

# Geological Tourism Development In The Finnish-Russian Borderland: The Case Of The Cross-Border Geological Route “Mining Road”

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## ABSTRACT

The Finnish-Russian borderland has a unique geological potential for geological tourism development. Creating new tourist attractions based on geoheritage, design and development of the cross-border tourist routes open new opportunities for tourism development on both sides of the border. The article presents the cross-border geological tourist route “Mining Road” as a tool of activation of tourist activity in the Finnish-Russian borderland. This article explores the practical aspects of the project "Mining Road" development for tourism industry. It is proven the significance of cross-border route "Mining road" for preservation, popularization and reproduction of the natural, cultural and historical potential of the borderland.

**Keywords:** geotourism, cross-border geological route, “Mining Road”, Finland, Republic of Karelia.

## INTRODUCTION

With the growing significance of environment protection and sustainable development the geological tourism is considered as a new perspective direction of the nature based tourism which can contribute to geoheritage conservation and stimulate the economic activities in the regions (Dowling, 2010; Dowling, 2013; Hose et al., 2011). The importance of creating a new tourist centers and development of the destinations is increasing in the conditions of competition between countries, regions and companies for tourists and investment. The geology provides wide opportunities for creating new tourist attractions on its base. The borderland has a unique geographical position that gives an extra opportunity for the protection and promotion of the geological heritage within international

cooperation in tourism sphere.

The relevance of our research is caused by two factors. On the one side, the Finnish-Russian borderland has unique geological resources which can be used not only in mining industry but also as a potential for regional development based on sustainable tourism development. On the other side, design and development of a cross-border tourist route increases opportunities for promotion of unique geoheritage of the territory, enhancing business activity along the route on both side of the border and cohesion tourist space of the border regions.

The aim of this paper is to present the geological tourist route “Mining road” as a tool of stimulating tourist activity for regional development in the Finnish-Russian borderland based on geological tourism.

## **GEOLOGICAL TOURISM DEVELOPMENT IN THE BORDERLAND**

Since the first definition of a geotourism by Thomas Hose in 1995 this phenomena is stably developing and getting niche form of sustainable tourism in the world (Hose et al., 2011). There are four major approaches to definitions of a geotourism in geological sense (Goki et al., 2016):

1. a tourism where the major attraction is the geological heritage, the promoting of its leads to the development of the Earth Sciences;
2. a knowledge-based tourism;
3. a form of nature based tourism focused on landscape and geology;
4. the provision of interpretative and service facilities for geosites and geomorphosites.

The development of geological knowledge up to recent years has focused on the exploitation of earth resources for mans well-being. Conscious efforts need to be made to ensure continued preservation of an important geological heritage while developing these geological resources at the same time. In this case geotourism has close connection to ecotourism, the latter balances between leisure and nature conservation. Moreover, geotourism having high educational value promotes knowledge about the Earth's surface and interiors, its Past, Present, and Future, as well as about common geological processes and spectacular phenomena (Nenonen & Portaankorva, 2009).

Geotourism comprises the geological heritage combined with the components of tourism including attractions, accommodation, tours, activities, interpretation as well as planning and management. There are five key principles which are fundamental to geotourism: geologically based, sustainable, geologically informative, locally beneficial and tourist satisfaction (Dowling, 2010). One of the important questions determined the geotourism development: who is a

geotourist? According to C. Grant six types of visitors to geosites exist, ranging from unaware visitors to geo-experts (Grant, 2010). A key issue is the examining of the correlation of the geological tourism development to the interests of tourists who look for new experiences and new impressions (Kotrla et al., 2016).

Nowadays the geotourism is growing rapidly with travel and appreciation of natural landscapes and geological phenomena continuing to grow as a new form of the global tourism industry (Dowling, 2010; Dowling, 2013; Hose et al., 2011). The part of geotourism development studies is devoted to opportunities of promotion of a unique geological, geomorphological and mining potential as tourist attraction (Vukojević, 2011; Goki et al., 2011; Madziarz, 2013; Rozycki & Dryglas, 2016). Special attention deserve researches that assess the tourist value of the geological and geomorphological sites (Pralong, 2005; Štrba & Rybár, 2015; Tamara & Milica, 2016). The practical result of this evaluation is the base for promotion and including sites in the tourist sphere of the regional economy (Albă. 2016).

The geographical position of the borderland opens an extra opportunity for the protection, popularization and promotion of the geological sites within cross-border cooperation. Nowadays the transnational UNESCO Global Geoparks have been established in the borderlands where geosites and landscapes have international geological significance (today there are four in the world) (UNESCO).

One of the tools of promotion of the border geological and mining sites is design and development of the geological routes which significance has increased in recent years with the growth of interest to the nature based tourism. The opportunities of the including these sites into the tourist and recreational activity promote expansion of regional tourism products and improve competitiveness of the destinations. The impact of different kinds of the cross-border

tourist routes development on local economy and protection, conservation and promotion of natural, cultural and historical potential of territory has been investigated particularly in European border regions, including regions bordering Russia (Kovács & Nagy, 2013; Kropinova & Anokhin, 2014). The circular route uniting Norway, Finland and Russia (Kola Peninsula) that can be started from any point is a good example of presentation and promotion of geological potential of the northern Fennoscandia (Johansson et al., 2014). The other example is design and development of the cross-border tourist route “Mining road” in the Finnish-Russian borderland.

### THE CROSS-BORDER GEOLOGICAL ROUTE “MINING ROAD”

The cross-border tourist route “Mining Road” (about 400 km.) was elaborated out within KA334 «Mining Road» project (total budget about 800 thousand euro) funded by the Karelia ENPI CBC Programme. The project was developed during 2012-2014 years in collaboration with Finish partners (Geological Survey of Finland, Outokumpu Mining Museum) and Russian partners (Institute of Geology of Karelian Research Centre of the Russian Academy of Sciences as a Leading Partner, Administration of Pryazha National Municipal District of the

Republic of Karelia, Karelian Regional State Museum, Ministry of Education of the Republic of Karelia). Besides nine associate partners took part in the project activities (Mining).

The route connects geological, mining and industrial heritage of the Finnish-Russian borderland along the international tourist road “Blue road” from city of Petrozavodsk (the Republic of Karelia, Russia) to city of Outokumpu (North Karelia, Finland) (Fig. 1.).

Totally the cross-border route unites about 20 main objects associated with the industrial geological and mining history of the Finnish-Russian borderland (Table 1.). A pilot tour of the tourist company “Kareliska” in August 2014 can be considered the opening of the cross-border tourist route “Mining road” for visitors.

Under the project implementation were reconstructed and the improved number of facilities along the route new tourist attractions based on the geological and mining heritage of the territory were created.

The examples of a new impulse of the tourist attractions development are the “Mining Park Ruskeala” (the Republic of Karelia) and the Outokumpu Mining museum (the North Karelia). According to historical aspects transformation of the old Marble quarry to a new tourist attraction Mining Park “Ruskeala” started in 1998.

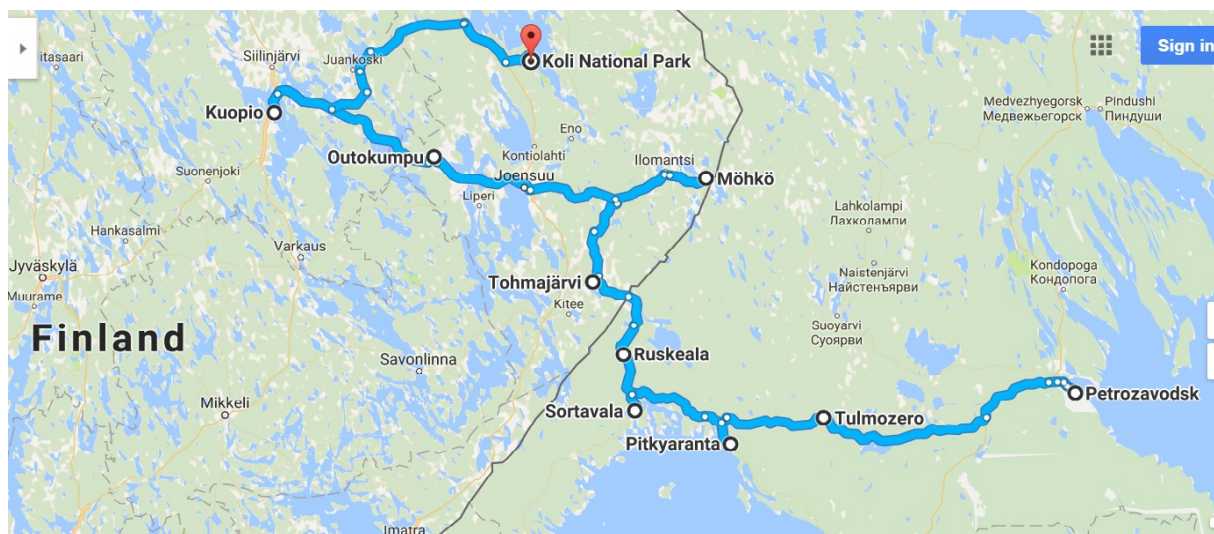


Fig. 1 The cross-border tourist route “Mining Road” (compiled by the authors using Google Maps)

**Tab. 1** The main and extra geological, mining, and industrial objects of the cross-border tourist route “Mining Road”

location	objects
<i>the Russian part of the route – the Republic of Karelia</i>	
Petrozavodsk	— the Museum of Precambrian Geology of the Institute of Geology of Karelian Research Centre of the Russian Academy of Sciences — the National Museum of the Republic of Karelia
Tulmozero	— the Mining Park “Tulmozero”
Pitkyaranta	— Kitelskoe field of garnets — Pitkyaranta's mines — Salmi Rapakivi granites
Sortavala	— the Mining Park “Ruskeala” — the North Ladoga Republican Museum
<i>the Finnish part of the route – the North Karelia</i>	
Tohmajärvi	— Tohmajärvi Volcanic complex
Outokumpu	— the Outokumpu Mining museum — the Keretti old mine tower — the old asbestos and chroma-diopside quarries
Möhkö	— the Möhkö Ironworks museum — the Ptkeljärvi National Park
Koli – Juuka	— the Koli National Park — the Visitor Centre Ukko — the Finnish stone Center, Juuka — the Soapstone quarry, Juuka
Kuopio	— the Geological Survey of Finland — the Puijo tower

The expansion of the range of all-season tourist services and the development of modern tourist infrastructure as well as the inclusion the object to the cross-border tourist route “Mining road” determined a rapid growth of visitor’s number to the mining Park “Ruskeala” during 2011-2016 (more than by 6 times, Fig. 2). For example the largest growth in the number of Mining Park ‘Ruskeala’ visitors comparing to the previous year was in 2015 (91.3%). For the first time in the Republic of Karelia the number of visitors to the “Ruskeala” Mining Park (194.2 thousand people) exceeded the number of Kizhi visitors (168.3 thousand people) known as open-air museum of wooden architecture in 2015. In 2016 of the “Ruskeala” Mining Park visitors exceeded the number of Kizhi visitors by 1.74 times.

The amount of the Outokumpu Mining museum visitors increased after its renovation (2010), the creation of a new

mineral exhibition tunnel as well as a children mine and the playing space for children and teenagers in 2014 (Fig. 3.). Thus the growth of the number of visitors to the Outokumpu Mining museum in 2014 increased by 2.2 times comparing to the previous year

The significant practical result of the project “Mining road” implementation is the creation of a new tourist attraction Mining Park “Tulmozero” on the place of the mining plant ruins (XIX-XX centuries). The area of modern Mining Park is 3 hectares with an adjacent zone 8 hectares, where a excursion and a recreational zones have created within the project. Since the opening of a new tourist attraction based on mining industrial heritage the number of visitors to the Mining Park “Tulmozero” is slowly growing (Tab. 2). At present, the Mining Park “Tulmozero” is considered as a perspective tourist attraction, the annual number of visitors of which is expected to

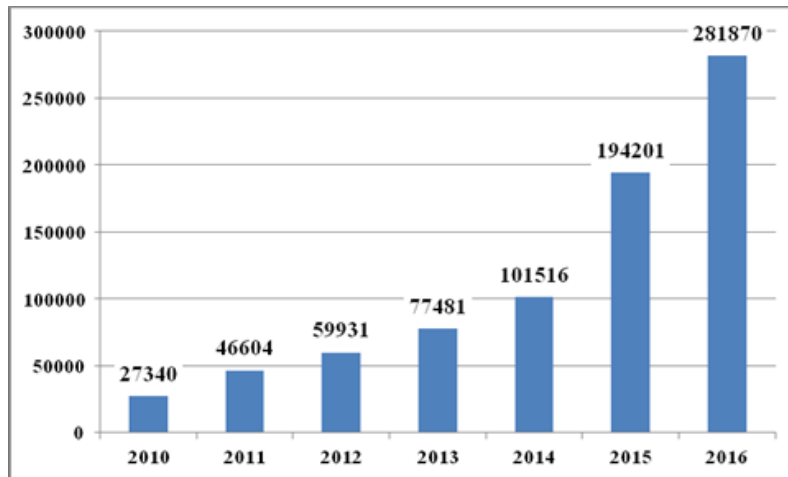


Fig. 2 The number of visitors of the Mining Park "Ruskeala", people

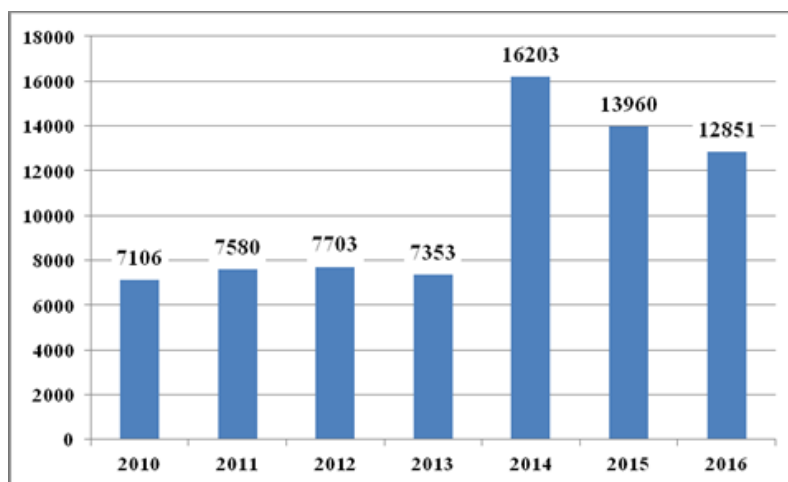


Fig. 3 The number of visitors of the Outokumpu Mining Museum, people

Tab. 2 The number of visitors of the Mining Park "Tulmozere"

Year	2013	2014	2015	2016
the number of visitors of the Mining Park "Tulmozere", people	1030	1580	2300	2380

be 20-30 thousand people.

Within the framework of the project, a series of GPS excursions (audio guides) and 3D-panoramas were developed, which allows tourists to visit the sights of the route without guide. Also guidelines for guides about Mining Park "Tulmozere" in Russian and English have been developed (Mining).

The positive influence of the project can be noticed also in the Möhkö Ironworks museum and in the Koli National park that can be proved by increasing of the visitor's numbers. Annually the average number of visitors in Möhkö has been around 3600

and it has been slightly increasing from year 2012 being in 2016 — 4200 peoples. In the Koli National Park the number of visits has been increasing yearly. In 2016 the increase of the visitors flow to the Koli National Park grew 24 % (167 300 visits) comparing the 2014. The reason for this has been local events, good co-operation and renewed exhibition in the information center Ukko. The financial input to the local economy was 17,7 mln. Euros in 2016 (Metsähallitus). Besides the "Mining Road" project has positive influence characterized by transferring the knowledge about the site.

## DISCUSSION ON GEOLOGICAL TOURISM DEVELOPMENT IN THE FINNISH-RUSSIAN BORDERLAND

Nowadays development of tourism appears as an instrument for regional development which can stimulate new economic activities. Considering high symbolism of national borders for tourists' interest the Finnish-Russian borderland has an essential competitive advantage among other territories (Stepanova, 2017). The border geographic position largely predetermines possibilities for transforming the geological potential of the Finnish-Russian borderland into a new tourist attraction.

At the same time the opportunities of the geological tourism development in the Finnish-Russian borderland are challenged by territorial disparities in the tourism infrastructure availability, organizational and institutional problems.

An important prerequisite for a full inclusion of the geological potential in regional tourism practices is awareness of territorial unique potential, new tourist products development and wise marketing policy. The creation of tourist attractions and destinations based on the geological potential and promotion of geological tourism requires joint efforts and collaboration of authorities, business and local communities (Dowling, 2013).

With the increasing role of information technology in the modern life a crucial significance is paid at promotion of the tourist potential in Internet including design of the interactive tourist maps (Hurčíková & Molčíková, 2014.). An effective promotion of the geoheritage makes a process of choosing the destination by tourists more simple (Tamara & Milica, 2016). A content quality about geoheritage along the cross-border geological routes creates conditions to choose these routes (or several geosites) by tourists according to their needs, opportunities and desires.

The following measures for promoting the inclusion of the geological potential and

geosites in the practices of the regional tourism development can be offered:

- compilation of geosites register that can be visited either individually or in groups, including the descriptions of the objects and the creation of the maps;
- information support and the promotion of the unique geological potential of territories, including the development of roadside signs, info boards, thematic guidebooks;
- placemaking of unique geosites and surrounding areas available for different categories of tourists including children;
- working out of new tourist routes and new products based on the geological potential;
- choosing geological sites with a tourist value and the development of the strategy for the creating and the transforming these unique objects into a new tourist attractions;
- etc.

## CONCLUSIONS

Design and development of geological tourist routes play a significant role in the popularization of the geological heritage and in the geological tourism development. The starting point for attracting tourist flows based on the geological tourism is recognition of the value of a geological and a mining sites, the interest for new understanding of geology and of geological history.

The significance of the cross-border route "Mining Road" is determined by business activity along the route, preservation, popularization and reproduction of the natural, cultural and historical potential of the borderland.

## REFERENCES

- Albă, C. (2016) Geomorphosites with touristic value in the central –southern part of the Parâng Mountains, *Forum geographic*, vol. 15, nr. 1, 109-115. DOI:10.5775/fg.2016.054.i.

- Dowling, R. K.** (2010) Geotourism's Global Growth. *Geoheritage*, vol. 3, 1-13. DOI: 10.1007/s12371-010-0024-7
- Dowling, R. K.** (2013) Global Geotourism – An Emerging Form of Sustainable Tourism, *Czech Journal of Tourism* vol. 2, nr. 2, 59-79. DOI: 10.2478/cjot-2013-0004.
- Goki, N. G. Marcus, N. D. and Umbugadu, A. A.** (2016) Preliminary assessment of the post-mining geotourism potential of the Plateau tin fields, Nigeria. *Acta Geoturistica*, vol. 7, nr. 1, 21-30.
- Grant, C.** (2010) Towards a typology of visitors to geosites. Paper presented at the Second Global Geotourism Conference, Making Unique Landforms Understandable. Mulu, Sarawak, Malaysia, 17–20 April
- Hose, T. A, Markovic, S. B, Komac, B, and Zorn, M** (2011) Geotourism—a short introduction. *Acta Geographica Slovenica*, vol. 51, nr. 2, 339–342. DOI: 10.3986/AGS51301
- Hurčíková, V. and Molčíková, S.** (2014) Interactive Guide of Iron route nature trail “Čučma – the mining village” in a Google Maps. *Acta Geoturistica*, vol. 5, nr. 2, 13-17.
- Johansson, P., Lauri, L. and Voytekhovsky, Yu.** (2014) Barents tour for geotourists. Finland. Rovaniemi, Grano Oy. p.117.
- Kotrla, S., Boškov J., Tomić N., Jovanović M. and Josimov. A.** (2016) Tourist attractiveness of mineralogical-petrographical and paleontological collections in the museums of Vojvodina (North Serbia). *Acta Geoturistica* vol. 7, nr. 1, 31-43.
- Kovács, I. and Nagy, G.** (2013) Tourism in peripheric regions — the possibilities of thematic routes. *Analele Universităţii din Oradea. Seria Geografie*, vol. 2, 220-228.
- Kropinova, E. and Anokhin, A.** (2014) The development of new trans-border water routes in the South-East Baltic: methodology. *Baltic Region*, vol. 3, nr. 21, 145-162.
- Madziarz, M.** (2013) Historical ore mining sites in Lower Silesia (Poland) as geo-tourism attraction. *Acta Geoturistica*. vol. 4, nr. 1, 15-26.
- Metsähallitus,** available at: <http://www.metsa.fi/web/en/metsahallitus/logo> (accessed 16.06.2017)
- Mining Road,** available at: <https://miningroads.ru/> (accessed: 10.02.2017).
- Nenonen, J. and Portaankorva, A.** (2009) The geology of the Lakeland Finland area. Geological Survey of Finland, 2009. p 33.
- Pralong, J.-P.** (2005) A method for assessing tourist potential and use of geomorphological sites. *Géomorphologie: relief, processus, environnement*, vol. 11, nr. 3, 189-196.
- Rozycski, P. and Dryglas, D.** (2016) Directions of the development of tourism mining on the example of mines in Poland. *Acta Geoturistica*, vol. 7, nr. 2, 14-21.
- Stepanova,, S.V.** (2017) Russia's North-West Borders: Tourism Resource Potential. *Baltic Region*, vol. 9, nr. 2, 77—88. DOI: 10.5922/2079-8555-2017-2-6.
- Štrba, Ľ and Rybár, P.** (2015) Revision of the "Assessment of attractiveness (value) of geotouristic objects. *Acta Geoturistica*, vol. 6, nr. 1, 30-40.
- Tamara, V. and Milica, B.** (2016) Evaluation of geoheritage models – analysis and its application on the loess profiles in Vojvodina region. *Forum geographic*, vol. 15, nr. 1, 97-108. DOI: 10.5775/fg.2016.066.i
- UNESCO Global Geoparks,** available at: [www.unesco.org/new/en/natural-sciences/environment/earth-sciences/unesco-global-geoparks](http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/unesco-global-geoparks) (accessed: 16.06.2017).
- Vukojević, D.** (2011) Geomorphological specific features of Trebinje as tourist attraction. *Journal of the Geographical Institute “Jovan Cvijić” SASA*, vol. 61, nr. 3, 95-107. DOI: 10.2298/IJGI1103095V