

Danube Geo Tour

Valorisation of geo-heritage for sustainable and innovative tourism development of
Danube Geoparks

Pilot geoCulture and geoOutdoor products tested

Output Code: 4.3.

“Project co-funded by the European Union”

Programme: Interreg Danube Transnational Programme
PA2: Environment and culture responsible Danube region
Project Duration 01/2017 to 06/2019

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Output 4.3 Responsible partner: ERDF PP4 Geopark Karawanks

Date: 07.12.2018
Version: 1.0



Project co-funded by European Union funds (ERDF, IPA)
www.interreg-danube.eu/danube-geotour

List of Abbreviations

<Add abbreviations used in the document>

DTP	Danube Transnational Programme
JS	Joint Secretariat
LP	Lead Partner
PP	Project Partner
WP	Work Package
EGN	European Geoparks Network
GGN	Global Geoparks Network
UGG	UNESCO Global Geopark
TIC	Tourism Information Centre



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1. Introduction

1.1. Background information

Danube GeoTour project aims to “improve management capacities and strategies and to develop practical solutions for the activation of geodiversity/geoheritage and to seize positive market trends for sustainable tourism development in 8 Geoparks of the Danube region”¹. In order to achieve this, one of the challenges is to “seize” the potential of Geopark values and brand for socio-economic development while inspiring local residents and small businesses to develop new, sustainable and innovative geoproducts along the defined Danube GeoTour²

The objective of WP4 is “to increase the capacities of participating Geoparks in creating unique sustainable tourism products and services based on a Geopark’s specific heritage, the involvement of local SMEs, new gamification tools and visitor engagement with a focus that is in line with the strategy on management tourism pressures and the carrying capacity of each individual territory.”³ Thus, the new geoproducts developed are key elements for the success of the entire project.

This document shows how the pilot geoproducts were tested and what results were reached both qualitative and quantitative. The pilot geoproducts were developed and tested in the WP4 in connexion to all other WPs. The basic criteria, the first step in testing the geoproducts were developed in WP3. It also uses the work from WP5, especially in defining “innovative” as mainly a question of interpretation and also in describing the methods of emphasizing the products connexion to Earth. The promotion component of a geoproduct will be developed in correlation with WP6 recommendations. In its turn, these guidelines will be used in implementing the project further by almost all the WPs.

Testing the geoproducts shows a snapshot of a particular new geoproduct in this moment of its development. However, all the tools described and used here are available on the on-line platform in a gamification form: <http://geo.slavokozar.sk/>. Thus, any time from now, the geopark staff, the partners, SMEs or any other producer may use the assessment tools available on-line to test a geoproduct. This is also helpful for education and training purposes, for any discussion involving the concept of geoproduct.

Each of the Geoparks created and tested a unique product by designing a concept, by engaging, training local providers and/or by developing missing highlights in the geoproduct. Different GeoCulture and GeoOutdoor products were introduced in participating geoparks. Lessons learned are documented, evaluated and made available as models for others in this document and on the on-line platform.

The geoOutdoor product named “**GeoBiking**” in **Karawanken-Karavanke UNESCO Global Geopark** was developed by the external experts of Podzemlje Pece d.o.o. in cooperation with the Project partner Geopark Karavanke (Fig. 1). In the area of the Karawanken-Karavanke UNESCO Global Geopark, mountain bike tourism is on a very high

¹ Danube GeoTour Application Form

² Danube GeoTour Application Form

³ Danube GeoTour Application Form



level, although innovative geoOutdoor offers (tools) are missing. For this reason our idea was to develop new innovative geoproduct (geobike offers) for potential tourists. In the frame of the project Danube GeoTour we established **three new geobike tours** for different target groups, including all necessary supporting guide tools, biking equipment and services.

The main offer is the “**Geopark Karawanken-Karavanke Geobike Grand tour**” (Fig. 2), which connects five main points of the Geopark Karawanken-Karavanke:

- Geopark infocenter “World of geology” in Bad Eisenkappel/Železna Kapla
- Tourist mine and Geopark infocenter Mežica
- Obir dripstone caves
- Wildensteiner waterfall
- info point in Lavamünd

The most important content of our main geobike tour “Geopark Karawanken-Karavanke Geobike Grand tour” is focused on the rich geology in the area, connected with lead and zinc ore and also the other cultural and natural heritage is included. The second offer is The **Black hole trail** for mountain bikers with good biking skills. Our third geobike offer are **daily tours for families and school children**, consisting of following tours: Springs of Mountain Peca, Old Mines tour, The Miners paths tour and the green volcano tour. The geobike tours for families, school children and advanced mountain bikers in the former mine are related to ore and the mineral Wulfenit. The offers include guided and self-guided bike tours with availability of different equipment: mountainbikes, GPS system, tablets from WP5 with all basic information’s about natural and geological features in our Geopark on the basis of already existing applications “Geopuls” and “Geo-Clock”. In the frame of this project we bought mountainbikes, GPS systems, equipment for guides. We already have existing Modul for training Geopark guides, where we are offering special topic informations and interpretations of our rich geological, cultural and natural heriatge for existing guides from our region. The maps of geobike tours are included in Annex 1.



Figure 1: geoOutdoor product “GeoBiking in Karawanken-Karavanke UNESCO Global Geopark”

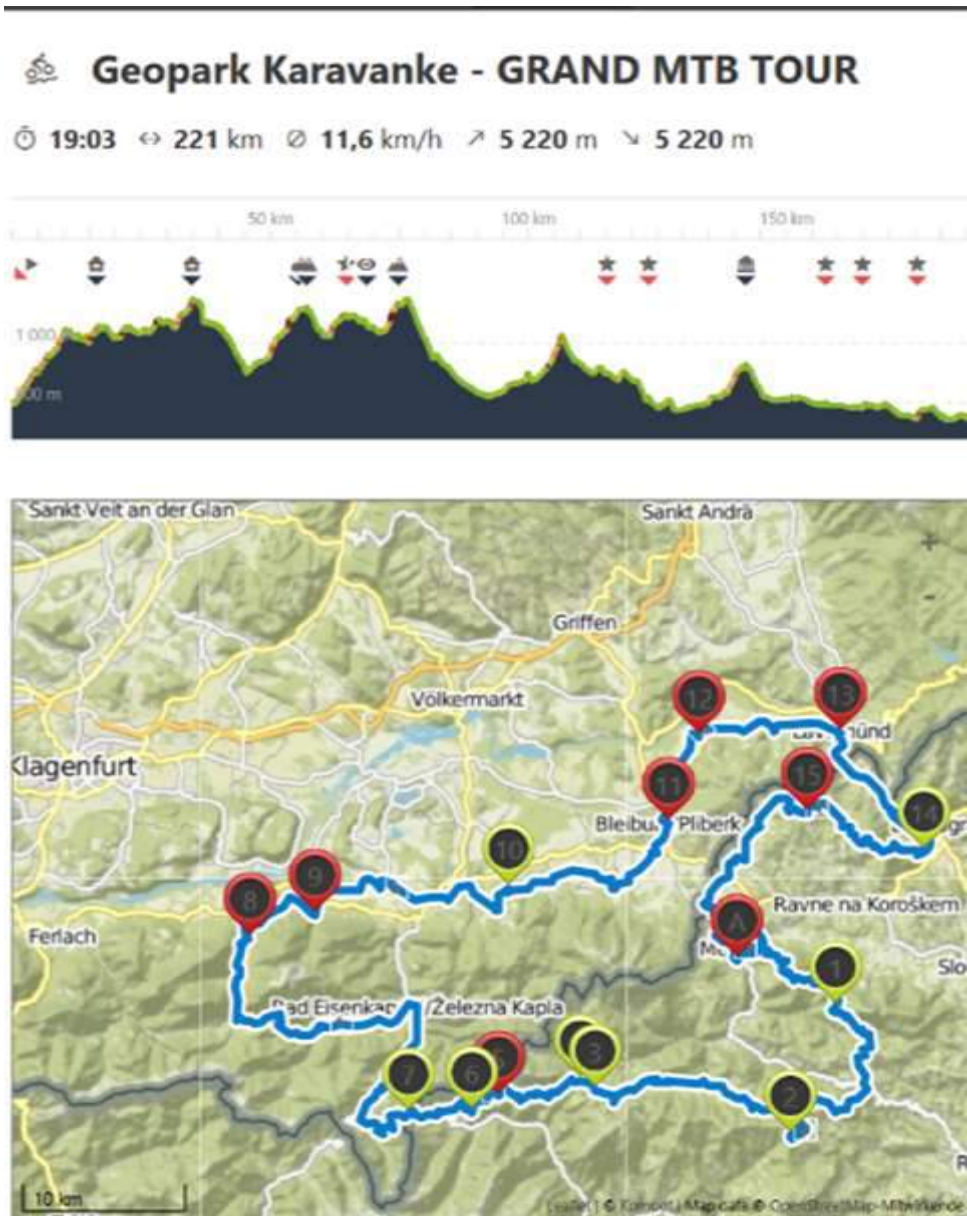


Figure 2: Map of the Geopark Karawanken-Karavanke Geobike Grand tour

1.2. Methodology

This material was developed using data provided by Geopark Karawanken-Karavanke, the partners in the project and by other geoparks in the European Geoparks Network. Most of the data for defining the geoproducts was developed for Output 4.1. *Guideline for development of innovative GeoProducts.*

Other data derives from experiences and lessons learned from ASP and other members of EGN and GGN, the skills and expertise of the geopark managers present in the project as well as all the partners direct contact with local entrepreneurs in tourism, food art and crafts.



For our specific geoOutdoor product “GeoBiking” in Karawanken-Karavanke UNESCO Global Geopark the data was collected by experts in the field of mountainbiking, tourism and geoheritage. All data was complemented by discussion with the Geopark management, local bike guides and experts.

1.3. Summary

Some geopoints in the Karawanken-Karavanke UNESCO Global Geopark are already predestinated for biking tours. Because of this reason and in order to differentiate from other traditional biking tourism destinations we decided to develop different geobike offers for different target groups. In the area of the Geopark Karawanken-Karavanke, a mountain bike tourism is on a very high level, although innovative geo outdoor offers (tools) are missing. With the new geoproduct we want to invite new bike tourists in our crossborder region, as well as implement an innovative and creative tinge mountain bike tourism. In our case the geoOutdoor product named “GeoBiking” in the Karawanken-Karavanke UNESCO Global Geopark adds a huge value and character to the existing outdoor activities and traditional offers, which are already provided by Geopark Karawanken-Karavanke. We created new geobike offers to connect and present geosites of great importance which are not included in existing hiking trails. Within the newly created bike offers we succeed to involve all Geosites. Our geoproduct “GeoBiking” is also a solution for the local community empowerment and promoting geological cultural and natural heritage in the Karawanken-Karavanke Geopark.

In the Project Danube Geo tour we established a new geoOutdoor product named “GeoBiking” in the Karawanken-Karavanke UNESCO Global Geopark, which includes new geobike tours for different target groups.

1. **Geopark Karawanken-Karavanke Geobike Grand tour:** Connecting five main points of the Danube GeoTour in the Geopark Karawanken-Karavanke: The Geopark Infocenter “World of geology” in Bad Eisenkappel/Železna Kapla, the Tourist mine and the Geopark Infocenter in Mežica, the Obir dripstone caves, the Wildensteiner waterfall and the new info point in Lavamünd. This tour will be also a part of the overall Danube GeoTour. The duration of the whole tour is between 5 and 7 days with a distance of 221 km. It passes several geological and cultural sites (The Hemmaberg-Juenna Archeological Museum of Pilgrims, the Werner Berg Museum, etc.). On the tour bikers have several possibilities to stay overnight (hotels, campsite, tourist farms, cottages...) or to taste local traditional food. The main target group are mountain bikers.
2. **Black hole trail** for mountain bikers with good biking skills. Starting from Geopark Infocenter in Mežica, to Pikovo, to the miner’s village Helena. This mountain bike trail leads through abandoned tunnels of the former lead and zinc mine in Mežica. Huge colossus chambers used to hold tons of lead, which was excavated in the past. The Helena mine is also the locality of the **world known mineral Wulfenite**.
3. **Day tour for families and school children:**
 - a) **Springs of the Mountain Peca** is a biking tour which connects springs and small lakes on the slope of the Petzen/Peca Mountain. The distance is 30 km and is especially planned for family’s and schools. Starting point is at the Karawanken-Karavanke Geopark Infocenter in Mežica, where tourist will get all important information about the tour and the Karawanken-Karavanke Geopark and its exceptional heritage. At this



point groups meet their guide, who guides them through special adventures. Before the start they can also visit the Tourist Mine and the Museum.

- b) **Old Mines tour is a biking tour** which visits former Mines and Coalmines in Mežica, on Volinjek and Leše. On a 28 km long trail tourist will visit also many cultural (Leše churches, Miners collection Leše, stone bridge Štopar...) and natural sites (Volinjek, minerals and fossils in the Museum in Mežica...). The starting point is also the Karawanken-Karavanke Geopark Infocenter in Mežica.
- c) **The Miners paths tour** is a tour which starts in the Karawanken-Karavanke Geopark Infocenter in Mežica, with the visit of the lead and zinc mine in Mežica. Then it continues the miners paths to the Petzen/Peca Mountain cottage, to visit its nearby cave with the mystic king Matthias Corvinus. From there it leads to the Topla Valley, passing the lead and zinc Mine Topla and following the miners path passing nice traditional farms and Miners settlement on Perg. The whole tour is 35 km long.
- d) **Green volcano tour** is a 67 km long tour which starts in the Karawanken - Karavanke Geopark Infocenter passing the village Črna na Koroškem which has rich ethnological history seen in the ethnological collection. From Črna the trail leads through the Bistra Valley where bikers pass beautiful outcrops rocks belonging to the periadriatic lineament. As soon as they reach the volcano Smrekovec, which erupted 23 million years ago under the sea, the bikers can get detailed information about the geological formations, structure and the history of the area, as well as information about the life of the locals and what the diverse natural area has to offer, at the Smrekovec infopoint. Bikers have also the possibility to stay overnight in the nice mountain cottage. On their way back bikers will pass one more natural feature in the Karawanken-Karavanke UNESCO Global Geopark, the so called Najevnik linden tree, which is the thickest linden tree in Slovenia and the forest protected area Jazbina.

The new geoOutdoor product named “GeoBiking” in the Karawanken-Karavanke UNESCO Global Geopark (different geobike offers for different target groups) include guided or self-guided bike tours with the availability of different equipment: mountainbikes, GPS system with all basic information’s about natural and geological features in our Geopark on the basis of already existing applications “Geopuls” and “Geo-Clock”. New Karawanken-Karavanke Geopark geoOutdoor products – geobike tours will be also supported by maps with specific data’s of each geobike tour and with a short description about the main natural, geological and cultural sites, which are passed while the tours.



2. Basic criteria

2.1. Description

Geoproduct is a product that presents the characteristics of a geopark on the market. At the same time a geoproduct can have additional values from nature conservation. In this case, a geoproduct must comply with the principles and standards of conservation of the geological heritage and its promotion in order to improve awareness about the importance of conservation of our GEO heritage. The geological heritage should be recognized through the geoproduct as the geopark's essential element.

The Strategy on Management of Tourism Pressures in Geoparks (shortly Strategy) provides a tool which enables all target groups (visitors, residents, geopark managers and investors) to better plan their activities, understand different impacts of these activities and alternatives which can be used to avoid or reduce negative impacts. The Strategy has to be included to clarify the aspect of nature protection as well as the aspect to contribute to the holistic concept of protection, education, public awareness and socio-economic benefits for sustainable local development. In order to carry out integrated evaluation of geoproducts we had to firstly create the relevant framework and then a methodology for the assessment of impacts of recreational activities on natural heritage.

The framework developed in WP3 can be used as a first and basic qualifier in the first steps of the decision process, which tells us if the product can be defined as a geoproduct. The Strategy also provides a common framework which enables all geopark managers as well as visitors, residents and investors to better plan their activities, understand different impacts of each activity and to be aware of available alternatives which can be used to avoid or reduce negative impacts. The information from the Strategy can be also used to increase awareness of investors and it can help to change their behaviour towards more sustainable patterns in geoproducts. As such it leads to better conservation of natural and cultural heritage and it supports the achievement of the programme specific objective "Foster sustainable use of natural and cultural heritage and resources".

In this way, the Strategy also serve as a framework for the development of joint geoproducts (as a part of WP4).

Nature conservation definitively has to be incorporated to the geoproduct as its intangible value. The evaluation of the geoproduct from the point of nature conservation is essential. The geoproduct has to comply with the principles and standards of conservation of the geological heritage and its promotion in order to increase the visibility of the importance of protecting the geoheritage.

Geoproducts may include various geoheritage and nature conservation aspects, which can be displayed in several ways. Finally a geoproduct may be included/integrated directly as a tangible (mineral raw materials, agricultural product) or intangible (cultural, historical, ethnological) content. Geoproducts can be recognized as an activity or a final market object, available indoor or outdoor.

Four different groups of geoproducts can be distinguished:

- Market objects (souvenirs, food)
- Outdoor activities (guiding for groups/individuals in nature; rafting, biking, hiking, riding, water activities, mines and caves visiting, camp schools)



- Indoor activities (indoor programs in museums, info centres, restaurants, tourist farms)
- Small interpretation infrastructure dedicated to specific local heritage items (houses, dinostops, geotrails) developed and managed in partnership with local partners.

2.2. Application

Question 1: Is a geoproduct developed according to the actual legislative framework and it does not cause any damage to nature?

If the answer is YES:

→ follow the assessment. The product:

1. has strong tangible connection to local geodiversity or **geological heritage** (geosites, fossils, minerals, rocks, mines, quarries, caves, geologic processes or phenomena...) YES/NO
2. has strong intangible connection (historical, ethnological, cultural) connection to local geodiversity or **geological heritage** YES/NO
3. increases awareness of users about the importance of protecting geological heritage. YES/NO
4. encourages and helps the user to engage/involve in nature conservation. YES/NO
5. is produced in a sustainable way, it is made from recycled or/and local materials. YES/NO

If the answer is NO:

→ contact to your geopark or follow the *Recommendations for residents, visitors and investors on behaviour and sustainable use of geodiversity in Geopark*

In case of the geoOutdoor product “**GeoBiking in the Karawanken-Karavanke UNESCO Global Geopark**” the answer is YES, it follows the legislative framework and it does not cause any damage to nature

1. YES. The new GeoBiking product has strong tangible connection to local geodiversity and **geological heritage** – it connects different geosites in the area of the Karawanken-Karavanke Geopark, and presents huge geodiversity and geological heritage within one geoOutdoor product. It paths through different local areas of the crossborder Geopark, from the mines to the tops of the mountain range, through special valleys of the Karawanken-Karavanke Geopark, parallel to the periadriatic lineament, to former volcanos, natural and cultural sites, to the open valley of “Jauntal”, following the Drau-river and including the main presentations of the huge geodiveristiy in the Geopark due to the existing Geopark infocenters.
2. YES, it has a strong intangible connection (historical, ethnological, cultural) to the local **geodiversity** – it is following the main borderline between Slovenia



and Austria where many historical, ethnological and cultural interesting points are visible – different museums concerning the “dark history” of the 2nd world war, ethnological museums, buildings with interesting cultural aspects, as for example the former farmer buildings for keeping all sorts of grain, the so called “Kašas” (which are specific for this area), former so called “dark kitchens” (kitchens with open fires), and many other.

3. *YES, it increases awareness of users about the importance of protecting geological heritage and the importance of geodiversity. The geoproduct “GeoBiking in the Karawanken-Karavanke UNESCO Global Geopark” is showing the rich geodiversity of this region. By cycling on these routes the guides or information tools help explain the whole geological history in a very attractive and interesting way. Although the Karawanken-Karavanke Geopark already increases awareness and importance of protecting the geological heritage through already existing offers, as guided hiking tours, GeoBiking provides an additional possibility to raise awareness and importance for protection among new target groups in the field of tourism, especially bikers.*
4. *YES, it encourages and helps the user to engage/involve in nature conservation. As all offers, the GeoBike offers strengthens the awareness and importance for protection and encourages users to an active engagement in nature conservation. It is a part of our guided tours to make people aware of taking care for nature conservation and be an active part of it. In the frame of the geobike tours all participants get information folders “Let’s take care of the unique and exceptional geological and natural heritage of the Karawanken-Karavanke Geopark, which was published by Karawanken-Karavanke Geopark in the frame of the WP 3 “Geopark with(out) limits”*
5. *YES, it is produced in a sustainable way, it is made from recycled or/and local materials. It is designed and planed in at most as possible sustainable way by using existing paths. Besides we are using local, existing and recycled materials for construction or reconstruction of trails and interpretation equipment at geospots.*

3. Qualitative assessment

3.1. Description

Geoproduct is a new term appeared along with the geopark philosophy. It is usually used in the context of a geopark’s socioeconomic involvement along with geotourism and geodiversity. Its understanding varies from a broad perspective to one of the most concrete result of the geopark concept implementation.

In the most extensive definition, the geoproduct is considered a potential geotourism focus point⁴, usually a geological attraction. The more focused definitions mention a geopark connexion and include local, manmade products as well as the dialogue between tourists and local heritage. For example, Farsani et al. (2012) define geoproduct as:

⁴ **Complova, M.**, 2010, *The identification of geoproducts in the village of Jakubany as a basis for geotourism development*, Acta Geoturistica, volume 1, number 1, 51 – 56



Local products related to geopark activities and symbols of geological and geomorphological heritage of the geopark. Geoproducts which are made based on geological elements of geoparks not only introduce the local products and the local handcrafts as cultural components to tourists, but also increase the public knowledge of tourists about geology.⁵

If we discuss the main attributes of a product⁶, then we have to consider three aspects which the geoproduct must comprise in order to be a product:

- It has to respond to a need,
- It has to be created, constructed through a production process,
- It has to be marketable and sold.

These characteristics bring the term geoproduct closely to a practical and economical approach, it defines it more clearly and focuses on its necessity as a tool for socioeconomic development through geoparks. This perspective underlines the role of geoparks in achieving social, economic and cultural sustainability and in coping with pressure from the sociocultural impact of tourism.

On the other hand, a geoproduct is not simply another product sold in a geopark. A geoproduct comes with a deep connexion to Earth on a local level and with a strong sense of identity. Each geoproduct is unique in its construction with a story about people and the place they inhabit.

As a result, we find that the philosophy of a geoproduct takes into account three axes: identity, management and production. If we see it as a graphic model, then the geoproduct finds itself at the intersection of these three axes (Fig. 3).

⁵ Farsani, T., Coelho, C., Costa, C., Carvalho, C., 2012, *Geoparks and Geotourism. New approaches to sustainability for the 21st century*, BrownWalker Press, Boca Raton

⁶ <https://www.merriam-webster.com/dictionary/product>



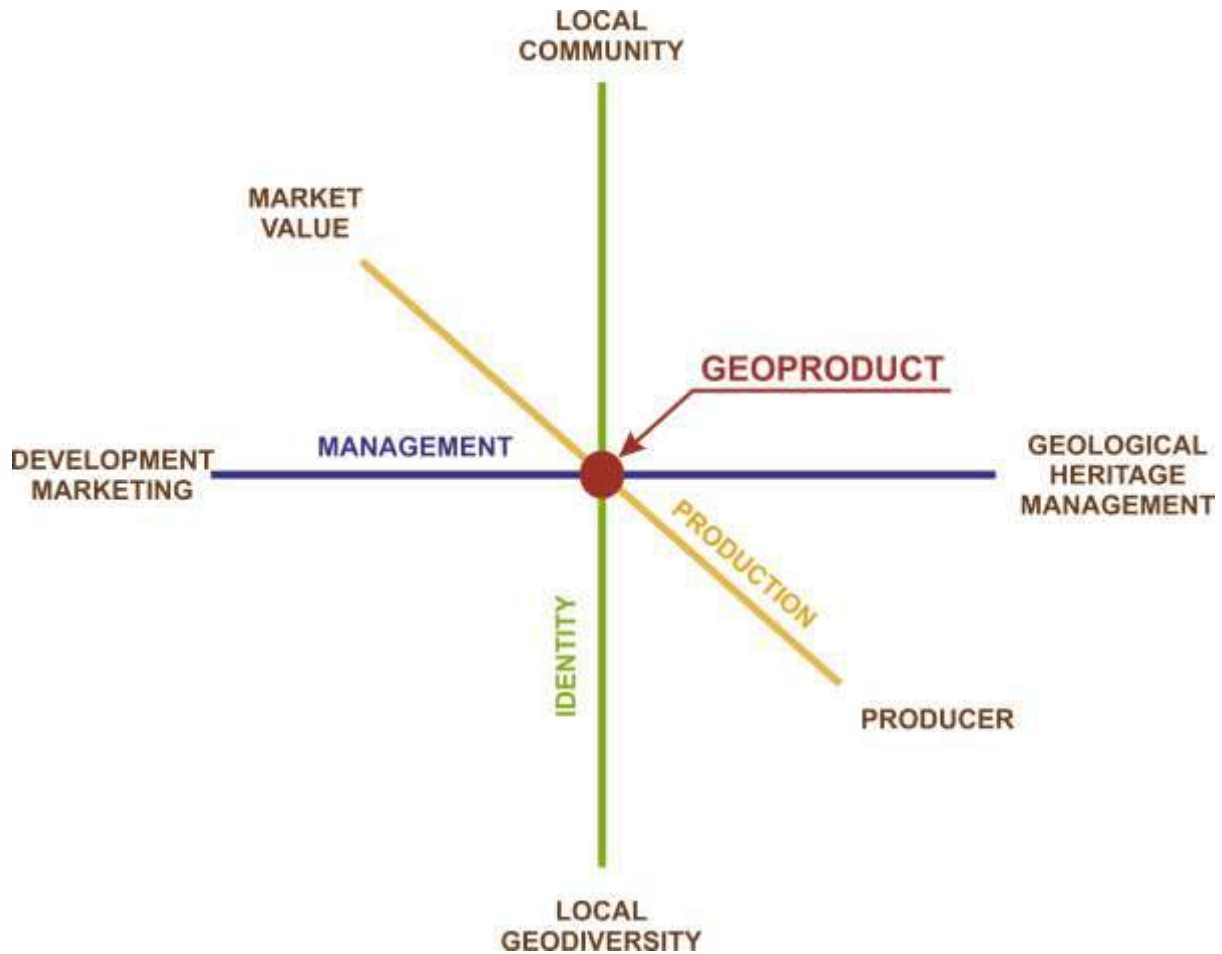


Figure 3. **The philosophy of the geoproduct**

Identity Axis

A geopark territory is a complex structure made of ecological, socio-economic and cultural realities, shaped by its geodiversity, biodiversity and historic evolution. The sum of them is generating the local identity made of tangible and intangible heritage. The tangible heritage is mainly related to local geodiversity like raw materials, relief, mineral resources and soils. Intangible Cultural Heritage, as defined by UNESCO, 2003⁷ means:

...the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

One of the key requirement² for a UNESCO Global Geoparks is to have sites and landscapes of international geological significance managed with a holistic concept of protection, education and sustainable development. A UNESCO Global Geopark uses its geological heritage, in connection with all other aspects of the area's natural and cultural heritage, to enhance awareness and understanding of key issues facing society, such as using our Earth's resources sustainably, mitigating the effects of climate change and reducing the impact of natural disasters. By raising awareness of the importance of the

⁷ UNESCO, 2003. *Intangible Cultural Heritage*

area's geological heritage in history and society today, UNESCO Global Geoparks give local people a sense of pride in their region and strengthen their identification with the area. The creation of innovative local enterprises, new jobs and high quality training courses is stimulated as new sources of revenue are generated through geotourism, while the geological resources of the area are protected.

The Identity axis expresses local cultural and historical identity generated during centuries or millennia by the continuous interaction between local community and natural environment. On the other hand, this axis is revealing one of the main goal of a geopark to cooperate with communities and to identify innovative approaches in order to re-appropriate tangible and intangible heritage values and to revive and strengthen the local cultural identity, in respect to sustainable development principles.

The identity axis is the axis of product development. Is the way a producer is using directly or indirectly local geodiversity components, local knowledge and market needs in the geopark context. This process is part of the cooperation between geopark team and local entities which could be associations, companies, private persons, artists, freelancers, museums, schools, etc.

Management Axis

The management axis is the way to transform a geoproduct in a market good, a product to be sold directly or indirectly and to generate benefits. The benefits are both direct incomes and indirect and induced ones that contribute to geopark promotion, strengthen of local identity and socio-economic development.

Each Global Geopark is using the UNESCO Global Geoparks logo which is one of the most powerful brand in the world in order to develop a local brand of quality for its territory. The management axis is reflecting the way a geoproduct is using the geopark brand to increase its value and also the role each new geoproduct is playing in strengthening the geopark brand. The management axis is expressing the cooperation between the geopark team and the producer of a new geoproduct. In some cases the producer is the geopark team. The management axis is reflecting the main philosophy of Global Geoparks: *Celebrating Earth Heritage, Sustaining local Communities*. Each geoproduct is embedding a part of local geodiversity or geoheritage and in the same time is contributing to local socio-economic development.

Production Axis

This vector represents the organisational aspect of a geoproduct. The Geopark has to encourage entrepreneurship of local partners and to provide to them the context presented by the other two axis. The production axes starts with a producer, an entity able to provide a service or create a product in a legal way and in close cooperation with the Geopark. The direction of the axis is the actual profit from the products and services. In the case of the Geopark being also the producer of a geoproduct, the benefits can be other than financial: awareness, promotion, community involvement etc.

The philosophy of the geoproducts uses axes to show the whole concept as a process. The Geopark team has to manage the process and evaluate its position on each of the axis. The partners (SMEs, NGOs and others) base their business in geoproducts on the identity and management axis and contribute to the development of the production axis.

In conclusion, figure 1 shows a geoproduct at the intersection of the three axis. The identity axis is expressing the innovative way in sustainable use of local resources, the management axis reflecting the capacity of a geopark team to support geoproducts development and sale



in the benefit of producer and local communities and the production axis shows the process of constructing the offer by a geopark partner.

In the creation and development of geoproducts, geopark managers and local entrepreneurs must start from the philosophy described in the previous chapter. Then they must follow the most important three requirements of a geoproduct (Fig. 4):

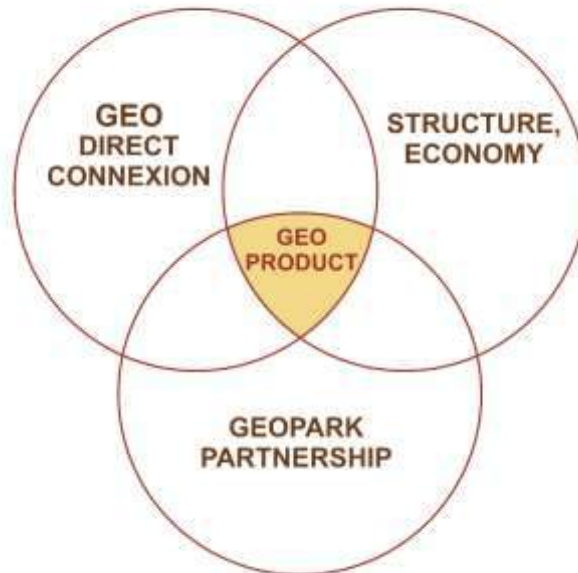


Figure 4. **The requirements of the geoproduct**

In addition to the main three requirements, the newly developed geoproducts have to respect sustainable standards and communicate these values to their users, visitors and thus help raise awareness on the importance of protecting and valorising the area's geodiversity, natural and cultural heritage in a sustainable way.

Geoproducts creation and development will also consider and respect specific needs of people with disabilities or elderly people and thus increase potential for these groups to have access to geoheritage. The design of these products and their management have to reflect equal chances and inclusion of all categories.

3.2. Application

Geo direct connexion

“Geo” (Gaia / Gaea in Greek) is the personification of Earth. Represents natural characteristics of a territory, whether is the local geodiversity, or biodiversity. Cultural values or tangible and intangible heritage being the human appreciation and use of these characteristics. Geo direct connexion requirement assures that the product is not only a geographical designation – “produced in the geopark” – but it has a deep meaning and an

interpretation. The geoproduct must be a sentence in the dialogue between Man and Earth. Sometimes this connexion is only a matter of interpretation. Many products developed today in geoparks can be transformed into geoproducts with ease, if the proper interpretation of their connexion with geology or local identity is added.

A good example for this requirement is the GeoFood label⁸. This designation, managed by Magma UGG, is more than just another ecolabel.

GEOfood products must have strong connection with the local Geological Heritage, specific brief information concerning this connection must be provided in the food products and in the GEOfood restaurant menus through written information (ex: potatoes or vegetables that grown in fertile sandstones which were formed by glacier movement during the last Ice Age; olive oil produced from olives grown in Jurassic marls that were deposited in the ancient Sea of Tethys, salt from the ancient Sea, bread from grain growing in the Geopark soil due to special geological phenomena, etc.).

The geoproduct GeoBiking in the Karawanken-Karavanke Geopark has a strong geo direct connection, because main topics and contents of all our geobike offers are presenting the huge geodiversity and many Geosites of the area: Lead and Zinc Mineralization in the Petzen/Peca and Obir Mountains, minerals, fossils, rocks, landscapes, geomorphological diversity as well as biodiversity and cultural sites. In the frame of guided geobike tours trained guides transfer all important facts about geological, cultural and natural features to the visitors. The Karawanken-Karavanke UNESCO Global Geopark is an area with exceptional geological phenomenas which will be presented to visitor on their outdoor activities or on their holidays. Geobike tours are following the main five geointerpretation points, as well as many natural and cultural sites. Visitors will find a wide variety of descriptions in the infocentres and at the different info points, on the geoapps, the geotools or on written records (leaflets, interpretation panels...). The Geopark management will also offer guided tours with special skilled geobike guides.

Structure and economic viability

Structure and economic viability means that the geoproduct has to live up to its “product” part of the term. It has to be constructed (“produced”) as a marketable product meant to be sold. Of course that in some cases the geoproducts are not sold per say, instead they belong to the geopark administration’s educational offer, or they are provided along with other services. In order to be a geoproduct, the object or service doesn’t have to be actually sold, but to have the construction and economic viability which allow it the possibility to be sold. For example, an educational program from the educational offer of a geopark can be considered as fulfilling this requirement by asking the question: would this program be viable if it were to be sold by someone to tourists?

The viability is the health assurance of the geoproduct – it can only exist if it is bought. This means it has to be adapted to market demands, it has to continuously address the needs of the buyers and it has to have the adaptability to focus on new trends and requirements.

The Karawanken-Karavanke Geopark fulfills this requirement by:

⁸ <https://www.geofood.no/>



In the area of Karawanken-Karavanke Geopark mountain bike tourism is on a very high level, although innovative geo outdoor offers (tools) are missing. With the new geoOutdoor product “GeoBiking in the Karavanke-Karawanken UNESCO Global Geopark”, which consist of three different geobike tours, we added value to the existing offer by enriching the geocontents and differentiating by type of visitors. Thus, GeoBike tours are orientated to different target groups and so more potential visitors are addressed. The newly developed geoprodut will attract new bike tourists in our crossborder region, as well as bring an innovative and creative tinge in mountain bike tourism. In our case the geoprodut “geobike offers” add an enormous value and character to the existing outdoor activities and traditional offers, which are already provided by Karawanken-Karavanke Geopark. The new geobike offers are included in promotional channels of the Karawanken-Karavanke Geopark, tourist providers, SME as well as in regional touristic boards. The tours will also be included in packages of tourist agencies. The new Geobike offers were included in the regional touristic card system which is called “Regionskarte Tourismusregion Klopeinersee-Südkärnten”, and is offered as an weekly guided program for free to all tourists of the Tourist region of Klopeinersee-Southcarinthia (overnights per year:~ 800.000).

Geopark partnership

The geological connexion and the economic viability would describe only a good business idea without the active role of the geopark. This is the reason why the third important requirement for geoproduts is to have the geopark partnership. Of course, this applies when the geopark is not itself the provider of the geoprodut.

The geopark’s role as a partner of the geoprodut provider is to assure the quality of the geoprodut and the conditions in which the selling process takes place. This will eliminate opportunistic initiatives of low quality produts made to look like geoproduts. It will also make sure that the production process is made with care for the heritage and environment and that it respects the culture and needs of all people, especially vulnerable groups.

The Karawanken-Karavanke Geopark fulfills this requirement by:

In the design of the new Geoprodut “GeoBiking in the Karavanke-Karawanken UNESCO Global Geopark” the Geopark management, Geopark partners, external experts, local SME’s, bike guides, Institute of Republic of Slovenia for Nature Conservation and local communities were involved. They will cooperate also in the future in providing good service to visitors and tourists. At the same time, they will take care that the bike tours for the heritage and environment. We had several meetings on which discussed about new produt, which sites would be included and presented or which not. We also talked about produt implementation in partners tourist offer and our future common tourist development.

4. Quantitative evaluation

4.1. Description

The evaluation process starts from the basic idea that a geoprodut is representing the tool a geopark has to develop in order to contribute to the holistic concept of protection, education, public awareness and socio-economic benefits for sustainable local development.

Testing and evaluation are connecting four key elements defining a geoprodut: Earth resources, Geopark management, Local community, Geoprodut development.



The questionnaire has five sections from A to E, each section with a set of elements to be self-evaluated on a scale from 1 to 5. The values are: 1 – low degree; 2 – quite low; 3 – medium; 4 – quite high; 5 – high degree. According to the Logic Matrix:

LOCAL COMMUNITY	Contribute to social entrepreneurship approach of the geopark	Documented relation geo-bio-cultural	Tells a story about local community	Enhances local cultural heritage	GEOPRODUCT DEVELOPMENT AND MARKETING
New local products strongly related to geopark territory				Integration in geopark's marketing strategy	Connects to the marketing strategy
Connects to geodiversity and geoheritage interpretation			Quality assurance by geopark labeling		Involves the geopark in the product process
Integrates into geopark's promotional strategy		Common advantages based on a partnership agreement			Contribution to the promotion of the geopark values
Results from geopark's involvement in the community (trainings, seminars, programs)	Assures novelty and innovation				Impact evaluation
GEOLOGICAL HERITAGE MANAGEMENT	Contribute to Geodiversity Action Plan Development	Identify all potential values of geoheritage	Tangible and intangible themes	Assessment of local geodiversity	LOCAL GEODIVERSITY

Table 1. Logical matrix in development and assessment of a geoproduct

4.2. Application

Section A - Any geoproduct has to be connected to local geodiversity / geological heritage and to have a geological story (in a broad sense). Local geological assets are identified and defined based on scientific research and a coherent management plan guides the conservation and interpretation of geological features. It sets the geological scene, looks in detail at the geological heritage in the geopark territory, details opportunities to explore and celebrate the local Earth history.

A1. How well are the geological assets / subjects related to the geoproduct documented from the scientific point of view?

1 – not documented; 5 – Very well documented

A2. In what degree the geoproduct contains both tangible and intangible components of the geological asset/s?

1 – not having both elements; 5 – Very well integrating the two elements

A3. Does the geoproduct tell all the possible stories on the specific geological asset?



1 – very few stories; 5 – the whole story

A4. In what degree are those geologic assets part of a geodiversity action plan / geoconservation plan developed by a Geopark?

1 – they are not in a plan; 5 – all of the assets are part of a clear plan

Section B - A geoproduct has to incorporate a story of local people and could contribute to connect geological heritage with local community.

B1. In what degree is the geoproduct created and developed by a local company / person / producer?

1 – not a local company; 2 – most parts of the geoproduct are not created/developed by a local company/producer; 4 – most parts of the geoproduct are created/developed by a local company/producer 5 – totally created and developed by a local company

B2. In what degree the connections between the identified geologic asset/s and natural and cultural heritage are documented?

1 – not documented; 5 – Very well documented

B3. Does the geoproduct tell more than a geological story?

1 – only the geological story; 5 – many other stories connected to geology

B4. In what degree is the geoproduct directly connected to a specific community / person/s?

1 – not directly connected; 5 – Very well connected

Section C - A geoproduct has to have a practical and economical approach, as a tool for socioeconomic development inspired and supported by the geopark development.

C1. In what degree is the geoproduct new and innovative?

1 – not new; 5 – totally new and innovative

C2. How detailed and clear has the geopark identified different types of partnerships in geoproduct development (e.g. produced by the geopark, supported by, produced in the territory of the..., etc ?

1 – not a single partnership; 5 – clear and detailed partnerships

C3. Did you use the geopark's geoproduct development criteria defined by the Geopark in the geoproduct development?

1 – not defined/used; 5 – Very well defined/used

C4. Is the geoproduct sold in regular events (geo-fairs) organized by the geopark dedicated/integrating local geoproducts?

1 – no; 5 – frequent events clearly targeted

Section D - A geoproduct is not simply another product sold in a geopark. A geoproduct comes with a deep connexion to Earth on a local level and has to generate interest and respect for the Earth processes that generated local geodiversity

D1. In what degree local producer/s are inspired by the local geodiversity / geoheritage in developing new products?

1 – very low; 5 – very high



D2. In what degree the geoproduct/s are connected or supported by the interpretation infrastructure of the geopark (taking into consideration geological and cultural components of the geopark territory)?

1 – not connected or supported; 5 – Very well connected and support-ed

D3. In what degree the new geoproduct/s are promoted by the geopark?

1 – very low; 5 – very high

D4. In what degree were the producers involved in training courses and/or regular meetings as part of the geopark activity plans?

1 – not at all; 5 – they are very much involved

Section E – A geoproduct is a combination of market opportunities generated by the geopark activities in tourism development and the ability to generate emotions of visitors to be interested to buy new products related to local Earth and people stories.

E1. Is the developed geoproduct connected to the geopark marketing strategy?

1 – very low connection; 5 – very high connection

E3. In what degree is the geopark involved in development, marketing and selling of the geoproduct?

1 – very low; 5 – very high

E3. Does the geoproduct contribute to the promotion of the geopark values?

1 – very low contribution; 5 – very high contribution

E4. Is there any established mechanism to evaluate the geoproduct impact (financial, appreciation, satisfaction, recognition, etc.)?

1 – no; 5 – a very well developed mechanism

LOCAL COMMUNITY	B1 - 4/5	B2 - 4/5	B3 - 4/5	B4 - 4/5	GEOPRODUCT DEVELOPMENT AND MARKETING
E1 - 5/5				C4 - 3/5	D1 - 4/5
E2 - 4/5			C3 - 4/5		D2 - 4/5
E3 - 4/5		C2 - 4/5			D3 - 5/5
E4 - 3/5	C1 - 3/5				D4 - 3/5
GEOLOGICAL HERITAGE MANAGEMENT	A4 - 4/5	A3 - 4/5	A2 - 5/5	A1 - 5/5	LOCAL GEODIVERSITY

TOTAL = 80 / 100

Table 2. Logical matrix used for the geoOutdoor product “GeoBiking” in the Karawanken-Karavanke UNESCO Global Geopark



Section A - Any geoproduct has to be connected to local geodiversity / geological heritage and to have a geological story (in a broad sense). Local geological assets are identified and defined based on scientific research and a coherent management plan guides the conservation and interpretation of geological features. It sets the geological scene, looks in detail at the geological heritage in the geopark territory, details opportunities to explore and celebrate the local Earth history.

A1. How well are the geological assets / subjects related to the geoproduct documented from the scientific point of view?

In the development of the new geoproduct we applied scientific basis about the Karawanken-Karavanke Geopark which were done by experts from different institutions in the process of establishment of geopark, as well as new research findings occurred through the time of geopark development. Each new presentation (panels, leaflets, articles, guided tour...) prepared in the frame of the geoproduct derives from this scientific basis while the drafts were prepared or consulted with our scientific coworkers.

1 – not documented; 5 – Very well documented

A2. In what degree the geoproduct contains both tangible and intangible components of the geological asset/s?

The geoproduct “GeoBiking” in the Karawanken-Karavanke UNESCO Global Geopark” contains both tangible (geosites, Mines – Mežica Mine, Obir Dripstone Caves, Coal Mine Leše, rocks of the Periadriatic lineament, mineral collection, ores, rocks and fossils collections, waterfalls..) as well as intangible geoheritage (stories and fairy tales about rock formations, Geopark area formation, dinosaurs, legendary persons...).

1 – not having both elements; 5 – Very well integrating the two elements

A3. Does the geoproduct tell all the possible stories on the specific geological asset?

Our geoproduct enables participants to learn many interesting stories as the geobike tours include the Geopark infocentres (Mežica, Bad Eisenkappel/Železna Kapla - World of Geology), geosites and museums (Mežica, Topla, Smerekovec, Bleiburg/Pliberk, Globasnitz/Globasnica...) from both side of the border. Each of this site offers several presentations and interpretive stories about specific geological assets. Additionally we have educated guides who can tell and interpret in person the stories about geology during the geobike tours. We organized some trainings for geo hiking and geo biking guides in frame off education course organized from ARGE Geopark Karawanken/Karavanke as well we add some geology and nature protection contents also in regular trainings for guides

1 – very few stories; 5 – the whole story

A4. In what degree are those geologic assets part of a geodiversity action plan / geoconservation plan developed by a Geopark?

Those geologic assets are part of a geodiversity action plan of the geopark and they are strongly involved in our everyday activities. In way to take care (by defined standards for guiding and guides) off them

1 – they are not in a plan; 5 – all of the assets are part of a clear plan

Section B - A geoproduct has to incorporate a story of local people and could contribute to connect geological heritage with local community.



The design of geobike product incorporates the past stories of local people such as mining and iron works history, their cultural heritages - farms, houses, culinary.... We also include the local community and local SMEs to cooperate with their local offer along the biking routes.

B1. In what degree is the geoproduct created and developed by a local company / person / producer?

Most parts of the geoproduct are created and developed in cooperation with private bike companies and outdoor agencies which are also offering this geobike offers.

1 – not a local company; 2 – most parts of the geoproduct are not created/developed by a local company/producer; 4 – most parts of the geoproduct are created/developed by a local company/producer 5 – to-tally created and develop by a local company

B2. In what degree the connections between the identified geologic asset/s and natural and cultural heritage are documented?

The connection between the identified geological assets and natural and cultural heritage is well documented. Natural and cultural heritage is presented through museum collections, info points and panels which are on the way of the geobike tours. Geobike tours are also leading along beautiful and colourful nature, landscapes, rivers and waterfalls, as well as by farms, through settlements, villages and small towns where visitors can stay overnight and try traditional food.

1 – not documented; 5 – Very well documented

B3. Does the geoproduct tell more than a geological story?

The new Geoproduct tells more than pure geological stories. It is extended to explaining the history of the territory (Archaeological Museum of Pilgrims in Globasnitz/Globasnica, Iron Works museum Ravne na Koroškem, sacral monuments – churches Leše,...), biodiversity, plants and animals connected to special landscapes and related to the geological composition of the soil...

1 – only the geological story; 5 – many other stories connected to geology

B4. In what degree is the geoproduct directly connected to a specific community / person/s?

The geoproduct is connected to a high degree to the community and people because the sustainable local development is the main objective beside nature preservation. Tourists on the geobike tours will use municipal infrastructure which should be appropriate for different types of visitors (clean, safe, properly maintained...) while tourists will buy local products and services from local suppliers (organization of tours, guiding, transfer, food, drinks) and thus generate added value for the community.

1– not directly connected; 5 – Very well connected

Section C - A geoproduct has to have a practical and economical approach, as a tool for socioeconomic development inspired and supported by the geopark development.

C1. In what degree is the geoproduct new and innovative?

Geoproduct is new and innovative as it strongly connects classical biking outdoor activities with geological, natural and cultural heritage. The product was looking for innovative approaches, contents and trails. Thus we prepared a part of a new underground trail in Peca mountain, which is unique in the world. Geo-interpretation on geobike tours and educational



approach for school groups was enhanced. Together with school teachers we involved some new educational contents on the biked tours for schools and families.

1 – not new; 5 – totally new and innovative

C2. How detailed and clear has the geopark identified different types of partnerships in geoproduct development (e.g. produced by the geopark, supported by, produced in the territory of the..., etc ?

In the geoproduct development were included existing partners of geopark. Which still have label of Geopark partnership. With the joint development of the geoproducts we upgraded our cooperation and prepared the basis for further cooperation and made the basis for the possibility of cooperation with new partners. We included different restaurant, accommodation facilities, etc.

1 – not a single partnership; 5 – clear and detailed partnerships

C3. Did you use the geopark's geoproduct development criteria defined by the Geopark in the geoproduct development?

Yes, we used geopark's geoproduct development criteria defined by the Karawanken-Karavanke Geopark in the Geoblke product development.

1 – not defined/used; 5 – Very well defined/used

C4. Is the geoproduct sold in regular events (geo-fairs) organized by the geopark dedicated/integrating local geoproducts?

Not yet, but we will make a strategy how to promote our geoproduct in the future as part of the geopark marketing, and we will for sure promote it also on events organized by Karawanken-Karavanke Geopark.

1 – no; 5 – frequent events clearly targeted

Section D - A geoproduct is not simply another product sold in a geopark. A geoproduct comes with a deep connexion to Earth on a local level and has to generate interest and respect for the Earth pro-cesses that generated local geodiversity

D1. In what degree local producer/s are inspired by the local geodiversity / geoheritage in developing new products?

Local producers were very interested and inspired by introducing the local geodiversity and geoheritage in outdoor products. The reason for developing our product is the beautiful landscape and nature which can be explored and experienced with direct contact travelling through the Geopark area by bike. Nowadays people have not much time to plan their visit themselves. Because of that we prepared variety of tours, though which they have a chance to get to know the beauty and rich geological, cultural and natural heritage of the Karawanken-Karavanke Geopark.

1 – very low; 5 – very high

D2. In what degree the geoproduct/s are connected or supported by the interpretation infrastructure of the geopark (taking into consideration geological and cultural components of the geopark territory)?

The geoproduct was establish in the way that includes existing interpretation infrastructure of the Karawanken-Karavanke Geopark taking into consideration geological and cultural components of the Geopark territory.

1 – not connected or supported; 5 – Very well connected and support-ed

D3. In what degree the new geoproduct/s are promoted by the geopark?

New geobike offers are included in promotional channels of Karawanken-Karavanke Geopark, tourist providers, SME as well as in regional touristic boards and it will also be included in packages of tourist agencies. Furthermore the new Geobike offers are part of the regional touristic card system called “Regionskarte Tourismusregion Klopeinersee-Southcarinthia”, and it is offered as a weekly guided program for free to all tourists of the Tourist region of Klopeinersee-Southcarinthia.

1 – very low; 5 – very high

D4. In what degree were the producers involved in training courses and/or regular meetings as part of the geopark activity plans?

Local producers were invited to the training courses for Geopark guides, They are also regularly invited to events and special meetings organized by the Geopark Management and the Geopark partners. We introduced new geoproduct to our partners, SME, guides in meetings and training programmes.

1 – not at all; 5 – they are very much involved

Section E – A geoproduct is a combination of market opportunities generated by the geopark activities in tourism development and the ability to generate emotions of visitors to be interested to buy new products related to local Earth and people stories.

E1. Is the developed geoproduct connected to the geopark marketing strategy?

Yes, developing the geoproduct is connected to the Karawanken-Karavanke Geopark marketing strategy. In the Karawanken-Karavanke Geopark biking and hiking are two main products on which we build tourism development and they are part of the existing tourism development strategy and will be also important part of our upgraded marketing strategy. New geobike offers will be included in promotional channels of the Karawanken-Karavanke Geopark, tourist providers, SME as well as in regional touristic boards and it will also be included in packages of tourist agencies. The new Geobike offers are a part of the regional touristic card system called “Regionskarte Tourismusregion Klopeinersee- Soutcarinthia”, which is offered as an weekly guided program for free to all tourists of the touristic region of Klopeinersee-Soutcarinthia (overnights per year:~ 800.000).

1 – very low connection; 5 – very high connection

E2. In what degree is the geopark involved in development, marketing and selling of the geoproduct?

The Karawanken-Karavanke Geopark was in charge of the development of the geoproduct with the support of the internal and external experts with scientific as well as interpretation, outdoor sports and tourism marketing expertise. The geoproduct will be included and promoted in all Geopark and external partners marketing activities as well as through the Karaawanken-Karavanke Geopark info centers.

1 – very low; 5 – very high

E3. Does the geoproduct contributes to the promotion of the geopark values?

Yes, geo product contributes to the promotion of the Geopark values. New trends in tourism are active holidays, connected to nature, with experiences connected to discover natural and



cultural values of the region. People are looking for holidays with experiences and learning authentic local stories and people.

1 – very low contribution; 5 – very high contribution

E4. Is there any established mechanism to evaluate the geoproduct impact (financial, appreciation, satisfaction, recognition, etc.)?

At the moment we just evaluate tourists satisfaction at the info centers and at the local SME in the Karawanken-Karavanke Geopark, but in the next tourist season we plan to establish an evaluation system. From 2019 on we will monitor number of tourists booking the tours and propose a system to collect visitors feedback.

1 – no; 5 – a very well developed mechanism



5. Customer satisfaction

We tested our Black hole trail on 150 visitors (tourists, journalists, Enduro mountain bike competitors...) from opening in the end of the May, who gave us a first, very positive impression. They were impressed of the huge mine galleries made by miner hands through 350 years history. They liked the stories heard from local guides and the ability to see exceptional mineral Wulfenite, from Helena mine.

“Geopark Karawanken-Karavanke geobike Grand tour” and day tours for families and school children which were tested by Geopark managers, responsible for geobike tours, by guides and bikers from the whole Geopark area. They were of the opinion, that such kind of outdoor activities with strong connection to the geological history, geosites, natural sites and cultural sites of the Karawanken – Karavanke UNESCO Global Geopark are very innovative and could attract new type of more demanding tourists who would like to know more about the region, its geological and other natural features of the Geopark Karavanke. In our geobike tours all guides took part at an intensive Geopark-seminar to get in touch with all Geopark-topics, so they can transfer them to the visitors who booked the geobike offers. Some of the guides are also permanent staff of the geopark and have even deeper knowledge of the territory, its heritage and stories.

From 2019 on we will monitor number of tours booked and collect visitors feedback.

6. Conclusions and recommendations

6.1. Conclusions

On the basis of the guidelines developed through the project Danube GeoTour, the Project partner ARGE Geopark Karawanken-Karavanke, with external partners, developed a new innovative geoproduct named GeoBiking in the Karawanken-Karavanke UNESCO Global Geopark. We believe, a new geoproduct will significantly contribute to the further development of the special and unique tourist offer, which promotes the geological heritage as well as the natural and cultural heritage. Based on this experience and future feedback of the visitors, similar geoproducts can be developed for hiking or food in the near future.

The new products will strengthen the position and competitiveness also of the crossborder Karawanken-Karavanke Geopark area and contribute to the sustainable socio-economic development of the area through the income from visitors.

6.2. Recommendations

It is very important that we design new geoproduct according to the Geopark and partner real needs that can contribute to the sustainable development of the Geopark area as a whole. Only good cooperation between partners, external experts and the Geopark management team ensures that the new products come to life and become an added value of the Geopark or any other territory.



The Guidelines for the development of good geoproducts developed through the project Danube Geo Tour and the experiences gained through our first geoproducts shall be taken into account when further disseminating and developing the geoproducts within geoparks.

7. Bibliography

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- **UNESCO**, 2003. *Intangible Cultural Heritage*

8. Annexes

8.1. Output Factsheet



8.2. Maps of geobike tours in Karawanken-Karavanke UNESCO Global Geopark

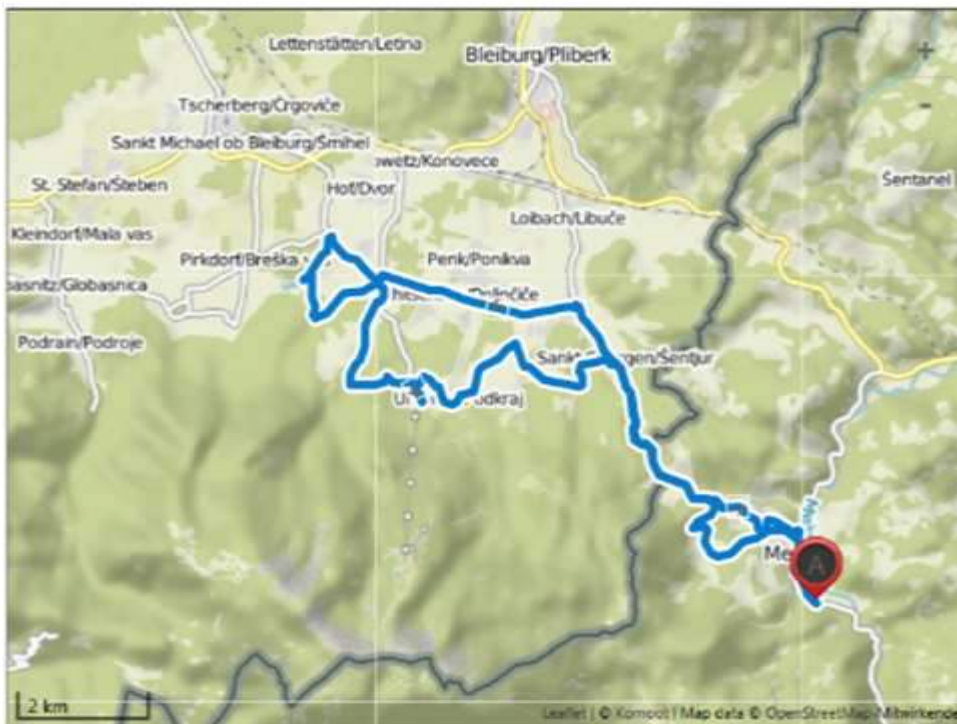
Map of the Geopark Karawanken-Karavanke Geobike Grand tour



Map of the Springs of the Mountain Peca Tour

GeoBikeTour Mežica - MT. PECA SPRINGS

 02:18  30,4 km  13,3 km/h  600 m  600 m



Map of the Old Mines Tour

GeoBikeTour - OLD MINES TOUR

🕒 02:23 ↔ 28,1 km ⌀ 11,8 km/h ↗ 670 m ↘ 670 m



Map of the green volcano Tour

