange and environmental conservation but also has some negatives which include; urbanization challenges, inequality and environmental degradation. For Batumi to achieve sustainable tourist development, there must be comprehensive plan that ensures economic development is aligned with social integration, cultural retention and environmental protection for generations to come.

Illustrations of Tourism Development in Georgian Regions

Georgia offers you a variety of attractions that go beyond its capital city, Tbilisi. Besides Batumi in Adjara, there are three outstanding locations that indicate the potentiality of tourism in the country: Signagi (Kakheti Region), Mestia (Svaneti Region), and Kutaisi (Imereti Region). These spots have separate features, opportunities and efforts for development contributing into the growth of tourist sector in Georgia.

Signagi – Kakheti Region

Signagi, widely known as “city of love,” is a picturesque hilltop town in the heart of Georgian wine country. This place is famous for its well-preserved medieval buildings, narrow streets made of cobblestones and breathtaking views on Alazani Valley, which altogether create an atmosphere of romance attracting those interested in tranquility and cultural exchange.

In Signagi, tourism projects aim to maintain historic character while enhancing visitor experience. The town has boutique hotels and guest houses together with its wineries that offer many types of housings and tasting experiences. Some of the cultural attractions found here include Signagi Museum and Bodbe Monastery which provide insights about their past’s history, art and spirituality.

Additionally, this small town acts as one of the gateways to Kakheti wine region where guests are encouraged to find vineyards, take part in wine tours or just taste some traditional Georgian foods. Every year the Signagi Wine Festival pays homage to winemaking and culinary customs of the area attracting lovers of good wine worldwide.

Mestia – Svaneti Region

Mestia forms a central point for Svaneti region rugged mountains with their magnificent views, old stone towers and unique Svan cultures. Situated amidst high peaks of Caucasus Range, this place proposes unspoiled environments for unexplored nature adventure like hiking, skiing and mountaineering.

In Mestia, tourism has developed around efforts to enhance accessibility, infrastructure and hospitality services; all these while maintaining integrity of the region’s culture and environment. Queen Tamar Airport construction has made it possible for people to fly to Mestia by air hence opening this area for local and foreign visitors.

Accommodation facilities are available ranging from the humble guest houses to the five-star beach hotels that can cater for all types of budgets and preferences. Cultural attractions like Mestia Museum of History and Ethnography and Svanetian Towers with a UNESCO heritage list provide knowledge about Svaneti’s traditions, arts and architectural designs.

Moreover, it acts as a launching pad for various landmarks like Ushguli community which is one of the highest settlements in Europe inhabited by people as well as Caucasus Mountain trekking trails such as Mestia to Ushguli track.

Kutaisi – Imereti Region

Kutaisi, which is being the capital of Imereti region, is a center of culture and history. This city has many archaeological sites together with religious places and natural features which make it rich in ancient and new history.

Kutaisi's historical center has been given a new lease of life through tourism expansion projects that aims to make it more attractive to guests while maintaining its architectural significance. The monuments of Bagrati Cathedral (UNESCO World Heritage site) and Gelati Monastery attracts history lovers and worshippers from all parts of the world to them.

Besides, it serves as an entrance point to various ecological sights including Prometheus Cave - a subterranean wonder that has illuminated stalactites as well as underground rivers and Sataplia - Nature Reserve featuring dinosaur footprints together with Karst landscapes respectively.

The city's hotel industry has grown in line with increased tourist numbers with accommodation options ranging from hotels to small family guest houses and eating places where one can get delicious Georgian dishes. Additionally, its strategic position as an international aviation hub makes it a worthwhile destination for those looking forward to traveling around Georgia from wine tourism in Kakheti to adventure tourism in Svaneti and cultural tourism in Imereti, these destinations are representative of Georgia's rich cultural heritage, natural landscapes, and warm reception that attracts visitors prompting them to look beyond Tbilisi for the hidden wonders of the country.

Wine tradition in Georgia and its global influence

Georgian ancient winemaking tradition is more than 8,000 years old, so it is one of the oldest wine producing countries in the world. We can find in the UNSECO's list of intangible cultural heritages the Qvevri - winemaking technique which includes keeping and fermenting wines in large buried underground clay jars that have been used by Georgian wine makers. This shows us how important wine is to the Georgian people.

Wine is an integral part of Georgian culture and is highly valued in social events, religious practices, and traditional meals. At a Georgian supra (feast), there are usually long toasts, emotional speeches, and much consumption of wine among kin and friends.

Georgian wines are known for their different grape varieties, terroirs, and winemaking styles. The country has more than five hundred local grape types which are normally used for grape wines resulting into different unique flavors. From powerful Saperavi red wines to fragrant Rkatsiteli whites among others, each Georgian wine has its own taste, texture and aroma that can appeal to anyone's taste buds.

Recently, however, the recognition and praise of Georgian wines across the globe have acted as a catalyst for the rebirth of wine production in the country. The authentic nature, complexity and individuality of Georgian wines have attracted international wine experts and lovers, leading to more export orders and consequently market demand.

Georgian winemakers have adopted modern techniques and technologies while maintaining traditional practices in order to blend innovation with heritage. They have taken place in global wine competitions and festivals where they are used to show Georgian wines to the rest of the world and shape relations with overseas traders and consumers.

Also, Georgia's unique winemaking traditions and cultural heritage have served as an inspiration for vintners and wine enthusiasts across the globe. This has resulted a fresh appreciation for natural wines across the planet.

By and large, wine tradition knows no boundaries: it unites people from different cultures and continents through their shared love for craftsmanship, terroir and bon vivantism. Making waves on the global wine scene, Georgian wines act as emissaries of Georgian culture and history, inviting everyone around to raise a glass and toast to an eternally young art- wine making time.

Developing marketing strategies for the tourism market

To grow in the Georgia's tourism market, one has to identify niche markets, customize products and experiences towards various tastes of visitors. The following are some of the potential niche markets and products for tourism in Georgia:

Niche Markets in Tourism

Adventure tourism in Georgia takes benefit of its numerous landscapes, from majestic mountains and dense forests to raging rivers. This variety offers lots of possibilities for adventurous sports including hiking, rafting, and paragliding. By concentrated on journey hunters, Georgia can role itself as a top destination for tourists around the arena looking for thrilling stories.

Cultural and Heritage Tourism: Georgia's wealthy ancient historical past with monuments and UNESCO World Heritage websites including Mtskheta and Gelati Monasteries is a delight for vacationers interested by exploring the country's beyond and traditions. This marketplace segment may be catered for via guided tours, exceptional locations and immersive reviews in traditional villages.

Eco-Tourism: Georgia's biodiversity consisting of countrywide parks, nature reserves or blanketed areas attract green tourists looking for sustainable and responsible tourism. Nature lodges, guided nature trails and wildlife tours are used to promote environmental conservation and aesthetic appreciation. Ski Tourism: During the iciness months, Gudauri and Bakuriani (Georgian alpine regions) offer best situations for skiing and snowboarding. This may be achieved through ski resorts, ski faculties and après-ski sports with a purpose to enchantment to families in search of the joys of wintry weather sports activities in snow-capped mountains.

Rural Tours: Georgia's rural areas offer possibilities for genuine reviews including homesteading, farm stays and cultural aquatic sports. It is through connecting vacationers to neighborhood communities, traditions and delicacies that significant connections may be made while additionally supporting to boost rural economies.

Food Tourism: Georgian cuisine with its delicacies and culinary traditions draws foodies interested in culinary journey experiences. To taste Georgia's culinary historical past, meals tours, cooking instructions and visits to nearby markets and vineyards are important.

MICE Tourism: Modern conference centers, inn infrastructure and handy region make Georgia an appealing destination for MICE visitors (Conventions, Promotions, Meetings and Exhibitions). Corporate customers and occasion organizers can experience advertising programs that provide such offerings as: choice of venue options and other cultural excursions.

Health and Wellness Tourism: It offers herbal mineral springs to those searching for relaxation. Spa lodges, wellbeing facilities, and clinical centers are geared to meet this want as properly. Health and wellbeing are supposed for people who are more concerned about their fitness stages while touring overseas.

Film Tourism: Due to its picturesque and ancient monuments that entice filmmakers from all corners of the sector. Facilitating the motion of movie crowds, taking walks in iconic film scenes among others could make humans together with his favored film and Hollywood addicts' journey there.

Since specific and unforgettable experiences are part of the demand for Georgian tourism, it is important to expand targeted advertising techniques for stepped forward competitiveness in these area of interest markets and for travelers the components they may be interested in.

Destination management in Georgia is an effort by public and private stakeholders to develop, promote and sustainably manage tourism destinations throughout the country Here is a look at places here's a rundown of the trips in Georgia:

Governmental Role

Policies and planning: The Georgian government works through agencies such as the Ministry of Economy and Sustainable Development and the Georgia National Tourism Administration (GNTA), frames policies and plans to guide tourism growth and destinations.

Destination Marketing: GNTA plays a significant part as a marketing hub for Georgia both locally and internationally. Marketing campaigns, promotions and input in travel trade fairs are aimed at fascinating tourists and increasing awareness of Georgia's tourism offerings.

Regulations and licensing: Government agencies establish regulations and standards for tourism businesses and services, including housings, tours, and tour operators Required certifying helps ensure quality, security, and professionalism the tourism industry.

Destination Enhancement: Invests in infrastructure projects, preservation of cultural heritage sites and environmental protection efforts to provide attractive and sustainable tourist destinations This includes developing tourist sites, interpretive centers and tourist services.

Participating Private Companies

Tourism industry: The private sector, including hotels, restaurants, tour operators and travel providers, plays an important role in managing destinations. They contribute to the development of products, service delivery and tourist experiences, and drive economic growth and employment occurs in tourist destinations.

Destination Marketing Organizations (DMOs): DMOs, usually tourist agencies, in which local government representatives and community stakeholders work together to market and promote specific destinations or destinations. These organizations implement marketing strategy's role, manage the destination brand, and plan tourism activities to maximize tourist satisfaction and economic benefits.

Community Involvement

Local Communities: Local participation in destination management is essential for sustainable tourism development. Local participation in decision-making, cultural preservation and tourism planning ensures equitable distribution of tourism benefits and respect for local values and traditions.

Sustainable manufacturing processes

Environmental Conservation: Destinations in Georgia prioritize environmental sustainability, aiming to reduce the negative impact of tourism on natural resources and natural a biodiversity. Conservation projects, waste management and environmentally friendly practices promote responsible tourism and preserve Georgia's natural beauty.

Cultural preservation: Protecting and promoting Georgia's cultural heritage is important in destination management. Designs designed to protect historical sites, traditional crafts and intangible cultural practices ensure the authenticity and authenticity of tourist experiences.

In summary, destination management in Georgia requires collaboration between government agencies, private stakeholders and local communities to develop, market and manage sustainable tourism destinations. When economic development and factors a balancing environmental protection, cultural preservation and community engagement, Georgia aims to promote vibrant and resilient tourist destinations.

Crisis management aspects in the tourism industry

Crisis management in the tourism industry includes strategies and measures to mitigate the impact of natural disasters, political conflicts, health problems or unexpected events on tourist destinations and services.

The conflict between Georgia and Russia in August 2008 intensified political tensions, military clashes and territorial disputes especially within the breakaway regions of South Ossetia and

Abkhazia with increased violence and Russian troops subsequent intervention resulting in massive displacement, damage and destruction of mainland tourist attractions.

As a result of the crisis, Georgia's tourism business suffered a severe downturn, tourist arrivals fell, registrations were cancelled, tourism-related activities and services stood disrupted negative media coverage, travel advisory and security concerns exacerbated the situation.

To answer to the crisis, the Georgian government and tourism authorities applied crisis management strategies to address the immediate challenges and care the recovery of the tourism industry.

Communication and Reporting: Participation by government agencies, tourist boards, and industry stakeholders provided tourists, travel agencies, and the media with timely and accurate information about safety conditions. Travel advice, and alternative travel options Clear communication helped reduce uncertainty and build confidence in Georgia as a tourist destination.

Safety and security measures: Increased police presence to ensure security of tourists and tourist systems, enhanced security measures including inspections and emergency response measures Joint efforts between law enforcement agencies and tourism agencies to reassure tourists and restore confidence in Georgia's security capabilities and supported

Exit markets: To reduce dependence on crisis-affected traditional source markets, Georgian tourism authorities sought to diversify their marketing efforts and attract tourists from new and it's coming up

Infrastructure Rebuilding: Prioritize investment in the restoration and renovation of flawed infrastructure. These are: roads, airports, hotels and cultural centers, they must rehabilitate tourist attractions and guarantee the renewal of tourism activities. Rehabilitation projects expected to increase the resilience and appeal of Georgia's tourist destinations.

Future Plans

Future plans for regional tourism in Georgia include a focus on sustainable transportation and the integration of environmentally friendly transportation solutions to provide options take measures to increase accessibility, reduce carbon emissions, and conserve natural resources Here are some ideas for sustainable transportation initiatives:

Promoting public transport: Improving and growing the public transport net linking main tourist attractions in the area. Invest in modern, efficient, environmentally friendly public transport such as electronic buses, trams, or hydrogen-powered cars. Encouraging visitors to use public transport with the integrated ticketing systems.

Improvement of bicycle infrastructure: Bicycle tracks, paths and rental services should be created in tourist areas to boost environmentally friendly transportation. Present bike tours, guided bikes and bike-friendly accommodation to charm cyclists and out-of-doors enthusiasts. Invest in bike

sharing programs and bike infrastructure that make cycling accessible to visitors of all ages and abilities.

Encouraging Hybrid Electric Vehicles: Boost the use of hybrid electric vehicles by providing tax incentives, grants, or bases for tourism-related businesses and guests with electric vehicle rentals major tourist destinations, hotels and attractions to support sustainable transportation everywhere.

Introduction of Eco-Friendly Transport Modes: Explore innovative and eco-friendly shipping modes which include electric powered shuttles, sun-powered motors, or biofuel-powered buses for transporting vacationers between locations. Partner with neighborhood organizations and marketers to pilot new transportation technologies and services that prioritize sustainability and environmental conservation.

Integration of Multi-Modal Transport Systems: Develop integrated transportation systems that integrate special modes of shipping, inclusive of trains, buses, ferries, and bicycles, to offer seamless connectivity between regions and tourism sights. Implement clever transportation solutions, such as real-time scheduling, ticketing, and direction planning apps, to beautify the ease and efficiency of multi-modal journey.

Education and Awareness Campaigns: Increase knowledge amongst tourists, neighborhood societies, and tourism sponsors about the advantages of sustainable transportation and accountable tour practices. Develop educational plans, workshops, and information campaigns for the importance of the environmental impacts of transportation and promoting eco-friendly options. Encourage visitors to reduce their carbon footprint via choosing sustainable shipping options and lowering needless travel.

Collaboration with Stakeholders: Foster collaboration between government organizations, personal quarter agencies, non-earnings organizations, and nearby communities to develop and put in force sustainable shipping initiatives. Establish partnerships to fund infrastructure initiatives, behavior studies, and endorse for policy changes that assist environmentally friendly transportation solutions.

Monitoring and Evaluation: Implement monitoring and assessment mechanisms to tune the effectiveness and impact of sustainable delivery projects on local tourism development. Collect facts on transportation utilization, carbon emissions, vacationer satisfaction, and financial benefits to inform future making plans and selection-making. Continuously verify and modify techniques to make sure the lengthy-time period sustainability and resilience of nearby tourism transport structures.

By incorporating sustainable transport principles into local tourism making plans, Georgia can create extra on hand, environmentally pleasant, and exciting journey experiences for visitors even as preserving the herbal beauty and cultural historical past of its regions for generations to return.

In conclusion, community tourism in Georgia has great potential for sustainable growth and development in the future, focused on increasing accessibility, reducing environmental impact socio-economic benefits would be maximized through strategic planning and collaboration

between government agencies, private sector stakeholders and local communities Living and flexible and can attract tourists

Key measures such as promoting public transit, developing bicycle infrastructure, encouraging the use of electric and hybrid vehicles, and integrating various transport systems are essential to achieving sustainable transport goals permanent presence and promote responsible travel practices and play an important role in training

Moreover, effective crisis management and resilience-building efforts, as demonstrated after the Georgian-Russian war crisis in 2008, highlight the importance of proactive planning, emphasizing innovation and adaptation in addressing unforeseen challenges and ensuring the long-term sustainability of the tourism industry.

By adopting sustainable travel solutions, Georgia can position itself as a leading destination for eco-friendly travelers seeking authentic, not eco-friendly, experiences encountered and memorable. By committing to a balance between economic prosperity and environmental protection and social inclusion, Georgia can set the stage for a sustainable and prosperous future for regional tourism.

References

Georgian National Tourism Administration (GNTA) (2021). Georgian tourism in figures. <https://gnta.ge/wp-content/uploads/2014/08/ENG-new.pdf>

Georgian National Tourism Administration (GNTA). *International Travel (Residence)*. <https://gnta.ge/statistics>

Curry, A. (2017). Oldest Evidence of Winemaking Discovered at 8,000-Year-Old Village. National Geographic. <https://doi.org/https://www.nationalgeographic.com/history/article/oldest-winemaking-grapes-georgia-archaeology>

Georgia Travel (n.d.). *Destinations In Georgia*. <https://georgia.travel/destinations-in-georgia>

Exploring Sustainable MICE Tourism Development Opportunities in Batumi

by Natia Surmanidze⁴, Sopiko Tevdoradze⁵, Maia Amashukeli⁶

Abstract

The notion of sustainable tourism has garnered considerable momentum in recent times as travel destinations across the globe aim to strike a balance between economic expansion and ecological and societal obligations (Dutta, 2024). In the framework of sustainable tourism practices, this article investigates the development prospects for MICE (Meetings, Incentives, Conferences, and Exhibitions) tourism in Batumi, Georgia.

The seaside city of Batumi, tucked away between the Lesser Caucasus Mountains and the Black Sea, has become a popular MICE travel destination because of its exceptional fusion of contemporary infrastructure, cultural legacy, and natural beauty. To maintain the long-term sustainability of its tourist sector, the city must address sustainable development issues and its efforts to establish itself as a top MICE destination (Nawarathna & Arachchi, 2024).

The first section of the article gives a general overview of the MICE tourism sector and how it is becoming increasingly significant in the overall tourist environment (Javed et al., 2024). The article then explores Batumi's current advantages as a possible MICE tourism destination, stressing its cutting-edge lodging choices, conference centers, and transportation network. The piece also looks at Batumi's dedication to sustainable development, as seen by its initiatives to protect the environment, advance cultural heritage, and practice responsible tourism.

Keywords: Batumi Tourism; Development Opportunities; Environmental Sustainability; Community Involvement

Introduction

⁴ Associate Professor, Scientific Worker, School of Business and Administrative Studies, The University of Georgia, Georgia, Research Fellow of the Women Researchers Council (WRC) at Azerbaijan State University of Economics (UNEC), Azerbaijan, N.surmanidze@ug.edu.ge, ORCID 0000-0003-2116-6571

⁵ Professor, School of Business and Social Sciences, Georgian International University GIU, Georgia, Sofo.tevdoradze@giu.edu.ge, ORCID 0000-0002-1668-051X

⁶ Director of the School of Business and Administrative Studies, The University of Georgia, Georgia, M.amashukeli@ug.edu.ge, ORCID 0009-0000-8466-379X

To promote sustainable MICE tourist development, the paper highlights key areas where Batumi may harness its assets, drawing on case studies and best practices from other MICE tourism destinations. These include programs to reduce the adverse effects on the environment, improve community involvement, and advance regional heritage and culture (Salman et al., 2024). The article also examines how local communities, commercial companies, and government organizations may sustainably support MICE tourism development in Batumi.

The article also addresses the possible social, cultural, and economic advantages of sustainable MICE travel for Batumi, highlighting the significance of an all-encompassing strategy that considers the present and future requirements. By adopting sustainable practices, Batumi can help ensure that its natural and cultural assets are preserved for future generations, in addition to drawing MICE tourists looking for ethical and responsible travel experiences.

The paper concludes by highlighting Batumi's enormous potential as a sustainable MICE tourism destination and offering suggestions for stakeholders to take advantage of this chance. By prioritizing sustainability in its tourism development plans, Batumi can attract more MICE travelers and set an example for other places looking to balance environmental preservation and tourism growth.

The growing prominence of MICE (Meetings, Incentives, Conferences, and Exhibitions) tourism in the modern global tourism environment and the growing focus on sustainable practices underscores a crucial intersection in the industry (Mahmud et al., 2024). Batumi, situated at the confluence of the Lesser Caucasus Mountains and the Black Sea, is a viable venue for developing sustainable MICE tourism. As travel destinations across the globe struggle to strike a balance between economic expansion and social and environmental responsibility, it is critical to comprehend and improve sustainable MICE tourism.

This study is significant because it addresses the pressing need for sustainable development in the MICE tourism sector in Batumi's tourism industry. Even while the city has much potential as a conference and event destination, there is a serious question about how long these initiatives can last. The study aims to close the gap between Batumi's ambition to become a premier MICE tourism destination and the need to preserve its natural and cultural resources for coming generations.

Fundamentally, this study explores participant perspectives, environmental effect awareness, and community engagement during MICE events in Batumi to decipher the intricacies of sustainable MICE tourism. Through a quantitative lens, these elements are carefully investigated to provide valuable insights and ideas to improve the sustainability of MICE tourist practices in Batumi.

The issue arises from the possible clash between Batumi's desire to become a well-known MICE destination and its ecological and cultural heritage, which should coexist peacefully. This study aims to clarify this intricate relationship and offer workable solutions that maintain sustainability while guaranteeing economic growth. The results of this study have the potential to positively impact not only Batumi's immediate growth but also the global conversation on sustainable tourism practices in places facing comparable difficulties. Therefore, the results will reference all parties

promoting a sustainable and prosperous MICE tourist industry in Batumi, including local communities, enterprises, and governmental entities.

Hypotheses:

H1: There is a positive correlation between participants' awareness of the environmental impact of MICE events and their overall satisfaction with the experience.

H2: Higher levels of community engagement during MICE events are associated with a more positive perception of Batumi as a sustainable MICE tourism destination.

Research Questions:

RQ1: To what extent are participants aware of the environmental impact of MICE events in Batumi, and how does this awareness influence their overall satisfaction?

RQ2: How does community engagement during MICE events in Batumi contribute to the perception of the city as a sustainable MICE tourism destination?

Literature Review

Business tourism is a result of the development of the global economy. It was founded in the United States of America, and since 1980, it has spread to developed countries in Europe and Asia, including Japan, Singapore, and China. The impact of business tourism on the development of the world economy, culture, and social sphere is excellent. Its share is 8% of exports and 31% of the service market. It unites 30 different industries.

MICE tourism refers to a specialized niche within the broader tourism industry focusing on Meetings, Incentives, Conferences, and Exhibitions or Events. This segment caters to

individuals and groups traveling for business purposes, including corporate meetings, conferences, incentive trips, trade shows, and exhibitions. MICE tourism is characterized by organized and structured events that bring together professionals, industry experts, and stakeholders to exchange knowledge, network, and collaborate. Meetings: Meetings in MICE tourism can range from small business gatherings to large-scale corporate assemblies. These events provide a platform for discussions, decision-making, and information exchange. Incentives: Incentive travel involves rewarding employees, partners, or clients with travel experiences as a motivational tool. Incentive trips often include luxurious accommodations, recreational activities, and cultural experiences. Conferences: Conferences gather individuals with shared interests or professions to discuss specific topics, share research findings, and engage in professional development. Conferences can vary in size and scope, ranging from local meetings to international conventions. Exhibitions or Events: Exhibitions involve showcasing products, services, or innovations within a specific industry. Events encompass a broad category, including product launches, trade shows, and other organized gatherings.

Considering international trends in the development of the MICE industry, the leading players in developed countries are regional cities and not capital cities: Frankfurt, Cologne, Lyon, Vancouver,

and Shanghai. In Georgia, Tbilisi should give the arena to Batumi and Kutaisi, Telavi, Akhalkalaki, and Zugdidi. According to experts, the most promising field will be INCENTIVE tours. An increase in competition is expected, and therefore, prices are constantly changed in favor of the client. Also, reducing the business part and expanding the social-cognitive component

It can be said that an increase in the demand for the MICE industry in Georgia is expected considering several factors, including visa-free access to 96 countries, convenient logistics with European, Middle Eastern, and Asian countries, short distances within the country, unique cuisine/wine and rich natural and cultural resources. In order to facilitate the development of the industry, it is necessary to increase the awareness of the country in the target markets, the abundance of world hotel chains, exhibition, conference, and banquet spaces; Proper infrastructure between cities; development of airports, stations and transport network, hygiene points on highways; State sector support (National Tourism Administration/Convention and Exhibition Bureau of Georgia).

The global Meetings, Incentives, Conferences, and Exhibitions (MICE) tourism industry is a thriving sector contributing substantially to the global economy. Valued at \$805.9 billion in 2019, this industry is forecasted to grow to \$1,439.3 billion by 2027, indicating a robust compound annual growth rate (CAGR) of 7.6% (Grand et al., 2020). Notably, the United States stands out as a critical player in this industry, with the meetings sector alone contributing over \$1 trillion annually to the country's GDP (Events et al., 2020). It underscores the significant economic impact of MICE tourism on a national scale.

Moreover, the MICE tourism sector is a significant employer worldwide, providing employment opportunities for millions of individuals. For instance, the meetings industry employs over 2.5 million in Europe, highlighting its role as a vital source of job creation (European et al., 2019). It demonstrates how MICE tourism drives economic growth, supports livelihoods, and sustains communities.

While leisure travel often dominates headlines, business travel, including MICE tourism, constitutes a substantial portion of global travel activity. In 2018, business travel spending worldwide amounted to approximately \$1.43 trillion, compared to \$5.29 trillion spent on leisure travel. This signifies the significant financial impact of corporate events, conferences, and exhibitions (Statista, 2021). It underscores the importance of MICE tourism in driving revenue and stimulating economic activity.

In addition to economic considerations, sustainability has become a key focus area within the MICE tourism sector. With 57% of convention bureaus worldwide implementing sustainability strategies, there is a growing commitment to environmental and social responsibility within the industry (ICCA, 2020). It reflects a broader trend towards responsible tourism practices and underscores the importance of minimizing the environmental footprint of MICE events.

Furthermore, technology adoption is revolutionizing the MICE tourism experience, offering innovative solutions for event planning and execution. Virtual and augmented reality, mobile apps,

and other digital tools are increasingly prevalent, enhancing participant engagement and interaction (MPI, 2021). As technology continues to evolve, it presents exciting opportunities for enhancing the attendee experience and driving more excellent value from MICE events.

Overall, the MICE tourism industry's significant economic contributions, regional growth trends, sustainability initiatives, and technological advancements collectively underscore its importance as a global tourism and economic development driver.

Batumi's strategic location between the Lesser Caucasus Mountains and the Black Sea, coupled with its contemporary infrastructure, cultural richness, and natural beauty, has positioned it as an attractive destination for MICE tourism. The city's commitment to sustainable development, as evident in its environmental conservation initiatives and support for cultural heritage, adds a distinctive layer to its potential as a sustainable MICE tourism destination (Nawarathna & Arachchi, 2024).

While Batumi holds promise as a premier MICE tourism destination, the tension between its ambitions for economic growth and the imperative to safeguard its ecological and cultural heritage raises essential questions about the long-term viability of such initiatives. Balancing these interests necessitates a nuanced understanding of the challenges and opportunities inherent in sustainable MICE tourism development.

A study by Smith and Jones (2018) investigated the environmental impact of MICE events in different destinations, emphasizing the importance of comprehensive environmental impact assessments. The research highlighted that sustainable MICE tourism requires effective strategies to minimize resource consumption, waste generation, and ecological footprint. Batumi can benefit from adopting environmentally friendly practices in event planning and execution.

Gupta and Sharma (2020) researched the social impact of MICE events, emphasizing the role of community engagement in sustainable tourism development. The study suggested that involving local communities in the planning and executing MICE events fosters positive social outcomes. For Batumi, incorporating community perspectives and addressing local needs can enhance the city's social sustainability.

Zhang and Chen (2019) explored the integration of cultural heritage preservation in MICE tourism destinations. The research emphasized the need for MICE destinations to balance hosting modern events and preserving cultural heritage. For Batumi, this means integrating its cultural richness into event planning and promotion, ensuring that cultural heritage remains a focal point.

A comprehensive study by Sustainable Tourism Solutions (2021) focused on identifying effective strategies for promoting sustainable MICE tourism development. The research outlined vital strategies, including implementing eco-friendly infrastructure, stakeholder collaboration, and establishing clear guidelines for sustainable event planning. Batumi can benefit from adopting these strategies to enhance its appeal as a sustainable MICE destination.

Patel et al. (2022) surveyed to understand tourist preferences and attitudes toward sustainable MICE experiences. The study highlighted that MICE tourists are increasingly seeking destinations

that prioritize sustainability. Batumi can leverage this trend by promoting its commitment to sustainability in marketing and attracting environmentally conscious MICE travelers.

Growth and Transformation: The MICE tourism sector in Georgia, particularly in Tbilisi and Batumi, has experienced growth and transformation despite the challenges posed by the COVID-19 pandemic. The study highlights resilience in the face of adversity, with Georgia's proactive measures and evolving infrastructure contributing to its competitiveness in the global MICE tourism industry.

Economic Recovery: Georgia's tourism sector showed rapid recovery post-pandemic, with international visitor travel reaching 78% of pre-pandemic levels in the first half of 2023. There was also a notable increase in international visitors, exceeding 2.5 million visits and increasing by 76% compared to the same period in 2022. Strategic investments in hosting and event facilities contribute to positioning Georgia as a promising destination for business events and conferences.

Infrastructure Development: The study highlights Georgia's goal of enhancing its MICE tourism infrastructure by introducing 15 international brand hotels in Tbilisi. Collectively, these would add significant event spaces and accommodation capacity. The emergence of a self-organized chain of hotel brands in Tbilisi and Batumi underscores the development potential of the MICE sector in these cities.

Urbanization and Concentration: Tbilisi and Batumi are identified as primary urban areas driving the growth of the MICE sector in Georgia. These cities have witnessed extensive development, particularly in constructing high-rise hotels, apartments, and office spaces. The concentration of business tourism in urban areas underscores the significance of Tbilisi and Batumi as critical destinations for business travelers.

Attractions and Accessibility: Georgia's appeal as a MICE destination rests on various factors, including a substantial supply of high-end internationally branded hotels, a safe environment, visa-free access to over 100 countries, and direct flights to multiple destinations. The diverse attractions and a business-friendly environment contribute to Georgia's attractiveness for international events and conferences.

Overall, the study emphasizes Georgia's emergence as a competitive player in the global MICE tourism industry, with Tbilisi and Batumi playing pivotal roles in driving growth and development. The findings underscore the importance of strategic investments in infrastructure and the promotion of Georgia as an attractive destination for business events and conferences.

This study adopts a theoretical framework grounded in the principles of sustainable tourism, community engagement, and environmental impact awareness to explore the intricacies of MICE tourism in Batumi. The Triple Bottom Line (TBL) theory, encompassing economic, environmental, and social dimensions, provides a foundational perspective for evaluating the sustainability of MICE tourism initiatives (Salman et al., 2024).

Economic Bottom Line: This is the traditional measure of profitability and financial performance. It assesses the economic value a business generates regarding revenue, profit, and return on

investment. Elkington argued that economic success should not solely indicate an organization's overall performance.

Environmental Bottom Line: This aspect considers an organization's impact on the environment. It involves assessing resource use, energy consumption, waste generation, and other ecological factors. The goal is encouraging businesses to adopt sustainable practices and minimize their environmental footprint.

Social Bottom Line: The social bottom line focuses on an organization's impact on society. This includes aspects such as corporate social responsibility, community engagement, employee well-being, and ethical business practices. Organizations are encouraged to contribute positively to the communities in which they operate.

Sustainable tourism development emphasizes the integration of economic, environmental, and socio-cultural considerations to ensure that tourism activities do not compromise the well-being of present and future generations (Dutta, 2024). In the context of MICE tourism, this framework guides the exploration of Batumi's potential by assessing the economic benefits, environmental impacts, and social implications of hosting conferences, events, and exhibitions.

Community-based tourism and participatory approaches are integral to the theoretical framework, emphasizing the importance of involving local communities in decision-making processes and ensuring their active engagement in MICE events. This aligns with the notion that sustainable tourism should contribute to community well-being, foster cultural preservation, and promote social inclusivity (Salman et al., 2024).

Environmental impact awareness is another crucial element, acknowledging the potential ecological consequences of large-scale events. By understanding participant perceptions of these impacts, the study aims to inform strategies that mitigate adverse effects and enhance the overall sustainability of MICE tourism in Batumi.

Through the convergence of these theoretical perspectives, the study aims to provide a comprehensive analysis of the development opportunities for sustainable MICE tourism in Batumi, shedding light on the potential benefits and challenges associated with balancing economic growth and ecological-cultural preservation in a MICE tourism context.

Research Design

This study adopts a quantitative research design to investigate the development opportunities for sustainable MICE tourism in Batumi. The research design includes the administration of a structured questionnaire, enabling the collection of quantitative data from participants involved in or influencing MICE tourism in Batumi.

Population and Sampling

The target population for this study consists of individuals involved in or influencing sustainable MICE tourism in Batumi. The study explicitly focused on participants, organizers, and local

stakeholders. A purposive sampling technique was employed to ensure a representative sample, specifically selecting participants from various large companies in Georgia that actively utilize MICE tourism in their business activities.

Four hundred ninety-eight respondents were interviewed, representing a diverse range of industries and sectors within Georgia. These respondents were selected based on their direct involvement or influence in MICE tourism activities, ensuring that the sample accurately reflects critical industry stakeholders' perspectives and experiences.

This sampling approach targeted individuals from prominent Georgian companies to capture a comprehensive understanding of sustainable MICE tourism practices in Batumi, leveraging the insights and expertise of those directly engaged in the industry.

Questionnaire Design

The structured questionnaire consists of four sections focusing on the participants' perceptions of sustainable practices in MICE tourism. Questions cover environmental impact awareness, community engagement, and the role of local culture and heritage. They are designed to elicit quantitative responses for efficient analysis.

Data Analysis

In the data analysis phase, the collected responses from the 498 respondents were subjected to statistical analysis using IBM SPSS Statistics software. Descriptive statistics, such as means, standard deviations, and frequencies, were computed to summarize the characteristics of the sample and critical variables. To test the hypotheses, Pearson correlation coefficient analysis was conducted to examine the relationship between participants' awareness of the environmental impact of MICE events and their overall satisfaction with the experience. Additionally, multiple linear regression analysis was performed to explore the association between community engagement during MICE events and the perception of Batumi as a sustainable MICE tourism destination. These statistical methods allowed for a rigorous examination of the research hypotheses and provided valuable insights into the factors influencing sustainable MICE tourism in Batumi.

Results and discussion

The respondents, predominantly female across various age brackets, primarily comprised mid or high-level managers, with a notable absence of male respondents in the 26-35 age range. Self-employed individuals also contributed significantly to the survey. Interestingly, there were fewer low-level managers among the respondents. Most participants indicated employment in large organizations, defined as those with over 500 workers, spanning diverse economic sectors. Furthermore, MICE (Meetings, Incentives, Conferences, and Exhibitions) tourism was prevalent among this demographic, reflecting a range of professional backgrounds and interests within the surveyed population.

The responses to the question regarding awareness of the environmental impact of MICE events in Batumi reveal a range of levels of awareness among the participants. Of the responses, 56% indicated being somewhat aware, while 24% claimed to be moderately aware. On the other hand, 20% of the respondents stated that they were unaware of the environmental impact. The findings suggest a substantial level of awareness among the respondents regarding the environmental impact of MICE events in Batumi, with a majority falling under the category of somewhat aware. However, it is noteworthy that a significant portion of the respondents still need more awareness in this regard. It highlights the need for increased education and information dissemination regarding the environmental implications of MICE tourism in Batumi. Efforts to enhance awareness and promote sustainable practices within the MICE industry could minimize adverse environmental impacts and foster more excellent environmental stewardship among stakeholders.

In Batumi, MICE events have embraced sustainability through various initiatives. Adopting paperless or digital event materials has significantly reduced paper usage, minimizing environmental impact and promoting efficiency. Waste reduction and recycling initiatives have been implemented to manage waste responsibly, diverting materials from landfills and fostering a circular economy. Additionally, implementing carbon offsetting programs, such as tree planting, underscores a commitment to mitigating the events' carbon footprint. Engaging with local communities for event planning and execution ensures cultural sensitivity and community involvement, enhancing the overall event experience. Energy-efficient lighting and equipment usage contribute to reduced energy consumption and greenhouse gas emissions, aligning with environmental goals. Lastly, water conservation measures promote responsible water management, emphasizing sustainability across all aspects of MICE events in Batumi.

Adoption of paperless or digital event materials: Adopting paperless or digital event materials was observed as a sustainable practice during MICE events in Batumi. This initiative significantly reduces paper usage, leading to less environmental impact through reduced deforestation and energy consumption associated with paper production and transportation. Waste reduction and recycling initiatives: Several waste reduction and recycling initiatives were implemented during MICE events in Batumi. These initiatives aim to minimize the amount of waste generated during events and promote recycling practices to divert waste from landfills, contributing to a more sustainable environment. Implementation of carbon offsetting programs: Some MICE events in Batumi implemented carbon offsetting programs, such as planting trees, to mitigate the carbon footprint associated with the events. By investing in these programs, event organizers aim to balance the carbon emissions produced during the events, thus contributing to global efforts to combat climate change. Engagement with local communities: A notable effort was to engage with local communities in Batumi for event planning and execution. Collaborating with local stakeholders fosters community involvement and support and ensures that events are culturally sensitive and aligned with local priorities and sustainability goals. Energy-efficient lighting and equipment usage: Energy-efficient lighting and equipment usage were observed as part of sustainable practices during MICE events in Batumi. Utilizing energy-efficient technologies helps reduce energy consumption and greenhouse gas emissions, contributing to environmental sustainability and cost savings for event organizers. Water conservation measures: Water

conservation measures were implemented during MICE events in Batumi to minimize water usage and promote responsible water management practices. These measures include using water-saving fixtures, recycling water where possible, and raising awareness about the importance of water conservation among event attendees.

The level of community engagement during MICE events in Batumi appears to vary, with responses indicating a mixture of moderate and low levels. While the local community may have some degree of involvement, it is not consistently high across all events. Communication strategies, event planning processes, and community outreach efforts may influence the level of engagement observed. Further investigation into specific initiatives and their effectiveness in fostering community involvement would provide valuable insights into enhancing community engagement during MICE events in Batumi.

In response to the question, "Do you believe that involving local communities in MICE event planning positively impacts the overall experience?" the results indicate that a significant majority of respondents hold positive views regarding the involvement of local communities in MICE event planning. Two hundred sixty respondents (52%) strongly agree that involving local communities positively impacts the overall experience, while another 220 respondents (44%) agree. A smaller proportion of respondents, comprising 30 individuals (6%), express a neutral stance on the matter. These findings suggest a strong consensus among the surveyed individuals regarding the positive influence of community involvement in MICE event planning. Such support underscores the importance of engaging local communities as valuable stakeholders in the planning and executing of MICE events, potentially leading to more successful and impactful outcomes.

The statistical analysis indicates a predominantly positive perception regarding the impact of involving local communities in MICE event planning in Batumi. Four hundred eighty respondents either strongly agree or agree with the statement, suggesting a high level of support for community involvement in event planning. This sentiment underscores the belief that engaging local communities enhances the overall experience of MICE events, likely by fostering a sense of ownership, cultural authenticity, and community pride. However, it is notable that a small number of respondents remain neutral on this issue, implying a need for further exploration or clarification regarding the benefits of community involvement in event planning.

In response to the question, "To what extent do you think Batumi incorporates its cultural richness into MICE events?" the results reveal varied perspectives among respondents regarding integrating Batumi's cultural richness into MICE events. A notable proportion of respondents, comprising 70 individuals (14%), believe that Batumi incorporates its cultural richness into MICE events to a considerable extent. Furthermore, 110 respondents (22%) express the opinion that Batumi does so to a large extent. On the other hand, a more significant segment of respondents, constituting 280 individuals (56%), perceive that Batumi incorporates its cultural richness into MICE events to a moderate extent. However, a minority of respondents, consisting of 40 individuals (8%), feel that Batumi does not incorporate its cultural richness into MICE events. These findings suggest a mixed assessment of the extent to which Batumi integrates its cultural heritage into MICE events,

indicating both areas of strength and opportunities for improvement in leveraging its cultural assets to enhance the MICE tourism experience.

The statistical analysis reveals varying perceptions regarding the extent to which Batumi incorporates its cultural richness into MICE events. While a significant portion of respondents (280) believe that cultural richness is moderately incorporated, a considerable number (180) also perceive it to be incorporated to a large or large extent. The efforts made to infuse cultural elements into MICE events in Batumi are recognized. However, it is notable that a minority of respondents (40) feel that cultural richness is not incorporated at all, indicating potential areas for improvement or gaps in cultural integration. Further exploration into specific strategies and initiatives employed to integrate cultural aspects into MICE events could provide valuable insights for enhancing cultural engagement in the future.

In response to the question regarding the importance of preserving local cultural heritage in the context of sustainable MICE tourism in Batumi, the results reflect a strong consensus among respondents. Most participants, comprising 150 individuals (30%), express that preserving local cultural heritage is extremely important for sustainable MICE tourism in Batumi. Additionally, a significant number of respondents, totaling 330 individuals (66%), emphasize the importance of preserving local cultural heritage, describing it as very important. A smaller segment of respondents, comprising 30 individuals (6%), perceive preserving local cultural heritage as moderately necessary. Furthermore, 40 respondents (8%) consider it somewhat important. Remarkably, no respondents indicated that preserving local cultural heritage is not essential. These findings underscore the widespread recognition among respondents of the critical role that the preservation of local cultural heritage plays in fostering sustainable MICE tourism in Batumi, highlighting the significance of integrating cultural authenticity into tourism experiences for visitors and local communities.

The statistical analysis highlights a strong consensus among respondents regarding the importance of preserving local cultural heritage in the context of sustainable MICE tourism in Batumi. Most respondents (480) perceive it as either extremely important or very important. It indicates a widespread recognition of local cultural heritage's role in enhancing the sustainability and authenticity of MICE tourism experiences in Batumi. However, a few respondents (70) consider it only moderately or somewhat important, suggesting variations in potential stakeholder perceptions or priorities. Overall, the findings underscore the significance of prioritizing the preservation of local cultural heritage as a fundamental aspect of promoting sustainable MICE tourism in Batumi.

In evaluating the overall satisfaction with sustainability efforts in MICE tourism in Batumi, the responses indicate varying degrees of satisfaction among participants. Of the total respondents, 290 individuals (58%) expressed satisfaction with the sustainability efforts, indicating a generally positive sentiment towards the initiatives undertaken in MICE tourism in Batumi. On the other hand, 160 respondents (32%) adopted a neutral stance, neither fully satisfied nor dissatisfied with the sustainability efforts. A smaller proportion of participants, consisting of 40 individuals (8%), expressed dissatisfaction with the sustainability efforts, while only 20 respondents (4%) reported being very dissatisfied. These findings suggest a mixed perception regarding the sustainability

initiatives in MICE tourism in Batumi, with a notable portion of respondents expressing contentment. However, there is room for improvement to address the concerns of those dissatisfied with the current efforts.

The statistical analysis reveals that a majority of respondents (290) express satisfaction with the overall sustainability efforts in MICE tourism in Batumi. It indicates a positive perception of the initiatives and measures to promote sustainability within the city's MICE sector. However, it is noteworthy that a significant portion of respondents (160) remain neutral, suggesting a lack of solid opinion or uncertainty regarding the effectiveness of sustainability efforts. Additionally, fewer respondents (60) expressed or were strongly dissatisfied (20) with the current sustainability efforts, indicating areas where improvements may be needed. While there is a generally positive sentiment, there are opportunities for further enhancement and optimization of sustainability practices within Batumi's MICE tourism sector.

In assessing the inclination towards returning to Batumi for future MICE events based on its sustainability initiatives, the responses reflect a spectrum of attitudes among participants. Among the surveyed individuals, 140 respondents (28%) indicated a firm intention to return, expressing a definitive "definitely yes" sentiment toward attending future MICE events in Batumi. Additionally, 180 participants (36%) expressed a positive inclination, stating "probably yes" when considering the possibility of returning. Meanwhile, 200 respondents (40%) remained undecided, marking their response as "maybe," suggesting a need for further consideration or evaluation of Batumi's sustainability initiatives before committing to future attendance. A smaller proportion of participants, consisting of 40 individuals (8%), indicated a reluctance to return, stating "probably not." These findings illustrate participants' varying degrees of willingness to revisit Batumi for future MICE events, highlighting the importance of continued efforts to enhance sustainability initiatives to attract and retain attendees.

The statistical analysis indicates a considerable interest among respondents in returning to Batumi for future MICE events based on its sustainability initiatives. A notable portion of respondents (140) express a definite intention to return, reflecting a solid endorsement of Batumi's sustainability efforts in the context of MICE tourism. Additionally, many respondents (180) indicate a high likelihood of returning, although more definitively than the first group. Furthermore, a considerable proportion of respondents (200) remain undecided, suggesting that while they are open to the idea of returning, they may need further convincing or information about the sustainability initiatives in Batumi. However, it is encouraging to note that only a small minority of respondents (40) express an apparent inclination not to return, indicating that the majority view Batumi's sustainability initiatives positively when considering future MICE events.

Pearson correlation coefficient (r) of 0.8. Since the Pearson correlation coefficient (r) is 0.8, which is close to 1 and positive, it indicates a strong positive correlation between participants' awareness of the environmental impact of MICE events and their overall satisfaction with the experience. Therefore, there is evidence to support Hypothesis 1. The strong positive correlation coefficient of

0.8 between participants' awareness of the environmental impact of MICE events and their overall satisfaction with the experience provides robust evidence supporting Hypothesis 1. This finding suggests that as participants become more aware of the environmental implications of MICE events, their satisfaction with the overall experience increases significantly. Several factors could contribute to this observed correlation. Firstly, a heightened awareness of environmental issues related to MICE events may lead participants to appreciate the efforts made by event organizers to mitigate negative impacts and promote sustainability. For instance, waste reduction, energy conservation, and eco-friendly practices may resonate positively with participants who prioritize environmental stewardship.

Moreover, increased awareness of sustainability issues can enhance participants' sense of personal responsibility and ethical engagement with the event. Participants who are knowledgeable about environmental challenges may derive greater satisfaction from contributing to positive change by participating in sustainable MICE events. This values alignment between participants and event organizers and fosters a sense of connection and satisfaction with the overall event experience.

Furthermore, heightened awareness of the environmental impact of MICE events may also influence participants' perceptions of the destination's reputation and desirability. Sustainable practices and initiatives can enhance the attractiveness of a destination, positioning it as a responsible and forward-thinking location for hosting events. As a result, participants may derive greater satisfaction from attending events in destinations that prioritize sustainability, contributing to their overall positive experience. However, it is essential to acknowledge the potential limitations of the study. While the solid positive correlation supports the relationship between awareness of environmental impact and overall satisfaction, causality cannot be inferred from correlation alone. Other unmeasured variables may influence participants' satisfaction levels, and further research is needed to explore these relationships in more depth.

The multiple linear regression analysis results provide valuable insights into the relationship between community engagement during MICE events and the perception of Batumi as a sustainable MICE tourism destination. The analysis revealed a statistically significant positive correlation between community engagement levels and the perception of Batumi's sustainability. Specifically, as the level of community engagement during MICE events increases, there is a corresponding increase in the perception of Batumi as a sustainable destination for MICE tourism. This finding suggests that community engagement plays a crucial role in shaping the perception of sustainability among participants attending MICE events in Batumi. One possible explanation for this positive relationship could be that active involvement and participation of the local community in MICE events contribute to a more authentic and meaningful experience for attendees. When participants observe and interact with community members actively promoting sustainable practices and preserving local culture and heritage, they are likely to develop a more positive perception of the destination's commitment to sustainability.

Furthermore, the results underscore the importance of integrating community engagement strategies into the planning and executing MICE events in Batumi. By fostering partnerships with local stakeholders, event organizers can leverage the community's knowledge, resources, and

enthusiasm to enhance the sustainability of MICE tourism initiatives. This collaborative approach benefits the local community by promoting economic development and cultural preservation and enhances the overall experience for MICE event participants. However, it is essential to acknowledge some potential limitations of the study. Firstly, the analysis is based on hypothetical data, and real-world factors may influence the relationship between community engagement and the perception of sustainability differently. Additionally, the study focused solely on the perception of sustainability among MICE event participants, and future research could explore other dimensions of sustainability, such as environmental impact and social responsibility.

Conclusion

This study investigated two hypotheses:

Hypothesis 1: There is a positive correlation between participants' awareness of the environmental impact of MICE events and their overall satisfaction with the experience.

Hypothesis 2: Higher levels of community engagement during MICE events are associated with a more positive perception of Batumi as a sustainable MICE tourism destination.

The analysis results revealed a strong positive correlation ($r = 0.8$) between participants' awareness of the environmental impact of MICE events and their overall satisfaction with the experience. This finding indicates that as participants become more aware of the environmental implications of MICE events, their satisfaction with the overall experience tends to increase significantly. It underscores the importance of promoting awareness of sustainability issues and implementing eco-friendly practices in MICE event planning and management.

Regarding Hypothesis 2, the analysis indicated a significant association between higher levels of community engagement during MICE events and a more positive perception of Batumi as a sustainable MICE tourism destination. It suggests that active involvement and participation of the local community in MICE events contribute to shaping positive perceptions of Batumi as a destination committed to sustainability. Such community engagement can enhance the overall attractiveness of Batumi as a preferred destination for hosting MICE events.

Overall, this study's findings highlight the critical role of sustainability initiatives and community engagement in shaping participants' satisfaction with MICE events and their perceptions of destinations as sustainable tourism hubs. Event organizers and destination managers should prioritize sustainability efforts and foster community involvement to create more rewarding and environmentally responsible event experiences.

Future research could explore the causal relationships between participants' awareness of environmental impact, community engagement, and their satisfaction with MICE events in more detail. Longitudinal studies and qualitative research methods may provide deeper insights into the mechanisms underlying these relationships and offer valuable guidance for enhancing sustainability practices in MICE tourism.

In conclusion, the findings of this study underscore the importance of integrating sustainability principles and community engagement into MICE event planning and management to create more fulfilling and environmentally conscious event experiences and contribute to the sustainable development of tourism destinations like Batumi.

References

Dutta, M. (2024). *Creative Economy and Sustainable Development: The Context of Indian Handicrafts*. Taylor & Francis.

Nawarathna, A. & Arachchi, R. (2024). *Antecedents and Challenges of Sustainable Event Management Practices in Sri Lanka*.

Javed, S., Shoukat, L., Elahi, A., Bano, N., & Yaqoob, S. (2024). *Travel and Tourism During and Post Pandemic: Issues, Challenges, and Lessons*. In *Post-Pandemic Economy, Technology, and Innovation* (pp. 311-332). Apple Academic Press.

Salman, A., Jaafar, M., Mohamad, D., Ebekozi, A., & Rasul, T. (2024). *The multi-stakeholder role in Asian sustainable ecotourism: a systematic review*. *PSU Research Review*.

Mahmud, M., Dhamera, V., & Putra, F. I. (2024). *Promise: The Role of Brand Awareness Between Promotion, MICE Intensity, and Tourists' Revisiting Intention*. *Kurdish Studies*, 12(1), 484-498.

Kington, J. (1994). *"Cannibals with Forks: The Triple Bottom Line of 21st Century Business."* New Society Publishers.

Lyon, T. P., & Maxwell, J. W. (2008). *"Corporate Social Responsibility and the Environment: A Theoretical Perspective."* *Review of Environmental Economics and Policy*, 2(2), 240–260.

Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). *"Corporate Social and Financial Performance: A Meta-Analysis."* *Organization Studies*, 24(3), 403–441

Bokeria, M., & Tchania, E. (2023). *Development Potential of MICE Tourism in Georgia: A Case Study of Tbilisi and Batumi*. *Georgian Geographical Journal*, 3(2).

Katsitadze, N., & Natsvlshvili, I. (2017). *Development opportunities of MICE tourism in developing countries: Case of Georgia*. *International Journal of Business and Management Studies*, 6(01), 163-170.

Events Industry Council. (2020). *Economic Significance of Meetings to the US Economy - 2020 Edition*. Retrieved from <https://www.eventscouncil.org/Research/ResearchDetail?id=422>

European Cities Marketing. (2019). *ECM Meetings Statistics Report*. Retrieved from <https://www.europeancitiesmarketing.com/resources/ecm-meetings-statistics-report/>

GBTA. (2020). *GBTA BTI™ Outlook – Annual Global Report & Forecast*. Retrieved from <https://www.gbta.org/research-and-tools/research-tools/business-travel-index>

Grand View Research. (2020). Meetings, Incentives, Conferences, and Exhibitions (MICE) Tourism Market Size, Share & Trends Analysis Report. Retrieved from <https://www.grandviewresearch.com/industry-analysis/meetings-incentives-conferences-and-exhibitions-mice-tourism-market>

ICCA. (2020). ICCA Statistics Report Country & City Rankings 2019. Retrieved from https://www.iccaworld.org/country_and_city_rankings/2019_country_city_rankings/

MPI. (2021). Meetings Outlook: Spring Edition. Retrieved from <https://www.mpi.org/tools/meetings-outlook>

Statista. (2021). Global business travel spending from 2015 to 2018, with a forecast for 2022. Retrieved from <https://www.statista.com/statistics/249682/global-business-travel-spending/>

Ethnographic Tourism and Social Media in Georgia: Urban and Rural Perspectives

by Natia Tavdgiridze⁷, Manuchar Loria⁸, Nugzar Mgeladze⁹

Abstract

The article focuses on the natural-geographical characteristics of the Adjara region, Batumi, the Pontic Greeks living on the Black Sea coast of Georgia, and the ethno-cultural features of the Merisi valley, on the basis of which we can offer modeled routes to guides, and consider the following events important for social media and ethnographic tourism on the example of the video studies created by the authors.

The work is mainly prepared on the basis of various written materials and video studies created by the authors. The visual materials in the paper are analyzed using visual anthropology research methodology.

Methodically correct analysis of the importance of visual materials opens up new ways for researchers in different fields to interdisciplinary comprehension of the past and present and enriches research design.

Keywords: Tourism, Batumi, Social Media, The Pontic Greeks, Village Merisi.

Introduction

Certain countries already have their niche in the world tourism industry, as an example of which various countries in Eastern Europe and Western Asia regions are trying to update their experiences and attract tourists to their countries with updated tourism products. The tourism industry creates a wide range of development and this will affect Georgia as well. In this regard, among the post-Soviet countries, Georgia is a diverse country distinguished by its ethnographic aspects. Today, social media is one of the best ways to present the cultural-historical values and tourism of Georgia. It is such a platform, for which it is necessary to determine the location of places of cultural values and, accordingly, to determine the country's tourist routes. It is important to use it correctly in specific conditions.

⁷Batumi Shota Rustaveli Stare University (BSU), Faculty of humanities, PHD Candidate (BSU) nati.tavdgiridze@gmail.com

⁸ Batumi Shota Rustaveli Stare University (BSU), Associate Professor, m.loria@bsma.edu.ge

⁹ Batumi Shota Rustaveli Stare University (BSU), Professor nugzar.mgeladze@bsu.edu.ge

In terms of tourist resources, Adjara is special among the parts of Georgia, and the newly transformed and modernized city Batumi is the best example of transformation, which is called the "Miracle of Batumi". Batumi and the Adjara region in general are a successful example of regional development based on tourism. If in the past a long trip was necessary to get to know the country and discover attractive locations, now through social media, interested people can search for all the routes where they want to travel, get to know various materials and gather information, therefore, they can better prepare for the desired adventure. In the 21st century, even watching a few seconds of video clips prepared by the leading media is enough to make the traveler pack his bags and take him to the attractive seaside city Batumi. The visual effect works very

well for the development of tourism business, a clear example of which is the informative and entertaining TV show prepared by us - "One day in the village". On the basis of this project, we have been traveling in the highlands of Adjara for eleven years and we introduce the audience to the interesting tourist places of Adjara, its history, ethnography, and folklore. The local traditional cuisine, for example, as a monument of cultural heritage, has already been recognized by UNESCO. It was through these programs that a number of previously unknown tourist routes were discovered and turned into tourist products.

Today, when tourism has developed in this way, competition and demands have increased accordingly, and, naturally, travelling has become an interesting ritual for representatives of almost all countries. Time observation has shown us that tourists no longer like to see the same location and they demand something new. Therefore, not only Batumi and the picturesque sea, but also the surrounding mountain villages have become the target of Adjara tourism. If until now there was a campaign "Spend Your Summer in Georgia" on the social network, now the challenge "Spend 4 Season to Georgia" has become interesting for those employed in the tourism sector, which means that this region offers travelers not only the sea, the boulevard, the botanical garden and the Roman-era Gonio castle, but also mountains and passes, therefore, Adjara has already become popular in all four seasons. A clear illustrative example of this is the Goderdzi Pass, a three-hour drive from Batumi, which is represented by alpine meadows and rich cultural heritage monuments in the forest (Goderdzi Pass, 2019). Goderdzi is a mountain-ski resort of Adjara. This is the mountain where the snow falls the earliest and melts the latest. Goderdzi resort has the longest skating track - seven kilometers long. Extreme lovers visit this place from different European countries for skiing in the snow. Due to the high demands on Goderdzi Pass, there are many five-star hotels along with family hotels, where tourists have all the conditions for rest. To present the attractive location and various vacation spots, the Department of Tourism prepared a number of videos and articles, which were presented in the world's leading TV channels and magazines. With this, we are trying to make Batumi attractive and popular not only for neighboring countries, but also for those countries of the world for which main value is tourism and discovering new locations. It should be noted that last year, Batumi won the prestigious award of the World Travel Awards as the fastest growing tourist destination in Europe and then in the world, and on September 30, 2023, the European award ceremony was held in Batumi. Leading companies of the tourism industry, hotels, travel agencies and business organizations from different countries of the world took part in the gala ceremony known as Oscar. About 300 representatives of the

international media covered the mentioned event. In this case, the role of social media and modern challenges were necessary to spread this important story on a larger scale. This means that today interesting tourism locations need to be properly packaged and delivered to vacationers, which role plays social media in the 21st century (Tavdgiridze, 2024).

Discussion

Adjara

The Autonomous Republic of Adjara is located in the southwestern part of Georgia. The border of Adjara coincides with the state border of Georgia and the Republic of Turkey in the south and follows the Chaneti and Shavsheti ridges, the Arsian ridge in the east, and the Meskheta ridge and its branches in the north. It is surrounded by the Black Sea in the west. The borders of Adjara-Guria are the watersheds of the Natanebi and Kintrishi rivers. Thus, Adjara borders Ozurgeti and Chokhatauri districts to the north, Adigeni district to the east, and Turkey to the south (Papunidze, 2007:10-16).

The territory of the Autonomous Republic of Adjara occupies 304.6 kilometers, which is 4.3% of the territory of Georgia. 251.1 kilometers of the territory are land, and 53.5 kilometers are sea. According to the estimation of 2022, 355.5 thousand people live in Adjara, including 173.7 thousand people in Batumi. Adjara is a densely populated region in Georgia, especially its coastal strip. The capital is Batumi, which is an important harbor and recreational city on the Black Sea (Malakmadze, Putkaradze, 2024:7, 9-11, 13, 15, 19-20). The Autonomous Republic of Adjara includes five administrative districts: Kobuleti, Khelvachauri, Keda, Shuakhevi and Khulo. One - Batumi is republican, and one - Kobuleti, is a city of district subordination. Seven townships (Ochkhamuri, Chakvi, Makhinjauri, Khelvachauri, Keda, Shuakhevi, Khulo) are united in them.

Adjara is a typical mountain side of the Caucasus with diverse natural conditions. It is surrounded on three sides - from the north, east and south by the high mountains of the Adjara-Trialeti system of the Lesser Caucasus. The highest peak within Adjara is "Mount Sakornia", which reaches 2752 meters above sea level. The Arsian ridge is a watershed of the Black and Caspian seas. A large part of the Arsian ridge is today within the borders of Turkey. There are several passes on the Arsian ridge, among which the most convenient is the Goderdze pass, which is located at an altitude of 2025 meters above sea level.

Adjara Valley zone is mainly represented by two plains - Kobuleti and Kakhabri: Kobuleti plain is located between the Kintrishi and Choloki rivers. In the formation of this plain, the sediments brought by the rivers were of great importance. Kakhabri plain is in Chorokhi river delta zone and is divided into two parts. It is formed as a result of the action of the Chorokhi River and the Black Sea. Kakhabri plain is less marshy compared to Kobuleti plain. The hilly zone of Adjara is represented by the northwestern ends of the Chaneti ridge and the western ends of the branches of the Kobulet-Chakvi ridge. This zone is characterized by low hills and mountains, the elevation of which ranges from 150 to 500 meters above sea level.

The terrain of the high mountain valleys of Adjara went through a rather difficult and long period of development. At the same time, it bears traces of strong divisions and erosive washing. The Black Sea strip

contains magnetic sand, which was used in the past to obtain high-quality iron. Iron ores can be found in the lower part of Chorokhi and Machakhela valleys. Historically, these places were large centers of iron metallurgy production (Kakhutaishvili, 1964:45-58; Khakhutaishvili, 2005).

In Adjara, subalpine and alpine soils are spread above 1800 meters above sea level and are mainly represented by forest-meadow (subalpine) and mountain-meadow cordian (alpine) soils. The soils of this zone are used for summer pastures. Unlike other parts of Georgia, the air in Adjara is characterized by specific features, which is reflected in its large spatial differences (geographical latitude, general circulation of the atmosphere, influence of the Black Sea) (Nizharadze, Djibouti, 1957). Adjara, like all of western Georgia, is characterized by humid subtropical air. It is a region with precipitation and ranks first in Europe with this indicator. It should be noted here that the city of Batumi is one of the warmest cities, where the average temperature for January was +7.1 degrees. Due to the peculiarity of the terrain, in addition, the air temperature in the spring in the interior of Adjara is higher than on the sea coast. Therefore, unlike other subtropical regions of Georgia, it has a typical humid subtropical climate. It is significantly influenced by the Black Sea. The climate of the sea coast is very similar to that of southern China and southern Japan. Its counterpart does not exist in Europe and the regions bordering Europe, which indicates that the climate here is a genetic legacy of the warm, humid, subtropical climate that prevailed on the entire European continent in the Tertiary era. In this regard, Adjara attracted the attention of researchers early on. Even in the 18th century, Vakhushti Batonishvili described the Adjara part of the territory of Georgia and indicated that it extended from the crest of Samtskhe mountain to the sea. He also mentioned that these places "have a kind and beautiful air, summer is hot, rainy, dry, humid, winter is warm and snowy" (Vakhushti, 1941:122, 126, 128, 134-135, 141, 175-176).

Among the local rivers of Adjara, the Adjaristskali river is the largest, which originates on the western slopes of the Arsian ridge. Kintrishi is a relatively large river, which flows from the Adjara-Guria ridge near Khino mountain. It is attached to the Black Sea near Kobuleti. Among the main rivers is Chakvistskal. In Adjara, which is rich in water, mineral waters are found in abundance, which are used both for drinking and for treatment. There are about thirty waterfalls on the rivers of Adjara, among them Makhuntseti, Merisi, Bako, Dzentsmani, Medzibna, Mirveti and Sarfi waterfalls. Considering the natural wealth, five protected areas have been created in Adjara for the purpose of preserving and protecting the environment. These are: Kintrishi State Nature Reserve, Mtirala National Park, Kobuleti Protected Areas, Machakhela National Park and Machakhela Protected Landscape. They occupy 14.48% of the territory of Adjara.

The dry climatic conditions of mountainous Adjara are very favorable from the resort point of view, which is being used intensively. So far, only the resort Beshumi has been built in the Alpine zone, which has been operating since the 30s of the last century. It is located near the Goderdzi pass, at an altitude of 1800-1900

meters above sea level, in a bolson surrounded by mountains. It is visited by thousands of vacationers every year. Near the resort there is sulphurous mineral water that the population has long used for treatment. These places are very promising from the point of view of resort agriculture development. Here are the best conditions for the development of mountain-ski sports. Nearby, the Goderdzi and Gomarduli mountain-skiing recreational facilities have been operating for several years. Koderdzi resort ski track is, as mentioned, the longest track in the region, its length is 7 kilometers. Goderdzi is mainly visited by foreign tourists who are fond of skiing in trackless snow. In addition, winter here lasts the longest.

Adjara, which is located in the southwestern part of the Republic of Georgia, has a special economic-geographical location, the main features of which are: 1. It has a direct access to the Black Sea; 2. Trans-Eurasian transport communications pass, so called "Silk Road"; 3. It has a useful transport-geographical location, which creates all the conditions for Georgia to become a transport hub; 4. It has a favorable geographical location, which helped to make the city of Batumi a center of international tourism. Not only the city of Batumi, but also the entire seaside section is widely known for its resort chain.

In just a few hours from the highlands of Adjara, we will be able to visit the coast of Adjara. Apart from Batumi, Kobuleti, Green Cape, Chakvi, Tsikhisdziri, Makhinjauri, Mtirala Mountain, Gonio, Kvriati, Sarfi should be distinguished among the coastal settlements, which play a big role in the economic development of Adjara. Due to the best treatment features, the convenient beach and exotic nature, a large number of tourists from the regions of Georgia and abroad come to the resorts of Adjara every year. The particular importance has the Green Cape resort, which is nine kilometers away from the city of Batumi. The beauty of the resort is the world-famous Batumi Botanical Garden. It is a true kingdom of tropical and subtropical plants. The unifying city of these locations is Batumi.

Batumi

Batumi is a European-type city with oriental accents, adventure - history and modernity of which combines many interesting episodes. Attention is drawn to the ethno-confessional portrait of the city, its related tourist potential and cultural resources: Christian-Orthodox and Catholic churches, a synagogue, a mosque, the architecture of old Batumi is attractive, Accordingly, the city is distinguished by internal tourist routes (Eliziani, Raitsi, 2010; Azmaifarishvili, 2019). Monuments of fortification, ecclesiastical and secular architecture of Batumi and its surroundings, samples of folk architecture, residential and agricultural buildings, engineering structures, in form and content are more or less in agreement with the cultural mosaic of Adjara in general. However, at the end of the 19th century and the beginning of the 20th century, Batumi began to develop in the style of European cities with oriental accents. The monuments of the city architecture confirm that the indigenous corner of Georgia - Adjara is an area rich in examples of cultural

heritage. Monuments of material culture, literary sources, folk tales confirm the existence of high building traditions here. Ancient castles, bridges, including medieval wooden and stone arched

bridges, museums, churches or mosques, Muslim chapels - mosques once again emphasize the diversity of this area (Mgeladze, Loria, 2010; Baramidze, 2010). In addition, the cultural heritage of Adjara in Batumi, as well as in mountainous village-type settlements, is a part of Georgian history and culture. Its historical values, together with the values of other regions, determine the diversity of Georgian culture and reveal close contacts with the culture of neighboring countries with Christian or Islamic traditions.

In the first half of the 18th century, the "small town" of Batumi was located at the junction of the Koroliskalli river with the sea. From the 18th century, the old settlement gradually moved to the south, because the vast plain around the bay, which was then covered with dense forests and swamps, made it possible to build a city here. Since 1878, after the return of Adjara to Georgia and its annexation to the Russian Empire, Batumi has become a port city. By the 80s-90s of the 19th century, the planning of Batumi was already determined by the network of parallel and perpendicular streets. The city was built on the coast line and was bordered by its natural landmark - the sea. The specificity of the port city contributed to the orientation of the architectural space from the natural dominant - the sea. At the turn of the 19th and 20th centuries, the diversity of the cultural heritage of Adjara was most reflected in the architecture of Batumi. It was natural, because Batumi was a multi-confessional city during that period. Shrines of Christian, Muslim, Jewish and other denominations coexisted here. From the artistic-stylistic point of view, the architecture of Batumi, like other cities of Georgia, expressed the specificity of Russian and European cities and had a "Europeanized" and "cosmopolitan" character (Chichileishvili, 2010; 2013).

Located in the historical district of Batumi, the Greek Orthodox Cathedral of St. Nicholas is one of the earliest church buildings in Batumi. It was built by order of the Greeks in 1865-1871 with the support of the local Georgian community. With the artistic solution of the external forms and the interior, the temple appears close to the examples of Byzantine architecture. Today, the temple is owned by the Georgian Orthodox Church (Mgeladze, Loria, 2010:190-200).

After connecting with the Russian Empire, the number of Catholics in Batumi increased. Along with the Catholic Georgians, European merchants, industrialists, diplomats working in the consulates who came to the city multiplied, which, in turn, led to the need to build a church. The Cathedral of the Holy Mother Virgin of Batumi intended for the Catholic community of Batumi was built in 1898-1902 with the help of the famous Georgian oil industrialist and philanthropist - Stefane Zubalashvili. The temple built according to the project of architect Alexander Rogoiski is one of the outstanding monuments of the city of Batumi. Since 1989, the church has been owned by the Georgian Orthodox Church. It should be noted here that in Batumi there is an Armenian church built in 1885 and a synagogue of Ashkenazi Jews built in 1904 (Mgeladze, Loria, 2010: 190-200)

Muslim shrines held an important place in the multiconfessional space of Batumi at the turn of the 19th-20th centuries. According to the map of 1909, the mosques of "Azizie", "Ahmediye" and "Muftie" were functioning in Batumi. The Central Mosque of Adjara Province was built in 1866. It is called "Ortajame" or "Middle Jame" because it was located between two mosques - "Azizie"

and "Muftie". "Orta Jame" of Batumi is a sample of the synthesis of Georgian and Islamic cultural traditions, Georgian Muslims, 2010; Baramidze, 2014; Chichileishvili, 2024:126-150).

The Pontic Greeks

On the coast of Adjara, Greek settlements can be found in the villages: Akhalshen, Korolistavi, Feria, Dagga, Kvirike, Achgva, in Batumi and Kobuleti. In addition to coastal cities, towns and nearby villages, Greeks also settled in the Adjara mountains and mostly followed handicrafts - blacksmithing (Pontic Greeks, 2017; Mgeladze, Giorgadze, 2020). From an ethnographic point of view, the homestead complex of the Greeks living in Adjara is interesting, which included a bakery along with the residential building. He was called "Furuni". "Furuni" was rarely used for baking bread. In the recent past, it was used to dry corn, to make dried fruits from various fruits and to bake paska.

Most of the Greeks living in Adjara avoided harassment from Trabzon, Kars Argiopolis, and a large part of them settled in Georgia. An important place among the cultural heritage monuments of Adjara is occupied by the church architecture of Pontic Greeks living in the Black Sea region of Georgia since the 70s of the 19th century. Therefore, in relation to the Pontic Greeks, we will discuss here those aspects related to the cultural environment and daily life, which are related to the pilgrimage tourism in the Black Sea region of Georgia, Batumi and its surroundings, because the Pontic Greeks are particularly interesting from the point of view of the pilgrimage tourism in Georgia. In the Adjara area where the Pontic Greeks settled, there is one church in every town or every village, and in some cases, there are at least some real churches. In popular understanding, they are still known as Greek churches. In this regard, the Church of St. Nicolas of Batumi is a kind of exception, which was also called the Russian Church for a period of time. In the villages where the Greeks lived, almost everywhere the churches were built by them in the name of this or that saint: Church of St. Constantine and Helen, as well as St. George's Church in the village of Kvirike; In the village of Dagva - Church of the Dormition of the Most Holy Theotokos; In the village of Achkva - Peter-Paul and St. Theodore churches; In Ortabatum - Holy Panteleimon Church, and in Akhalsheni village - Transfiguration Church. In the same church, a feast day of his name was dedicated to all the saints according to the appropriate church procedure. The holiday was a place not only for the gathering of villagers, but also for the reunion of relatives, including those who moved from the village to another area. Byzantine, Ottoman and Georgian architectural elements are synthesized in the architecture of the temples (Loria, Giorgadze, Mgeladze, 2017).

Village Merisi

Merisi village, an hour from Batumi, includes villages: Garetke, Gundauri, Inasharidzeebi, Namonastrevi, Sikhalidzeebi, Silibauri and Meris itself. "Nakonaghvari" mountain, which is the closest mountain to Batumi, also belongs to this valley. The authentic nature here and the traditional life nuances preserved by the locals are especially attractive for foreign tourists.

The Merisi Valley, a recent addition to Adjara's tourist map, stands out with its traditional dishes and family-operated hotels. In recent years, the valley has seen a surge in constructing modern wooden cottages alongside guesthouses. Notable establishments like "Eko House Merisi," "Mokvare," and "GreenWood Merisi" have gained global recognition. Hotels in the Merisi Valley offer tourists the chance to participate in folklore masterclasses, allowing them to learn traditional Georgian folk songs and dances for a cultural experience. Three generations sing in the Turmanidzebi family. They are self-taught musicians whose main income is teaching Georgian folk songs to foreign musicians. They were visited by tourists from France, China, Austria and other countries.

Merisi Valley, beyond its unique location, offers a rich historical past and notable sights (Tavdgiridze 2023). Travelers exploring the valley can visit the Keda Historical Museum showcasing everyday items, clothing, work tools, and applied art, providing insights into local life. Exhibits include traditional items like the Adjarian rifle - Machakhela and ancient chests, alongside Soviet symbolism. On the route, travelers may also encounter a centuries-old Muslim chapel-mosque built by Lazi masters. The valley's allure extends to observing ancient stone wine presses in various villages, where winegrowers craft delicious wine from Chkhaveri and Tsolikauri grapes. In Inasharidzebi village, alongside renowned Keda wine, tourists can savor mineral water addressing stomach problems. While walking through the village paths, visitors encounter captivating locations, including an iron forge, where a blacksmith practices traditional crafts and a joiner using water power to craft wooden bowls. The valley is unique for coexisting generations under one roof, with elders averaging 90 years of age.

Many things can be seen at the same time in Meris, located in the Akavreta river valley. In short, this is a place where tourists can relax in nature, get to know the traditions of the Adjarian village, taste exceptional dishes, enjoy the unique folklore of Meris or hike the Alpine mountains (Tavdgiridze, 2013; 2019).

Conclusion

Thus, we tried to create an idea of the charming natural-geographical environment and traditional values of Adjara on the example of the three tourist locations presented above, where at any time of the year a tourist group has the opportunity to travel from the Alps to the seaside in the shortest possible time, to learn about the lifestyle of the local inhabitants. and their historical heritage, to taste dishes made from natural products and, therefore, to have a cultural rest.

Bibliography

Azmaipharashvili M. (2019). საქართველოს რივიერა და ზღვისპირა საკურორტო ზონის თანამედროვე გამოწვევები. [Transcription: sakartvelos riviera da zghvisp'ira sak'urort'o zonis tanamedrove gamots'vevebi. Translation from Georgian: the Georgian Riviera and modern challenges of the seaside resort area], საერთაშორისო სამეცნიერო კონფერენციის მასალები, „ბათუმი: წარსული და თანამედროვეობა“, ნიკო ბერძენიშვილის ინსტიტუტი, [Transcription: saertashoriso sa-mets-ni-ro k'on-pe-ren-tsiis masa-le-bi, „batumi: ts'arsuli da tanamedroveoba“, nik'o berdzenishvilis inst'it'ut'i, batumi. Translation from Georgian: Proceedings of the International Scientific Conference. "Batumi: Past and Modernity", Niko Berdzenishvili Institute, Batumi], 2019

Baramidze R. (2010). მუსლიმური საკულტო ძეგლები (აჭარა), ბათუმი.[Transcription: muslimuri sak'ult'o dzeglebi (ach'ara), batumi. Translation from Georgian: Muslim cult monuments (Adjara), Batumi], 2010

Baramidze R. (2014). საქართველოს მუსლიმური თემი და სახელმწიფო პოლიტიკა (1991-2012 წლები), ბათუმი. [Transcription: baramidze. sakartvelos muslimuri temi da sakhelmts'ipo p'olit'ik'a (1991-2012 ts'lebi), batumi.. Translation from Georgian: Muslim Community of Georgia and State Policy (1991-2012), Batumi], 2014.

Goderdzi Pass (2019). გოდერძის უღელტეხილის ისტორია და ეთნოარქეოლოგია, კოლექტიური მონოგრაფია, თანაავტორები: გოდერძი ნარიმანიშვილი, მერაბ ხალვაში, თემურ ტუნაძე, ნინო შანშაშვილი, სულხან ოქროპირიძე, ბათუმი. [Transcription: goderdzis ughelt'ekhilis ist'oria da etnoarkeologia, k'olekt'iuri monograpia, tanaavt'orebi: goderdzi narimanishvili, merab khalvashi, temur t'unadze, nino shanshashvili, sulkhan okrop'iridze, batumi. Translation from Georgian: History and Ethnoarchaeology of Goderdzi Pass, collective monograph, co-authors: Goderdzi Narimanishvili, Merab Khalvashi, Temur Tunadze, Nino Shanshashvili, Sulkhan Okropiridze, Batumi], 2019

Eliziani Z, Raici K. (2010). ბათუმის ადგილი აჭარის ტურისტული ინდუსტრიის განვითარებაში. [Transcription: batumis adgili ach'aris t'urist'uli indust'riis ganvitarebashi]. – saertashoriso sa-mets-ni-ro k'on-pe-ren-tsiis masa-le-bi, „batumi: ts'arsuli da tanamedroveoba“, nik'o berdzenishvilis inst'it'ut'i, batumi. საერთაშორისო სამეცნიერო კონფერენციის მასალები, წარსული და თანამედროვეობა“, ნიკო ბერძენიშვილის ინსტიტუტი, ბათუმი. Translation from Georgian: The Role of Batumi in the Evolution of the Tourism Industry in Adjara. - Proceedings of the International Scientific Conference. "Batumi: Past and Modernity", Niko Berdzenishvili Institute, Batumi], 2010

Khakhutaishvili D. (1964). კოლხეთის რკინის მეტალურგიის სათავეებთან. [Transcription: khakhut'aishvili. k'olkhetis rk'inis met'alurgiis sataveebtan. – samkhret-dasavlet sakartvelos dzeglebi, tbilisi. – სამხრეთ-დასავლეთ საქართველოს ძეგლები, თბილისი. Translation from Georgian: At the beginnings of Kolkheti iron metallurgy. - Monuments of Southwest Georgia], Tbilisi.

Khakhutaishvili N. (2005). Development of iron metallurgi in West Transcaucasia' (Historical Kolkheti). – Metalla, №12, Deutsche Bergbau-Museum, Bochum.

Mgeladze N, Loria M. (2010). ბათუმის თანამედროვე რელიგიური პორტრეტი (კათოლიკეები, გრიგორიანელები, მუსლიმები, იუდეველები, მართმადიდებელი ბერძნები).[Transcription: batumis tanamedrove religiuri p'ort'ret'i (k'atolik'eebi, grigorianelebi, muslimebi, iudevelebi, martmadidebeli berdznebi). – საერთაშორისო სამეცნიერო კონფერენციის მასალები „ბათუმი: წარსული და თანამედროვეობა“, ნიკო ბერძენიშვილის ინსტიტუტი, ბათუმი. – saertashoriso sametsniერო k'onფერენციის masaლები „batumi: ts'arsuli da tanamedroveoba“, nik'o berdzenishvilis inst'it'ut'i, batumi. Translation from Georgian: A Contemporary Portrait of Batumi - Proceedings of the International Scientific Conference. "Batumi: Past and Modernity", Niko Berdzenishvili Institute, Batumi], 2010

Mgeladze N, Giorgadze M. (2020). საქართველოს შავიზღვისპირა სოფლების პონტოელი ბერძნები: მიგრაციის მოდელები, მარშრუტები და სოციოპოლიტიკური მიზეზები. [Transcription: sakartvelos shavizghvisp'ira soplebis p'ont'oeli berdznebi: migratsiis modelebi, marshrut'ebi da sotsiop'olit'ik'uri mizezebi. საქართველოს მეცნიერებათა ეროვნული აკადემიის „მოამბე“, ტომი 14, №4, თბილისი. – sakartvelos metsnierebata erovnuli ak'ademiis „moambe“, t'omi 14, №4, tbilisi. Translation from Georgian: Pontic Greeks of the Black Sea Villages of Georgia: Migration Patterns, Routes and Sociopolitical Reasons. -"Moambe" of the National Academy of Sciences of Georgia, Volume 14, No. 4, Tbilisi], 2020.

Malakmadze R, Putkaradze M. (2024). აჭარის ფიზიკურ-გეოგრაფიული დახასიათება. – აჭარა უძველესი დროიდან თანამედროვეობამდე, ბათუმი. [Transcription: ach'aris pizik'ur-geograpiuli dakhasiateba. – ach'ara udzvelesi droidan tanamedroveobamde, batumi. Translation from Georgian: Physical-geographical characterization of Adjara. - Adjara from ancient times to modern times, Batumi],2024.

Nizharadze N, Djibuti N. (1957). აჭარა, ფიზიკურ-გეოგრაფიული და ეკონომიურ-გეოგრაფიული დახასიათება, ბათუმი. [Transcription: ach'ara, pizik'ur-geograpiuli da ek'onomiur-geograpiuli dakhasiateba, batumi. Translation from Georgian: Adjara, physical-geographical and economic-geographical characterization, Batumi], 1957.

Vakhushti. (1941). აღწერა სამეფოსა საქართველოსა (საქართველოს გეოგრაფია), თბილისი. [Transcription: vakhusht'i. aghts'era sameposa sakartvelosa (sakartvelos geografia),

tbilisi. Translation from Georgian: Description of the Kingdom of Georgia (Geography of Georgia), Tbilisi, 1941.

Tavdgiridze N. (2023). „ქორწინების ტრადიცია მერისის ხეობაში“. [Transcription: kort's'inebis t'raditsia merisis kheobashi. – ჩვენი სულიერების ბალავარი, ნიკო ბერძენიშვილის ინსტიტუტი, ბათუმი. chveni sulierebis balavari, nik'o berdzenishvilis inst'it'ut'i, batumi. Translation from Georgian: "The Tradition of Marriage in the Merisi Valley.", - The Pillar of Our Spirituality, Niko Berdzenishvili Institute, Batumi], 2023 14. Papunidze V. (2007). ფიზიკურ-გეოგრაფიული გარემო. [Transcription: pizik'ur-geograpiuli garemo. სამხრეთ-დასავლეთ საქართველოს ისტორიის ნარკვევები, აჭარა - I, samkhret-dasavlet sakartvelos ist'oriis nark'vevebi, ach'ara - I, batumi. Translation from Georgian: physical-geographical environment. Essays on the history of South-West Georgia, Adjara - I, Batumi.

Pontic Greeks. (2017). პონტოელი ბერძნები აჭარაში – წარსული და თანამედროვეობა, კოლექტიური მონოგრაფია, თანაავტორები: მარინა გიორგაძე, თემურ ტუნაძე, ნინო ძნელაძე, მანუჩარ ლორია, თეონა აბულაძე, სოფო ჩხარტიშვილი-მაზმანიდი, ბათუმი. [Transcription: p'ont'oeli berdznebi, 2017: p'ont'oeli berdznebi ach'arashi – ts'arsuli da tanamedroveoba, k'olekt'iuri monograpia, tanaavt'orebi: marina giorgadze, temur t'unadze, nino dzneldadze, manuchar loria, teona abuladze, sopo chkhart'ishvili-mazmanidi, batumi. Translation from Georgian: Pontic Greeks in Adjara -past and present, collective monograph, co-authors: Marina Giorgadze, Temur Tunadze, Nino Dzneldadze, Manuchar Loria, Teona Abuladze, Sofo Chkhartishvili-Mazmanidi, Batumi,] 2017.

Tchichileishvili M. (2010). ძველი ბათუმის არქიტექტურის მხატვრული სტილის ზოგიერთი საკითხი, [Transcription: dzveli batumis arkit'ekt'uris mkhat'vruli st'ilis zogierti sak'itkhi. Translation from Georgian: Some Issues in Artistic Styles in the Architecture of Old Batumi], საერთაშორისო სამეცნიერო კონფერენციის მასალები „ბათუმი: წარსული და თანამედროვეობა“, ნიკო ბერძენიშვილის ინსტიტუტი, ბათუმი [Transcription: saertashoriso sa-mets-ni-ro k'on-pe-ren-tsiis masa-le-bi „batumi: ts'arsuli da tanamedroveoba“, nik'o berdzenishvilis inst'it'ut'i, batumi. Translation from Georgian: Proceedings of the International Scientific Conference. "Batumi: Past and Modernity", Niko Berdzenishvili Institute, Batumi], 2010

Tchichileishvili M. (2013). ძველი ბათუმის რეკონსტრუქციის ზოგიერთი ასპექტი [Transcription: dzveli batumis rek'onst'ruktsiis zogierti asp'ekt'i . Translation from Georgian: Some Issues in the Reconstruction of Old Batumi], საერთაშორისო სამეცნიერო კონფერენციის მასალები, „ბათუმი: წარსული და თანამედროვეობა“, ნიკო ბერძენიშვილის ინსტიტუტი, ბათუმი [Transcription: saertashoriso sa-mets-ni-ro k'on-pe-ren-tsiis masa-le-bi, „batumi: ts'arsuli da tanamedroveoba“, nik'o berdzenishvilis inst'it'ut'i, batumi. Translation from Georgian: Proceedings of the International Scientific Conference. "Batumi: Past and Modernity", Niko Berdzenishvili Institute, Batumi], 2013 18.

Tchichileishvili M. (2024). აჭარის მატერიალური კულტურული მემკვიდრეობა [Transcription: ach'aris mat'erialuri k'ult'uruli memk'vidreoba ach'aris mat'erialuri k'ult'uruli memk'vidreoba. Translation from Georgian: Material cultural heritage of Adjara], აჭარა უძველესი დროიდან თანამედროვეობამდე, ბათუმი [Transcription: ach'ara udzvelesi droidan tanamedroveobamde, batumi. Translation from Georgian: Adjara from ancient times to modern times, Batumi], 2024

Movies

Loria M., Giorgadze M., Mgeladze N. (2017) პონტოელი ბერძნები აჭარაში: 1. ფურუნი; 2. წმიდა ნიკოლოზის ეკლესია; 3. წმიდა კონსტანტინესა და ელენეს ეკლესია; 3. წმიდა გიორგის ეკლესია; 4. ყოვლისწმინდა ღვთისმშობლის მიძინების ეკლესია; 4. პეტრე-პავლესა და წმინდა თეოდორეს ეკლესიები; 5. წმიდა პანტელეიმონის ეკლესია; 6. ფერისცვალების ეკლესია, ბათუმი. [Transcription:

p'ont'oeli berdznebi ach'arashi: 1. puruni; 2. ts'mida nik'olozis ek'lesia; 3. ts'mida k'onst'ant'inesa da elenes ek'lesia; 3. ts'mida giorgis ek'lesia; 4. qovlists'minda ghtismshoblis midzinebis ek'lesia; 4. p'et're-p'avlesa da ts'minda teodores ek'lesiebi; 5. ts'mida p'ant'eleimonis ek'lesia; 6. peristsvalebis ek'lesia, batumi. Translation from Georgian: Movie. The Pontic Greeks in Adjara (1. Furuni, 2. Saint Nicholas Church, 3. Church of Saint Constantine and Helen, 3. Church of Saint George, 4. Church of the Dormition of the Holy Mother of God, 4. Churches of St. Peter and St. Paul and St. Theodore, 5. Saint Panteleimon Church, 6. Church of the Transfiguration], 2017 Tavdgiridze N. (2013). ფილმი – მერისი: ერთი დღე სოფელში, ბათუმი. [Transcription: pilmi – merisi: erti dghe sopelshi, batumi. Translation from Georgian: Movie - „Merisi“ (One Day in the Village) , batumi], 2013 Tavdgiridze N. (2019). ფილმი – ნაკონაღვარის მთა, ერთი დღე სოფელში, ბათუმი. [Transcription: pilmi – nak'onaghvaris mta, erti dghe sopelshi, batumi. Translation from Georgian: Movie - "Nakonaghvari Mountain" (One Day in the Village), batumi], 2019 Tavdgiridze N. (2024). ფილმი – გოდერძი, ერთი დღე სოფელში, ბათუმი. ფილმი – გოდერძი, ერთი დღე სოფელში, ბათუმი. [Transcription: pilmi – goderdzi, erti dghe sopelshi, batumi. Translation from Georgian: Goderdzi, one day in the village, Batumi], 2024

Natural events related to hydrological processes and ways to avoid them in the tourist area of Adjara

by Sophio M. Gorgijanidze¹⁰, Gocha A. Jincharadze, Mirian Silagadze¹¹, Zaza Gulashvili¹²

Abstract

Tourism is one of the priority sectors in the world. It determines the economic and political situation of the country, which is an important direction of sustainable development. Georgia is distinguished by its tourism potential. Its natural conditions and histo-ethnographic landmarks contribute to the development of tourist-recreational resources. In Georgia, the Adjara region is distinguished by the beauty of the Black Sea coast and mountainous regions. According to geostat data, the region is visited annually by more than 2 million visitors. We should also mention the natural events that occur every year in Adjara against the background of climatic warming and cause many losses. This has a negative effect on the tourism sector of the region. In addition, Adjara is distinguished by the abundance of atmospheric precipitation. As a result, there are always floods and waterfalls (2002, 2005, 2007, 2012, 2022 and 2023). There are many examples of them. Therefore, it is necessary to observe the natural hydrological events that occur in the Adjara region. Knowledge of their mechanisms and statistical analysis of frequencies. Such a forecast, depending on the seasons of the year, will lead to positive results in the future for the tourist potential and sustainable development of tourism in the administrative unit of Adjara.

Key words: hydrology, flood, waterfalls, atmospheric precipitation.

Introduction

Tourism means traveling for vacation, spending free time or business purposes. It is one of the priority fields in the world. Vacation planning is an important process for any employed person. Travel is possible everywhere these days. In high mountains, sea coasts, arctic or hot deserts. Today, tourism is one of the most global and popular industries, which is constantly dynamically

¹⁰ Sophio M. Gorgijanidze & Gocha A. Jincharadze- Institute of Hydrometeorology of the Georgian Technical University, Georgia.

¹¹ Mirian Silagadze -MA of political science, University of Salamanca, Spain.

¹²Zaza Gulashvili- MSc in Geography, Researcher at Institute of Geography

growing and developing in different directions. This is the reason for the formation of different types and directions of tourism, because tourism includes people with different segments, tastes, and needs, which must be satisfied with diverse tourist offers. It determines the economic and political situation of the country, which is an important direction of sustainable development. Therefore, it is necessary to study all the places, determine the expected threats and risks, in order to protect the residents and tourists there from the expected disasters.

It should be noted that Georgia is distinguished by its tourism potential. Its natural conditions and histo-ethnographic landmarks contribute to the development of tourist-recreational resources. Their intensive use began in 1960. Many tourist facilities were built to serve both local and foreign tourists. Until 1990, all districts were involved in tourism activities. The modern tourism development policy is aimed at fully utilizing and filling tourist facilities, which are presented in the form of hotels, family homes, hostels, camping sites and sanatoriums. At the same time, it was more developed, according to modern standards and the synthesis of historical culture. It is important that the local population is actively involved in the tourism industry, which increases the country's economic stability and demands.

For the first time, seven tourist regions were created in Georgia: Abkhazia, Adjara, Imereti, Guria, Samegrelo-Zemchi, Samtskhe-Mtskheta, and Racha-Mtskheta-Mtianeti. Later, some districts were expanded. (Geography of Georgia. 2000) Over the years, all regions have been involved and are actively receiving the flow of tourists. This gives a big profit for the country's economy. Among these tourist regions, Adjara stands out, because the region has always fascinated visitors with the beauty of the Black Sea coast and mountainous regions. According to Geostat data, more than 2 million visitors visit the region every year, which makes the tourism-economic potential here more demanding. According to the data of 2022-2023, the number of local and foreign visitors reached 1210.6 in 2022, and 2468.5 in 2023. The distribution of guests took place in 491 places of accommodation, while the number of guests in hotels was distributed to 1345.6 people. (Fig. 1 and 2) (www.geostat.ge)



Fig. 1 and 2. St. Batumi, multi-storey hotels (photo by A. Turmanidze)

But here we should mention the natural events that occur in Adjara every year against the background of climatic warming and cause many losses. This has a negative effect on the tourism sector of the region. In addition, Adjara is distinguished by the abundance of atmospheric precipitation (4500-500 mm). They contribute to the development of landslides, rockfalls, floods and water falls. Avalanches are also common in the mountains during winter. The years 2012-2016 were characterized by a lack of snow, during which many avalanches occurred in mountainous

Adjara, causing destruction and damage. Unfortunately, there were also victims. These processes are happening both in the past and now. Batumi, the capital of Adjara, is significant, which is always flooded as a result of active storms over the years.

Study area

Adjara is historical-geographical site of Georgia, which is located in the valley of Adjaratskali. The territory of the Adjara region has great history. It was populated from ancient time. Except cultural monuments from different period, there is a wonderful nature in here, in the form of sunny sea coasts and mountainous Adjara. Humid subtropical air is present here. With warm winters and cool summers. Rivers are mostly fed by atmospheric precipitation. The flora and fauna are also diverse because both sea and mountain landscapes are represented.

Adjara is located in the extreme south-west of Georgia, in the valley of the Ajariskali River, on the coast of the Black Sea. It is bordered by Guria in the north, Akhaltsikhe in the east, and the state of Turkey in the south. Its administrative center is Batumi. The Autonomous Republic of Adjara includes the municipalities of Batumi, Khulo, Kedi, Kobuleti, Shuakhevi and Khelvachauri. The highest peak of Adjara is Mount Kanli (3007m), which is located on the Arsian ridge. The main river of the region is Ajaristskal. Its tributaries are: Kavreta, Khokhnistskal, Agaristskal, Chvanitskal, Chirukhstskal and Skhalta. Adjara also has rivers: Kintrishi, Chakvistskal, Korolistskal, which flow straight to the Black Sea. The Kobulet-Chakvi ridge, which divides this side into mountainous and coastal zones, plays a decisive role in the formation of Adjara's microclimate. Due to its influence, coastal Ajara has a humid subtropical climate with warm winters and hot summers. In mountainous Adjara, the climate is less humid and the winter is snowless. The average summer temperature in coastal areas is 22-24°C, in the mountains - 17-21°C. In winter, it is 4-6°C in the plains, 3-2°C in the highlands. This area is not rich in lakes, although we can see a few lakes. (Maruashvili L. 1954, Maruashvili L. 1968, Maruashvili L. at al., 1971).



Fig. 2. Physical map of Adjara (S. Gorgijanidze, T. Gorgodze)

There are 4 protected areas in Adjara and each one is characterized by individual and endemic varieties. Adjara is also rich with seaside and mountainous resorts. Mountainous Adjara is especially fascinating, where sea and plain landscape mix. Tourist places are almost all over the spring and offer an unforgettable sight to the tourists. For example, Tago village is connected to Khulo district only by cable car. (<https://georgiantravelguide.com>) (Fig. 3) Therefore, many different factors cause catastrophic events in the study area. Hence, the subject of our research is hydrological natural events in the Adjara region: floods and waterfalls.



Fig. 3. Tourist facility in the village of Tago (1000 m) (photo by S. Gorgijanidze)

Data collection

The data collection will be through the works and researches of the Institute of Hydrometeorology. The material collected over the years was the basis of many works and articles. Data analysis was also done with the mutual cooperation of the Environmental Protection Agency of Georgia. Important data are discussed in v. Tsomaia and S. Gorgijanidze's monograph on water falls, where according to practical materials, expeditionary and annual studies, water falls are determined throughout Georgia. which provides important information on the factors of occurrence of floods. Current flood information is available from a number of information sources.

The facts

As we mentioned above, Adjara is characterized by an abundance of atmospheric precipitation. Against the background of climate warming, it is important in itself to know the negative consequences caused by their frequency. The frequency of natural hydrological events also depends on them, which creates a lot of problems for the region. During heavy rains, coastal flooding is frequent, which actively damages the surrounding area. In addition, the infrastructure and tourist facilities located on the coast are damaged. The years 2002, 2005, 2007, 2012, 2022 and 2023 stand out, when storms and coastal flooding occurred several times during the year. The level of the Black Sea has risen significantly. Adjara has risen by 22-25 cm during the last century, the result of which is that during the intrusion of the sea, the sea digs deeper into the land. And then brackish water causes bank erosion. If this includes agricultural fields and beaches, they are already severely eroded, easily flooded and destroyed by seawater. In addition, the power of storms

is increased, seasonality also changes the characteristics of water falls. Which is confirmed by many photo materials. (<https://batumelebi.netgazeti.ge>) (Fig. 4)



Fig. 4. Batumi, New Boulevard. February 17, 2017.
(https://www.youtube.com/watch?v=i3uf_1CWxxo)

The activation of landslides, which happens almost every year, is also dangerous, as a result many houses are destroyed, agricultural fields are damaged. Sometimes this process is accompanied by the blocking of river beds, which causes water stagnation. As a result, it is possible to breach a naturally flooded lake, which is accompanied by strong water falls. A sharp increase in the level of the rivers in the entire valley is common, and the consequences of floods are always negatively reflected both in the mountainous Adjara and in the downstream of the rivers. Due to heavy rains, landslides often occur in valleys, and floods and water falls occur on rivers. Such cases are frequent, for example, in 2005, the flood occurred on the Safristskali River, which damaged the surrounding road, destroyed bridges and disabled highways (Fig. 5). Such an event was repeated in 2021 and again damaged the surrounding areas and roads. (Fig. 6).



Fig. 5. River Safristskali valley 2005 (photo by S. Gorgijanidze)



Fig. 6. River Safristskali valley 2021, (<https://geologymaps.ge>)

In 2007, as a result of a landslide in the village of Feria, the river was blocked, but for a short time. Unfortunately, the necessary works were not carried out immediately and the breakthrough of the dammed water caused a flood. Houses and infrastructure in the river valley were damaged.

Also, in 2016, there was a flood on the Akvareti river, which completely washed away the infrastructure of the restaurant "David" in the village of Oktomberi. The raging river in the Uchambi administrative unit took away the Kvafti bridge and cut off four villages from the central road: Tsablana, Samoleti, Mofrineti, Laklakeri. The water also washed away the iron bridges of Gomikri, Okhorti and Tsiskviligheli in the village of Kviriavli. In the village of Kviriavli, the homestead of 10 families located on the shore of Uchambiskali was flooded.

A similar process took place in 1989 at river Sakhlta. A flooded lake appeared. It was the result of blocking the valley by a landslide that came as a result of intense rains. (Fig. 7)



Fig. 7. Skhalti Dammed Lake and Skhalta River. (1989 photo by V. Tsomaia)

River On the left slope of Skhalta, the Salgoman mountain was hit by a landslide. The landslide came in two waves. During the first wave, the village of Tsablana, where 4 families lived, was completely buried. At the same time, the landslide engulfed the river Skhalta valley. It was followed by a second wave, during which the passengers who came to the rescue were killed. The second landslide further strengthened the submerged area of the river, buried the road that ran on the opposite slope. River above the dam. He buried the road that ran on the opposite (right) slope. The total volume of the crushed mass was 1.3 mln. m³, the width along the river Skhalta - 450 m, the thickness to the crest of the dam is 45 m. Above the collapsed dam, the Skhalta River dammed up and a dammed up lake was formed. (Fig. 8) (V. Tsomaia. S. Gorgijanidze. 2009).

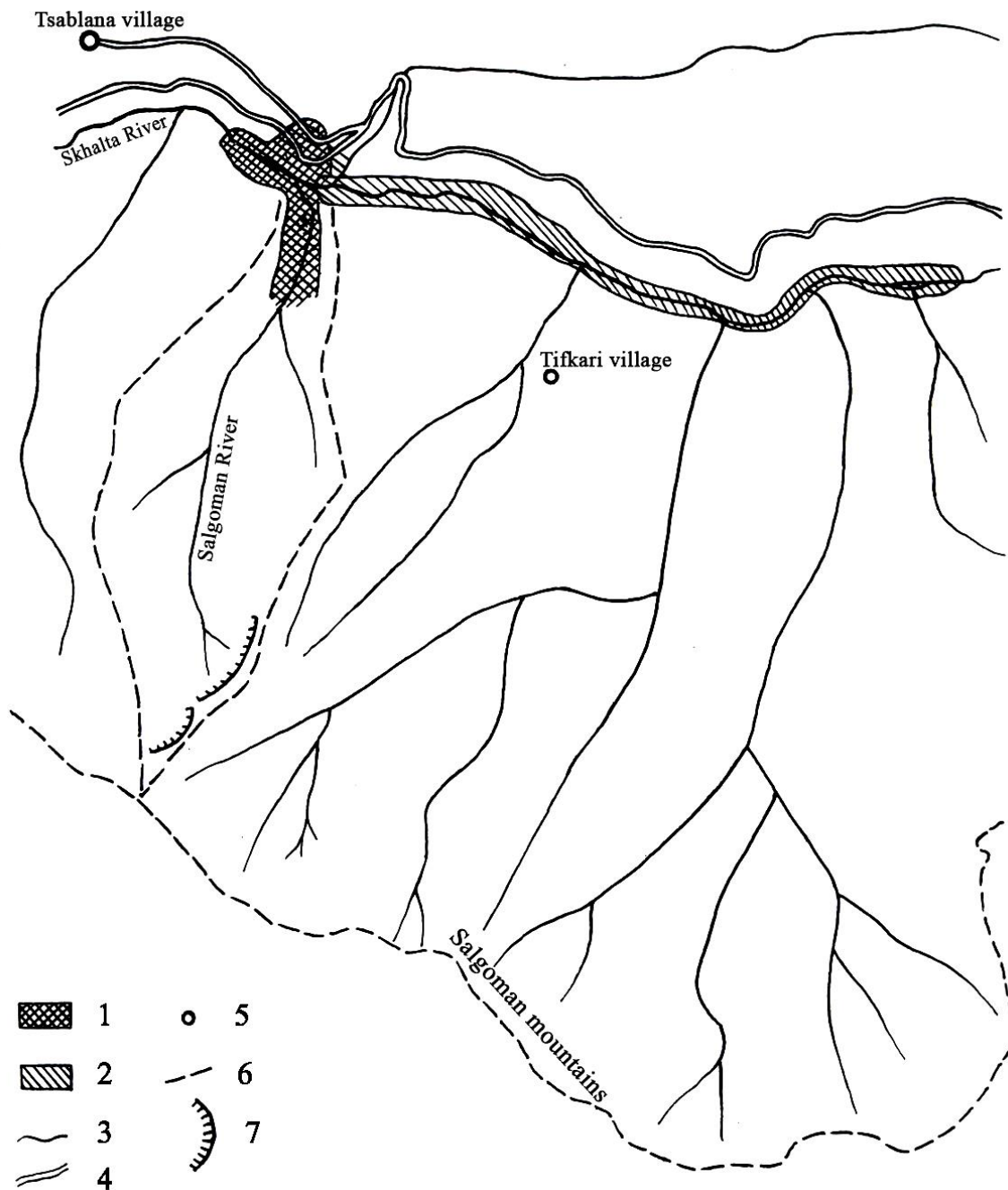


Fig. 8. The rock-avalanched area of the Skhalta river and the flooded lake in the village of Tsablana (April 14, 1989). (1. A hollowed-out area; 2-a flooded lake; 3-a river; 4-a road; 5-a village; 6-a path; 7- rocky shores). (V. Tsomaia, S. Gorgijanidze)

If there was no place for its breakthrough and the related catastrophic flood, the channel was made. As a result, the flooded water went down, and a dangerous waterfall was avoided.

In the period of 2022 and 2023, such natural events took place several times, which caused significant damage to Batumi and its surroundings. The beginning of 2024 turned out to be tragic.

On February 6, the avalanche took the life of one person who saved his family and could not get out of the avalanche cone himself. It is worth noting that during snowless winters, avalanches came here for years. Expedition groups are currently going to study avalanches with the participation of the author (S. Gorgijanidze, M. Pipia, N. Beglarashvili, G. Jincharadze). The degree of avalanche hazard in Adjara is marked by particularly strong, less strong, medium and weak raions and the corresponding map is made. For 32 Avalanches of khullo-Mlashe, Batumi-Akhaltsikhe Road, a schematic map of avalanche hazard, as well as for 161 avalanches of mountainous regions of Adjara and 32 avalanches, which converge on the automobile road, are computed morphometric and dynamic Indicators. (M. Salukvadze. 2020., S.Gorgijanidze at al.)The given schematic map shows the places of active avalanches in Adjara. (Fig. 9)

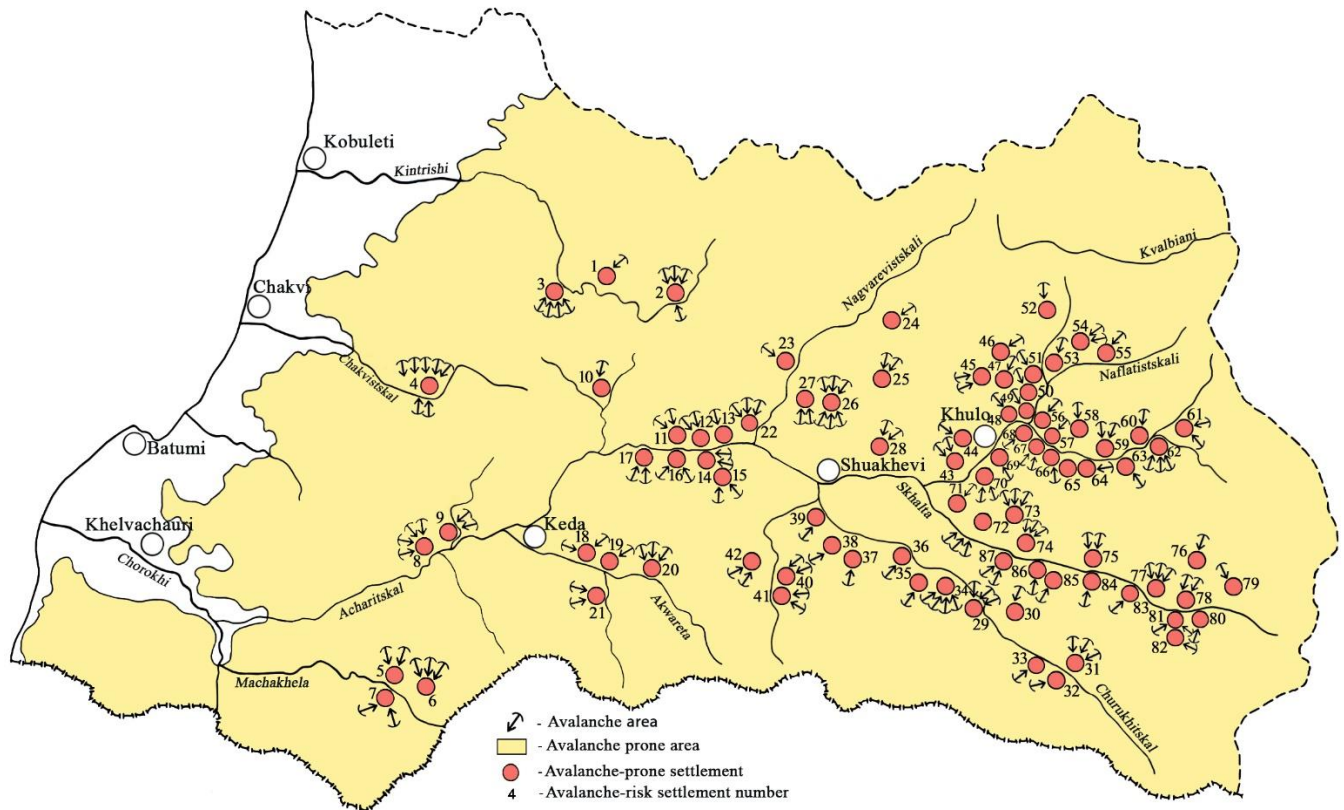


Fig. 9. Avalanche settlements in the Adjara region (M. Salukvadze, S. Gorgijanidze)

Methodology

It should be noted that certain mechanisms and methodology have been developed by a group of authors, which consider the ways to prevent floods caused by the breakthrough of lakes dammed by river intrusion. It gives a certain forecast of what might happen to this or that blocked river. The methodology includes several stages.

1. Firstly, the height of the impoundment dam (h) is measured, and the length (L) and width (B) of the embankment on the crest of the embankment dam are calculated for the height of the dam using a topographic map. Based on the received data, the volume of the boiler resulting from the intrusion is determined (W) by the formula:

$$W = \frac{l \cdot B \cdot h}{k},$$

where k is the coefficient to be calculated, it is considered equal to 3.

2. The expected length of flooding on the flooded area is determined, which begins with the overflow of water from the banks of the river;
3. The water consumption of the river and its tributaries above the catchment will be measured using known methods in hydrology. If we indicate the total water consumption of the river and its tributaries ΣQ , then the duration of filling the boiler (T) will be:

$$T = \frac{W}{\Sigma Q}$$

In this case, T is calculated in seconds, then converted to minutes, hours or days in the usual way.

4. As a result of the mass of water accumulated in the boiler, the dam can be breached. During breakage, a trapezoidal shaped river bed (similar to the well-known sluice in hydrometry) is produced. Therefore, the maximum flow of water is calculated by the well-known formula in hydraulics:

$$Q_m = 1,9B \cdot h_1^{\frac{2}{3}}$$

5. The maximum flow of water in the transit areas of the river undergoes a transformation due to the expansion of its water. In this regard, the use of the isochronous theory describing the flow gives us better results, according to which:

$$Q_{mn} = \frac{1}{l + l_n} \cdot Q_m, \quad ,$$

where Q_m - is the maximum flow of flood water at the breakthrough location; (V. Tsomaia. 1985)

The maximum flow of water in the transit areas of the river transforms due to the expansion of its water. In this regard, the use of the isochronous theory describing the flow gives us a better result, according to which we will understand the magnitudes of the water expansion. (Tsomaia Gorgijanidze, monograph 2008.) These data provide the basis to further determine the duration of water filling of the dammed lake in the research areas and hydrographic parameters: maximum

and average costs of flood water, total duration, total volume of dammed water, and assessment of the stability of the dam. The main factor here is the water, which has a place to lie on the bottom of the mass that has been crushed as much as possible. (V. Tsomaia at al., 2009)

Conclusion

Methodology, statistical data and many theoretical materials reveal that the Adjara region is distinguished by its beauty and attractiveness, although it faces the threat of hydrological natural events almost every year. That is why this area is always being researched and studied, which allows to avoid these events. It should be noted that many prevention methods are improving at the modern stage. An early warning system has been developed which can completely or partially avert an impending threat to the region.

Avoiding floods is therefore one of the priorities in this region. In the conditions of abundant rainfall, the main thing is the correct management of the natural event, which will cause relatively less damage and, most importantly, will not be a victim of the population. This is an important issue for the sustainable development of tourism in the Adjara region.

It should be noted here that in the background of climatic warming there are also objects that suffer not from natural disasters but from environmental ones. Such are the lakes in the Ghorjomi valley formed by intrusion. Their breakthrough came with a small loss. Then 4 swampy lakes appeared in the area, three of which are actually on the way to swamps. However, this area is one of the attractive areas for tourists in mountainous Adjara. The existing lakes, which are hidden in the dense forest massifs, are the target of many hikers. They are in danger of disappearing in the face of today's climate warming, which in itself is an ecological disaster.

Based on all of the above, it is necessary and aimed to always observe hydrological natural events, which occur in the Adjara region almost every year. Knowledge of their mechanisms and statistical analysis of frequencies will allow us to properly manage catastrophic processes. Such a forecast will lead to positive results in the future depending on the seasons of the year. They carried out all the works that represent the strengthening of the river valleys, as well as the construction of protective dams, laying of canals and many other protective measures. This will avoid the expected victims and losses in the region. Incorrect utilization of agricultural land, water erosion and other ecological problems should also be taken into account. Finally, it will have a positive impact on the sustainable development of tourism potential and tourism in the administrative unit of Adjara. This is most important for the economic stability of our country.

References

- Geography of Georgia. 2000 "Science" publishing house. Tbilisi. 235. p.
- Gorgijanidze S, Saluqvadze M, Gorgodze T. 2023. Avalanche danger and strategic purpose of passes and roads located in the border zone of Georgia. 49 p.
- S. Gorgidjanidze, N. Beglarashvili, M. Pipia, N. Kobakhidze, G. 2023. Jintcharadze The Spread of Snow Avalanches at Transport Junctions in the Mountainous Regions of Georgia. European Journal of Sustainable Development vol.12. No. 3
- Maruashvili L. 1954. Landslides and avalanches in Georgia. Science and Technology. #2, Ed. "METSNIEREBA", vol., 1954., p. 78-80.
- Maruashvili L. 1954. Physical geography of Georgia. I., TSU ed. Vol.,pp. 16-168.
<https://georgiantravelguide.com>
- Maruashvili L.I., Astakhov N. Tskhovrebashvili Sh.A. Maisuradze G.M. 1971. Caucasus-Geomorphologia of Georgia. From. "METSNIEREBA"., Tb. 233. p.
- Saluqvadze. M. 2020. Avalanche Hazard of Adjara Mountainous Regions. Institute of Hydrometeorology of the Georgian, Technical University., 103 p.
- V. Tsomaia, G. Gachechiladze, S. Gorgijanidze, M.Pkhakadze . 2009. Clogging Floods and Flows in Georgia. Institute of Hydrometeorology of the Georgian, Technical University.,153 p.
- V. Tsomaia. 1985. "Age of the Gray Caucasian Youth". Tb., "Science", 44 p.
<https://www.geostat.ge/ka/modules/categories/100/turizmis-statistika>
<https://georgiantravelguide.com/en/adjara>
https://www.youtube.com/watch?v=i3uf_1CWxxo
<https://geologymaps.ge/ka/municipalities/Khulo/danisparauli-village-sapristskali-river-1>

The Impact of Digital Technologies on the Management of Georgian Tourist Destination

by Maka Piranashvili¹³, Maia Meladze¹⁴ and Lizi Dzimistarishvili¹⁵

Abstract

Digital technology has completely changed the modern world, it has become the preface of great changes in many areas of business, including tourism. Digitization improves accessibility to cultural heritage sites and is a prerequisite for the sustainable development of a tourist destination. In the age of technology tourist choose their destinations online or use some mobile applications and plan trips. It is clear that destination management organizations should work on technologies development. The COVID-19 pandemic has accelerated the need for digital business practices as travelers' demand digital communications, online sales and contactless solutions. In order to see how important digital technologies are for the development of a tourist destination, we will consider the results of several studies. The article aims to describe how digital technologies can be used to maximize benefits and minimize negative impacts on the tourism destination management.

Keywords: Digital technologies, digitization, destination, smart tourism, virtual reality, COVID-19 pandemic.

Introduction

Tourism organizations and developers of digital technologies have invented a number of platforms that are improving day by day and are focused on users' comfort. Along with the growth of digital technologies, the popularity and relevance of social media webpages is also increasing. Digital technologies have radically changed the culture of tourism, and tourism organizations have also focused on the use of social media, online networking platforms and mobile applications.

People travel for a variety of reasons: to escape, explore, understand, and participate. But at the core of the experience lies the destination — the place that hands something to the traveler to keep forever and share with others. On the other hand, digital technologies are a very powerful tool for DMO marketing. It increases customer awareness and delivers a message; clarifies what are current travel trends and perceptions visitors have of the destination compared to other places, among many other kinds of data [14].

¹³ Associate professor, Grigol Robakidze University, Georgia, m.piranashvili@gruni.edu.ge

¹⁴ Associate professor, Grigol Robakidze University, Georgia, m.meladze@gruni.edu.ge

¹⁵ Bachelor student, Grigol Robakidze University, Georgia, lizi.dzimistarishvili21@gruni.edu.ge

It is noteworthy, that digitalization is developing in the Georgian market day by day. Tour agencies, hotels, restaurants, museums, destinations organizations and other local businesses are trying to create diverse services. However, the digital elements of self-service still need refinement [11]. The aim of this paper is to investigate consumer behavior in the Georgian market in relation to the use of digital technologies for travel and how digitization affects the development of tourism destination management. In addition, revealing the impact of the pandemic on the growth of the use of digital technologies. The article reveals and analyzes the reality and the existing situation.

Literature Review

Tourism is one of the sensitive field, every new change can have a great impact on it. According to Zelenka [18] the information and communication technologies (ICT) have change tourism industry in many aspects, mainly by the 80 of the last century and we can speak about among business subjects, destination image (more accurate „mental maps“) creation, information access, reduction of tourism products prices, transportation security, market competition, or CRM (Customer relationship management). A. M. Morrison in his book “Hospitality and Travel Marketing” (1989) wrote that tourism and hospitality marketing were retarded in comparison with other industries for about 10 to 20 years. A very quick development of the ICT in tourism completely changed situation, and in the „Internet and Mobile Communication Age tourism marketing is a sophisticated, multileveled, dynamic and highly developed part of tourism industry [18].

Internet has become indispensable for destination, tour operators, and other service providers. And it has become lethal for middle men such as travel agencies whose services travelers increasingly bypass as the internet allows them to communicate directly with destinations. Thus a destination web portal should be an integral component of the marketing strategy. Destination websites generally act as the main gateway for tourism information, but can provide a number of services such as promote local attractions and activities, list local tourism businesses, suggest itineraries, and provide relevant regional history and geography [14].

Additionally, in recent years, digital technologies have been increasingly recognized as a key enabler of sustainable tourism development, providing new opportunities for improving destination management, enhancing visitor experiences, and promoting sustainable behaviors among tourists. The adoption of digital technology has the potential to support sustainable tourism practices by improving operational efficiency, reducing waste and emissions, and enhancing the tourist awareness [17]. In addition to marketing, the aim of the destinations organizations should be to develop technologies that will promote sustainability.

Ukleba in her book (2017) mentioned that the theories of destination promotion and development need to be realized with practical actions, including marketing initiatives and activities are considerable [15]. Such activities are accomplished by the Georgian National Tourism Administration (GNTA). The familiarization tours organized by GNTA at international exhibitions occurred in the internet space of many countries that helps to provide information about the tourist opportunities of Georgia to a wide spectrum of the population. For this purpose many digital

projects are implemented the official website of the Tourism Administration, the social platform of Georgia Travel, where influencers share their experiences, have been created. Apart from this, SKYCANNER, EXPEDIA, AIRBNB, EDREAMS digital media marketing platforms are noteworthy [5].

According to Archi and Benbba (2023) digital technology allows potential tourists to experience a destination before they book a trip, which can help them make more informed decisions about where to travel. In addition, virtual reality (VR) tours has become very popular, especially during the COVID pandemic, it can be a powerful tool for destination marketing in the tourism industry. VR can allow visitors to improve their perceptions by considering hedonistic and emotional experiences. Moreover, it is important to emphasize the process of sustainable tourism development. VR protects the environment from damage and pollution. On the other hand, it protects destinations from damage that can be caused by tourists, whether at the site's heritage, environmental or social level [17]. Smart solutions provide all stakeholders of tourist destination with new digital opportunities and means to co-create value [2]. Digital technologies help DMO to develop products, partnership, community relations, marketing and promotion, coordination and leadership.

In according to Meladze (2018) communication in a world where we are inundated with advertising and personalized communication, it is vital to build brand relationships; moreover, the power of social media means that today's tourist can tell the world about your destination's shortcomings through YouTube or Facebook in a click. Thus, the interface between DMOs and tourists has completely changed. No longer is the marketing mix about product, promotion, path, pricing, packaging and push. It is the consumer 2.0 marketing mix based on conversations and context, connectivity, collaboration, creativity, collaboration and cooperation.

Methodology

The research methodology of the article is based on primary and secondary research data. Materials provided by articles, research papers and literature reviews were used during the research, as well as books of Georgian and foreign scientists. Furthermore, statistical data and additional information was retrieved from Georgian National Tourism Agency and Georgia's Innovation and Technology Agency.

The qualitative research method was used to study the challenges of the Destination Management Organizations (DMO) in using the online programs/applications. The quantitative research method was used to study the role of digital technologies in the management of destination and highlight the importance of modern technologies. Data was collected by using online surveys that were distributed through various platforms such as social media, online forums and email invitations. The confidentiality of the respondents is ensured.

Digital Technologies in Georgian Market

According to GNTA Strategy Plan (2025) one of the main priorities for tourism development is implementation of content-oriented marketing activities with internet and social media tools, including stories through sharing (storytelling) and thematic campaigns. Furthermore, facilitating the transition to digital booking and payment systems in the field of tourism. For this purpose, in 2024, the digital conference TRAVERSE was held in Georgia for the first time. Within the framework of the event, about 180 influencers from Great Britain, USA, Germany, Poland, Spain, France and other countries visited Georgia. Their works were covered in the internet media. Apart from this, the “Digital Days” campaign was very important, which meant the visit of foreign influencers to the tourist destinations of Georgia and spreading their impressions around the world, that includes international platforms: Facebook, Twitter, Instagram, TikTok, YouTube [5]. Such campaigns contribute Georgia’s popularization. All of this is reflected in the increased number of international visitors. In 2023, Georgia received 7,072,220 international travelers (growth +30.3%) of which 4,669,467 were international tourist (growth + 27.8%), revenues amounted to 4.1 billion dollars. The most visited destinations were: Tbilisi, Batumi, Mtskheta, Kutaisi, Kazbegi, Gudauri, Borjomi, Signaghi and etc [5].

The growth of role of digital technologies has become clearly in the Georgian market as well. In 2022 36.5% of international visitors received information about Georgia from the internet or television. It is obvious that the internet and television are one of the main ways of obtaining information. Embracing digitalization, Georgia’s cultural tourism industry is undergoing significant transformations. From the table 1. we can see that the use of information technology for the research of a tourist destination is still not properly used.

Table 1.

Sources of receiving information about Georgia by international visitors (2023)

Information Sources	% Share
Person of Georgian Origin	2,7%
Previous Visit	52,9%
Friends, Relatives	56,5%
Organization, Business Partner	6,4%
Television, Radio	10,7%
Travel Agency, Tour operator	1,8%
Promotional Materials	0,1%
Travel Fairs	18,4%
www.Georgia.travel	18,4%
www.facebook.com/georgiaandtravel	18,4%
www.wikitravel.com	18,4%
www.lonelyplanet.com	18,4%
Other Internet	18,4%
Other	18,4%

Source: National Statistical Office of Georgia

When we analyze the importance of technologies for the Georgian tourism sector, we must compare not only the world experience, but also how the sector has developed in our country over the years. For example, 3-4 years ago it was a very unfriendly environment for technology. Some businessmen believed that Facebook or Instagram pages would be enough for their business. Modern technology is much more, and this view is becoming more and more popular in traditional businesses as well.

The attitude of users, for example, towards Booking.com has changed. If earlier tourists used this platform to search and book a hotel to stay, now they use the web-site more for hotel viewing. Now the traveller on booking.com often only looks at the hotels and then tries to get in touch directly. Thus, customers expect that if they contact the hotel personally, they will receive the service at a better price, or they will participate in some promotion and have breakfast for free, etc. This trend is already widespread in the world and Georgia should be ready for it. The hotel should have its own website where it welcomes guests.

In the not-so-distant past, for example, even a year ago, bookings in some hotels were recorded in Excel, and the location was not correctly marked on the Google Map. It may be easy to work in Excel, but working like that in itself means that the business is not thinking about growth. When the business is placed on different channels, Excel becomes inflexible. Georgian business has slowly started using Channel Manager, which is welcome. Channel Manager simplifies operation - protects from unnecessary booking, puts everything in one space. This allows the business to be present on as many platforms as possible. Digitization may seem difficult today, but tomorrow it will save time, save the energy of the employee, and they, in turn, will be more cheerful, loyal to the customer. Ultimately, the main goal is to increase customer satisfaction.

Technology innovation has expanded the horizons of the tourism experience. It is noteworthy that Vrex Immersive Inc is Georgian famous company which specializing in creating virtual reality experiences for travel industry. Collaborates with hospitality and tourism clients, enabling them to develop immersive content for potential customer. Their products are presented at exhibitions, organized by the GNTA in such countries as Spain, France, Germany, the United Kingdom, Poland, etc. People can virtually visit Georgian destinations, for instance: Tbilisi, Kazbegi, Mestia, Mtirala National Park, Paliastom Lake, Uplistsikhe, Vardzia, Rabati, Bakuriani, high-mountainous Ajara and others. Consumers can experience all the sensations associated with rock climbing, skiing, Georgian national dances, participation in grape pressing, hiking in national parks and more [16].

After such experiences, the desire to visit the destination and get real feelings intensifies, that leads to an increased number of tourists. Additionally, tourist destination managers can use VR to create marketing campaigns that show tourists the unique features of the destination and attract them. Virtual reality tours are new to the Georgian market, however their impact on destination management is glaring. This is what determines the partnership of government sectors with this company, namely: National Tourism Administration, Mountain Development Company, National Agency for Cultural Heritage Protection, Ministry of Economy and Government Administration. Along with the public sector, the private sector is also interested in this product. . The DMOs that have used VR technology in their marketing have developed and improved their sales.

In addition, Georgian National Museum developed a virtual museum for online exploration of collections and exhibitions. Tbilisi Open Air Museum of Ethnography offers an audio guide accessible via mobile phones for visitors. Many destinations in Georgia utilize digital technologies to enhance visitor experiences and promote sustainable tourism practices. City of Tbilisi implements a smart tourism system with real-time information on attractions, transportation, and events. These examples make it clear that Georgian businesses try to develop digital technologies.

Representatives of the tourism sector of Georgia actively use modern booking applications. Such mobile applications as Audio Guide Georgia, TravelGis, Biliki make the trip to Georgia even more interesting, comfortable and unforgettable for tourists. For example, the Audio Guide Georgia application performs the function of an audio guide and provides the services of a physical guide to tourists during excursion. It not only informs tourists about various history and places in detail, but also helps them to discover sightseeing from a completely different angle [3].

One of the successful Georgian application is Biliki. It is founded in 2019, to enhance the tourism experience. The main purpose of the application is to help tourists both at the stage of travel planning and directly during the trip. After selecting the desired tour, it becomes possible to see all the information - route map, weather, required time and distance, information about the place, possibility of renting a car, ATMs, gas stations and all necessary details.

The application is used by 1800-2000 visitors every month. It should be noted that the application is not only presented in Georgia, but also covers the tourist markets of Poland, Turkey, Azerbaijan, Estonia, Italy, Bulgaria and Israel, and also cooperation with Baltictrails LT with 176 digital tours [1]. With such electronic applications and digital devices, tourists save time and plan their trip easier, thus the desire to visit different destinations is increasing.

Georgian society and the private sector are distinguished by their open attitude towards news. This is reflected in everything from the frequency of use of ChatGPT, to social networks and cryptocurrency. The Georgian society is receptive to text start-ups' in the field of tourism at an early stage. For example, e-Consul makes it easier for people to get a visa in countries where Georgia does not have visa-free travel, the demand for their service is quite high. The state can learn and absorb a lot from such a business. For example, start-ups like e-Consul have electronic databases of people's travel history.

Technology penetration in traditional business should be increased. The eHotelspace platform helps hotels build websites so that the process is very fast and businesses don't have to wait for months. For a long time, hotel owners considered Booking, Airbnb, Facebook or Instagram pages to be their main work platforms. However, they soon saw the need to have their own website, which eHotels would help them with. Using these modern platforms will save both business time and increase customer satisfaction. The appearance of artificial intelligence completely changed the rules of the game and took it to a new level. The Georgian tourism sector should also follow this.

In addition to the international and Georgian tools mentioned earlier, the research revealed the use of digital products developed in Georgia. These include self.ge, retain.ge, area.ly, travelgis.ge, LiveCaller.io, wifisher.com, Fina, FMG, Tripcamp.ge.

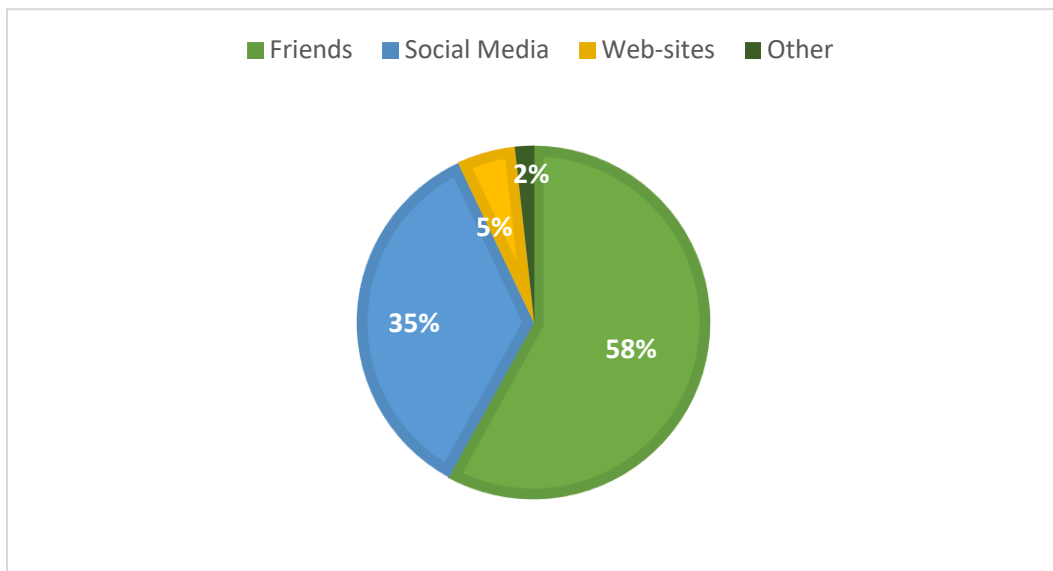
How travelers are using digital technologies

As mentioned the aim of this research was to investigate how important digital technologies are to travelers, how often they are used, and whether their development is necessary for successful marketing for management of DMOs.

Research covers a diverse range of characteristics. However, the following results are particularly interesting around the current topic:

The results of the research showed, that sources of getting information for 58% were friends, for 35% was social media and for 5.3% was web-sites (See figure 2).

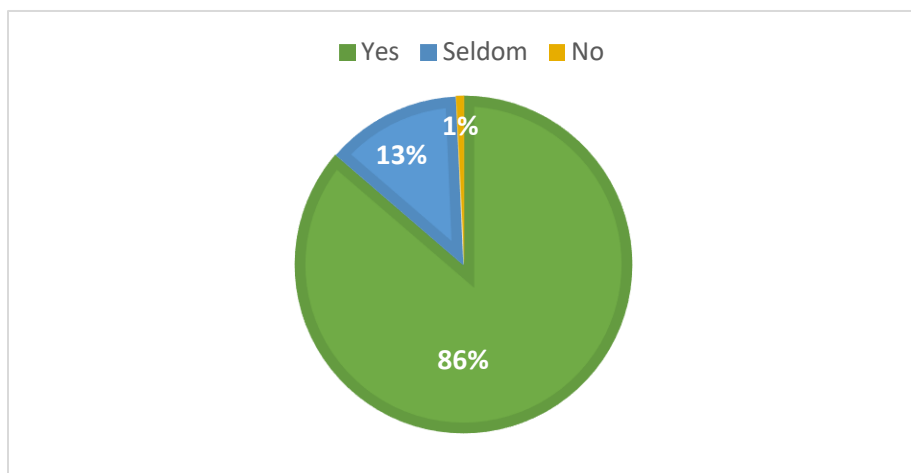
Figure 1 Sources of getting information



Source: Authors' according to the research

The frequency of using mobile apps statistics showed, that 86.3% were using them, 13% used them seldom and 0.7% did not use (See Figure 3).

Figure 2 Using mobile applications while traveling

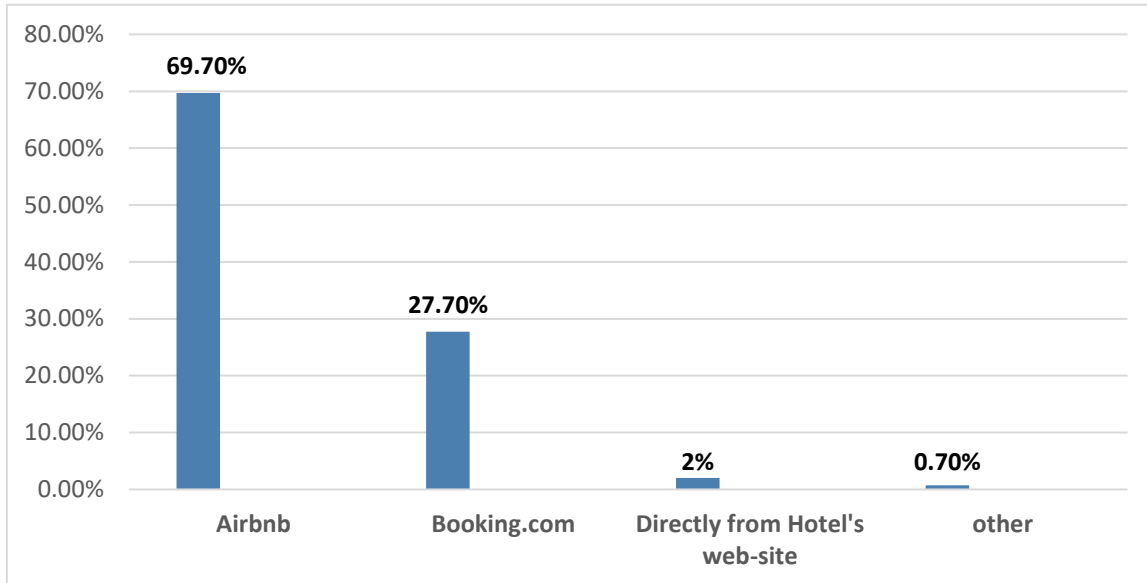


Source: Authors' according to the research

According to the research, the most popular web-site/app for accommodation booking appeared Airbnb (69.7%), then comes booking.com (27.7%); 2% of respondents book it directly from the hotel’s web-site (See Figure 4)

Figure 3

Popular applications/web-sites for accommodation booking

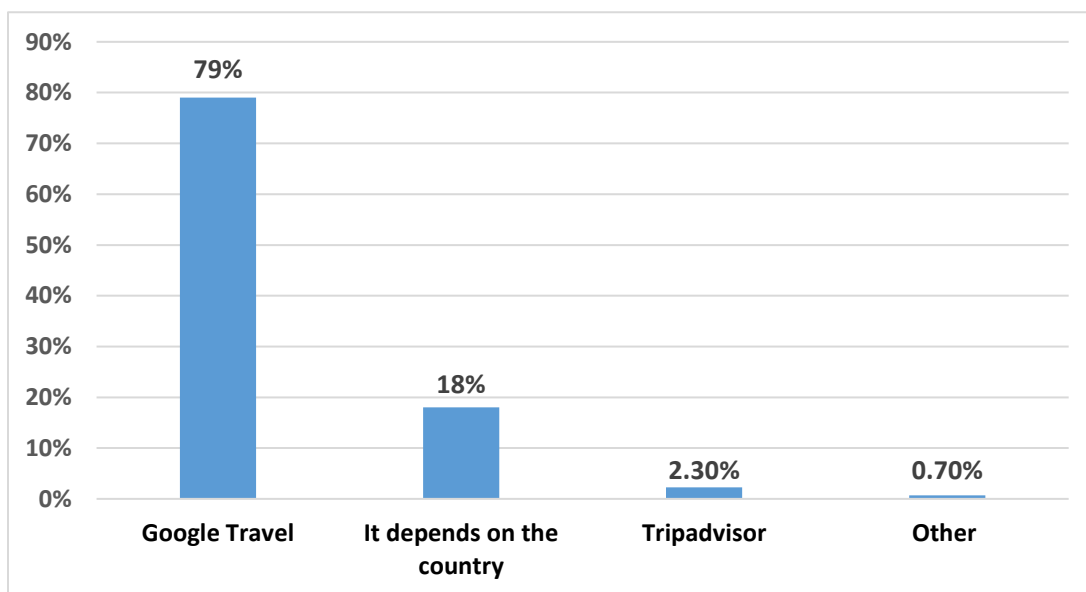


Source: Authors' according to the research

The apps which are mostly used by digital travelers are google travel (79%), 18% answered that, they are downloading apps by country, and 2% use Tripadvisor (See Figure 5).

Figure 4

Applications which are used while traveling



Source: Authors' according to the research

Additionally, the research showed that 83% of respondents had information about Georgian applications and 17% did not. It is quite a high result. The development of mobile applications has started in Georgia in last few years, and such a result shows their popularity on Georgian tourism market.

The following survey, which was conducted among members of the Travelers Club (Facebook group), gives us an interesting result, the results of which are compared to the 2021 survey [4]. On the first question about how they use their mobile phone for travel, this time the majority of respondents favor the use of social media websites with 38.8% and the least bloggers with 4.5% (See Table 2).

Table 2 Sources of information when planning a vacation using a mobile phone

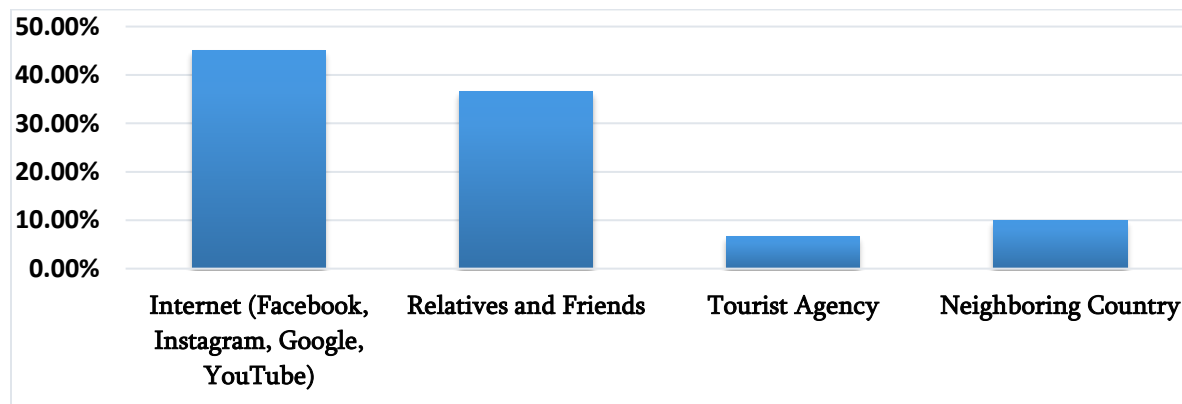
Sources of information	Year	
	2021	2023
Using a search engine for general pages	48.6%	30.9%
Social media websites	20.8%	38.8%
Online travel agencies websites	8.2%	7.9%
Airbnb.com	3.2%	7.3%
Recommendations of Friends	11%	10.7%
Bloggers	8.2%	4.5%

Source: Authors' according to the research

At the same time, on the question whether the use of digital technologies to purchase tourism products has increased since the pandemic, 68.5% agreed with it and 32% did not.

One more research conducted showed that for 46.6% of tourists, the main source of information was the internet, which combined such social platforms as Facebook, YouTube, Instagram, Google and online websites. For 36.6% the source of information was friends and relatives, and for 6.6% travel agencies/advertisements (See Figure 5). According to the mentioned data, it is clear that internet tools are an integral part of tourist travel, that is the reason why correct and attractive PR is important, but at the same time, it is crucial what tourist relatives and friends think about the country.

Figure 5 The influence of information flows on foreign tourists who travel in Georgia



Source: authors', using Google Forms

How can digitalization change destination: Case of Adjara and Surami

For hospitality sector digital technologies become more and more important. In our simplified, full-of-choices modern times, only properly marketed businesses survive. For a present vacation tourists need well maintained techniques, especially when we talk about hotels and other accommodation facilities.

Ajaria is considered one of the best places for holiday stay in the territory of Georgia. Beautiful nature, subtropical climate and splendid sea will guarantee an energy boost here to last for the whole year. More than half of Adjara's economy is related to the tourism industry, with HORECA, other tourism services and RE transactions accounting for 35%. The number of trips that brought foreign visitors to the locality reached 2,694,147 in 2023.

Tourism agencies and hotels in Adjara use developed digital products like as Amadeus, Omio, Expedia, Skycanner, Booking.com, Airbnb.com, apart from this, incorporate technologies from local Georgian providers (self.ge, retain.ge, biliki.ge, area.ly, travelgis.ge, LiveCaller.io, wifisher.com, Fina, FMG, Tripcamp.ge and Oris) which enables a balance between embracing global trends and supporting the local ecosystem.

It should be emphasized that Batumi successfully hosts tourists and offers them highest services, the accommodation facilities there have hotel mobile apps, mobile payments, feedback apps, smart room technology, high speed internet that makes tourist trip more comfortable, convenient, easy and pleasant. All of this can be proved by the fact that Batumi won the award of Europe's Leading All-Season Destination 2023 at the so-called tourism "Oscar" - the World Travel Awards. And "European Best Destinations" admitted this city as the best European travel destination for 2024 [<https://www.worldtravelawards.com/>].

The department of Tourism and Resorts of Adjara Autonomous Republic ensures the popularization of the region as a tourist destination on a national and international levels. In 2023, it was organized press tours hosting media professionals from various countries to promote the region. About 500 journalists, bloggers and representatives from tourism agencies visited Adjara as part of the promotional campaigns and spread information and emotions in the internet. Domestic tourism campaign reached over 100 million hits on social media platforms. It is obvious, that internet is the one of the most popular instrument for destination marketing.

Georgia has many climate resorts but most of them are not developed enough. Surami is one of the outstanding resorts for its healing properties, which became particularly clear after Covid-19 pandemic, it provides an opportunity to strengthen the immune system. It has a big potential to become a high demanding destination. "Surami Tourism Capacity Survey" shows the opportunity of this resort. 58 accommodation facilities in Suram participated in the survey. The results showed that 77.6% (45) out of the 58 accommodations are guesthouses and 17.2% are cottages, the number of hotels is low, hospitality sector needs more development. The main reason of traveling to Surami is recreation (44.8% for leisure, 37.9% for treatment). It is noteworthy, that urban infrastructure is completely incompatible not only for disabled people, but also for general and especially children's safety, which is a big problem for tourist and destination management.

Surami has the best location, it can host both residents and international travelers/tourists traveling to East, West and South. But before that there must be modern and well-equipped technologies. Most of the Surami visitors are Georgians (91.4%), it is clear, that the resort is not attractive among tourist. Without digital services, customer relationship system and environmental monitoring and sustainability tools positioning in a competitive market is very difficult.

To summarize, the integration of digital products allows hospitality businesses to streamline operations, attract guests, improve management system and stay competitive in a rapidly evolving industry. The case of Adjara and Surami is an example of how digitization and modern technologies can change destinations and how they help DMOs.

Discussion

It can be stated, that digital technologies have completely changed the lifestyle of travelers. Travelers nowadays are not booking tickets or hotels at travel agencies as they were doing it before. They prefer to plan everything on their own, so DMO must become a source of authentic information and must proactively stimulate, distribute and influence online content. Destination organizations should care about how active their websites and portals will be. The discussed data, also showed that in Georgia, there are Georgian digital apps, but Georgian travelers are gradually getting used to use it. The range of using internet tools is quite high. According to the research the digital market of Georgia offers users both web sites and mobile applications, which will give possibility to book any hotels. Mobile applications as Audio Guide Georgia, Biliki make the trip to Georgia even more interesting, comfortable and unforgettable for tourists. Such applications connect people with the main tourist locations of Georgia, they suggest travelers both specific tours and alternatives. These types of products create the country's image and brand.

The research once again shown that internet is one of the main source of getting information. The campaigns which will be hold by organizations and business must be covered online. The role of information is underlined by UNWTO „the key to success lies in the quick identification of consumer needs and in reaching potential clients with comprehensive, personalized and up-to-date information”. The combined use of international and Georgian digital products in tourism operations allows businesses to leverage global standards, meet local needs, and create a well-rounded and adaptable digital infrastructure. Digitization is one of the indicators of success in the current reality.

Conclusion

To conclude, the functioning of the modern world is practically impossible without digital technologies. Consumer lifestyles and behaviors are greatly influenced by social media networks and mobile devices. Tourism business has to keep up with the latest digital trends, if they want to successfully operate on the market. Destinations must have a digital presence, because it can improve visitor experiences, increase engagement, and promote sustainable practices in cultural tourism. DMO should care of their online platforms development, online communication channels

are the most favorable tools for implementing marketing policies. Website can be the most dependable salesperson for the destination, modern devices attract customers, and create an image of company. Nowadays people travel more and they prefer to lose less time and finances, therefore internet is the place that helps them. In addition, Covid-19 pandemic has made it clearer that modern devices are essential in every industry, they contribute to solve problems easily.

Georgia has a huge culture, history and wonderful nature, tourism has a significant influence on country's economy, so the main task is its promotion. Public and private services are trying to popularize tourism and hospitality industry by establishing new products and services. More hotels, restaurants, entertainment/leisure centers should to be integral with digital technologies, social media management, CRM and sustainability tools, in Georgia. If we want to take leading position in the international market, it is necessary to work on the development of tourist destinations and their digitization, because digital technologies are an integral part of the 21st century.

References

1. Biliki, <https://bilikiapp.com/>. (10.01.2024).
2. Buhalis, D. Technology in tourism-from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: a perspective article. 2020. <https://doi.org/10.1108/TR-06-2019-0258>
3. Entrepreneur Georgia, "5 Georgian startups of tourist applications" <https://www.entrepreneur.com/ka/teknologia/turistuli/338556>. (10.01.2024).
4. Gvaramadze A. Digital Technologies and Social Media in Tourism. European Scientific Journal, ESJ, 18 (10), 28. 2022.
5. Georgian National Tourism Administration, <https://gnta.ge/statistics/> (10.01.2024)
6. Kadagidze L, Piranashvili M, Sukhanovi D, Chavchanidze V. Potential of Digitalization and Smart Destinations in Cultural Tourism: Georgia's Opportunities and Challenges. The 16th International Conference for Cultural Tourism in Europe. 18-21 October 2023, Pafos, Cyprus.
7. Lashkhi, M. The Impact of FinTech Companies on Financial Institutions, Case of Georgia. Generis Publishing. 2022.
8. Meladze M., (2018) The Importance of Place Marketing and Destination Branding for Georgian Regions, European Scientific Journal/ European Scientific Institute, ESI, ISBN 978-608-4642-62-6; <https://eujournal.org/files/journals/1/books/7th.EMF.2017.pdf>
9. Meladze M., Piranashvili M. Social Media Impacts on Georgian Tourism Business; European Scientific Journal/ European Scientific Institute, ESI, 2019; ISBN 978-608-4642-70-1; http://eujournal.org/files/journals/1/books/batumi_book_2019.pdf
10. Meladze M., Sachaleli N. Digital travelers and tourism industry. German International Journal of Modern Science №68. 2023. <https://zenodo.org/records/10151088>

11. [Meladze M., Gvaramadze A., Bestaeva S., Digital Services in Georgian Tourism. European Scientific Journal. 2023. https://doi.org/10.19044/esipreprint.12.2023.p187](https://doi.org/10.19044/esipreprint.12.2023.p187)
12. Precious Magtulis, Maria Soledad Godoy Muñoz, Thi Cam Ha Phan and Carlos Inga. Digital open innovation contests in tourism: An ecosystem theory approach. Iscontour 2023, Austria.
13. Partale A, Partale K. Destination management in developing and emerging countries. Deutsche Gesellschaft für, Internationale Zusammenarbeit (GIZ) GmbH. 2019.
14. Stange J, Brown D. Tourism destination management. Achieving sustainable and competitive results. US Agency for International Development, 1300 Pennsylvania Avenue, NW Washington, DC 20523. https://2012-2017.usaid.gov/sites/default/files/documents/2151/DMOworkbook_130318.pdf (11.04.2024)
15. Ukleba M. Tourism Destination Management. 2017 (in Georgian).
16. Vrex Immersive Inc, IT services and IT consulting. <https://ge.linkedin.com/company/vreximmersive> (10.01.2024)
17. Youssef El Archi and Brahim Benbba. Role of virtual reality in tourism destination marketing: evidence from Morocco. Iscontour 2023, Austria.
18. Zelenka J. Information and Communication Technologies in Tourism - Influence, Dynamics, Trends. 2009.

Impact of Expected Climate Change on Batumi Tourism Sector

by Tamar Koblianidze¹⁶, Noe Khozrevanidze¹⁷, Olga Kharashvili¹⁸, Nino Mebonia¹⁹, Shorena Kupreishvili²⁰

The tourism sector in Georgia continues to grow at the rapid paces (Figure 1, Figure 2, Figure 3). The forecasts are quite optimistic, according to which the number of employees in the tourism sector, as well as the growth of income from tourism will also continue in the coming years. At the same time, it is necessary to search for new ideas and free "niches" in order for all regions to be actively involved in the economically profitable activity for the country - tourism.

Figure 1. Share of tourism in GDP

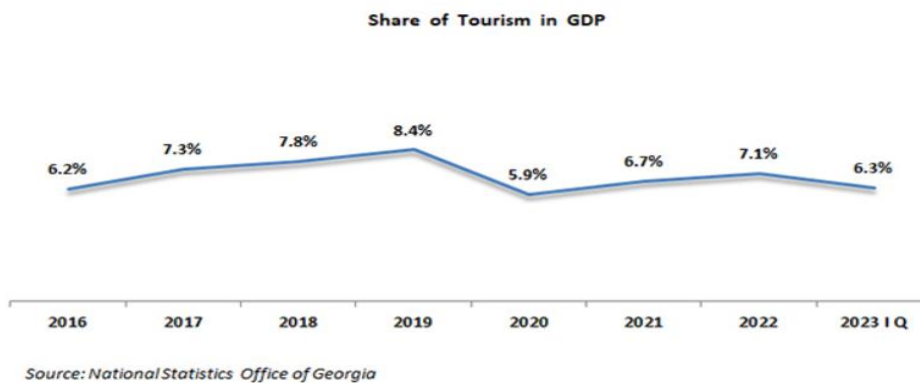


Figure 2. International Traveler Trips



International traveler trips in Georgia have been growing rapidly in recent years. In 2022, they reached 5,426,903, which is 188.5% more than last year (www.gnta.ge).

¹⁶ Georgian Technical University, Faculty of Sustainable Mountain Development, Tbilisi, Georgia.

¹⁷ Georgian Technical University, Faculty of Sustainable Mountain Development, Tbilisi, Georgia.

¹⁸ Georgian Technical University, Faculty of Agricultural Sciences and Biosystem Engineering, Tbilisi, Georgia.

¹⁹ Georgian Technical University, Faculty of Agricultural Sciences and Biosystem Engineering, Tbilisi, Georgia.

²⁰ Tsotne Mirtskhulava Water Management Institute of Georgian Technical University, Tbilisi, Georgia.

Since the end of the 21st century, climate and tourism are very close fields and linked to many interactions. The impact of climate change on coastal tourism has recently received much attention in scientific works. Scientists focus on vulnerability, resilience, sea level rise and coastal hazards.

Figure 3. International tourism receipts (X 1000 USD)



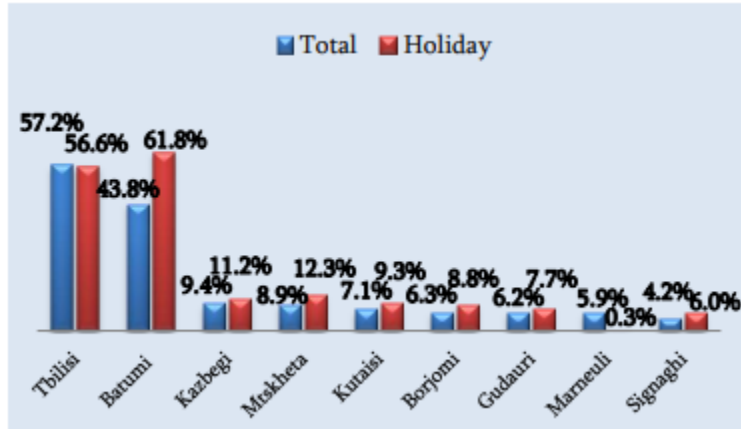
The country that chooses the tourism as the priority-driven direction of the economic development should take global climate changes into account in the country's economic strategy. In addition, the development of tourism is sharply determined by safe and ecologically clean environment and climate indices of the tourism. The influence of climate, weather conditions, air quality and various heliogeophysical factors on the human body is being studied in many countries around the world. Some part of the population is vulnerable to extreme heat: The urban thermal heat island effect can create quite severe conditions in Batumi. The hot weather affects the most vulnerable part of the population, who live below the poverty line and / or have certain health problems. In tourism and resorts, meteorological parameters are often used. Georgian scientists use TCI - Tourist Climate Index, which is a combination of seven meteorological parameters (average monthly and maximum air temperature, average and maximum relative humidity, monthly precipitation, monthly duration of sunshine, average monthly wind speed) and its categories vary - from "Impossible" to "ideal". In addition, to study the impact of climate change on the development of the tourism industry, the Holiday Climate Index (HCI) was developed, which is a complex climatic characteristic and its elements were identified based on various meteorological indicators. According to researchers, bioclimatic conditions in Georgia have not changed significantly and we should not expect any substantial changes in the future.

For the purpose of leisure, entertainment and recreation for the domestic foreign tourist market, Batumi is also the main tourist destination of the country (Figure 4 remarks that 43.8% of international trips were made to Batumi Figure 5 - In domestic Tourism is fact, that most visited regions for holiday, leisure and recreation is Ajara (24, 7%)) which faces serious challenges. Remarkable, that Batumi is amongst the **trendiest European destination of 2024** Due to its all-year-round subtropical and mild climate, Batumi is distinguished by its remarkably green natural environment.

Year after year, the increase in the impact of the climate change and natural threats is felt, including rising the sea levels, increasing incidence of the floods and landslides, and erosion of

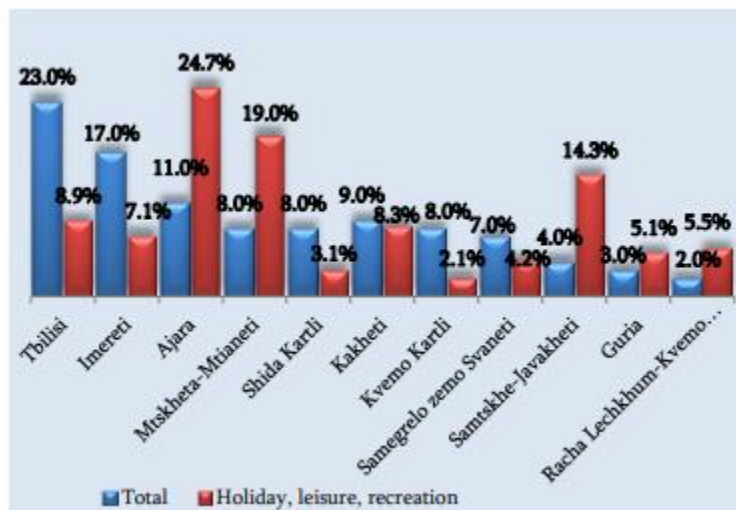
seashores. In particular, the analysis given in Georgia's climate change adaptation guide reveals, that Batumi has the highest sensitivity in the country to flooding, the erosion of seacoasts and the erosion of river banks.

Figure 4. Most Visited Destinations (international tourists, 2022)



Source: *International visitors to Georgia. National Tourism Administration Research. 2022*

Figure 5. Most Visited regions (domestic tourists, 2022).



Source: *Domestic travel in Georgia. National Tourism Administration Research. 2022.*

Resilience to the climate change and natural disasters is the most important challenge for Batumi. Particular attention is paid to the scarcity of the resilience plans for the critical infrastructure and the lack of assessments of the climate projections and impacts on social and economic well-being. It is necessary to determine the main factors that affect resilience to the

climate and natural disasters in Batumi and then sort them according to the priorities; It is significant that there is no Batumi adaptation strategy/plan; Batumi does not have the plan that should ensure the sustainability of urban systems and service areas to the climate change;

The flooding and coastal erosion: Batumi is quite sensitive to the flooding and coastal erosion, which is exacerbated by the climate change; To date, there is no single unified model for reflecting the mechanism of the erosion process, which would make it possible to quantitatively predict the water erosion, taking into account this or that monofactor parameter;

The natural morphological appearance of the coastal above-water relief in Batumi territory has been significantly changed by the construction of the buildings for various purposes. The natural morphological appearance of the coastal embankment line has been degraded to varying degrees as a result of the human economic activity. In the last century, the inert material extraction quarries were operating on the surface of the coastal embankment line. As a result of this, separate fragments of them have been preserved instead of the joint coastal embankment line in the past.

The climate, according to the climatic conditions of the Adjara region, belongs to humid subtropical, with excess humidity and high thermal background. In the formation of the climate, among other factors, the circulation of air masses, in particular, the peculiarities of the wind regime, play the important role.

The exposure of the Adjara coastline to the prevailing west and south-west waves here led to the motion of the coastal flow of the solid debris from the south to the north, from the mouth of the Chorokhi River to the mouth area of the Natanebi River. In the recent past, the mentioned coastal flow was almost completely fed by the solid debris carried out into the sea by the Chorokhi River, the volume of which was much higher than the capacity of the same flow. The beach-forming material carried out by the Chorokhi River moved also in the south direction and fed the beaches up to the Kvariati village. The mentioned process is still underway today, which leads to the presence of full-profile beaches in this coastline.

1. In recent years, a number of important events have taken place on the coast of the Adjara Sea: 1. The 800 m long berm was built on the Sarfi - Kvariati section. 2. The berm in front of the treatment plant continued to the runway of the airport. According to the project of the Italians, the new berm was built from the runway of the Berma Airport to the mouth of the Mejina river. 3. According to the project of the Italians, "Rehabilitation of the coastal strip" was carried out from the runway of the airport to the Cape of Batumi. The boulevard was also built, on which the beach rests. The boulevard elevation benchmark is only up to 3 meters, while the height of the natural beach embankment should be 4.5-5 m, and the boulevard should be located behind the embankment. Only cultivation of the vegetation is allowed on the embankment. In such conditions, the boulevard and the buildings built in its vicinity would be protected from destruction. In the rivers feeding the coast, there is no more material feeding the beaches, because instead of their direct purpose, the debris of the river is used for various construction purposes (construction of bypass roads and just roads, construction of high-rise buildings right at the sea and in many cases where the beach and embankment should be). Therefore, in the near future, the new strategy for exploitation of the coast and its protection from the sea must be developed. Otherwise, catastrophic events are inevitable, since all possibilities of restoring the natural dynamics of the sea coast have been exhausted. In the natural conditions of the beach-forming debris balance of the coastal strip,

the income part of the debris balance is the beach-forming material brought out by the rivers in the coastline and coming from the adjacent subsystems.

The division of the water erosion processes into stages is mainly related to the indicator of the degree of water filling of the soil pores. It is the different interpretation of the influence of initial humidity and the mechanism of the process compared to the prevailing concept today.

The interaction of the bed and surface flow is integrally reflected in the formation of the erosion processes and the regularity of the variability of its intensity. Due to this, it is necessary to study the hydraulic regime of the surface runoff under the influence of the atmospheric precipitation and especially its role in the formation of hydromechanical and morphological parameters of flat one-dimensional flow, which is one of the main tasks of the hydraulics of the open beds in general.

The surface runoff calculation scheme is given in **figure 6**.

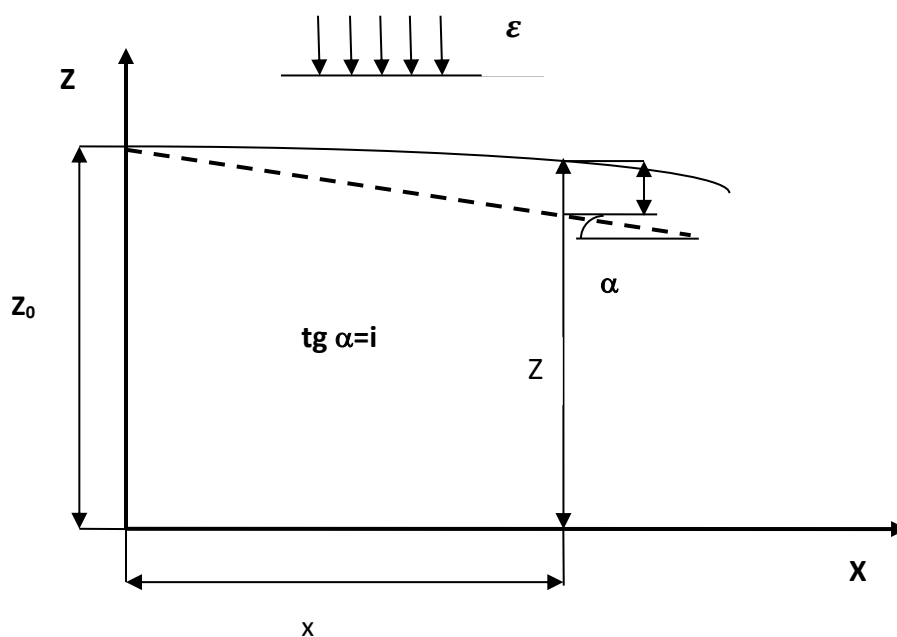


Figure 6. Surface runoff calculation scheme

In general, in the case of flat flow, the cost balance equation will be written as follows:

$$\frac{dQ}{dx} = (\varepsilon - h_{inf} - h_a)y, \quad (1)$$

Where: Q is Flow, from the source (watershed), in the intersection some x distance away;

- $\varepsilon, h_{inf}, h_a$ - Accordingly, the calculated averaged values of the intensities of precipitation, infiltrative water absorption and evaporation in the time interval taken;
- y - Width of the catchment area.

It is necessary to note that in all specific cases, the calculation model may not provide the perfect quantitative reflection of this or that factor, but in accordance with the pre-designated reliable level, it may be systematically perfected using any numerical method known in mathematics.

The specific cost of surface runoff for flat flows, in the intersection of the mileage path, is the continuous function of time together with the coordinates. This means that when we ignore the evaporation, then the cost is determined by:

$$q = \varphi(x, z, t; \varepsilon = \varepsilon(t); K = K(t)), \quad (2)$$

- Where:
- q Is Cost per unit of the flow width;
 - x, z - Intersection coordinates taken;
 - t - Time setting;
 - ε and K - Accordingly, for the current moment of time.

From the point of view of the practical implementation, even trivial infiltration models are also associated with the insurmountable difficulties, although they often fail to provide the necessary results based on the physical essence of the non-established infiltration process. As for the complex multidimensional models, they are either not found at all or are rarely used in practical calculations. The main reason for this should be considered the difficulty of determining the coefficients included in the basic private derivative differential equations reflecting the process, since they are the functions of the independent parameter (in this case, the time). Because of this, it becomes necessary to determine these parameters only through the experiments, although in this case, it is rarely possible to maintain the parameter constancy even during the time period of conducting the experiments.

If we present in the calculation model only the characteristics of rain intensity and water absorption (water permeability) of the soils without any determination in determining the formation of the surface runoff, then obviously their ratio must uniquely determine the value of the main hydromechanical parameter of the surface runoff - the average speed value, and therefore the cost too. As we have mentioned many times, the variation of each of these components (water absorption-intensity) is the function of time and therefore is reflected by different analytical laws (curves), which excludes the use of the principle of superposition (dependency of the action of forces) to estimate the total effect of the process.

In the case of averaging, instead of the variable parameters, we will obviously get the constant coefficients, or even the indicator of the ratio of the averaged precipitation and water absorption. The acceptance of such assumptions and appropriate parameterization obviously

automatically affects the nature (regime) of the motion of the surface runoff. However, from the formal point of view, this cannot have any effect on the variability of the real process regime and its quantitative assessment when $\varepsilon(t) = K(t)$ e.i., when the intensities of rain and water absorption coincide in the certain interval of time, or rather are equal, then obviously the surface runoff does not occur. It can also be assumed with high probability that the accumulation of the surface water, runoff will not occur when $\varepsilon(t) < K(t)$.

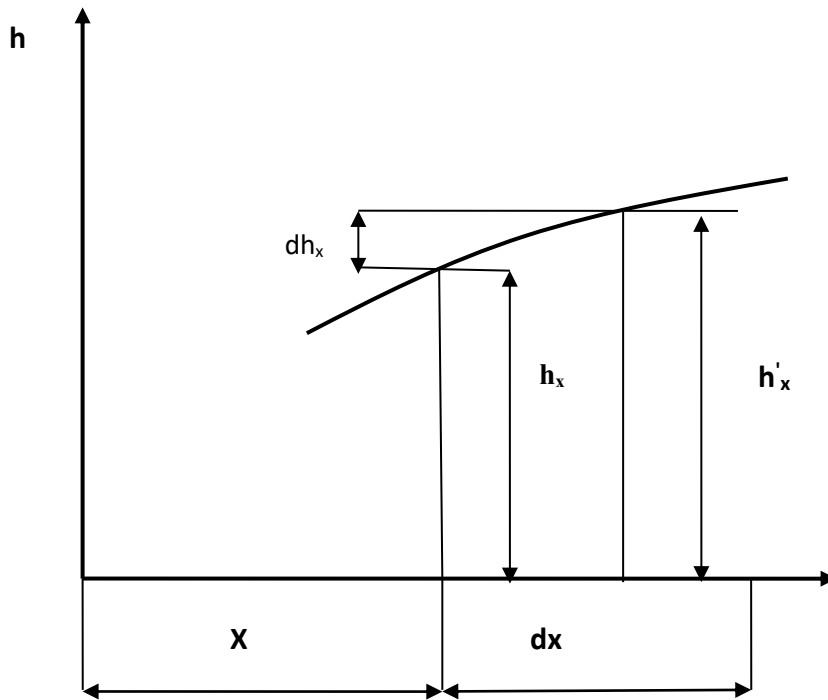


Figure 7. Calculation scheme of the free surface of the flow for equal motion

Between two neighboring intersections separated by the distance dx , in a certain period of time, the seepage (infiltration) of the part of the precipitation, and transit of the other part, which gives the increase in the specific cost. This change can be expressed as follows:

$$dq = h'_x V'_x - h_x V_x = \varepsilon dx - K dx. \quad (3)$$

The average speed in any intersection of the flow is determined according to Chezy:

$$V_x = \frac{87\sqrt{h_x}}{n_0} \sqrt{h_x i} = C h_x, \quad (4)$$

Where: $C = \frac{87\sqrt{h_x}}{n_0}$.

Considering (4), the equation (5) will take the form:

$$C(h_x^2 + 2h_x dh_x + (dh_x)^2) - ch_x^2 = (\varepsilon - K)dx. \quad (5)$$

Neglecting the infinitesimally small value of the high-order dh_x^2 , we will have:

$$2ch_x dh_x = (\varepsilon - K)dx. \quad (6)$$

Integrating the latter, we will get:

$$h_x = \sqrt{\frac{x}{c}(\varepsilon - K)}. \quad (7)$$

The accepted dependence for describing the shape of the flow surface is based on the assumption, according to which the unequal motion is replaced by equal motion. Such an assumption in itself excludes the need to decipher the process using the differential equation, because the equation is quite easily obtained from the cost continuity condition. Suppose we have the right-angled area of unit width of length x , over which the volume of water flows per unit of time, equal to $x(\varepsilon - K)$, obviously this, according to the continuity condition, should equal the cost in the x intersection - $ch_x h_x$, that is, we will get the equation (7) determining h_x .

The mentioned method of determining the flow depth is based on a very rough linearization, and at the same time, the differentiated calculation for the description of the runoff formation process is devoid of the purposeful mathematization, which is expressed in the equation of the surface inclination of the irrigation area with the hydraulic inclination $i = I$.

According to the calculation scheme (Figure 1), we can write the following equation:

$$z = z_0 + h_x - ix, \quad (8)$$

From where,

$$\frac{dz}{dx} = \frac{dh_x}{dx} - i. \quad (9)$$

Since dz/dx is the derivative of the free surface in the point taken, i.e., in other words, the hydraulic inclination I , which will alternate with the bottom inclination and will give the following kind of dependence by the Chezy formula:

$$(\varepsilon - K)x = \frac{87}{n_0} \sqrt{h_x} \sqrt{h_x I} h_x. \quad (10)$$

In order to fully identify the latter equation, we present it as follows:

$$\frac{(\varepsilon-K)n_0}{87\sqrt{i}} \frac{x}{h_x^2} = \frac{1}{\sqrt{i}} \sqrt{\frac{dh_x}{dx} - i}. \quad (11)$$

The left side of this equation based on the assumption accepted can be considered equal to 1, and so the equation (11) will give:

$$\sqrt{i} = \sqrt{\frac{dh_x}{dx} - i}, \quad (12)$$

From where:
$$\frac{dh_x}{dx} = 2i. \quad (13)$$

Given the boundary condition, integration of $x = 0, h_x = 0$ (14) gives us:

$$h_x = 2ix. \quad (14)$$

Considering (14) and with appropriate transformations, we will get:

$$ax^2 dx = h_x^4 dh_x - ih_x^4 dx. \quad (15)$$

The differential equation, obviously, cannot be solved using the usual tabular integrals, that's why if we get $b = ih_x^4$, then integration of (15) taking into account the boundary condition will give us:

$$h_x = \sqrt[5]{5/3 ax^3 + 5bx}. \quad (16)$$

This equation is far from reflecting the real physical picture of runoff, but it expresses much better the nonstationarity of the flow motion. Therefore, with the first rough approximation we can determine the morphometric feature h_x in any x intersection of the flow. In accordance with h_x according to the method shown above, let's determine the permissible inclination, that is, the inclination that responds to the condition of the bed not being washed away.

The quantitative assessment of the erosion is possible only by engineering method or by direct calculation using this or that formula. As we have repeatedly noted, the calculation dependencies of the permissible speed proposed by different authors are characterized by the same analog structure, we also accepted that if they are considered sound for the solid debris, their use for the quantitative assessment of the irrigation erosion of the soils is completely unjustified, since the specific gravity of the solid body is sharply different from the specific weight of the porous physical body, in particular, the specific weight of the waterproof aggregate of the soil. In addition, the tendency of the soil aggregates to the occurrence of the surface-molecular effects and their formation according to the degree of water filling radically changes the marginal equilibrium conditions of the aggregates at different stages of the erosion. We can always match the h_x flow depth determined by (Formula 16) with the diameter that will not be subject to the erosion and will

ensure the stability of the self-washing bed, or otherwise we are given the opportunity to determine the critical non-washing speed.

Therefore, we can conclude that it is necessary to use the adjusted dependence of the permissible speeds for the quantitative prediction of the soil water erosion. This dependence takes into account some specifics that are caused by the wide range of physico-chemical processes taking place in the soil and ensures the relatively high reliability of the forecast of the irrigation erosion.

References

1. Kurdashvili L., Khutsishvili E – Prospects of regional tourism development against the backdrop of climate change. Scientific Reviewed Proceedings of the Institute of Hydrometeorology of the GTU: Vol.№ 133. – 2023. – p.129-133.
2. EU Green Deal website: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en [accessed Apr 14 2024].
3. Kartvelishvili L., Amiranashvili A., Megreliдзе L., Kurdashvili L. - Evaluation of tourist and recreational resources in the light of climate change. Publishing house "Mknebobari". Tbilisi, 2019, 163 p.
4. Gavardashvili G. - Innovative Anti-Erosion Structures to Maintain Soil Fertility and Predict Land Reclamation Risks, By Taking The Climate Change Into Account. Innovative Food of High Quality for Human Health and Sustainability – an integrated program of innovate on and research development in agricultural sciences, Environmental Engineering, Mining and Energy. Olsztyn, 7–8 September 2023, Poland, G. Gavardashvili pp 59 - 60 ; ISBN 978-83-8100-384-1. DOI: 10.31648/9788381003841
5. Gavardashvili G., KuKhalashvili E. and others –Prediction of natural disasters and Innovative risk reduction measures. Innovative environmental constructions pp. 38 <https://iverieli.nplg.gov.ge/handle/1234/472635>
6. Domestic travel in Georgia. National Tourism Administration Research. 2022. www.gnta.ge [accessed Apr 14 2024].
7. International visitors to Georgia. National Tourism Administration Research. 2022 www.gnta.ge [accessed Apr 14 2024].
8. <https://www.gobatumi.com/en> [accessed Apr 14 2024].
9. <https://visitajara.com/en> [accessed Apr 14 2024].
10. Tziklashvili N. Tsetskhladze M. Organization of Tourism Development in Adjara. https://www.researchgate.net/publication/343921306_turizmis_ganvitarebis_organizatsia_acharashi. [accessed Apr 14 2024].
11. Community Involvement in Urban Development and Cultural Heritage Protection of Batumi. Regional Development Guide of Batumi. Eastern European Center for Multi-party Democracy. 2020, Batumi. (in Georgian).
12. Tourism: Adjara, 2022. TBC Capital. (In Georgian). <https://tbccapital.ge/static/file/202207192633-%E1%83%A2%E1%83%A3%E1%83%A0%E1%83%98%E1%83%96%E1%83%9B%E>

[1%83%98-%E1%83%90%E1%83%AD%E1%83%90%E1%83%A0%E1%83%90-2022.pdf](#). [accessed Apr 14 2024].

13. Kartvelishvili L, Amiranashvili A. Development of the Tourism Industry on the Base Climate Change in Georgia. FROM A SERIES OF MONOGRAPHS: Natural Resources and Resorts as Sustainable Development Factors. GTU. TBILISI 2023. <https://nrr.gtu.ge/upload/docs/%E1%83%99%E1%83%A0%E1%83%94%E1%83%91%E1%83%A3%E1%83%9A%E1%83%98.pdf> . [accessed Apr 14 2024].
14. Tsintsadze T., Ghlonti N. Research of the bioclimatic potential of Georgia in the joint works of the institutes of hydrometeorology and geophysics. SCIENTIFIC REVIEWED PROCEEDINGS OF THE INSTITUTE OF HYDROMETEOROLOGY OF THE GTU, V.133, 2023. (in Georgian). https://iverieli.nplg.gov.ge/bitstream/1234/448336/1/Hidrometeorologiis_Institutis_Shromata_Krebuli_2023_T133.pdf. [accessed Apr 14 2024].
15. BEST DESTINATIONS IN EUROPE. https://www.europeanbestdestinations.com/european-best-destinations-2024/?fbclid=IwAR0MTO63nFIU3mqkHMW0v2xKe5B9jNSbRhHptGDIggLFGPekjaPqoYGxapY_aem_Acm1QpINyhFX2SUvGUDy8IeRKw0-KsRvQ5mXIDshIwJPp85EFEagrKqNt-J-oSfxXTOu9FNyGn1yv80Zq-9XZVTp. [accessed Apr 14 2024].
16. Vyddiyaratnam Pathmanandakumar, Sheeba Nettukandy Chenoli, Hong Ching Goh. Linkages between Climate Change and Coastal Tourism: A Bibliometric Analysis. https://www.researchgate.net/publication/355022841_Linkages_between_Climate_Change_and_Coastal_Tourism_A_Bibliometric_Analysis. [accessed Apr 14 2024].

Sustainable tourism and waste management optimization in Batumi city

by Nargiz Phalavandishvili²¹, Nino Devadze²² and Natia Beridze²³

Introduction

Batumi city is distinguished by the economic growth from other municipalities of Georgia, which is caused by the rapid development of the tourism sector, the growth of investment in real estate and the activation of the construction sector. It should be noted that in 2012, the American Academy of Hospitality Sciences named Batumi as the best tourist destination of the year, and in 2019-2020, Batumi obtained the prestigious award of the World Travel Awards as the fast growing tourist destination of Europe. In 2023, the number of visits to Adjara exceeded 4.3 million, tourist flows to Batumi and mountainous Adjara are increasing.

The purpose of the research is based on the growth rates of tourist flows to study the extent to which the basic principles of the sustainable development of tourism are met, the essence of which is to meet the current demands of tourists in such a way that the possibility of meeting the tourist demands of future generations is ensured. Therefore, we aimed to study the extent to which the principles of sustainable consumption of resources and promoting the reduction of load and waste in tourist areas are respected when developing a tourism development strategy, the extent to which interested parties, government, municipality, local population or tourists are involved in the implementation of the sustainable tourism, whose lack of interest and support may not ensure the implementation of the sustainable development plan and set their priorities correctly. Local governments plays an important role in tourism management through their planning activities, policies and programs.

For Batumi city, as the tourist destination, the waste management is the most important factor for the sustainable development of tourism. In order to avoid resources' mismanagement, inefficient use, pollution problems and other negative impacts, one of the permanent challenges for the city municipality is optimal waste management. The administrative borders of Batumi city cover 6494.3 ha. According to the statistical data of 2023, The population of Batumi city is 179 thousand people, and the generated waste is 115 thousand tons. If we take into account the number of tourists in Adjara, which exceeds 4 million, the role of the government in developing the strategy for waste management and tourism development is clear, especially when compared to 2018, the amount of waste has increased by about 33%.

²¹ Faculty of Tourism, Department of Tourism, Batumi Shota Rustaveli State University, phalavandishvili.nargiz@bsu.edu.ge

²² Faculty of Tourism, Department of Hospitality Management, Batumi Shota Rustaveli State University, devadze.nino@bsu.edu.ge

²³ Faculty of Tourism, Department of Hospitality Management, Batumi Shota Rustaveli State University, Beridze.natia@bsu.edu.ge

The goal of the research is based on the principles of sustainable development of tourism to study the state of waste management in the administrative territory of Batumi city, to outline existing problems and to form optimal solutions so that they respond to the requirements defined by legislation and are in accordance with the national strategy of the tourism development.

Mainly existing scientific theories, analysis and synthesis, statistical, qualitative and quantitative research techniques will be used in the research. Data will be collected based on theoretical material (published literature, internet resources) and also the research will be conducted in terms of optimization of the waste management through pre-prepared questionnaires. The quantitative data will be processed through software technologies. The received data and the in-depth analysis of the systemic issues of the problem will allow us to achieve the goal of the research.

Key words: sustainable tourism principles, Sustainable development goals, environmental impact, municipal waste, waste management legislation, national tourism strategy.

Literature Review

Nowadays, sustainable development, especially concerning environmental quality and protection, responsible consumption and production is prioritized by the European Union. As United Nations Brundtland Commission defines, sustainability is “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (The Brundtland report, 1987). The Sustainable Development Goals (SDGs) serve as a comprehensive framework for addressing global challenges and advancing holistic development. Recognizing the interdependence of social, economic, and environmental sustainability, the SDGs are integrated across various sectors. Sustainable tourism development closely aligns with the SDGs, aiming to mitigate negative environmental impacts, promote social inclusivity and equity, and foster economic prosperity (UNWTO, 2019).

Globally, tourism is an important business that drives socioeconomic growth in many areas, especially in developing nations with distinctive natural, historical, and cultural resources. But it contributes to the world's waste problem by producing large volumes of solid waste from hotels and recreation sites. According to United Nations Environment Programme (UNEP) the world generated 2.3 billion tons of municipal waste in 2023, whereas between four and eight per cent of global waste, is produced each year solely by tourists (UNEP, 2024). Inadequate waste management can result in significant and irreversible consequences for the environment, economy, and society. These include elevated greenhouse gas emissions, degradation of land, depletion of resources, pollution of surface and groundwater, decline in biodiversity, and diminished aesthetic appeal of tourist destinations.) (Pan et al., 2018.)

Over the past few decades, the worldwide tourism industry has grown significantly, but research on waste management is still behind due to a lack of accurate industry data. (Ezeah et al., 2015). The tourism sector significantly affects both the environment and the economy through several

avenues. These include the energy consumption, wastewater generation, and production of municipal solid waste (MSW) associated with accommodation facilities. Additionally, restaurant services and transportation, encompassing both local travel and traffic between tourists' points of origin and their destinations, also contribute to these impacts. (Pan et al., 2018; Scuttari et al., 2018; Williams, 2016; Peeters et al., 2007) Inadequate waste management can result in significant and irreversible consequences for the environment, economy, and society. These include elevated greenhouse gas emissions, degradation of land, depletion of resources, pollution of surface and groundwater, decline in biodiversity, and diminished aesthetic appeal of tourist destinations.

Analysing the existing literature shows different approaches the researchers offer towards the sustainable development path. The involvement of stakeholders in tourism and recreation, along with the political and legal framework (Tsai et al., 2021), interdisciplinary solutions, including changes in behavioral psychology, data collection techniques, environmental education, and legal and governance processes (Vince et al., 2018), development of a community program strategy and its implementation in practice (Wynne et al., 2018), improvement of the management of solid waste at the levels of its generation, storage and collection (Maryati et al., 2017) is crucial for achieving sustainable waste management.

The 2024-2027 priorities document of Batumi Municipality is fully based on Resolution A/RES/70/1 adopted by the United Nations General Assembly on September 25, 2015 - "Transforming our world: 2030 Agenda for Sustainable Development". For the purpose of sustainable development of the living environment in the city, improvement of the ecological condition of the city - creation of open/recreational spaces, increase of green cover, implementation of an effective waste collection and removal management system is an important priority. Therefore, it is important for Batumi, as well as for the whole world, to properly manage waste, sort it, and use it further.

Batumi is distinguished by important attractions. It ranks second in the number of visitors in Georgia. There are many attractions in Batumi, among which the longest boulevard in the world should be mentioned, whose length is 7 km. There are numerous facilities for tourists. Among the sights, Batumi Boulevard is the city's main and most visited tourist spot and recreation area, which is also a monument of cultural heritage, uniting the city's guests and local residents for more than a century. Batumi Botanical Garden is located on the Green Cape, near Chakvi, on the Black Sea coast, on an area of 111 ha. Batumi Botanical Garden has no analogues in the world in terms of the coexistence of plant species from completely different climatic and landscape zones. In 2023, Batumi Botanical Garden was named the leading botanical garden in Europe by WORLD TRAVEL AWARDS. In addition to the above, such important attractions as the Dolphinarium, the Zoo, the Batumi Archaeological Museum, etc., create significant interest for travel lovers, reflected in the increase in the tourism rate.

Statistical data show that tourism in Batumi is increasing day by day. Georgia hosts up to 8 million international visitors, and Batumi hosts up to 2 million tourists every year. Batumi is beautifying day by day; the city is developing with special intensity, trying to preserve its history alongside modernity. Batumi's highly developed tourist infrastructure increases the interest of foreign

visitors. High-class hotels such as "Sheraton," "Radisson," and "Hilton," along with "Courtyard By Marriott" and "Ramada," adorn modern Batumi with their original architectural designs. The buildings of the 19th century have been reconstructed.

Ensuring an effective policy for a sustainable tourism industry is possible through planning and implementation based on the principles of sustainability, ecological, economic development of tourism, and socio-cultural aspects, maintaining a balance between them to ensure its long-term sustainability. When planning, it is necessary to determine the trends in tourism that will lead to consistent growth and the creation of quality products, benefiting both the tourism sector and the local population. Tourism planning should fully take into account today and future economic, social, and environmental impacts, considering visitors, industry, environment, and local residents' needs. Sustainable tourism for Batumi requires optimal use of environmental resources, which are the basis of tourism development, and essential ecological preservation of processes, natural heritage, and biodiversity. Satisfaction of tourists, along with raising awareness on sustainability issues, will make sustainable tourism possible, contributing to the sustainable promotion of tourism practices.

Based on the research goals, the city of Batumi was studied to assess how well the main principles of sustainable tourism development are preserved. The growth of tourism can damage ecosystems and natural resources, contributing to climate change. Despite economic growth rates, the development of tourism can lead to significant overloading of local infrastructure, with potential negative impacts on the environment.

Based on the purpose of the research, the state policy on sustainable consumption of resources and tourist areas was studied, adhering to the principles of promoting load and waste reduction in connection with the development of tourism development strategy. In the "Georgia Tourism Strategy 2025," activities to be implemented are listed under #4, aiming to increase the competitiveness of world-class tourism by improving service offerings. The first point of this activity emphasizes the importance of developing development programs and promoting standardization in the tourism industry for quality, safety, and sustainability. Additionally, strategy #6 is of priority for "Georgia."

"Respect, protection, and presentation of natural and cultural heritage" define the cultural heritage monuments and protected development of territory management plans (including visitor management) for sustainable use of Georgia's natural and cultural heritage. Thus, the mentioned priorities demand the sustainable involvement of interested parties (government, municipality, local population, tourists) in the implementation of tourism. Lack of interest and support from any stakeholder may hinder the implementation of the development plan. Therefore, each stakeholder plays an important role.

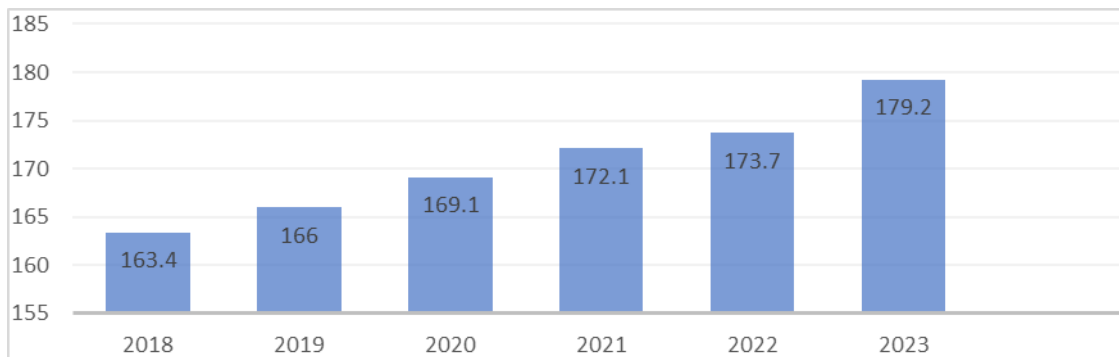
The national tourism development strategy aligns with the 11 goals of sustainable development, particularly focusing on "sustainable development of cities and settlements." According to this goal, effective urban planning and management should address problems related to urbanization caused by significant population growth. It's a challenging task to moderate consumption of natural

resources and avoid overuse, especially while ensuring uninterrupted job creation and economic development in cities and settlements. The development of cities is associated with significant problems such as overcrowding of residents, resulting in insufficient resources for providing basic services, challenging living conditions, inadequate infrastructure, and increased rates of air pollution.

Rapidly growing urbanization poses challenges in the city, particularly in the proper management of solid waste generated by the increased population. The slogan "Reduce, Reuse, Recycle!" associated with the first "Earth Day" in the USA on April 22, 1970, highlights the need for sustainable waste management practices. The wasteful use of resources has led to deforestation, contaminated waters, polluted air, massive garbage accumulation, and the deteriorating state of the environment, becoming topics of active discussion throughout the country. Society has begun actively fighting to preserve ecosystems.

The general population census conducted in Georgia in 2014 reported that 152,839 inhabitants lived in the city of Batumi. Graph #1, sourced from the National Department of Statistics of Georgia, depicts the population of Batumi from 2018 to 2023.

Graph #1. Population of the city of Batumi (thousand people) 2018-2023.



Source: National Department of Statistics of Georgia

In total, from 2012 to 2023, the population of Batumi city increased by 15.5%, with an average annual growth rate of 1.51%. Considering this annual average growth rate, the population of the city of Batumi is projected to increase significantly in the next 5 years, leaving room for further growth.

The administrative borders of Batumi cover 6494.3 hectares. According to statistical data from 2023, the population of Batumi is 179 thousand people. Additionally, official statistical data indicate that there are up to 4 million visitors to Adjara. In Batumi specifically, the number of registered tourists in 2022 is estimated to be up to 1.2 million. It's important to note that this figure is approximate, as it is based solely on data from official hotels and hotel-type establishments

within the city of Batumi. (See Table #1 for details on the number of guests in hotels and hotel-type establishments within Batumi municipality.)

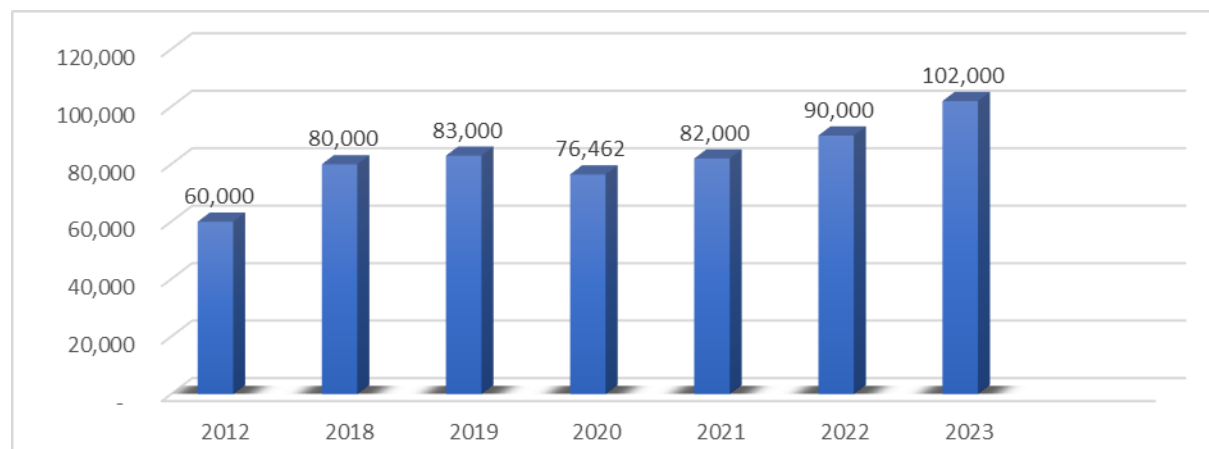
Table #1 on the number of guests in hotels and hotel-type establishments within Batumi municipality.)

Guests	2017	2018	2019	2020	2021	2022
All	672,118	711,325	892,695	273,537	514,794	1,194,105
From Georgia	235,161	222,556	243,177	217,689	235,261	409,233
From abroad	436,957	488,769	649,518	55,848	279,533	784,872

Source: National Department of Statistics of Georgia

By analyzing the mentioned data, the role of the government in waste management and tourism development strategy becomes evident, especially considering the significant increase in the amount of waste within the administrative territory of Batumi city. The primary reason for this increase is the growth in population and tourist numbers, which has led to a higher demand for waste collection services in the city. (See Graph #2 for details on the volume of household waste, sourced from Batumi municipality.)

Graph #2 for details on the volume of household waste, sourced from Batumi municipality



source is the City Hall of Batumi Municipality

The amount of waste generated from 2019 to 2022 showed a relatively sharp reduction compared to other years, primarily due to the pandemic and its related factors. Additionally, it should be noted that the quantity of waste varies according to the seasons. During the resort season in the city of Batumi, approximately 330-380 tons of municipal waste accumulate daily, while in other periods, it ranges from 250-300 tons. This variation is attributed to the tourist season, indicating an increase in household waste generated by tourists as well as locals. Unfortunately, the municipality lacks identifiable data distinguishing between household, industrial, or various commercial waste sources, making it challenging to determine the exact amount of household waste.

"Official statistics provided by the municipality. If we are guided by the data from 2018-2022, we can calculate the waste generation index based on the assumption that the data cannot be identified with the population and regarding the separation of the commercial sector.

Waste generation per person per day:

Processed (removed) waste per day:

Local resident:

Tourist per day:

$$WGP = \frac{PWD}{LR + TD}$$

It was calculated per person through the mentioned formula. The daily rate of waste generation (from industrial facilities, taking into account the volume of removed waste) will obviously be much lower when obtaining information about waste removed from industrial and commercial facilities. (See Table #2)

Table #2: Daily Waste Generation in Batumi per Person 2018-2022

	2018	2019	2020	2021	2022
Checked Daily Balance	219	227	209	225	247
Tourist per Day	5,847	7,337	2,248	4,231	9,815
Local Resident Daily	163400	166000	169100	172100	173700
Generated Waste per Person	1.30	1.31	1.22	1.27	1.34

Note:

- Daily data related to waste were provided by the structural department of Batumi Municipality through the unit LLC "Sandasuptaveba," which manages waste disposal. The weight of solid municipal waste is determined using a specially designed scale upon entry to the landfill.
- Demographic data were processed based on the official data from the Department of Statistics of Georgia.
- Information related to tourism was collected by the National Tourism Administration of Georgia. Taking into account the survey results, a calculation was made regarding tourists, estimating that they spend an average of 3 nights in Adjara.

All the points mentioned above underscore the necessity of optimizing waste management in alignment with sustainable development goals and principles. In collaboration with the European

Union, Georgia developed and subsequently approved the Law of Georgia "Waste Management Code," which came into effect on January 15, 2015. This Code outlines several key provisions, including the introduction of a five-step hierarchy system for waste management, requirements and obligations for the collection, transportation, recovery, and disposal of hazardous, non-hazardous, and inert waste. It also addresses waste management planning, accounting, registration, permitting, and control issues. Furthermore, the Code incorporates the implementation of the extended producer responsibility (EPR) principle, which is one of the most crucial and successful models of waste management, adopted by both EU member states and other developed countries.

Waste management responsibilities are shared between central and local governments according to the Waste Management Code. Each entity is accountable for specific waste management functions based on performance. The central government oversees municipal waste collection and transportation services, while local governments handle cleaning responsibilities for streets, parks, and other public spaces under their jurisdiction. Leadership in ensuring effective waste management lies with the municipality.

Based on the Waste Management Code, Batumi Municipality City Hall developed an updated 5-year Batumi Municipal Waste Management Plan (2023-2027), prepared with the support of the United Nations Development Program (UNDP) and Sweden. The waste management plan aims to enhance the waste management system in the administrative territory of Batumi, addressing existing challenges and ensuring compliance with legislative requirements.

The Waste Management Code imposes requirements on waste generators, including the population, industrial, and commercial facilities. They are obligated to make their generated waste available for municipal waste collection services, with the option to receive waste collection and treatment services from other authorized entities. However, when implementing a separate waste collection system, municipal waste producers must utilize this system.

As of 2023, waste collection services in Batumi will cover the entire population of the city. Approximately 98% of the population will be served by the container system, while the remaining portion, located in rural areas on steep slopes, will be served by the bell system, where providing waste collection and disposal services is more challenging. Additionally, daily cleaning is conducted over an area of approximately 5,606,980 square meters. These measures aim to improve the waste management system in line with the growth of both local residents and tourists, thereby mitigating the environmental impact associated with waste generation.

As of today, waste collected in Batumi is disposed of at the solid domestic waste landfill in Batumi, which fails to meet environmental standards. However, in the near future, the sanitary landfill in Kobuleti municipality will commence operations, serving the entire region. Initially designed for 75,000 tons of household waste per year, the landfill's capacity has been strained by the increase in population, tourists, migrants, and production volumes, leading to a significant surge in waste generation. Consequently, the landfill's projected 35-year operating period has been revised downward to 20-22 years. Therefore, urgent measures must be taken to reduce waste.

Despite waste collection services being available throughout the city of Batumi, both by the population and the private sector, various types of waste such as plastic, paper and cardboard, construction and demolition debris, inert materials, textiles, metals, glass, and even hazardous waste are still being disposed of in illegal landfills and riverbeds. This illegal dumping has obvious repercussions, including pollution of beaches and water bodies. These issues collectively create an unfavorable environment for the development of tourism. Thus, emphasizing social responsibility among the population becomes crucial for optimizing waste management practices.

Since 2006, municipal waste collection and cleaning services in the territory of Batumi have been carried out by the operating company "Sandasuptaveba" LLC, which is wholly owned by the municipality. By 2023, the company has provided waste removal and cleaning services with a container system consisting of 3,832 different types, including underground containers. Waste collection containers are located near residential houses, streets, highways, and industrial facilities. During research, it was determined that the operating company of the City Hall also provides services to production facilities and various commercial establishments, including hotels, restaurants, entertainment centers, and tourist destinations operating within the city's administrative territory. Waste generated from these sources is collected alongside household waste and disposed of in the landfill. However, data on the quantities of waste collected and transported from institutions and commercial facilities are not available. This lack of accounting data poses a significant challenge in optimizing waste management. The primary issue in this regard arises from the scarcity of places to install containers, leading to the containers being primarily used for general street purposes and some commercial establishments.

Special attention is devoted to cleaning tourist destinations and ensuring timely waste disposal in Batumi. According to information obtained from an interview with a representative of the operator company, daily waste collection in the area of the boulevard and its surroundings ranges from 3 to 20 tons, reaching approximately 3,500 tons annually. To manage this, over 60 street sweepers are deployed throughout the year. Street vacuum cleaners and specialized vehicles are also utilized in the cleaning process to remove debris from the boulevard area. It's worth noting that garbage trucks and waste removal containers are renewed annually.

In Batumi, popular tourist spots such as Batumi Boulevard, Botanical Garden, and Central Park generate a significant amount of green waste. Green waste produced during the maintenance of these green spaces is collected and disposed of at the existing municipal landfill. Although the exact quantity of green waste generated is not documented, as revealed in the interview with the operating company, it amounts to several hundred tons. While this waste does not have a negative impact on the environment, adhering to sustainable principles emphasizes resource conservation. Green waste is ideally suited for composting, although this aspect remains unresolved for the municipality.

Specific types of waste, such as packaging, oil, tires, motor vehicles, batteries, accumulators, electrical and electronic equipment, among others, require specialized management measures due to their characteristics and widespread distribution. Consequently, separate legal regulations have been established to address these issues. Packaging waste (plastic, paper, metal, glass, wood),

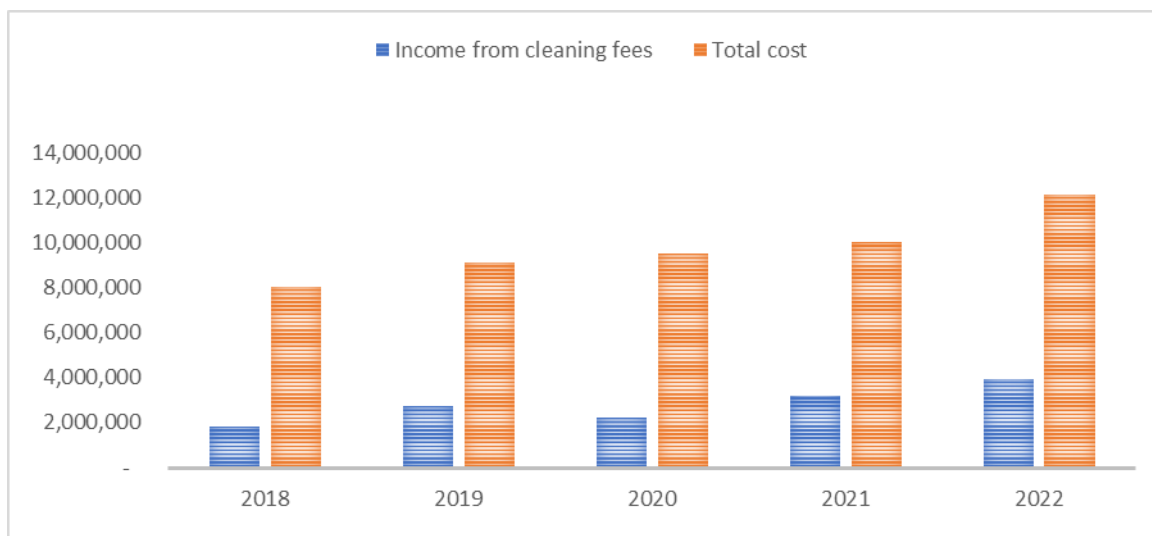
electrical and electronic equipment waste, and waste oils fall under the extended producer responsibility according to these regulations. The objective of Waste Management Systems (WMS) is to enhance the environmental performance of waste management systems and to mobilize the financial resources necessary to ensure the reuse, separate collection, recycling, recovery, and/or other treatment of waste. This system is based on the "polluter pays" principle, which is a fundamental aspect of environmental policy. Unfortunately, these regulations have not yet been fully implemented.

In Batumi, waste recycling and recovery practices have been initiated only on a pilot basis and remain relatively small-scale. Since 2019, with the support of USAID, a memorandum of cooperation was signed between Batumi City Hall and the network of environmental non-governmental organizations of the Caucasus within the framework of the "Waste Management Technology in the Regions" program. The aim of this memorandum is to introduce a waste separation system in Batumi and promote the reuse and gradual recycling of waste. "Sandasuptaveba" LLC is working in pilot mode to implement the source separation system. At the initial stage, 600 containers of various sizes and colors were purchased, provided by the Caucasus Environmental NGO Network (CENN). Additionally, 16 units of separation stands and a waste press machine were delivered, and with the support of the Czech government, a waste sorting line was established.

In 2021, with the financial support of the United Nations Development Program, a pilot project was implemented in Batumi. As part of this project, LLC For sanitation purchased an additional plastic pressing device, which was used to compress separated cardboard and plastic waste, giving them a more marketable appearance. Plastic bottles prepared for recycling were sold through auctions. Since 2021, a total of 315 tons of cardboard and 11.6 tons of plastic bottles have been collected and auctioned separately.

The city's significant attention to cleaning, waste removal, and disinfection comes at a considerable cost to the municipality. The expenses incurred are notably higher than the revenues received in the form of fees for city cleaning. Despite this, only 23-30% of the total fees paid by residents and organizations are transferred by the government of Batumi to "Sandasuptaveba" LLC. This indicates a need for the city to ensure the recovery of costs related to waste management. Significant improvements have been made through revisions of fee rates and payment rates. (See Graph #3 for details.)

Graph #3 for cleaning, waste disposal and Expenditure incurred by the municipality for decontamination 2018-2023



Source: City Hall of Batumi Municipality.

Conclusions and Recommendations

The analysis conducted in Batumi regarding city development trends in tourism highlighted the municipality's efforts to protect the principles of sustainable tourism through concrete steps. The documentation of priorities for Batumi from 2024-2027 was examined, considering sustainable development goals and principles, particularly in improving the ecological condition of the city and implementing specific measures.

During the assessment of the current state of waste management, gaps were identified in the municipality's existing management system, particularly related to shortcomings in waste management. These gaps were emphasized in the research. The waste management plan adopted for 2023-2027 was also studied, aiming to ensure compliance with waste management regulations and aligning with sustainable development principles.

The research emphasized the clarity of the waste management plan, but raised questions about the feasibility and achievability of the outlined goals during implementation. It was recognized that waste producers play a significant role alongside governments in waste management processes.

The study revealed that the development of tourism and population growth will have a negative impact on the environment's ecological condition without comprehensive approaches to waste management. This necessitates reducing waste generation through tighter legal regulations, implementing efficient technologies, promoting reuse and restoration of waste, and encouraging recycling efforts. Effective actions by organizations, activation of waste management regulations with waste generators, and information dissemination campaigns on sustainable tourism principles among the population and tourists are also essential.

To implement these measures, the municipality must ensure the achievement of sustainable tourism goals and adherence to principles, involving various stakeholders and considering shared interests. This is a global challenge that requires concerted efforts.

References

1. Butler, R., & Hinch, T. (Eds.). (2007). *Tourism and Indigenous Peoples: Issues and Implications*. Oxford: Elsevier.
2. Ezeah, C., Fazakerley, J., & Byrne, T. (2015). Tourism Waste Management in the European Union: Lessons Learned from Four Popular EU Tourist Destinations. *American Journal of Climate Change*, 04(05), 431–445. <https://doi.org/10.4236/ajcc.2015.45035>
3. Gössling, S., Scott, D., & Hall, C. M. (Eds.). (2020). *Tourism and Water*. Oxford: Channel View Publications.
4. Hall, C. M., & Lew, A. A. (2018). *Understanding and Managing Tourism Impacts: An Integrated Approach*. London: Routledge.
5. Joppe, M. (2009). Book Review: *Tourism Policy and Planning: Yesterday, Today and Tomorrow* by David L. Edgell, Sr., Maria DelMastro Allen, Ginger Smith and Jason R. Swanson. *International Journal of Tourism Policy*, 2(1/2), 155. <https://doi.org/10.1504/ijtp.2009.023282>
6. Maryati, S.; Miharja, M.; Iscahyono, A.F.; Arsallia, S.; Humaira, A.N.S. Towards Sustainable Ambon Bay: Evaluation of Solid Waste Management in Ambon City. *IOP Conf. Ser. Earth Environ. Sci.* **2017**, 79, 12007.
7. Pan, S. Y., Gao, M., Kim, H., Shah, K. J., Pei, S. L., & Chiang, P. C. (2018, September). *Advances and challenges in sustainable tourism toward a green economy*. *Science of the Total Environment*, 635, 452–469. <https://doi.org/10.1016/j.scitotenv.2018.04.134>
8. Peeters, P.; Szimba, E.; Duijnsveld, M. Major environmental impacts of European tourist transport. *J. Transp. Geogr.* **2007**, 15, 83–93.
9. Rada, E.C.; Zatelli, C.; Mattolin, P. Municipal Solid Waste selective collection and tourism? *WIT Trans. Ecol. Environ.* **2014**, 180, 187–957
10. Scuttari, A., Orsi, F., & Bassani, R. (2018, February 2). Assessing the tourism-traffic paradox in mountain destinations. A stated preference survey on the Dolomites' passes (Italy). *Journal of Sustainable Tourism*, 27(2), 241–257. <https://doi.org/10.1080/09669582.2018.1428336>
11. Serrano-Bernardo, F.A.; Bruzzi, L.; Marcucci, M.; Bonoli, A.; Rosúa-Campos, J.L. Making tourism more sustainable: The role of ecotourism and of other forms of green tourism. In *Ecotourism: Practices, Benefits and Environmental Impacts*; Nova Science Publishers, Inc.: New York, NY, USA, 2015; pp. 1–28.
12. Sharpley, R. (2014). *Tourism and Development in the Developing World*. London: Routledge.
13. *Tourism Statistics portal*.(n.d.).<https://tourism.geostat.ge/categories/CRegionalAnalysis>

14. Tsai, F.M.; Bui, T.; Tseng, M.L.; Lim, M.K.; Tan, R.T. Sustainable solid-waste management in coastal and marine tourism cities in Vietnam: A hierarchical-level approach. *Resour. Conserv. Recycl.* **2021**, *168*, 105266.
15. United Nations Environment Programme (2024). Global Waste Management Outlook 2024: Beyond an age of waste – Turning rubbish into a resource. Nairobi. <https://wedocs.unep.org/20.500.11822/44939>
16. United Nations World Tourism Organization (UNWTO). (2019). Tourism and the Sustainable Development Goals – Journey to 2030. Madrid, Spain: UNWTO.
17. UNWTO at FITUR 2024: Investments, Sustainable tourism and Collaboration. (n.d.). www.unwto.org. <https://www.unwto.org/news/unwto-at-fitur-2024-investments-sustainable-tourism-and-collaboration>
18. UNWTO supports EBRD's web tool for green technologies – GEF Georgia – Welcome to the Green Economy Financing Facility. (n.d.). <https://ebrdgeff.com/georgia/en/unwto-supports-ebrds-web-tool-for-green-technologies/>
19. Vince, J.; Stoett, P. From problem to crisis to interdisciplinary solutions: Plastic marine debris. *Mar. Policy* **2018**, *96*, 200–203.
20. Waste management code. (n.d.). <https://matsne.gov.ge/en/document/view/2676416>
21. Weaver, D. B. (2018). Sustainable Tourism Futures: Perspectives on Systems, Restructuring and Innovations. Bristol: Channel View Publications.
22. Williams, G. (2016, December 21). Economic Impacts from Development of the Coastal Town in Queensland on Tourism and Regional Economy. *Resources*, *5*(4), 48. <https://doi.org/10.3390/resources5040048>
23. World Commission on Environment and Development. *Our Common Future*, Oxford; Oxford University Press: New York, NY, USA, 1987
24. Wynne, A.L.; Nieves, P.M.; Vulava, V.M.; Qirko, H.N.; Callahan, T.J. A community-based approach to solid waste management for riverine and coastal resource sustainability in the Philippines. *Ocean Coast. Manag.* **2018**, *151*, 36–44.

Erosion of Black Sea Coastline: An Emerging Threat to Maritime Tourism

by Mariam Mgeladze²⁴

Abstract

One of the cities along the coast of the Black Sea is Batumi. Recently, the coastline of Batumi has been experiencing ongoing active erosion. An analysis of the available statistical data and literature indicates the persistent trend of active erosion along the coastline since the 1980s.²⁵ This erosion stems from uncontrolled and systematic extraction of construction material from the shoreline, resulting in a depletion of crucial beach-forming resources within the marine environment. Consequently, the sea, in compensating for this depletion, encroaches upon the shore, leading to detrimental effects on coastal infrastructure, local businesses, and the thriving maritime tourism sector.

Between 2018 and the current period, the escalation of erosion processes along the Black Sea coastline necessitates meticulous strategic planning and the formulation of robust prevention measures. However, the actions undertaken by local authorities thus far have been fragmented, incident-oriented, and insufficient in addressing both short-term exigencies and long-term erosion risks.

Therefore, the paper aims to assess erosion's future impacts on maritime tourism in Batumi. It serves to create useful guidelines for policymakers, local authorities, and businesses to make informed decisions to safeguard these areas and mitigate the risks of the spread of coastal erosion. The article aims to investigate and question the reasons for erosion, explores the results and efforts to mitigate it, and provides holistic strategies for interventions that shall be used by the Georgian Government. The article focuses on implementing erosion control methods for the future sustainable development of marine tourism. The paper provides the experience of other states and opens the political and legal debates about effective, feasible, and sustainable governance of the problem. It concludes that recognizing the urgency of this issue, collaborative efforts between governments, scientific communities, and local stakeholders are essential. The phenomenon of erosion is a state-level problem and is destructive to ecosystems, economies, and communities reliant on coastal regions. Besides, it causes the severe problem of water pollution. The paper is critical, uses various research methodologies, and has huge importance in being published.

Keywords: Erosion; Coastline; Preservation; Maritime Tourism; Solutions.

²⁴ Legal Researcher, PhD Candidate of Ankara University, Turkey, mgeladzemariam@gmail.com

²⁵ Giardino A., Leo M., Bragantini G., Vroeg H. (2015). An Integrated Sediment Management Scheme for the Coastal Area of Batumi (Georgia), available at: <https://www.researchgate.net/publication/282607343>; Deltares designs new coastal defence system to stop erosion of Batumi coast, Georgia, <https://www.dutchwatersector.com/news/deltares-designs-new-coastal-defence-system-to-stop-erosion-of-batumi-coast-georgia>; Initial Environmental Examination (IEE) for Batumi Coastal Protection Project, (SUTIP 4), funded by ADB, <http://mdf.org.ge/?site-lang=en&site-path=documents/&year=2015&id=29>

Introduction

Coastal erosion can be defined as the loss or displacement of land, or the long-term removal of sediment and rocks along the coastline due to the action of waves, currents, tides, wind-driven water, waterborne ice, or other impacts of storms. However, there is no globally agreed definition for coastal erosion. Different sources provide variations on this definition. For example, the Collins English Language Dictionary defines coastal erosion as a result of the increasing frequency of storms, rising sea levels, coastal erosion, and collapsing drains²⁶, while the US Climate Resilience Toolkit states that it is caused by local sea level rise, strong wave action, and coastal flooding wearing down or carrying away rocks, soils, and/or sands along the coast.²⁷ Additionally, Australian Government Geoscience Australia sees coastal erosion as the loss of coastal lands due to the net removal of sediments or bedrock from the shoreline²⁸, and the European Research Executive Agency evaluates coastal erosions as removing sediment and rocks along the coastline.²⁹ In academic writings, researcher Gibb in his paper underlines that: “Coastal erosion is the loss or displacement of land, or the long-term removal of sediment and rocks along the coastline due to the action of waves, currents, tides, wind-driven water, waterborne ice, or other impacts of storms”.³⁰

Erosion plays a crucial role in shaping ecological landscapes. Natural forces like wind, waves, and currents constantly alter coastal areas by shifting sand and soil, leading to swift changes in shoreline positions. When untouched by human interference, these processes are simply part of natural evolution. However, human activities such as land reclamation, port construction, intensive construction and building activities, fishing along the coast, river damming, and offshore activities like dredging, sediment transportation, and sand mining often exacerbate coastal erosion.³¹ This interference can disrupt the socio-economic and ecological functions of coasts, often at a high societal cost.

There are different views and opinions on coastal erosion, namely, some explain that it is a result of climate change³², some focus on sea level rise issues³³, but some explain the erosion is a result of non-sustainable planning of the construction industry ignoring all the geographical specificities of the region itself. Besides various opinions, a fact of active erosion of the coastline remains, and each year

²⁶ Collins English Language Dictionary, available at: <https://www.collinsdictionary.com/dictionary/english> (accessed: 19.03.2024)

²⁷ US Climate Resilience Toolkit, Coastal Erosion, available at: <https://toolkit.climate.gov/topics/coastal-flood-risk/coastal-erosion>. (accessed: 19.03.2024)

²⁸ Australian Government Geoscience Australia, available at: <https://www.ga.gov.au/education/natural-hazards/coastal-erosion>

²⁹ https://rea.ec.europa.eu/news/life-edge-securing-europes-coastal-regions-2023-08-04_en. (accessed: 19.03.2024)

³⁰ Gibb, J.G. (1978). "Rates of coastal erosion and accretion in New Zealand" (PDF). *New Zealand Journal of Marine and Freshwater Research*. 12 (4): 429–456

³¹ Van der Weide, J., de Vroeg, H. & F. Sanyang. (2001). Guidelines for coastal erosion management. In: E. Ozhan, ed. *Midcoast 01: proceedings of the fifth international conference on the Mediterranean coastal environment*. Vol. 3, pp. 1399–1414.

³² Batumi Resilience Study, available at: <https://europe.wetlands.org/casestudy/batumi-resilience-study>, (accessed: 08.01.2024)

³³ Hodgson N., Harley J., Minnen V., et al. (2010). *European Climate Change Impacts, Vulnerability and Adaptation: A Review of Evidence*. The European Topic Centre on Air and Climate Change

the population and community living close to the coastline experience fear that the sea will damage their living areas.

Erosion has significant economic, cultural, political, legal, and ecological implications, necessitating scientific investigation to understand how best to protect shorelines.³⁴ It changes the coastal dynamics by disrupting activities like tourism, fisheries, and water sports, damages infrastructure, and poses risks to settlements and natural resources.³⁵ Therefore, conservation efforts and monitoring of coastal environments are essential for economic development, especially in tourism-dependent areas like Batumi.

Moreover, erosion compromises the infrastructure essential for tourism. These structures become vulnerable to damage or even destruction as the coastline recedes, leading to substantial economic losses for small or big industries' success which is mostly a result of the coastline. Coastal erosion also affects the attractiveness of locations for recreational and economic activities³⁶ like sunbathing, water sports, and tourism. Erosion alters the coastline, impacting accommodation and archaeological sites as well.³⁷ Erosion has a dual character it simultaneously damages and destroys the coastline, while adversely affecting negatively on sustainable development of industry and the region. Considering the consequences that erosion may cause to the state and environment, it is essential to re-evaluate strategies for effective and relevant risk mitigation within the regional context. This re-evaluation should aim to minimize the risks associated with erosion and prevent the degradation of marine ecosystems and biodiversity.

The development of tourism is part of national policy for the state because it has high economic importance.³⁸ The sustainable development of tourism is intertwined with the maintenance of a healthy environment and ecosystem.³⁹ Maintenance of healthy beaches and environmentally friendly status logically becomes part of the sustainable development objectives of the state. Tourism is a cornerstone of economic growth in many coastal regions and is particularly vulnerable to the impacts of erosion.⁴⁰ It drives economic development and social progress. However, erosion and environmental degradation jeopardize this delicate balance, prompting a reevaluation of tourism infrastructure and service quality in light of coastal erosion risks.⁴¹

³⁴ Massel, S.R., Furukawa, K. & R.M. Brinkman. (1999). Surface wave propagation in mangrove forests. *Fluid Dynamics Research*, 24: 219–249;

³⁵ Dong, W. S. et al. (2024). The impact of climate change on coastal erosion in Southeast Asia and the compelling need to establish robust adaptation strategies. *Heliyon* 10 (2024) e25609, available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10875370/pdf/main.pdf> (accessed: 08.01.2024)

³⁶ Pranzini, E., Williams, A. T. (2013). *Coastal erosion and protection in Europe*. Routledge London, UK.

³⁷ Peña-Alonso C., Hernández-Calvento L., Pérez-Chacón E. and Ariza-Solé E. (2017). The relationship between heritage, recreational quality, and geomorphological vulnerability in the coastal zone: A case study of beach systems in the Canary Islands. *Ecological Indicators*, 82, 420- 432

³⁸ World Travel and Tourism Impacts, Economic Impact Research, available: <https://wttc.org/research/economic-impact#:~:text=WTTC's%20latest%20annual%20research%20shows,1.4%25%20below%20the%202019%20level>.

³⁹ Impakter Business of Sustainability, Tourism and the Environment: From a One Health Perspective, <https://rb.gy/j54o3c>

⁴⁰ Briguglio, L. & M. Briguglio. (2000). *Sustainable tourism in islands and small states: case studies*. London, UK: Cassell/Pinter; European Commission Tourism Unit. (2000). *Towards quality coastal tourism: integrated quality management (IQM) of coastal tourist destinations*. Brussels, Belgium: European Commission.

⁴¹ Holden A. (2000). *Environment and tourism*. London: Routledge.

Erosion leads to the loss of biodiversity, beachfront, and coastal land, diminishing the aesthetic appeal and recreational value of these areas.⁴² As shorelines retreat, beaches become narrower or disappear entirely. Obviously, the degradation of these natural assets and vanishment of the coastline directly affects tourism revenues, as fewer tourists are inclined to visit areas that have lost their beauty and recreational opportunities. Interestingly, Roca et al. in their publications stated that any recreational activities are directly and indirectly affected by environmental quality.⁴³

Erosion is a pressing issue for Batumi's coastal zone, that necessitates integrated coastal resource management to coherently address erosion, resource depletion, and environmental degradation. This requires long-term planning and a national policy for coastal resource management based on comprehensive surveys and assessments, reflecting a better understanding of coastal processes. In this respect, one shall also understand that if an inappropriate or poorly designed policy is implemented, with a lack of understanding of coastal processes and protective functions, every attempt for mitigation of risks of erosion will fail as clearly shown in the case of Batumi Coastline. Nevertheless, all attempts will be unsuccessful without transparency, involving stakeholders and experts in the field for sustainable coastal development in Georgia.

Coastal erosion has interconnectedness with environmental and economic dimensions, highlighting the cascading effects of erosion on coastal ecosystems and tourism-dependent economies.⁴⁴ Mitigating erosion requires holistic strategies that preserve environmental quality while safeguarding the socio-economic benefits derived from coastal tourism.⁴⁵ By recognizing the intrinsic value of coastal ecosystems and prioritizing sustainable management practices, stakeholders can mitigate the adverse impacts of erosion, safeguarding both environmental integrity and economic prosperity. A significant step to achieve the balancing approach the balancing approach between sustainable development and environmental preservation is understanding and respecting the concept that the environment also belongs to the next generation.

Coastal erosion represents a complex nexus of environmental, economic, and social dynamics, necessitating interdisciplinary collaboration and innovative solutions as well. By prioritizing the preservation of natural ecosystems and engaging diverse stakeholders in decision-making processes, coastal communities can navigate the challenges posed by erosion while fostering sustainable development and resilience. It is crucial to underline that mitigating coastal erosion necessitates a collaborative approach that equally engages stakeholders and experts in ecosystem protection. This collaboration is crucial for developing comprehensive strategies that consider both the immediate and

⁴² Luijendijk A., Hagenaars G., Ranasinghe R., Baart F., Donchyts G. and Aarninkhof S. (2018). The State of the World's Beaches. Scientific Reports, 1, 1-11

⁴³ Lima J. and Paula D. (2017). Serviços Ecosistêmicos em Litorais Urbanos: Caso de Fortaleza, Ceará, Brasil. In: Perez Filho, A. & Amorim, A. A. (Org.). Os desafios da Geografia Física na fronteira do conhecimento. Campinas: Instituto de Geociências, 1, 2940-2945;

⁴⁴ Dogru T. and Bulut U. (2018). Is tourism an engine for economic recovery? Theory and empirical evidence. Tourism Management, 67,425-434.

⁴⁵ Alexandrakis G., Manasakis C. and Kampanis N. (2015). Valuating the effects of beach erosion on tourism revenue. A management perspective. Ocean & Coastal Management, 111, 1-11; Phillips M. and Jones A. (2006). Erosion and tourism infrastructure in the coastal zone: problems, consequences, and management Tourism Management, 27, 517-524.

long-term impacts of decisions made predominantly for economic gain. Effective planning for the mitigation of coastal erosion requires a thorough understanding of the ecological, social, and economic dimensions of coastal regions. Nevertheless, the stakeholders' actions near the coastline must also undergo precise assessment and study to foresee their potential effects on the environment and local communities. Moreover, transparent communication of these assessments to local communities is essential. Providing communities with clear and accessible information about the implications of coastal interventions ensures that they are aware of any risks to their rights to a healthy environment, clean water, and intact ecosystems. This transparency fosters informed community engagement and participation in decision-making processes, thereby enhancing the legitimacy and acceptance of mitigation measures. From that perspective, one should also understand that clean and clear water and a healthy environment are internationally recognized human rights.

In addition, integrating scientific research and traditional ecological knowledge can enhance the effectiveness of erosion control strategies. By considering diverse perspectives and expertise, mitigation plans can be more robust and adaptable to changing environmental conditions. This holistic approach not only helps protect coastal ecosystems but also supports the sustainable development of coastal areas, balancing economic interests with environmental stewardship and community well-being.

Thus, erosion poses a significant threat to the attainment of good environmental status and the vitality of tourism in affected regions. Therefore, it remains crucial to achieve a great and delicate balance of marine and terrestrial environments, biodiversity, and ecological resilience with economic development, as equally important values for State.

To achieve the goals of this paper, general scientific and special cognitive techniques wherein analysis and synthesis, systemic, and formal-legal methods are used. Besides, logical, practical, and pragmatic approaches are also employed.

Discussion Section

Coastal crisis: assessing the social and environmental fallout of erosion

Erosion causes significant changes to ecological conditions, disrupting the balance and sustainability of natural resources. The mitigation of the environmental risks of erosion necessitates meticulous planning and a systematic approach to mitigate those threats. However, improper planning, the absence of a structured approach, and the disregard for ecological risks often lead to severe outcomes. The environmental impacts of erosion can have far-reaching consequences, affecting public health, food chain security, and the sustainable development of a nation's economy and tourism industry. Neglecting ecological threats and crises within socio-economic activities can significantly diminish a country's tourism potential and opportunities. Therefore, it is crucial to integrate environmental considerations into the planning and execution of socio-economic activities to ensure the long-term sustainability and resilience of both natural ecosystems and human societies.

The social and environmental consequences of coastal erosion are not always easy to observe. For instance, aquaculture losses due to erosion reduce fishery productivity and increase unemployment.⁴⁶ Similarly, erosion negatively affects tourism and urban areas by decreasing property values. Besides that, erosion leads to significant changes in water quality and leads to pollution of the maritime zones as well. Pollution from erosion control measures, habitat degradation, and changes in water quality can compromise access to clean water and food sources, leading to violations of fundamental human rights.⁴⁷ In this respect, it remains important to mention that, under international human rights law, everyone is entitled to a clean environment, clean water, and sustainable resources. Access to the environment, clean water, and sustainable resources also derives from Sustainable Development Goals⁴⁸, which makes clear interconnectedness with sustainable development goals and environmental preservation, within the context of tourism industry development.

The social and environmental impacts of erosion are also compounded when coastal protection measures are improperly designed, constructed, and maintained or when they are only implemented in specific areas, such as in front of hotels or properties that can afford to protect their beaches, while the adjacent coast is left to erode. Coastal erosion cannot be resolved in a piecemeal fashion. Therefore, protective measures should be integrated, consider socio-economic conditions, reflect the natural processes and characteristics that work in the region, be specific for the region, and comply with the natural conditions of the region.⁴⁹ Moreover, it can have far-reaching consequences, including substantial economic and investment losses, degradation of water quality, and pollution of the marine ecosystem. These effects not only harm marine life but also disrupt the delicate balance of coastal environments, impacting both living organisms and non-living resources. Additionally, the active erosion of the coastline has a strong influence on the wealthy environment for people.

Given regard to the socio-environmental impacts of erosion on the one hand, and the need for sustainable development, it has to be analyzed how humans interested in “sustaining” their socio-economies might adopt the culture of co-evolution which for millennia has guided life toward long-term richness and security rather than short-term monetization and resulting impoverishment.⁵⁰ Balancing those priorities presents a significant dilemma for nations and the international community alike.

The detrimental effects of erosion on human interactions with marine environments are substantial. Thus, ensuring sustainable development is intrinsically linked to environmental protection, which is

⁴⁶ Gooding E.A.B. (1977). *The Effect of Tourism Upon the Environment in Tourism Impact Volume 2: The Cultural and Environmental Impact of Tourism with Reference to the Caribbean*. Christ Church, Barbados. The Caribbean Tourism Research Center, p. 2-19.

⁴⁷ There are numerous studies in this respect, however, for the interest of readers can be seen: Bęłdowska M., Jędruch A., Łęczyński L., et al. (2016). Coastal erosion as a source of mercury into the marine environment along the Polish Baltic shore. Volume 23, pages 16372–16382

⁴⁸ THE 17 GOALS | Sustainable Development, <https://sdgs.un.org/goals>. (accessed:12.03.2024)

⁴⁹ Plumwood V. (2000). Integrating ethical frameworks for animals, humans, and nature: a critical feminist eco-socialist analysis. *Ethics and the Environment* 5, 2, p. 285-322.

⁵⁰ Baldwin J. (2006). The culture of nature through Mississippian geographies. *Ethics and the Environment*, 11, 2, p. 11-43.

particularly vital for the growth of tourism globally. Achieving this balance is essential for maintaining the health and vitality of both natural ecosystems and socio-economic systems.

The observation of Frank Elgar is relevant to this paper to be cited, who stated that “the ecosystem is not more complex than we think, it is more complex than we can think.”⁵¹ The long-term security, stability, and coherence of Antiguans, human and otherwise, lie not in unsustainable dominance over nature but in collaboration with coastal ecologies. A similar opinion has also been suggested by Bruno Latour in his *Politics of Nature*.⁵² Given due analysis of the statement, it is safe to state that coastal management is a political project- a balance between the different interests of the State and community into coherent, synergistic projects that benefit all the interested parties involved.⁵³

To understand the implications of erosion, one must consider the mutualistic inter-relationships of the various actors. Besides, to understand the global picture of erosion and its implications on the social and healthy environment, a collection of data is required, which will define the options and countermeasures to be applied and implemented in any legal and policy framework for dealing with the consequences of erosion. This approach remains crucial to achieving ecological sustainability and keeping a wealthy and healthy local community.

The social and environmental fallouts of erosion is a global challenge. Many countries are struggling and dealing with it mitigation⁵⁴. The author considers, that erosion, significantly alters ecological dynamics, often with unintended consequences. The lack of understanding of a region's specific characteristics intensifies these effects, leading to widespread environmental changes impacting both living and non-living resources. Nevertheless, it poses a significant threat due to its implications for marine ecosystems and human livelihoods. As communities rely on coastal resources for sustenance and economic activities, the ecological shifts brought about by erosion resonate through the entire socio-economic fabric. The adaptive mechanisms employed to mitigate erosion risks often overlook the intricate balance of local ecosystems. Inappropriate interventions can further disrupt natural processes, and intensify rather than minimize the problem. Moreover, these interventions frequently fail to consider the long-term consequences on water quality, habitat integrity, and the health of living resources. From that perspective, mitigating the risks of coastal erosion demands also environmentally friendly strategies that safeguard both natural ecosystems and human welfare need to be implemented and generated.⁵⁵ Thus, stressing the policy where all indicated approach was developed remains crucial.

⁵¹ Baldwin J. (2007). *Understanding Tourist Beaches as Eco-Social Landscapes: Seeking Sustainability through Integration of Human and Non-Human Wealth Production*;

⁵² Latour B. (2004). *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter. Cambridge, MA: Harvard University Press.

⁵³ Supra Note 20

⁵⁴ As an example, Australia (14,849km lost) and Canada (14,425km) are predicted to be the worst-affected countries, followed by Chile (6,659km), Mexico (5,488km), China (5,440km), and the US (5,530km). The Gambia and Guinea-Bissau have short coastlines, but both are predicted to lose more than 60% of theirs. To read more: Valentino S. (2020). Voudoukas M.I, Ranasinghe R., Mentaschi L., at all. (2020). World's beaches disappearing due to climate crisis – study, Guadian; Sandy coastlines under threat of erosion; VOL 10, p. 260–263

⁵⁵ OHCHR and the rights to water and sanitation, <https://www.unwater.org/water-facts/human-rights-water-and-sanitation>. (accessed: 12.03.2024)

Coastal kaleidoscope: diverse features of Batumi's coastline

The Black Sea is located between southeastern Europe and Asia Minor. It is connected to the Aegean Sea via the Bosphorus, the Sea of Marmara, and the Dardanelles. Bulgaria, Romania, Turkey, Ukraine, Russia, and Georgia are the coastal states of the Black Sea. Currently, erosion is one of the most significant challenges facing the Black Sea region. Available literature explains that the erosion in the region is closely related to agriculture, forestry, fisheries, tourism, urbanization, harbor activities, dam constructions, sediment transport, intensive construction, and nature conservation activities in the area.

⁵⁶

Batumi is the capital of the Autonomous Republic of Adjara in Georgia and one of the major cities on the Georgian Black Sea coast. Batumi plays a significant role in the economic, cultural, and tourist development of the country.⁵⁷ The Batumi coastline is affected by erosion, which poses a threat to human life and leads to the loss of monuments of culture, history, intellectual values, local habits, and traditions. Furthermore, it leads to the loss of living resources and biodiversity, natural resources, and resources for economic activities.

The beaches of the Batumi coast are made up of gravel sediment carried by the Chorokhi River. Two submarine canyons stretch from the far depths to the Batumi coast: one reaches Batumi Cape in the north, and the other lies directly opposite the mouth of the Chorokhi River in the south. Previous studies have shown that part of the pebbles from the river flow into this canyon, failing to feed the beaches down-drift.⁵⁸ Furthermore, human interventions on the river, such as sediment mining and water flow regulation, have reduced the amount of sediment available to the beach over time. Further reduction of sediment banks is expected due to the planned construction of dams along the river.⁵⁹

The Chorokhi River originates in the mountainous region of Anatolia, Turkey. The Chorokhi River is the most important sediment source for the beaches on the Georgian shore next to Batumi. Historically, the main branch of the Chorokhi River reached the Black Sea near Magine, some 3-4 km north of the present river mouth. A smaller southern branch reached the coast approximately 2 km south of the present river mouth. The new location of the mouth causes the loss of a significant part of the sediment from the Chorokhi to the canyon: nowadays, it is estimated that approximately 90% of the river sediment load is lost in the depths of the canyon.⁶⁰

An analysis of the various literature makes it safe to state that, Batumi's coastline erosion is mainly influenced by sediment mining from the Chorokhi River mouth and construction of dams, which has

⁵⁶ Black Sea, <https://www.britannica.com/place/Black-Sea> (accessed:12.03.2024)

⁵⁷ Bloomberg, Is This Europe's Next Boomtown?, available at: <https://sponsored.bloomberg.com/article/is-this-europe-s-next-boomtown-> (13.07.2024)

⁵⁸ World Bank Group. (2021). The Cost of Coastal Zone Degradation in Georgia A Tool for the Coastal Zone Adaptation and the Nationally Determined Contributions. p.17-20

⁵⁹ Ibid

⁶⁰ Municipal Development Fund of Georgia for the Asian Development Bank. (2015). Initial Environmental Examination For Procurement of Construction of Batumi Coastal Protection. GEO: Sustainable Urban Transport Investment Program – Tranche 4.

taken place during the last decades, and the regulation of the river flows by power dams.⁶¹ Furthermore, the Georgian coast has suffered significantly from the ongoing use of beach deposits as construction material for infrastructure and buildings. This has led to an extensive narrowing of Georgia's beaches and, in some cases, to the complete loss of beaches. For several years, passive coastal protection interventions such as the construction of groynes on an as-needed basis were used to protect specific sectors of the coastline. This caused updrift sediment accumulation and down-drift erosion, leading to new erosion issues. Consequently, the length of the Georgian coast eroded increased from 155 km in 1961 to 183 km in 1972, and further increased to 220 km in 1981. The situation got even more complicated as most rivers got dammed, leading to a sudden drop of sediment banks being naturally carried to the sea.⁶²

The responsible body for the protection of the environment in Georgia is the Ministry of Environment and Natural Resources Protection (hereinafter-Ministry).⁶³ The Ministry is responsible for developing the environmental policy of the government and managing natural resources and radiation safety.⁶⁴ Despite the severity of the erosion problem, during the research, it has been found that the Fourth National Environmental Protection Action Program of Georgia⁶⁵ for the years 2022-2026 does not cover any information about the erosion of the sea line and does not consider effective measures either. As an interesting matter, the Law of Georgia on Water⁶⁶, and the Law of Georgia on Environmental Protection⁶⁷ do not consider any provisions used to legally recognize erosion and measures that shall have to be used for mitigation of the risks of erosion.

In the course of researching the subject matter, it has identified the 2013 climate change strategy of Adjara which only suggests "hard methods" against marine erosion.⁶⁸ At the moment, as the available practice shows the local administration uses hard methods, which every year proved to be ineffective. Following the annual nourishment procedures, typically conducted in either summer or winter, the effects of shortwave erosion render them obsolete, prompting the need for recurring nourishment efforts.⁶⁹

According to publicly available information, over the last few years, in order to mitigate the risks of erosion over 68.4 million GEL has been spent for strengthening Batumi's coastline. However, the sea

⁶¹ Supra note 32

⁶² World Bank Group. (2021). The Cost of Coastal Zone Degradation in Georgia A Tool for the Coastal Zone Adaptation and the Nationally Determined Contributions. p.17-21.

⁶³ The Ministry of Environment and Natural Resources Protection, <https://mepa.gov.ge/En/>, (accessed:12.03.2024)

⁶⁴ Ibid, <https://mepa.gov.ge/En/Structure>, (accessed:12.03.2024)

⁶⁵ Fourth National Environmental Protection Action Program of Georgia, <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC215963/>, (accessed:12.03.2024)

⁶⁶ Law of Georgia on Water, <https://matsne.gov.ge/ka/document/view/33448?publication=27>, (accessed:12.03.2024)

⁶⁷ Law of Georgia on Environmental Protection, <https://matsne.gov.ge/en/document/view/33340?publication=21>, (accessed:12.03.2024)

⁶⁸ UNDP in Georgia. (2013). აჭარის კლიმატის ცვლილების სტრატეგია. p.342; 357

⁶⁹ მოსახლეობის ჯანრმთელობისა და უსაფრთხოების დაცვის გეგმა 2018 წ. ზაფხულის სეზონზე სანაპიროს გასახსნელად (ვერსია 6) სანაპირო დაცვა - ბათუმი; 2018 წ; გვ. 4-5.

continues to damage the coastline.⁷⁰ Despite nourishment activities undertaken at different times, a clear strategy to fix the problem has not been found yet.

In order to solve this matter, in 2011-2012, the Dutch firm "Arcadis" and Delft University of Technology conducted a study that proposed alternatives to artificial reinforcement, highlighting the inadequacy of previous methods.⁷¹ The study suggested the creation of a parallel sandy beach along the boulevard and nourishment as well. However, this study has been heavily criticized by local experts, indicating that it leads to more environmental degradation.⁷²

As the publicly available information shows, between 2008 and 2013, approximately 350,000 m³ of inert material was imported to shore up the coast, but the region faced by serious number of storms from since 2013 till 2024.⁷³ All of these together have caused erosion to Adliya Beach, infrastructure damage along the boulevard, and damage to residential properties and highways. In order to mitigate the total loss of the beach, in 2015, "State Construction Company" LLC fortified a 1-km stretch of Adlia's coastline with a stone berm for 5.7 million GEL. In addition, "Technical" conducted a study on Batumi's coastal erosion, emphasizing the necessity of annual beach nourishment, estimating a requirement of 20,000 m³ of drift material per annum, which remains ineffective and insufficient for mitigating coastal erosion.⁷⁴

Despite the government's focus on fostering sustainable development and safe urban environments, government-financed projects have failed to advance these objectives. In 2020-2022, the Department of Environmental Protection and Natural Resources of Adjara allocated a further 5 million GEL for coastal reinforcement to prove this position. In 2022, a screening report commissioned by the same department outlined a plan for artificial nourishment of Batumi's Black Sea coastline, involving the periodic addition of 120,000 m³ of sediments to create a 50-meter-wide beach. Despite the allocations of budget money or loans for various international banks, erosion remains active and every year citizens are losing coastlines of the Black Sea.⁷⁵

⁷⁰Batumebeli,

<https://batumelebi.netgazeti.ge/tag/%E1%83%A8%E1%83%A2%E1%83%9D%E1%83%A0%E1%83%9B%E1%83%9,%E1%83%98>, (accessed: 19.03.2024)

⁷¹ Arcadis Nederland B.V.(2012). Alternative Feasibility Study for Batumi Coastal Protection

⁷² Local expert in the field Sasha Khorava, in his articles, criticizes the approaches.

⁷³Batumebeli.<https://batumelebi.netgazeti.ge/tag/%E1%83%A8%E1%83%A2%E1%83%9D%E1%83%A0%E1%83%9B,%E1%83%98>, (accessed: 19.03.2024)

⁷⁴ Batumi Losses its coast, <https://ifact.ge/batumelebi-gamagrebul-sanapiros-kargaven/>, (accessed: 19.03.2024)

⁷⁵ Ibid; In this respect, more can be read Kos'yan R.D. (2015). Coastal zone eTerra (and aqua) incognita eIntegrated Coastal ZoneManagement in the Black Sea. Volume 169, pg.1-16



Figure 1. Eroded Beach of Batumi



Figure 2. Eroded Coastline of Batumi, 2023



Figure 3. Eroded Boulevard of Batumi

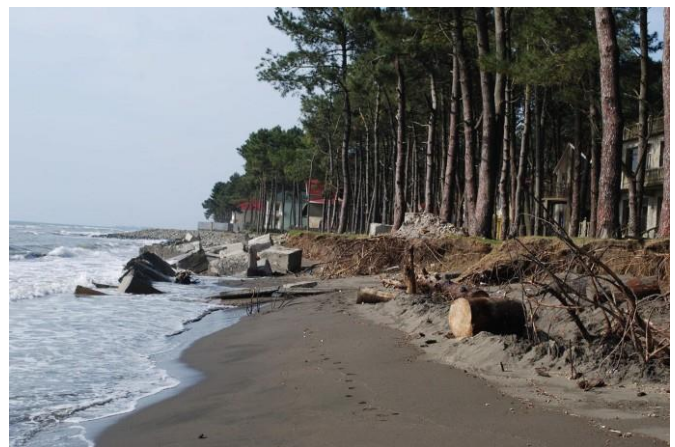


Figure 4. Sea destroyed coastline

During the drafting period of the current article, the local journal “Batumelebi” reported that 1.7 million GEL is being allocated for the artificial nourishment of the Batumi Black Sea coastline. The sediment for this nourishment is sourced from the River Chorokhi. According to the article, in 2023, the local administration decided to deposit 413 thousand cubic meters of gravel into the sea. Consequently, last year, 5,417,196 GEL was spent from the budget for sea nourishment, and this year, a tender has been announced for 1,715,827 GEL. The gravel will be applied in two locations: near the airport runway and the damaged pier in the new boulevard area. To facilitate this project, 15,530,613 GEL out of 15,658,999 GEL, has already been disbursed from the City Hall budget to the company "Gzizati."⁷⁶

The artificial nourishment of the Batumi coastline follows the same principles and sources of inert material as in previous years. In May 2024, the Department of Environment and Natural Resources of Adjara submitted a screening application to the National Environment Agency (hereinafter- Agency). This procedure aimed to determine the necessity of preparing an Environmental Impact Assessment document based on the planned activities. However, in June 2024, the Agency stopped the screening

⁷⁶Tedo Jorbenadze, 1.7 million GEL will be spent this year to bring gravel into the sea, <https://batumelebi.netgazeti.ge/news/534276/> (accessed: 13.07.2024)

procedure, concluding that the works did not constitute the construction of a new structure and, therefore, did not require a screening decision according to relevant legislation.⁷⁷

Interestingly, in a public statement, it has been emphasized the need to develop a new strategy for the exploitation and protection of the coastline. It warned that catastrophic events are inevitable if all possibilities for restoring the natural dynamics of the sea coast are exhausted.⁷⁸ Despite this public statement, it is evident that artificial nourishment is not an effective method, because the results are vanished every year due to storms removing the added gravel. Since artificial nourishment remains ineffective, reconsidering the experiences of other countries in managing coastal erosion remains essential. If not addressed, extracting gravel from the Chorokhi River may become more damaging than beneficial, potentially worsening environmental risks rather than mitigating them.

The substantial financial investments made by the local administration underscore the high costs involved in such projects, with millions of GEL allocated annually. The large-scale operation and its environmental impact, combined with the ongoing need for annual replenishment, highlight the temporary nature of current efforts and the significant challenges in maintaining beach stability. The regulatory complexities and legal considerations, alongside the urgent call for sustainable strategies, emphasize the necessity for adaptive approaches to coastal management. Continuous gravel extraction from the Chorokhi River could lead to further environmental degradation, making it imperative to learn from other countries' experiences to identify more sustainable and effective solutions. This integrated analysis provides a nuanced understanding of the ongoing efforts and challenges in managing the Batumi coastline, highlighting the critical need for sustainable and adaptive strategies amidst significant environmental and financial pressures.

Based on the given information, it can be concluded that one of the main issues exacerbating the situation in Batumi Coastline is the absence of a cohesive, long-term strategy for shoreline management. The approach of the government to this issue can be evaluated as fragmented, resulting in inconsistent outcomes. While Georgia aligns itself with the United Nations' Sustainable Development Goals, aimed at fostering resilient, inclusive, and sustainable urban environments, the failure of government-financed projects to align with these objectives is evident.

Result Section

Impacts of coastal erosion on tourism

Coastal erosion poses a significant challenge in tourism destinations, necessitating a systematic and comprehensive approach to managing coastal areas.⁷⁹

⁷⁷ Ibid

⁷⁸ Ibid

⁷⁹Committee on Economic Affairs and Development. (2003). Erosion of the Mediterranean coastline: implications for tourism. Available at: <https://assembly.coe.int/nw/xml/XRef/X2H-Xref-ViewHTML.asp?FileID=10340&lang=EN>. (accessed: 25.03.2024)

Tourism plays a pivotal role in sustainable development by driving economic growth, fostering cultural exchange, and promoting environmental conservation. As a significant contributor to national economies, tourism generates revenue, creates job opportunities, and stimulates investment in infrastructure and community development.⁸⁰ Furthermore, tourism often catalyzes the preservation of cultural heritage and natural resources, encouraging sustainable practices that benefit both local communities and visitors.⁸¹

According to the World Tourism Organization (UNWTO), the tourism industry contributed approximately 10% of the global Gross Domestic Product (GDP) in 2006, amounting to around USD 3 trillion in personal travel expenditures and USD 700 billion in business travel. By 2022, it is projected to contribute around 10.9% of global GDP, with an expected growth rate of 100% over the next decade. This growth translates to the creation of over 40 million jobs globally within the tourism sector.⁸² According to the information given by the Forbs of Georgia, in 2023 the annual income from tourism was \$4.1 billion. According to the National Tourism Administration, the figure is 26.2% higher than the pre-pandemic 2019 figure and 17.3%, 608 million USD higher than the 2022 result.⁸³ Based on these numbers, one has to understand that tourism generates incomes crucially important for the State economy, stability, and independence.

Batumi coastline is one of the tourist destinations in Georgia. However, due to active erosion and storms, it has been significantly diminished. As discussed in the preceding chapter, the local administration has implemented annual artificial nourishment efforts in specific sections of the coastline. Despite these interventions, this fragmented and localized strategy proves to be both ineffective and potentially harmful. The nourishment efforts are often undermined by storms, which can erode both the treated and untreated areas, ultimately leading to further coastal degradation. The impacts of coastal erosion present a significant challenge, not only from an environmental protection standpoint but also in terms of economics. The degradation of the coastline directly and negatively affects tourism revenues and the overall potential of the city as a tourist destination. Therefore, when considering sustainable and responsible tourism development, it is essential to address the impacts of erosion on the tourism potential. If flaws exist in current policy and planning, it becomes imperative for the relevant ministries to collaborate and take coordinated action. Such a collective approach is crucial for mitigating the negative effects of erosion and ensuring the long-term viability of the city's tourism industry.

⁸⁰ Andrés M., Barragán J.M. (2016). Urban-Coastal Development. Study Method for Quantifying on a Global Scale. vol. 33, N. 1. pp. 64-83

⁸¹ Ghosh T. (2011). Coastal Tourism: Opportunity and Sustainability. Journal of Sustainable Development Vol. 4, No. 6, p.3

⁸² European Commission Tourism Unit. Towards quality coastal tourism: integrated quality management (IQM) of coastal tourist destinations. Brussels, Belgium: European Commission; UN Atlas of the Oceans. Recreation and tourism. United Nations Environment Programme. Available: <http://www.oceansatlas.org>. UNEP Division of Technology, Industry, and Economics. About ecotourism. United Nations Environment Programme. Available: <http://www.unep-tie.org>; World Travel & Tourism Council. League tables: travel and tourism climbing to new heights: the 2006 travel & tourism economic research. London, UK: World Travel & Tourism Council.

⁸³ In 2023, Georgia received a record income from tourism, <https://forbes.ge/2023-tsels-saqarthvelom-turizmidan-rekorduli-shemosavali-miigho/>. (accessed: 12.03.2024)

The sustainability of tourism hinges on maintaining favorable environmental conditions. Coastal erosion not only undermines the natural beauty of beaches but also jeopardizes infrastructure and livelihoods. Effective mitigation strategies for coastal erosion must be carefully selected to minimize adverse environmental impacts. Unfortunately, some methods, such as the use of inappropriate materials like active cementation or the construction of dams without considering their environmental consequences, can exacerbate erosion, and further degrade coastal ecosystems and water quality deterioration.

Additionally, the selection of the irrelevant method for mitigation of the risks, use of irrelevant materials for sediments, including active cementation of coastline, ignorance of the environmental consequences of dams, and intensive transport of sediments for the rivers hurt tourism, which poses a serious risk to tourism sustainability and the international reputation of destinations. If countermeasures are applied against coastal erosion, it will influence the tourism potential of the country. It is also obvious that erosion changes the environmental status of the region because it pollutes the environment making touristic destinations less attractive for tourists.

Recognizing the interconnectedness of environmental quality and tourism, governments and stakeholders must prioritize sustainable development practices that balance economic prosperity with environmental conservation. Investing in environmentally friendly infrastructure, implementing ecosystem-based management approaches, and promoting responsible tourism practices are essential steps towards safeguarding coastal environments and ensuring the long-term viability of tourism industries.

Ultimately, the preservation of natural resources and the promotion of sustainable tourism are mutually reinforcing goals. By prioritizing environmental conservation and adopting resilient strategies to mitigate coastal erosion and other environmental risks, countries can safeguard their tourism economies while preserving their natural heritage for future generations. For concluding remarks for this part of the article, is that the approach used against coastal erosion should not have negative consequences on the tourist potential of Georgia.

Coastal erosion redraws the map of the maritime border- are the new claims coming?

Coastal erosion is a complex phenomenon with far-reaching implications for maritime jurisdictions and territorial claims. By gradually reshaping coastlines, erosion directly impacts the geographical reference points crucial for delineating maritime boundaries.⁸⁴ This erosion-induced shift in coastal features⁸⁵ can undermine the stability of baselines, which are foundational in determining the extent of territorial waters and exclusive economic zones (EEZs).⁸⁶

⁸⁴ Mc Graw-Hill, Dictionary of Scientific and Technical Terms, 4th ed.

⁸⁵ Weil, P. (1993). Geographical Considerations in Maritime Delimitation. International Maritime Boundaries. (Cambridge, Grotius Publications Limited. p. 7. J. I. Charney and L. M. Alexander. (1993). American Society of International Law. Dordrecht, Boston, London; Martinus Nijhoff Publishers. vol. I, p. 115- 130.

⁸⁶ McDonald, S. and V. Prescott (1989). Baselines along Unstable Coasts: An Interpretation of Article 7. (2). Ocean Year Book 8: 70-89; Int. Law Association. (2012). Baselines under the international law of the sea" Int'l L. Ass'n Rep. Conf. 75: 385-431.

The debate over the choice between normal and straight baselines is particularly pertinent in the context of coastal erosion. Normal baselines follow the low-water line along the coast, whereas straight baselines are drawn connecting specific coastal points.⁸⁷ Persistent erosion challenges the viability of normal baselines, as the coastline's changing position may render them obsolete. This raises questions about the reliability and permanence of baseline configurations, essential for ensuring the predictability and stability⁸⁸ of maritime boundaries.⁸⁹

In legal terms, the principle of stability is paramount in boundary delimitation. While international law seeks to establish clear and enduring maritime boundaries, the dynamic nature of coastal erosion introduces uncertainty and instability. This tension between the need for stability and the reality of coastal dynamics underscores the complexity of resolving maritime boundary disputes⁹⁰, especially in regions prone to erosion.⁹¹

The *Gulf of Maine case* provides a notable example of how courts navigate the issue of coastal erosion in maritime delimitation.⁹² By disregarding natural boundaries in favor of legal-political considerations, the court acknowledged the inherent challenges posed by coastal dynamics in boundary demarcation. This highlights the need for adaptive and context-specific approaches to maritime boundary delimitation that account for environmental factors such as erosion.⁹³

Moreover, coastal erosion challenges the equidistance principle⁹⁴ as the basis for maritime boundary delimitation, prompting considerations for alternative methods such as straight baselines, as suggested by Judge ad hoc Torres Bernardez in *Nicaragua v Honduras*.⁹⁵ Judge Torres Bernardez's advocacy for straight baselines reflects a pragmatic response to erosion-induced boundary instability.⁹⁶ By using fixed coastal points less susceptible to erosion, straight baselines offer a more resilient basis for maritime boundary delineation. However, the adoption of straight baselines must consider not only geographical factors but also geopolitical and socioeconomic concerns, as boundary decisions often intersect with broader national interests.

⁸⁷ Ocean Year Book 8: 70-89; Int. Law Association. (2012). "International Law Association Sofia Conference (2012). Baselines under the international law of the sea" Int'l L. Ass'n Rep. Conf. 75: 385. P.422

⁸⁸ *The Temple of Preah Vihear (Cambodia v Thailand) Merits [1962] ICJ Rep. 6, [34]*

⁸⁹ O'Reilly, C. T., D. L. Forbes, et al. (2005). Defining and Adapting to Coastal Hazards in Atlantic Canada: Facing the Challenge of Rising Sea Levels, Storm Surges, and Shoreline Erosion in a Changing Climate. Ocean Year Book 19: 189-207, p.198

⁹⁰ Caron, D. D. (1990). When Law Makes Climate Change Worse: Rethinking the Law of Baselines in Light of a Rising Sea Level. Ecology Law Quarterly 17: 621-653, pp. 623, 636-641

⁹¹ Menefee, S. P. (1990-1991). "Half Seas Over": The Impact of Sea Level Rise on International Law and Policy." UCLA J. Env'tl. L. & Pol'y 9: 175-218 ('Menefee'), p.211

⁹² *Delimitation of The Maritime Boundary in the Gulf of Maine Area (Canada/United States of America) [1984] ICJ Rep p246, [56]*

⁹³ *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v Honduras) [2007] ICJ Rep I ('Nicaragua v Honduras'), [32]; [145]*

⁹⁴ *ICJ in Nicaragua v Honduras, above n14, [280], [281]*

⁹⁵ *Dissenting Opinion, Judge ad hoc Torres Bernardez in Nicaragua v Honduras, above n14, [128]-[9]*

⁹⁶ *Ibid, [130]*

States grappling with the impacts of coastal erosion on maritime boundaries face a dual challenge: mitigating erosion's effects while ensuring the integrity and permanence of boundary demarcations. This requires a multidisciplinary approach that combines scientific expertise with legal and political considerations. Collaborative efforts between mapping, environmental, and geoscience agencies can facilitate the development of comprehensive strategies for addressing erosion-induced boundary instability.

Furthermore, the adoption of flexible and adaptive boundary delineation methods, as demonstrated by France and Spain in the Bay of Biscay, underscores the importance of pragmatic solutions tailored to specific geographic contexts.⁹⁷ By combining equidistance principles with equitable considerations, these states exemplify a nuanced approach to maritime boundary delimitation that accounts for the dynamic nature of coastal environments.

Coastal erosion poses significant challenges to the stability and integrity of maritime boundaries.⁹⁸ Addressing these challenges requires a nuanced understanding of both the physical processes driving erosion and the legal and geopolitical implications for boundary demarcation. By adopting adaptive strategies that integrate scientific expertise with legal and political considerations, states can navigate the complexities of coastal erosion while safeguarding their maritime interests.⁹⁹

In conclusion, coastal erosion presents multifaceted challenges that extend beyond mere environmental degradation and tourism hindrances. Its profound impact on maritime boundaries underscores the intricate interplay between environmental dynamics, legal frameworks, politics, and national interests.¹⁰⁰ As coastlines evolve due to erosion, the stability and integrity of maritime boundaries are compromised, posing significant legal challenges for states.

Changes in coastline position can affect the delineation of territorial waters, exclusive economic zones, and continental shelf boundaries, with far-reaching implications for states' rights and obligations under the United Nations Convention on the Law of the Sea, 1982 (UNCLOS). Addressing erosion-induced boundary instability requires proactive measures at the national level to safeguard maritime interests and uphold international legal commitments. By prioritizing the preservation of maritime boundaries alongside environmental conservation, states can uphold the principles of stability, predictability, and equity enshrined in UNCLOS, 1982.¹⁰¹

In essence, combating coastal erosion is not just an environmental imperative but also a legal and geopolitical necessity. By recognizing the interconnectedness of erosion mitigation, sustainable

⁹⁷ Anderson, D. H. (1993). Report No.9-2, France-Spain. *International Maritime Boundaries*. J. I. Charney and L. M. Alexander. Dordrecht, Boston, London, Martinus Nijhoff Publishers. II: 1719-1734.

⁹⁸ Gable, F. J. and S. F. Edwards (2001). Optimal Development Setbacks for the U.S. Coastal Zone. *Ocean Year Book* 15: 299-330, p.300

⁹⁹ Menefee, S. P. (1990-1991). Half Seas Over: The Impact of Sea Level Rise on International Law and Policy. *UCLA J. Envtl. L. & Pol'y* 9: 175-218, p.211

¹⁰⁰ O'Connell, D. P. (1958). Problems Of Australian Coastal Jurisdiction. *BYBIL* 34: 199-259, p.231.

¹⁰¹ The United Nations Convention on The Law of the Sea, 1982, art.14.

development, and boundary protection, states can forge resilient coastal futures that balance environmental conservation with maritime governance. Through concerted action and international cooperation, we can address the complex challenges posed by coastal erosion while advancing the goals of sustainable development and environmental stewardship. To conclude in this part, the author posits that although boundary issues are not currently a topic of discussion in Georgia, the ongoing natural events in Batumi and the occurrence of active storms may soon necessitate such discussions. If current planning activities for mitigating erosion risks remain unchanged, the pressure to address potential border changes will likely increase in nearest future.

Preservation paradox: the interplay between tourism and environmental sustainability

In short tautology, the concept of sustainable development originated from the Brundtland Report of the World Commission on Environment and Development, where it was described as development that satisfies current needs without jeopardizing the ability of future generations to fulfill their own needs. Sustainable development aims to promote prosperity, equity, and environmental stewardship, balancing economic growth with social progress and environmental protection.¹⁰² Currently, it is embedded in many international treaties, such as the 1992 UN Convention on Biological Diversity, the 2000 Cartagena Protocol, the 1992 UN Framework Convention on Climate Change and its 1997 Kyoto Protocol, the 1994 UN Convention to Combat Desertification and Drought, the 1994 North American Free Trade Agreement, the 1995 Straddling Fish Stocks Agreement of the 1982 UN Convention on the Law of the Sea, the 2000 Cotonou Partnership Agreement between the European Union and the African Caribbean and Pacific countries, the 2001 International Treaty on Plant Genetic Resources for Food and Agriculture, and many others.¹⁰³

The concept is widely addressed by the international courts and tribunals. For instance, the Permanent Court of Arbitration, in the *Iron Rhine Railway case*, underscored the mutual reinforcement of environmental law and development law, mandating harm prevention or mitigation when development impacts the environment.¹⁰⁴ The International Court of Justice, in the case of *Gabcikovo-Nagymaros*, emphasized the environment as essential to human well-being and health, extending to future generations.¹⁰⁵ On the other hand, the World Trade Organization Appellate Body in the *US – Shrimp Case* recognized sustainable development as integrating economic, social, and environmental protection, defining it as meeting present needs without compromising future generations' ability to meet theirs.¹⁰⁶

¹⁰² Brundtland, G. (1987). Report of the World Commission on Environment and Development: Our Common Future. United Nations General Assembly document A/42/427.

¹⁰³ International Sustainable Development Law: Principles, Practice & Prospects, available: <https://www.cisd.org/wp-content/uploads/2018/05/International-sustainable-development-law-2002.pdf>

¹⁰⁴ *Arbitration Regarding the Iron Rhine ("Ijzeren Rijn") Railway (Belgium v. Netherlands)* (May 24, 2005)

¹⁰⁵ *Gabčikovo-Nagymaros Project, Hungary v Slovakia, Order, Site Visit, [1997] ICJ Rep 3, ICGJ 65 (ICJ 1997), 5th February 1997, United Nations [UN]; International Court of Justice [ICJ]*

¹⁰⁶ *US – Shrimp United States – Import Prohibition of Certain Shrimp and Shrimp Products, WT/DS58*

The term sustainability remains relevant for the scope of tourism as well. The concept of sustainable tourism development requires careful consideration of carrying capacity to prevent degradation of natural attractions and strain on local infrastructure.¹⁰⁷ This involves implementing measures such as zoning regulations and sustainable tourism practices to ensure that tourism activities remain within the ecological, authentic, and socio-cultural carrying capacity of the destination.

Sustainable tourism represents a key component of broader sustainable development efforts, offering opportunities for economic growth, cultural exchange, and environmental conservation. By integrating tourism into sustainable development initiatives, coastal communities can harness the potential of tourism to create a more resilient and equitable future. However, achieving sustainable tourism requires collective action and collaboration among stakeholders to address complex challenges and ensure that tourism benefits both present and future generations.¹⁰⁸

Interestingly, Hughes observes that the idiom of sustainable development has turned to the certainty promised by scientific quantification in understanding environmental relations. Yet, indicators are often poor windows into complex biospheric processes.¹⁰⁹ Many political ecologists, including Hall and Page, have problematized one-dimensional indicators.¹¹⁰ In a critique of using “indicators” to manage reef health in tourism areas, Butler notes that visitor declines are among the most common indicators of non-sustainability and that in “many cases such indicators come too late for satisfactory remedial action, even if that had been possible”.¹¹¹

Developing a sustainable coastal tourism management plan is a complex process since it requires a strategic approach that addresses the coastal erosion and degradation of the coastal ecosystem. This strategy should consider the physical environment, local economy, and culture, as well as incorporate industries unrelated to coastal tourism.

Tourism plays a significant role in many coastal regions, contributing to economic growth and employment opportunities. Therefore, it's imperative to integrate tourism into broader sustainable development initiatives to ensure its long-term viability and benefits for local communities.

The sustainable development of coastal areas necessitates managing economic growth alongside environmental protection and restoration, with a focus on delivering social benefits and preserving these regions. Recognizing the importance of comprehensive and integrated coastal management at local, national, and international levels has long been acknowledged. Both local and national authorities

¹⁰⁷ Adams W.M.(1991). *Green Development: Environment and Sustainability in the Third World*. New York: Routledge.

¹⁰⁸ Daly, H. (1991). *Elements of Environmental Economics*. In: Costanza, R., Ed., *Ecological Economics: The Science and Management of Sustainability*, New York.

¹⁰⁹ Hughes G. (2002). *Environmental indicators*. *Annals of Tourism Research*, 29, 2, p. 457-477.

¹¹⁰ Hall M., Page S. (1999). *The Geography of Tourism and Recreation; Environment, Place and Space*, second ed. New York: Routledge.

¹¹¹ Butler R. (1993). *Tourism: an evolutionary perspective*, in *Tourism and Sustainable Development: Monitoring, Planning, Managing*. Heritage Resources Center, University of Waterloo, p. 27-43.

understand the significance of coastal erosion and its impact on tourism, emphasizing the need for systematic management approaches.

Effective planning for sustainable development requires shifting from dichotomous perspectives that separate humans from the environment. Instead, a holistic approach that encompasses all forms of production and value, including both human and non-human elements, is essential.

There should not be a rigid dichotomy between sustainable tourism development and environmental protection. Understanding the concept of sustainable development planning for coastal regions is crucial and challenging at the same time. It is not only a purely political matter, but it also remains a geographical, legal, and cultural subject matter for all states, inclusive Georgia. Some should analyze the different components to create an authentic and effective plan, which balances the needs for tourism and the risks of coastline erosion. Obviously, this advice remains relevant for the case of Batumi as well, because it has extremely specific geographical features. Due to the fact that erosion is caused by the interplay of different actors and decision-takers, it's imperative to involve various stakeholders such as policymakers, developers, managers from governmental and non-governmental organizations, the private sector, and local communities in crafting a holistic policy for sustainable development. Tourism development should be aligned with environmental conservation efforts, cultural preservation, and community empowerment. This requires collaboration among stakeholders to establish regulations, guidelines, strategies, and incentives that promote responsible tourism practices while maximizing the socio-economic benefits for residents, which sadly is not properly developed and followed in Georgia.

Legal horizons: examining the role of laws in coastal adaptation

The erosion and environmental governance are addressed through a myriad of international legal instruments and various international initiatives. These instruments, whether international or regional in scope, delineate and prescribe the obligations upon nations to uphold robust environmental policies and standards.

The challenge of coastal erosion persists despite existing legislation, prompting concerted efforts within the framework of international legal instruments.

The current laws are not enough to handle the issue of coastal erosion in the long run. In response, the Abidjan Convention adopted a two-year work plan that includes long-term monitoring of coastal areas as one of its actions under the "coastal erosion and shoreline changes" component.¹¹²

In 1976, twenty-one Mediterranean countries adopted the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution. They established the Mediterranean Action Plan (MAP) as part of the United Nations Environment Programme's (UNEP) Regional Seas Programme. The MAP's main goals were to help Mediterranean governments assess and control marine pollution, develop

¹¹² Abidjan Convention, 1984

national environment policies, identify alternative patterns of development, and shape improved policies for resource allocation. Besides, in 1995, the Barcelona Convention was updated and revised, and a new phase of the MAP was introduced. This new phase placed greater emphasis on sustainable development and biodiversity conservation.¹¹³

Additionally, in 1985, the MAP countries (excluding Albania) signed the Genoa Declaration, which proposed a more proactive framework focusing on integrated coastal planning and management instead of just pollution prevention. Later in 1988, the Mediterranean Blue Plan was suggested which is considered as one of the most comprehensive steps towards halting the Mediterranean's degradation.¹¹⁴ In 1997, the Committee of Ministers of the Council of Europe adopted a Recommendation on a Policy for the Development of Sustainable Environment-Friendly Tourism in Coastal Areas (No. R (97) 9). This urged member states to base their tourism development policy and financial incentives on the guiding principles for sound management of coastal areas. In addition, landmark legal instruments such as the Bern, Granada, Valleta, Lugano, Strasbourg, and Florence conventions, and the Guiding Principles for the sustainable spatial development of the European continent, seek to strike a balance between man and the environment. The Ministers also endorsed a Pan-European Code of Conduct for Coastal Zones and a Model Law on Sustainable Management of Coastal Zones.¹¹⁵

At a later stage, in 1999, the MAP Priority Actions Programme (PAP)/Regional Activity Centre (RAC) introduced a "Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River Basin Management (ICARM)" and recommendations for action on "Tourism and sustainable development." These documents outline key steps, implementation strategies, and policy instruments towards multi-sectoral and integrated management as well as sustainable development of coastal zones, river basin areas, and tourist flows in the Mediterranean. It requires a high level of cooperation within and between different institutional structures, policy-making entities, and sectors. Furthermore, within the framework of the MAP, the Coastal Area Management Programme (CAMP) aims to promote sustainable development through the implementation of practical and non-commercial ICAM projects.¹¹⁶

Besides of legal instrument, there is MEDCOAST, an international initiative, that aims to contribute to the conservation and proper management of the coastal and marine areas of the Mediterranean and the Black Sea through collaboration and improved coastal management practices. MEDCOAST has organized five international conferences, two international workshops, five training programs, and other training courses on topics related to the conservation and sustainable use of the Mediterranean coastal and sea environment.¹¹⁷

¹¹³ Barcelona Convention and Protocols, available at: <https://www.unep.org/unepmap/who-we-are/barcelona-convention-and-protocols>

¹¹⁴ Genoa Declaration, available at: <https://wedocs.unep.org/handle/20.500.11822/10193>

¹¹⁵ Council of Europe adopted a Recommendation on a Policy for the Development of Sustainable Environment-Friendly Tourism in Coastal Areas (No. R (97) 9), available at: <https://rm.coe.int/native/09000016804ddcb9>

¹¹⁶ Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River Basin Management (ICARM), available at: <https://wedocs.unep.org/handle/20.500.11822/1714?show=full>

¹¹⁷ MEDCOAST, <https://www.medcoast.net/>

The World Tourism Organization has launched a new initiative called the International Network on the Sustainable Development of Coastal Tourism Destinations. It is also focused on effective planning for sustainable tourism at the local, national, and international levels, as well as developing indicators for sustainable tourism.¹¹⁸The National Distance Education University (UNED) of Spain is providing technical and scientific collaboration for this network. The network aims to compile quality information on the sustainable development and management of coastal tourism destinations, facilitate information sharing, provide guidelines on policies and operations towards the development of sustainable coastal tourism, and foster cooperation and partnership among network members.¹¹⁹

Another initiative is the Mediterranean Technical Assistance Programme, which is a multi-donor program that brings together the European Commission, the European Investment Bank (EIB), the UNDP, the World Bank, and some individual countries such as Finland and Switzerland. It aims to help the non-EU Mediterranean countries address environmental policy, institutional, and investment-related needs towards reversing the environmental degradation of the region, including integrated water and coastal resources management.¹²⁰

The EUROSION project, launched in 2001 and funded by the European Commission, is specifically targeted at sustainable coastal erosion management and communication structures. It aims to provide the European Commission with recommendations for information management and policy-making based on a thorough assessment of the current situation and past experiences. It will prepare an information database, a review of lessons learned from around sixty case studies, as well as a Shoreline Management Guide with practical examples of coastal erosion management.¹²¹

At the Rio United Nations Conference on the Environment and Development (UNCED), protection of the coastal and marine environments to ensure sustainable use of natural resources was at the top of the agenda for action (AGENDA 21). Under Chapter 17 of Agenda 21, coastal states should commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction. UNCED further pointed out the importance of coastal states in developing national policies and management capabilities for integrating development decisions and social trends. Many countries have formulated regulatory measures for the management of their resources in coastal and marine areas such as the issuance of permits for fishing, logging, and mangrove harvesting.¹²²

Increasingly, countries of the region are enacting environmental laws that provide practical frameworks at the national level to implement environmental standards and regulate the activities of enterprises and people in the light of environmental objectives. Several international agreements aim to promote sustainability in the coastal tourism industry. Some notable conventions include the United Nations

¹¹⁸ World Tourism Organization, <https://www.unwto.org/>

¹¹⁹ The National Distance Education University Spanish, <https://www.uned.es/universidad/inicio/en/conocenos.html>

¹²⁰ Supra note 93

¹²¹ UROSION, <https://www.eea.europa.eu/en>

¹²² United Nations Conference on the Environment and Development (UNCED), <https://www.un.org/en/conferences/environment/rio1992>

Convention on the Law of the Sea (UNCLOS, 1982), the Convention on Biological Diversity (CBD), the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), and the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), which is particularly relevant to the cruise ship industry. Other agreements also pertain to climate change and other types of pollution (UBC Fisheries Centre, 2004).

Having indicated all those international and regional initiatives and international legal instruments, it is safe to argue that there are legal instruments already available, from where the best minimum standards can be implemented and experiences can be shared for capacity-building and maintenance relevant steps for the countermeasures against coastal erosion.

Beyond the breakwater: the coastal defense tactics

Coastal erosion and accretion present intricate phenomena requiring examination from various perspectives, including sediment movement under the influence of wind, waves, and tidal currents, as well as beach dynamics within sediment/littoral cells. Human activities along the coast, within river catchments and watersheds, and offshore, both spatially and temporally, also play crucial roles.

Key physical parameters for identifying coastal erosion challenges encompass:

1. **Coastal geomorphology:** Considering coastline types and their susceptibility to coastal processes.
2. **Wind:** Primarily responsible for wave generation, wind can transport sediment landward under specific environmental conditions across open coastlines.
3. **Waves:** The predominant forces driving sediment erosion and transport in coastal areas.
4. **Tides:** Exert significant influence on beach morphodynamics.
5. **Vegetation:** Vital for enhancing slope stability, sediment consolidation, and providing shoreline protection.
6. **Coastal activities:** Human interventions such as land reclamation, harbor development, and seawall construction have enduring impacts on shoreline dynamics, potentially causing erosion or sediment wash over varying time scales. Activities within river catchments and watersheds, like dam construction or river diversion, can diminish sediment supply to the coast, exacerbating coastal erosion.¹²³

Exploring coastal protection methods requires further investigation. Understanding the interaction between vegetation and wave action is crucial for effective coastal defense management.¹²⁴ Laboratory studies under controlled conditions offer insights into vegetation's effects on coastal bed morphology and its interplay with waves and sediment transport.¹²⁵

¹²³ Prasetya G. Thematic paper: The role of coastal forests and trees in protecting against coastal erosion. p.4-20.

¹²⁴ Kamphuis, J.W. 2002. Introduction to coastal engineering and management. Advanced series in ocean engineering. World Scientific. 437

¹²⁵ Coops, H., Geilen, N., Verheij, H.J., Boeters & van der Velde. (1996). Interaction between waves, bank erosion and emergent vegetation: an experimental study in a wave tank. Aquatic Botany, 53: 187–198.

Identifying the root causes of coastal erosion and selecting appropriate protection measures necessitates comprehensive regional-scale studies across seasons. Traditional approaches involve both hard structural/engineering options and soft alternatives. However, a combination of these approaches is increasingly favored for optimal results, as they may complement each other's weaknesses. Past failures in coastal protection schemes often stem from inadequate design, construction, or maintenance, and a failure to consider natural processes at system boundaries.

Hard structural/engineering options encompass constructions both on the coastline (such as seawalls, groins, and breakwaters) and offshore (like offshore breakwaters). These structures are designed to intervene in coastal processes and mitigate the rate of erosion.¹²⁶

A groin, for instance, is erected perpendicular to the coastline, extending into the sea to hinder longshore sediment transport or regulate currents. Typically made from materials like wood, rock, or bamboo, groins are commonly utilized on sandy shores. However, they come with drawbacks such as inducing local wash, causing erosion downstream, and necessitating regular maintenance. On the other hand, seawalls, constructed parallel to the coastline, shield the shore from wave impact and can bolster slope stability. Despite their versatility, seawalls have downsides like creating wave reflections, promoting offshore sediment transport, and failing to ensure beach stability if not implemented consistently along the entire coastline. From offshore breakwaters' perspective, they function as wave absorbers in the nearshore zone, diminishing wave energy and influencing sediment transport. While often evolving into multifunctional artificial reefs, they pose challenges due to their large size, intricate design requirements, and susceptibility to strong wave action. In the case of artificial headlands, designed to mimic natural beach formations, can inadvertently contribute to erosion downstream due to their large size and limited stability against powerful waves.¹²⁷

On the other hand, soft structural/engineering options aim to dissipate wave energy by emulating natural processes and preserving coastal topography. These methods include beach nourishment, dune building, revegetation, and other non-structural management techniques.¹²⁸

Beach nourishment involves augmenting sediment on eroded beaches to widen them, enhance recreational value, and replicate natural wave dissipation processes. While widely employed, its efficacy remains subject to debate. Moreover, offshore sediment sourcing, often through dredging, can supplement beach nourishment efforts, albeit requiring regular maintenance and facing challenges in severe wave climates. Whereas, dune building or reconstruction relies on wind-driven sand

¹²⁶ Dong W. S, Ismailluddin A., Lee Shin Yun L.S. (2024). The impact of climate change on coastal erosion in Southeast Asia and the compelling need to establish robust adaptation strategies. *Heliyon* 10: e25609.

¹²⁷ Masria, A., Iskander, M., & Negm, A. (2015). Coastal protection measures, case study (Mediterranean zone, Egypt). *Journal of Coastal Conservation*, 19(3), 281–294; Hagedoorn, L. C., Appeaning Addo, K., Koetse, M. J., Kinney, K., & van Beukering, P. J. H. (2021). Angry waves that eat the coast: An economic analysis of nature-based and engineering solutions to coastal erosion. *Ocean & Coastal Management*, 214, 105945.

¹²⁸ Cohen O., Edward J. Anthony E. J. (2007). Gravel beach erosion and nourishment in Nice, French Riviera, *Mediterranean* N108-2007; p.101

accumulation to form natural barriers against erosion, offering an effective coastal defense system independent of seawater inundation.

In coastal management, a combination of these hard and soft engineering approaches, tailored to specific environmental conditions, is crucial for sustainable shoreline protection and erosion mitigation.

Coastal revegetation plays a vital role in enhancing slope stability, sediment consolidation, and reducing onshore wave energy, thereby protecting shorelines from erosion. However, its effectiveness can be site-specific, facing challenges in high-energy open coast environments. Factors such as unsuitable environmental conditions, ignorance of proper planting techniques, or anthropogenic influences altering natural processes can lead to revegetation failures.¹²⁹

Traditional hard and soft engineering solutions may not be optimal for long-term coastal management. More effective strategies should focus on managing coastal system changes in response to climate change, supported by a comprehensive understanding and monitoring of vulnerable areas. Planning and development may require setback lines to limit development in vulnerable zones, considering factors like future sea levels, erosion, and landward migration of coastal features. However, implementing approaches like shoreline realignment or managed retreat may face challenges, especially concerning economic losses or impacts on cultural or tourist sites.¹³⁰

Combining hard and soft solutions is often necessary to enhance efficiency and provide environmentally and economically viable coastal protection. To optimize long-term impact, combining soft solutions with hard measures, such as beach nourishment with artificial structures or revegetation with temporary offshore barriers, is a common approach. While hard options are typically satisfactory in the short term, soft solutions offer effectiveness over medium to long-term perspectives.

Besides, it remains critical to adopt the coastal erosion control plan for these areas focuses on periodic reviews of erosion issues and updates on erosion status for reclassification purposes, as well as constructing protective works.

Managing erosion requires essential tools such as sensitivity analysis and long-term stability assessment. Factors like coastline variation and dunes contribute to varying degrees of beach sensitivity, underscoring the importance of conserving and sustainably using beaches. Implementing appropriate coastal protection measures is crucial in global contexts, alongside promoting responsible tourism practices and strategies to preserve natural resources and cultural aspects for the benefit of local communities and long-term economic growth.¹³¹

¹²⁹ Warrick J., Stevens A.W., Miller I.M, Harrison R. S., Ritchie A. R., Gelfenbaum G. (2019). World's largest dam removal reverses coastal erosion. Springer Nature Scientific Reports 9(1):1-12

¹³⁰ Supra Note 104

¹³¹ Kadir R, A. (2016). Coastal Erosion and Its Impact on Some Aspects of Maritime Boundaries. Issue No. 410, ISPSW Strategy Series: Focus on Defense and International Security Coastal Erosion and Its Impact on Some Aspects of Maritime Boundaries

Besides, in order to mitigate the risks of erosion, innovative, large-scale projects are needed to reverse defects in coastal sediment budgets and enhance coastal resilience. The removal of dams can release significant sediment volumes. Sediment restoration actions can offer significant benefits in mitigating coastal erosion, but their potential must be carefully assessed against economic, cultural, and ecological implications, as well as the financial costs of such projects.¹³²

Understanding the dynamics of long-term erosion processes and sediment availability is crucial, especially considering their impact on beach areas devoted to tourism. Increased erosion processes not only diminish the available sand area but also cause disturbances to nearby infrastructure such as dikes, breakwaters, and ports.

Developing a national coastal resources management policy and supporting coastal zone management plans, based on a comprehensive understanding of coastal processes, environmental factors, advanced technology, and past experiences, is essential. Initiatives like the pilot project in South Johore and the upcoming DANCED's project to formulate a Coastal Resources Management Policy serve as good models to follow, emphasizing a multidisciplinary approach for long-term community and national benefits.¹³³

Exploring alternative approaches such as nature-based solutions can offer innovative and tangible strategies for coastal protection. Restoring dunes, mangroves, and coastal wetlands can provide a natural defense against waves and storms, stabilize coastlines, and reduce erosion. Nature Based-Solutions may align with natural dynamics and sustainability principles.

Engineering structures like groynes, gabions, and bulkheads are used to address coastal erosion, but they can negatively impact the amenity and ecological value of the coast. Some measures may even accelerate erosion or lead to a loss in biological diversity. Collaborative efforts among different expertise and remote sensing tools can facilitate multidisciplinary approaches involving mapping, environmental, ecological, and geoscience agencies.

Combining hard and soft structures is advisable, with public or community involvement in using coastal forests and trees as protection measures being important. Ecodevelopment can benefit conservation activities and provide educational and recreational opportunities. Participatory planning, implementation, and monitoring should involve the indigenous knowledge of local communities to ensure direct benefits. The selection of vegetation for setting up green belts or buffer zones should consider the natural protective function of the coastal system.¹³⁴

¹³² Finkl C.-W., Walker H.-J., (2005), Beach nourishment, In M. L. Schwartz (ed.), *Encyclopedia of Coastal Science*, Springer, Dordrecht, p. 147-161.

¹³³ Supra Note 107

¹³⁴ Bellanger, M., Speir, C., Blanchard, F., Brooks, et al (2020). Addressing Marine and Coastal Governance Conflicts at the Interface of Multiple Sectors and Jurisdictions. *Frontiers in Marine Science*, p.7.

Based on the given analysis, it can be concluded every activity and method related to coastline erosion should be specific to the region and be in line with the needs of the region. There is already available knowledge to be specifically employed in the case of Georgian's coastline. However, to bring pragmatism and practicality into play, the author concludes that, given due regard to the complex and specific nature of the Georgian coastline, the learning of the studies related to coastal erosion mitigation is essential. Instead of choosing the nourishment method as the only option for Batumi's coastline, it is advisable to change the focus of the area and initiate the evaluation of the situation by an expert in the field. Besides, there are already available practices of various states, such as Italy, France, and Brazil, among others, to learn about the latest standards of coastline erosion mitigations. The author is not calling for copying the approaches of the above-mentioned countries, but to learn from their experiences, priorities, and mistakes. The mitigation of coastal erosion risk is possible given due regard to the latest technological development as well in this field. From that perspective, many states, including Germany, the Netherlands, the USA, Australia, Japan, the Gulf of Mexico, and Singapore have experiences that can be shared.¹³⁵ These countries combine technology, policy, and community engagement to mitigate beach erosion effectively. As the ending point, the author leaves readers advice that besides, the case studies and close investigation, the local government should also invest in a close academic investigation of the impacts of erosion, in the usage of the latest technology and knowledge in the field, and unified policy for mitigation erosion risks not to loss what is already present.

Recommendations and suggestions

Addressing coastal erosion is a multifaceted challenge, intricately tied to societal interests encompassing physical, social, and political dimensions. This complexity arises from the interplay of various factors such as national and local policies, competing interests of stakeholders, and the cultural significance attached to Georgian coastal areas by their inhabitants.

Choosing an appropriate governance framework for marine and coastal zones is equally intricate due to the involvement of numerous industries and stakeholders, each with distinct interests in these valuable habitats. These industries span from marine biodiversity conservation to tourism, fishing, agriculture, and real estate development.

To effectively manage coastal zones and safeguard the well-being of coastal residents, a robust national administrative framework is indispensable. Governance, involving decision-making processes, must blend technocratic top-down approaches with participatory bottom-up mechanisms to engage all stakeholders in policy formulation and implementation. Controlling coastal erosion demands more than just adopting protective measures; it necessitates a holistic approach integrating science, technology, politics, and diverse stakeholder inputs.

¹³⁵ Chan F. S., Yang L.E., Mitchell G., et al (2022) Comparison of sustainable flood risk management by four countries – the United Kingdom, the Netherlands, the United States, and Japan – and the implications for Asian coastal megacities, EGS, Volume 22, issue 8, NHESS, 2567–2588

Technical measures are employed to prevent or mitigate erosion, often adopting a reactive approach to shore up existing defenses. Maintenance of defense lines and strategic investments in coastal protection assets are crucial components of this strategy, ensuring the resilience of coastal defense systems.

At the national level, the responsibility for adopting and implementing sustainable development policies lies with national authorities. They are tasked with strengthening the legal framework for coastal protection, consulting citizens and local authorities, and fostering intra-regional cooperation among Black Sea states. This collaboration facilitates research and the experimentation of innovative solutions for coastal erosion prevention, including the promotion of quality-oriented tourism and resource management.

Government agencies should engage in interdisciplinary research to understand the complex interactions between coastal processes, human activities, and climate change. By integrating findings from coastal geomorphology, socio-economic studies, and climate science, policymakers can develop flexible management frameworks capable of accommodating dynamic coastal environments while safeguarding socio-economic interests.

Governments should prioritize the development of comprehensive coastal zone management legislation that integrates principles of adaptive governance, participatory decision-making, and ecosystem-based management. Furthermore, establishing specialized institutions tasked with coastal erosion control and sustainable development can streamline coordination efforts and ensure the effective implementation of policies at various administrative levels.

The government should recognize the interconnectedness of coastal erosion, tourism, and land-use planning underscores the need for integrated policy approaches. Governments should foster cross-sectoral collaboration among relevant ministries, agencies, and stakeholders to harmonize coastal development policies with broader national development strategies. Implementing mechanisms for spatial planning, environmental impact assessment, and public consultation can facilitate the integration of coastal considerations into sectoral policies, thereby promoting policy coherence and minimizing conflicting objectives.¹³⁶

Promoting regional cooperation and knowledge exchange is vital for addressing common challenges and leveraging collective expertise. Governments should invest in capacity-building initiatives aimed at enhancing technical skills and institutional capacities for integrated coastal management. Facilitating platforms for information exchange, best practice sharing and collaborative research can foster a culture of learning and innovation within the coastal management community, enabling stakeholders to collectively address emerging issues and adapt to changing coastal dynamics. At a regional level, representatives of regional and sub-regional projects and associations will be invited to contribute to the process. Consultations will also be conducted with different communities and stakeholders at some

¹³⁶ Costas, S., Ferreira, O., & Martinez, G. (2015). Why do we decide to live with risk at the coast? *Ocean & Coastal Management*, 118, p.1–11.

stages to ensure a better assessment of opportunities, constraints, and status of these options. As an example, in September 2000, the European Commission endorsed the "Integrated Coastal Zone Management: A Strategy for Europe," emphasizing comprehensive approaches guided by eight principles. The Black Sea Environmental Programme (BSEP) prioritizes coastal zone management, with tourism as a proactive strategy. However, the region mainly relies on reactive measures like hard engineering solutions for coastal erosion. The EU's PHARE and TACIS Programmes provide training in integrated coastal zone management and environmental assessment to five Black Sea countries, focusing on conflict resolution, policy formulation, and sustainable resource utilization.

To achieve effective and sustainable coastal erosion management, it is essential to involve and cooperate with all authorities and stakeholders, including government agencies, NGOs, academic institutions, consultancies, and communities. Guidelines, policies, and frameworks are powerful tools to help stakeholders manage better. Stakeholders must be considered at different levels. At a national level, several actors need to be involved in the discussion and implementation of national development planning or during the negotiation process.

An important tool for combating erosion is the establishment of a scientific committee responsible for the technical study and a national committee accountable for monitoring the project and involving different stakeholders.

Conclusion

As a final thought on the subject matter, it has to be underlined that coastal erosion is causing significant threats to the coastline, maritime ecosystem, tourism, and sustainable development of the country. Since there is no hierarchy between sustainable development and environmental preservation, the balancing and think-tank approach shall be integrated. Coastal erosion presents multifaceted challenges, encompassing environmental, socio-economic, and legal dimensions. Managing this issue requires a nuanced, interdisciplinary approach that prioritizes sustainable development alongside environmental preservation. Georgia should rethink the approach that is used since it proves to be ineffective, causing more damage and coastline wash. By embracing complexity and collaboration, stakeholders can forge resilient coastal ecosystems and communities. This entails meticulous examination, strategic planning, and the implementation of both hard and soft coastal protection measures. Transparent budget allocation and comprehensive research, particularly in areas like Batumi, are crucial for effective erosion mitigation. Furthermore, promoting responsible tourism practices and cultural preservation are integral to long-term economic growth and community well-being. Ultimately, through political cooperation, cross-sectoral engagement, and scientific collaboration, we can navigate the complexities of coastal erosion and achieve sustainable coastal management for current and future generations.

