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**Economical and Ecological Aspects of Manganese Obtaining
on the Basis of the Village of Tsirkvali
Pikria Jinjikhadze, Tatia Doghonadze
Summary**

Our research location - village of Tsirkvali is situated in Tchiatura Municipality which is eight magnitude shake seismic zone on the 500-750meters above sea level. Apart from seismic threat, research territory is also characterized with geodynamic and anthropogenic processes: landslide, erosion, flood, torrent, karst disaster and demolishes caused by mountainous works.

In the north-west part of Tsirkvali there is stratum outlet with manganese deposits in it. Ore is low in quality manganese consistency is up to 45% in it. There is assumed to be particular amount of mica and quartz in mineral and it is highly attenuated that can deteriorate the quality of Ore.

In case of obtaining manganese ore from the village can result in the ecological problem for the local population. The process of obtaining will lead to transformation and degradation of all components of natural territorial complexes.

We assume that the priority for the future development of the village is not the improvement in the field for obtaining but tourism. It is possible to promote the following types of tourism in this area: agro, paleo and adventure tourism.

Development of tourism will enable the employment of local residents, enhance economic conditions for them and most importantly, the process of migration will be minimized.

Key words: Tsirkvali, manganese, obtaining, ecology, tourism.

**Alternative forms of sustainable tourism in forest areas of Middle
Rhodopes.**

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Annotation In this article the author studies the supply and demand of alternative forms of sustainable tourism in the region of the Middle Rhodopes in Bulgaria. The terms sustainable tourism, its specifics in forest areas and different forms available for practice are established, described and evaluated. The results of a personal study among 261 entrepreneurs and tourists are presented. Finally, based on the data gathered, some conclusions and recommendations are provided to establish the sustainability of tourism in the region and improve its outcomes for both business and guests of the region.

Keywords: Sustainable tourism, alternative tourism, forest areas, Bulgaria

Introduction

Sustainable tourism is becoming an increasingly relevant topic in the 21st century. People's need for rest, change in the environment and diversification of everyday life meet with the correct use of natural and other resources, the protection of natural, historical, religiously significant and other

objects precisely in the understanding of this type of tourism. With the emergence of "alternative tourism" as a concept, various forms related to the individual interests and goals of the vacationers were distinguished. Bulgaria, and in particular the region of the Middle Rhodopes, has excellent prerequisites for the practice of most of these forms of tourism. The aim of this study is to examine the possibilities and preferences of tourists for practicing sustainable forms of alternative tourism in the forest areas of the Middle Rhodopes, Bulgaria. The tasks of the research are:

- to clarify the concept of sustainable tourism;
- to establish the peculiarities of tourism in the forest territories;
- to consider the possibilities for practicing alternative forms of tourism;
- to study the supply and demand of tourist products among entrepreneurs and tourists;
- to establish the degree of sustainability of tourism in the Middle Rhodopes.

In addition to the collection of primary and secondary information, the author proposes his own research model, based on a territorial survey. According to the purpose and tasks of a larger study, two surveys were developed. Accordingly, one survey is aimed at the representatives of the tourism sector (entrepreneurs) in the region and the second was developed with the aim of collecting information from visitors (tourists) of the Middle Rhodopes. The surveys include a question with selective answers referring the surveyed natural or legal persons to certain forms of tourism.

Among them there are both practitioners and providers of opportunities to practice tourism in the region. The questions related to the different forms in the two surveys are "mirrored", which allows for a comparison between supply and demand in order to establish the degree of sustainability of tourism in the area. Entrepreneurs are asked what types they themselves offer for practice in the vicinity. The Tourist Opinion Survey contains a similar question. The same forms of tourism are proposed in order to study their popularity.

Sustainable tourism

Sustainable tourism appears as the youngest concept of ecologically safe tourism. In its essence, it appears as a private application of the concept of sustainable development, implying the integration of social, economic and environmental aspects in decision-making and practical application. In 1978, a group of experts convened by the Organization for Economic Co-operation and Development (OECD) in Salzburg to examine the problem of environmental destruction as a result of rapid tourist expansion included the following arguments in its third main conclusion: "The environment is extremely important for the development of tourism. Maintaining the good ecological state of nature is therefore strategic for tourism development. Conversely, the destruction of the landscape in natural areas can cause, and usually does in certain areas, a decline in tourist expansion. On the contrary, in certain areas tourism has contributed to the improvement of the state of the environment (Hall 1998). Developed in 1987, the concept of sustainable development has taken the place of a central idea of the United Nations Conference on Environment and Development (Rio de Janeiro 1992) and has been recognized as an effective development model by the majority of countries, whose representatives have signed a number of international documents directly related to the practical implementation of the concept of sustainable development (Учебные материалы 2020). According to the World Tourism Organization, sustainable tourism is "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, industry, the environment and host communities (Making Tourism More Sustainable - A Guide for Policy Makers 2005).

Study of tourism in forest (natural) territories

Natural territories, their classification and exploitation are similar around the world. According to

Law Insider, “a natural area is located in a rural or suburban environment that is in an unspoiled natural state or has high scenic value and includes, but is not limited to, national parks, game reserves, nature reserves, marine reserves, wilderness areas, with communal agricultural and scenic areas” (LawInsider 2021). The Russian dictionary "Academic" gives the following definition: "natural protected territory - a section of the biosphere with the corresponding layers of the atmosphere and lithosphere, completely or temporarily excluded from intensive economic turnover by man and intended to protect the ecological balance, maintain the environment for the life of mankind and its health, protection of natural resources, valuable natural or artificial objects and phenomena possessing historical, economic or aesthetic significance" (Академик 2021). In Bulgaria, forests and forest funds are regulated by the Law on Forests. "(1) This law regulates the relations to ownership and management - the management, reproduction, use and protection of forests in the Republic of Bulgaria. (2) The purpose of the law is the preservation of Bulgarian forests as a national treasure - in addition to being an environmental factor, through their reproduction and sustainable development and multi-purpose use in the interest of the owners and society" (Art. 1, para. 1, para. 2). "A forest in the sense of this law is land occupied by forest-tree vegetation with an area of not less than a hectare" (Art. 2, para. 1). Forest areas have long been associated with recreational and tourist experiences around the world. People's attitude towards forests is increasingly changing from "a source of natural resources for production purposes" to "a source of natural resources for recreation and tourism". In fact, a major problem in defining tourist experiences in forest and other natural areas is that in empirical studies, the concept of tourism is often blurred by that of recreation in nature. Attempts to define tourist trips in forest areas are quite scarce. Furthermore, it is very complex to distinguish the role of the forest in contexts such as 'wilderness', rural and peripheral areas, which are made up of different natural and cultural resources (Conti 2019). The forest territories and the natural, cultural, historical and religious sites located in them, as well as the built tourist infrastructure, have a huge potential for organizing and practicing the majority of the various forms of tourism. Whether for a short weekend break or a multi-day tourist trip, forest areas provide opportunities for many types and forms of tourism from simple recreation and relaxation to sports, adventure and extreme experiences. From the point of view of nature-knowledge tourism, the forest territories are the most suitable, as they contain a predominant part of the flora and fauna of the world.

Middle Rhodope region

The relief in the Middle Rhodope region is extremely diverse, with the mountain predominating, but in some places medium- and high-mountainous. The difference in altitude is also significant, as in the valley of the Arda river it is 450m, and on the top of "Golyam Perelik" it reaches 2191m. In the considered territory, they are found from deep river valleys, gorges and extensive tectonic depressions, through sloping to steep ridges and sheer, impassable high mountain rock pieces. The area is rich in water resources, with a whole network of ravines, streams and creeks that converge into several larger rivers such as Arda, Vacha, Chepelarska River, Devinska River, Trigradska River and others.

The climate on the territory of the municipality is mainly mountainous, and in the south-eastern parts it becomes transitionally Mediterranean. Winters are mild with heavy snowfall and summers are cool. Autumn is usually longer and warmer than spring (Plan for Sustainable Development and Management of Smolyan Region).

Alternative forms of tourism

In recent years, both in Bulgaria and around the world, there has been a growing interest in alternative forms of tourism. "Ecological tourism covers about 25% of the world tourism market, reports the director of WWF's biodiversity conservation program in Russia, Dmitry Gorshkov"

[Interfax]. The region of the Middle Rhodopes is characterized by a rich in diversity and for the most part unaffected by human influence nature, a rich cultural and historical heritage and a mild climate. It also has a diverse and heterogeneous landscape, rich water resources and numerous natural attractions. This makes this area extremely suitable for practicing various forms of alternative tourism related to cognitive, recreational and sports activities.

Ecological and alternative forms of tourism close to it are gaining more and more popularity among tourists of all categories. Dozens of eco-trails and marked tourist routes, including themed ones, have been built and maintained in the Middle Rhodope region. Protected areas, natural sights and phenomena, as well as caves, rock formations, picturesque landscapes, rivers, dams and mineral springs can be visited. The area is rich in "wild" nature untouched by human activity.

The **cultural** tourist environment is determined by the rich history of the area, determined by its geographical location, the authentic Rhodope atmosphere related to the ethnicity and lifestyle, numerous localities related to historical events. Remains of roads, fortresses, sanctuaries, churches, baths and other structures dating back to Roman and Byzantine times can be found in the region.

Resources for **pilgrimage and religious** tourism are also numerous and varied. Remains of pagan sanctuaries as well as chapels, churches and monasteries dating from different historical eras can be visited in the area. The third largest monastery in Bulgaria is located on the considered territory - the Bachkovo monastery, founded by the Georgian brothers Grigoriy and Abazii Bakuriani in 1083.

The opportunities for **culinary and wine** tourism are great, and in a relatively small area, many nuances of Rhodope cuisine can be appreciated. Both cooking and the production of alcoholic beverages are homemade traditionally in the Rhodopes, and this leads to the opportunity to try many unique versions of the same dishes and drinks.

Sports and extreme forms of tourism are available because of the diversity of landscape on a relatively small territory. Suitable conditions are available for mountain and bicycle tours, rock climbing, cave tourism. Areas with alpine trolleys, via ferrata and other attractions related to sports and extreme experiences have been improved.

Spa tourism and balneotherapy are spread throughout the territory of the considered region. There are many springs with mineral water of different temperature and composition, designated for the treatment and prevention of a wide range of diseases. A large part of them is improved by pools, baths and accompanying attractions.

Table 1. Suggested types of tourism in the Middle Rhodopes.

Tourism type	Offers
Ecological	63
Cultural/Religious	19
Culinary/Wine	36
SPA and wellness	21
Recreational	12
Sports	25
Photography	26
Extreme	30
Bot/Ornit/Mush	24

The main part of the Middle Rhodopes consists of forest territories and mountain meadows,

which is an excellent prerequisite for practicing **mushroom, botanical tourism and herbalism**. The

Tourism type	Offers
Ecological	63
Cultural/Religious	19

territory contains the habitats of a number of rare and endangered plant and bird species, attracting tourists with specialized interests both from the country and from all over Europe.

Recreational and photo-tourism are an excellent addition to all the above-mentioned forms for their lovers. The rich and diverse nature, excellent ecological condition, mild climate and warm anthropological atmosphere in the area offer many opportunities for tourists, who want to diversify their daily life and collect positive emotions and memories.

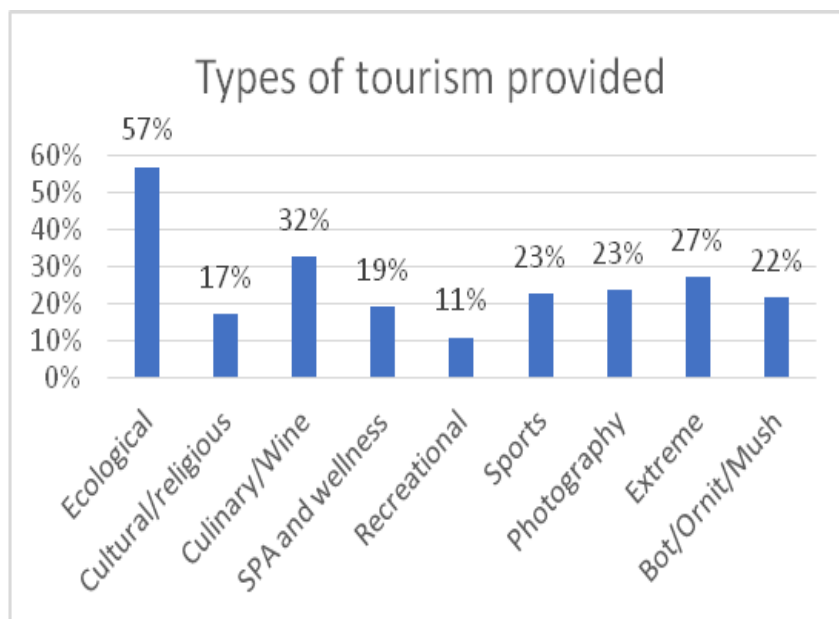


Diagram 1. Proposed types of tourism by local entrepreneurs

Culinary/Wine	36
SPA and wellness	21
Recreational	12
Sports	25
Photography	26
Extreme	30
Bot/Ornit/Mush	24

Table 2. *Tourism types, practiced in the Middle Rhodopes*

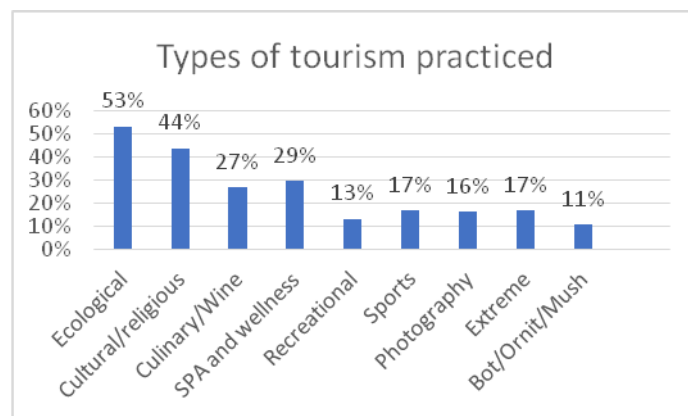


Diagram 2. *Types of tourism preferred by tourists*

The survey, related to the different forms of alternative tourism in the Middle Rhodopes, includes information about the offers in the area. Table 1 reflects the results of the survey of 111 local entrepreneurs regarding the most popular types of tourism in the area. 63 of the respondents offer ecological tourism. Only 19 offer cultural and religious tourism. One third (36) of the respondents offer culinary and/or wine tourism. Spa and wellness offer 21 of the respondents. Recreational tourism in the area is offered by 12 of the respondents. Sports tourism is offered by 25 of them. Photographic tourism is offered by 26. Extreme tourism is offered in 30 of the cases. Botanical, ornithological and mushroom tourism combined are offered by 24 of the respondents. Diagram 1 demonstrates the proposals of local entrepreneurs regarding the main accessible types of tourism in the Middle Rhodope

Tourists also were asked about the different forms of tourism they practice in the Middle Rhodope region. In Table 2, the number of positive answers collected from 160 respondents according to the different, proposed forms of tourism is reflected. Leading in terms of popularity are ecological and cultural and religious tourism with 85 and 70, respectively. Spa and wellness enthusiasts number 43, and 47 practice culinary and wine tourism. 21 of the respondents define their tourist trips as recreational. Sports and extreme forms are interconnected and excite 27 of the respondents. Photographic tourism is among the favorite activities

of 26 of the visitors to the region. 17 have indicated to practice botanical, ornithological or mushroom form of alternative tourism. A visual comparison of the popularity of different forms of tourism in the Middle Rhodopes region according to the survey among tourists can be seen in Diagram 2.

Table 3. *Supply and demand of tourism types in the Middle Rhodopes*

Tourism type	Supply	Demand
Ecological	57%	53%
Cultural/religious	17%	44%
Culinary/Wine	32%	27%
SPA and wellness	19%	29%
Recreational	11%	13%
Sports	23%	17%
Photography	23%	16%
Extreme	27%	17%
Bot/Ornit/Mush	22%	11%

Table 3 compares the supply and demand of separate forms of alternative tourism in a percentage ratio. The most popular type of tourism, ecological, is offered by 57% of surveyed entrepreneurs and practiced by 53% of tourists. While only 17% of the representatives of the tourism sector offer services related to cultural and religious tourism, the interest of visitors to this type in the Middle Rhodopes amounts to 44%. With 32% of opportunities provided by businesses, lovers of culinary and wine tourism make up 27% of tourists participating in the survey. Spa and wellness is offered by 19% of entrepreneurs, and 29% of guests practice it. 11% of those, working in tourism, offer services in the field of recreation, while 13% of surveyed tourists take advantage of this. Sports tourism products are on the market in 23% of cases, and 17% of vacationers are interested in them. Opportunities for photographic tourism are provided by 23% of the entrepreneurs asked, 16% of the guests practice it. Conditions for extreme tourism provide 27%, while 17% of tourists are fond of this form. Botanical, mushroom or ornithological tourism tends to be offered by 22% of local businessmen, and 11% of vacationers are interested in them. Diagram 3 shows the ratio of demand and supply of specific forms of alternative tourism in the Middle Rhodope region.

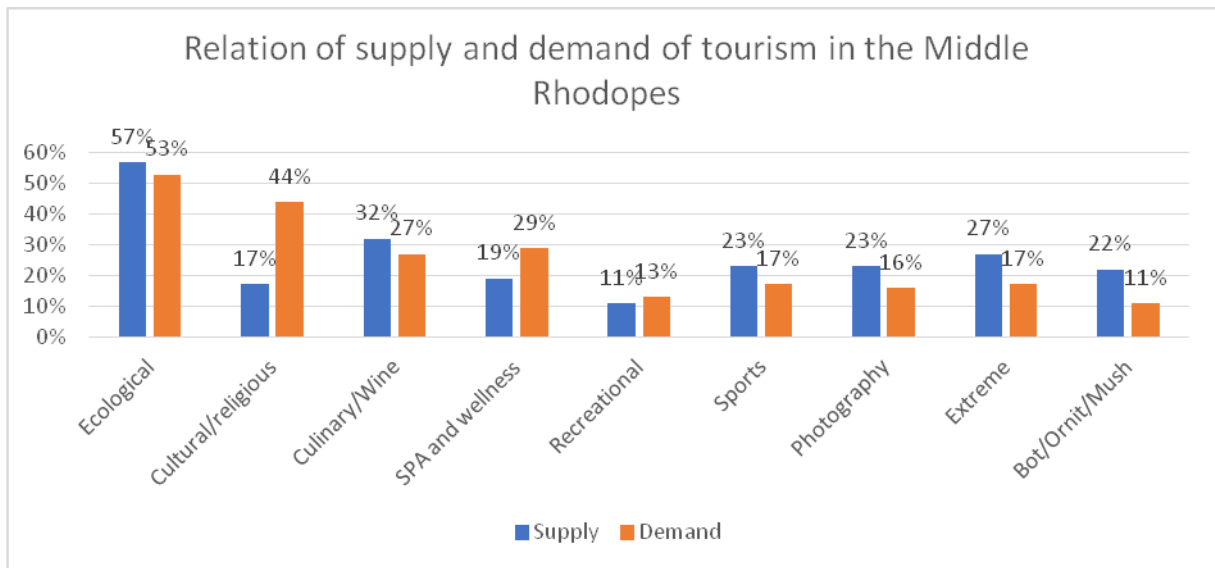


Diagram 3. Comparison between supply and demand among types of tourism in the Middle Rhodopes

Conclusions and recommendations

After researching the demand and supply of different forms of alternative tourism in the Middle Rhodopes, the following conclusions were drawn:

- Ecological tourism is the most popular, the most offered and the most sought after. Supply and demand of this form are the most widespread, with the services provided by entrepreneurs (57%) covering the needs of tourists (53%);
- Cultural and religious tourism is the second most sought-after form (44%), with only 17% of local businesses offering products and services related to this sphere;
- Culinary and wine tourism is offered by about a third of the host community (32%), which covers guest demand of 27%;
- Spa and wellness tourism is relatively underdeveloped, considering the resources available in the area. Only 19% of entrepreneurs offer such services, which compared to 29% demand from tourists is not enough;
- Recreation, probably due to the poor understanding of the nature of this alternative form, is the least developed in the region (11%) and also the least popular (13%);
- Sports and extreme tourism are interconnected and equally sought after by 17% of visitors to the Middle Rhodopes. The products and services offered in this area are respectively 23% and 27%, which covers the demand;
- Photography as a specialized form of tourism is offered in 23% of the surveyed enterprises, and 16% of vacationers are particularly interested in it;
- Botanical, ornithological and mushroom types of tourism are available in the form of products and services in 22% of the investigated cases, which exceeds the demand from tourists (11%) twice.

According to the collected information and the conclusions drawn, the following recommendations can be made:

- (1) To maintain and improve the quality of ecological tourism in the area;
- (2) To increase the supply of products and services related to cultural and religious tourism in the Middle Rhodopes;
- (3) Culinary and wine tourism should be developed in the direction of higher quality and attractiveness in order to increase demand, which will create conditions for an increase in supply;
- (4) The SPA and wellness

should be developed by the local business in order to rationally use the available resources and to cover the interest of the tourists in this area; (5) To popularize recreational tourism and to provide more information and details about its essence both among entrepreneurs and among tourists in the Middle Rhodope region; (6) Products and services in the field of sports and extreme tourism to be further popularized and to create better and attractive conditions for their practice in order to increase demand; (7) To give increased attention to the favorable conditions for practicing photo-tourism, to improve the available ones and to create new products and services related to this sphere in order to increase the interest and attract more tourists, interested in this form; (8) Botanical, incl. herbal, ornithological and mushroom tourism to be offered more actively, to provide more information about them to the guests of the area in order to increase their interest in these forms.

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Alternative forms of sustainable tourism in forest areas of Middle Rhodopes Tashev Nikolai Summary

During the study of alternative forms of tourism in forest areas in the Middle Rhodopes it became clear, that a variety of them are offered and practiced. The forest areas in the region provide opportunities for nine major types of tourism. Relatively sustainable, within a range of 10% discrepancy between supply and demand, are five forms – ecological, culinary and wine, sports, photography and recreational tourism. On the edge of sustainability, around 10% discrepancy, are three forms – spa and wellness, extreme, as well as botanical, ornithological and mushroom tourism. Cultural and religious tourism is unsustainable with demand being much higher, than supply with a difference of 27%. Also, the most popular form of tourism is ecological and the least popular is recreational, both being the most sustainable types.