DIDACTIC UNIT IV

GEOPARKS AND EUROPEAN GEOSITES

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DIDACTIC UNIT IV. GEOPARKS AND EUROPEAN GEOSITES

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INTRODUCTION:

The guide is an important participant in geotourism, an authentic protagonist on the field interpretation of the geological heritage. Part of the guide' task is to enrich the visitor experience and protect the resource while guiding. If visitors have a deeper awareness of and connection with geoheritage they are much more likely to value and preserve it.

The main purposes of this teaching unit are to provide background knowledge about the elements of the geopark initiative and explain the still ongoing bottom up approach of the geopark development to the Geotur guide.

To make the interpreter able to understand the geopark movement and its potential in the regional and local developments with management challenges and to equip the guide with skills in order to be able to effectively take part in the heritage preservation, to become an active and qualified ambassador of his/her own geopark

MODULE 1: Sites of geological interest in Europe.

Well before the birth of the geopark idea special places of geological/geomorphological peculiarities captured the mind-set of humanity. The unique, exotic features of these areas perceived as aesthetic landscapes or holy, spiritual places attracted early tourists and artists since ancient times in Europe.

Before focusing on these areas, readers are referred to Didactic Unit 2 concerning terminology, for the definitions on Geodiversity, Geoheritage, Geosites etc., concepts that are constantly repeated throughout this chapter.

1.1. Overview of the geological heritage on the spot, geological sites and landscapes with scientific, educational, tourist and cultural relevance in Europe.

The geoheritage of Europe embraces a whole range of natural phenomena, through sceneries of majestic mountain ranges and waterfalls to the tiniest fossils, rocks connect us.

There are international advocates who popularise this heritage. As it is shown and described in the Didactic Unit 2 (DU2) the most significant ones are: the International Union of Geological Sciences (IUGS), through their GEOSITES Program, the UNESCO through the International Geoscience and Geoparks Programme (IGGP) and the European NGO association ProGEO. Please refer to the DU2 for the details about them.

The Global Geosites programme is also detailed in DU2, please look at it there.

The Geosites programme was an idea evoked by IUGS in 1994. The project was to involve the global geological community in providing inventory and data to support national and global outreach to protect geological resources for scientific and education objectives. Its aims were designed to mesh with national and global initiatives and address the issue to represent the diversity and richness of key geoscientific sites. 02IV_3.

In 1995, IUGS subsequently with the support of UNESCO and ProGEO, promoted the project to compile a global inventory and related database for the global geosites.

Unfortunately this project has not been accomplished yet, partly because of disagreements arising from the different personal perspectives. The lack of consensus on basic objectives and terms of reference among experts beside the scarcity of funds also contributed to the temporary failure. 02IV_4.

Not just on global, there has been no luck on continental, on European level so far either, to enlist categorized geosites into an integrated database, but efforts have been made to collect and summarise the geosite inventories country by country. Let us see some examples of them:

- The link of accessible national geoheritage inventories: https://geoheritage-iugs.mnhn.fr/index.php?catid=19&blogid=1
- Spain: http://info.igme.es/ielig/
  There are over 3500 geosites already uploaded, but these include the old geosite catalogues (1970s and 1980s) in full. Some regional catalogues are already completed by regional governments (Andalusia, Aragón, Basque Country and Catalonia), and the new catalogue underway since 2007 which is slowly being uploaded and updated.

This inventory is available only in Spanish, a very useful reference to the Spanish Geotur guides. The same applies to the Spanish geoheritage link. http://www.igme.es/patrimonio/default.htm

- Slovakia: http://apl.geology.sk/g_vgl/?jazyk=SK

The information on the important geological sites in Slovakia are stored in their database. Some sites are protected under Law. 543/2002 Coll. of 25 June 2002 on the Protection of Nature and Landscape by the highest – 5th or the 4th degree of protection as National Natural Monuments, Natural Monuments, Nature Reserves and National Nature Reserves, some of which are declared by the Convention on the Protection of World Cultural and Natural Heritage. Most of the stratigraphic and palaeontological sites are not protected by law, but from a scientific and academic point of view they are extremely valuable geological objects, which should be maintained for future generations as geological heritage.

From the 480 selected sites available at Internet around 90% are documented by photographs, drawings and contemporary postcards.

The popular texts are provided both in Slovak and English languages at an educational level equivalent to high school students."

- The Geoheritage in Europe and its conservation (ProGEO 2012) publication also has an outlook to European countries' geosites.

  For example in the Romanian chapter (Andrasanu et al. 2012) from the more than 450 geosites 38 sites were considered to be characteristic for the geological heritage of the country, 25 of them of international importance at that time. Hateg Country Dinosaurs Geopark (HCDG) was the first geopark in Romania. It is the result of grass-roots efforts which started in 2001. Established in 2004 as a natural
  park, it joined EGN and GGN in 2005.

- Universal geological values are recognized by the prestigious UNESCO World Heritage, at the end of 2019 the European (including Russia) list of natural and mixed designations contained 46 areas, all containing some elements of geoheritage. Some of these areas, like the Messel Pit Fossil site is part of an existing UGGp, the Bergstraße-Odenwald UNESCO Global Geopark (Germany).

- The European Diploma for Protected Areas (EDPA) is another prestigious international award granted since 1965 by the Committee of Ministers of the Council of Europe. It recognises natural heritage of exceptional European importance for the preservation of natural diversity and which are managed in an exemplary way. By the end of 2019, 74 protected areas have been granted the European Diploma. They are located in 29 European countries. Some EDPA, like the Ipolytarnóc Fossils in the case of the Novohrad-Nógrád UGGp, can be part and play an important role of a geopark.

The geoheritage is/or should be protected by national, regional and local laws and regulations according to its value, and it can be incorporated to protected sites.

- Link to the geoheritage national regulations and policies: https://geoheritage-iugs.mnhn.fr/index.php?catid=6&blogid=1

The popularized geological heritage of Europe is well-represented and stewarded by the management of the geosites within the European Geoparks Network (EGN) members.

This is not a surprise, the geosite is the cornerstone of the Geopark, and the GGN membership for an aspiring Geopark cannot be achieved without any protected geological heritage of international value in it. A geopark has to have an inventory, its own geosite database.

The application dossier asks for the listing and description of geological sites, about the details on the interest of these sites in terms of their international, national, regional, or local values (for example scientific, educational, cultural and aesthetic), about the current or potential pressure on the geological sites regarding their preservation and proper maintenance and their protection status within the aspiring Geopark.

Keeping the high standard of geoheritage management is expected from the EGN members too, those who fail in that field got excluded.

All types of exceptional values can be assigned for example to the Dolomites (Italy), El Teide (Tenerife, Spain), Hateg (Romania) or Somoska (Slovakia), beside the scientific, educational, cultural and aesthetic values can be presented by them.

Fragile and movable specimens of the geoheritage can be preserved by ex situ measures, in collections and museums, these places are also important assets of a geopark.

The Geotur guide should be able to characterise the geological heritage of his/her geopark and identify its geosites of international importance.

It is a good practice for the Geotur guide to recognize and enlist such geosites and with a holistic approach describe them.

1.2. Geosites as geotourism destinations with examples from Spain, Italy, Romania, Hungary and Slovakia.

It is the geosite (and its adjoining visitor facilities), where the quality of the visitor's experience determines the success of geotourism. One of the main tasks of geotourism is the transfer and communication of geoscientific knowledge (and ideas) to the general public, geosites are the best authentic fields for that. Most of the geosites as outcrops can be found in rural areas, but more and more urban geosites have been recognized.

As an extreme geoscientific program, there are special urban areas, where the trekking for heritage stones used for historical buildings is a really successful approach.

During the 15th EGN Congress in 2019 one of the field trips focused on the fossils in the monuments in the city of Seville.

According to its description that route represented a different approach to the most important monuments in the city of Seville. The promotion of the field trip: In the natural stone of its walls, columns and other architectural features are marine fossils from the Mesozoic and Cenozoic eras; the exchange of fauna between them is the central theme of this route. The materials found come from the Baetic Range and the Guadalquivir Valley. The route thus also approaches the geological history of Andalusia, all through an easy walk of about 3 hours through the most beautiful parts of the city.

There has been EGN efforts as well, partly through the network's working groups to popularise geosites.

The EGN Fossil Working group led by Dan Grigorescu organized two poster exhibitions on "Ancient lives in the UNESCO EGs", presented ,first in March 2019 in Aalen on the occasion of the 43th EGN meeting, and then in September, in Seville during the 15th UNESCO Global Geoparks conference.

Fig. 4. 1 - Miocene Fossil Poster

Dan Grigorescu suggested the following list of outstanding sites in the same stratigraphical order as was presented by the exhibited posters. All of them represent geotourism destinations.

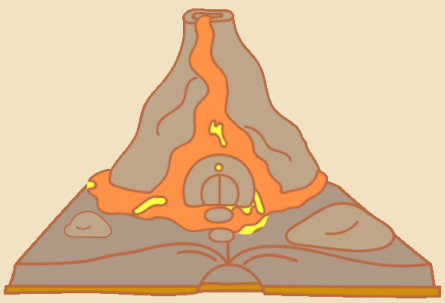
Ediacaran	Villuercas-Ibores
Cambrian	*Sierra Norte de Sevilla*
Ordovician	*Icnofossils in the Armorican Quartzite Formation- Naturtejo and Villuercas Ibores, Trilobites in the Arouca*
Silurian	*Carnic Alps*
Devonian	*Beginning of life on continents : Shetland ; Marine life -Vulkaneifel.*
Carboniferous	*Terrestrial forests: Terra Vita, Bohemian Paradise ; Marine life : Burren and Cliffs of Moher.*
Permian	*Terrestrial life : English Riviera, Bohemian Paradise; marine life : Terra Vita*
Triassic	*Terrestrial : Vulkaneifel; Marine life: Bakony-Balaton, Karawanke/Karawanken.*
Jurassic	*Swabian-Alb*
Cretaceous	*Terrestrial : Hatzeg, Bakony-Balaton; Marine life : Basque Coast*
Eocene	*Terrestrial : Bergstrasse-Odenwald, Les Causes de Quercy. Marine life : Sobrarbe.*
Oligocene	*Terrestrial : Luberon, Beigua ; Marine life :Beigua.*
Miocene	*Terrestrial :Lesvos, Novohrad-Nograd.*
Quaternary	*Cave- bear: Eisenwurtzen, Central Catalunya, Sobrarbe, Swabian Alb. Figurative artworks: Swabian alb.*

Table 4.1 List of EGN Geoparks with unique fossil sites

Such an example from the Novohrad-Nógrád Geopark is the Ipolytarnóc Fossils geosite, where a Lower Miocene paleohabitat and fossils were exposed, its outcropping stratotype section got established as a geological study trail with in situ sheltered excavations.The area provides wide-spread interactive recreational-educational opportunities based on its unique geoheritage and high-tech interpretative techniques, it has become one of the most visited geotouristic destinations in Hungary.

Fig. 4.2 - Fossil page of Ipolytarnoc

The EGN Volcanic Working Group led by João Carlos Nunes intends to publish an electronic book on volcanic sites of European Geoparks by the end of 2020, such as:



Geopark	Age/Time interval
Azores	*8My – 2001A.D.*
Bakony-Balaton	*8My – 2.6My*
Bergstrasse-Odenwald	*280My – 21My*
Bohemian Paradise	*540My – 4.5My*
Cabo de Gata	*14My – 8My*
Copper Coast	*460My – 440My*
El Hierro	*1.2My – 2011A.D.*
GeoMon	*860My – 55My*
Katla	*2.5My – 2011A.D.*
Keykjanes	*200ka – 1240A.D.*
Kula - Salihli	*1My – 15ka*
Lanzarote	*15My – 1824A.D.*
Lesvos	*21.5My – 16My*
Monts d'Ardeche	*12My – 30ka*
Novohrad-Nograd	*20My – 400ka*
Papuk	*400My – 18My*
Sardinia Mining	*475My – ~100ka*
Sesia Val Grande	*290My – 270My*
Swabian Albs	*15My – 13My*
Tuscan Mining	*2.6My – 2.1My*
Vulkaneifel	*45My – 10.9ka*

Table 4.2 List of EGN Geoparks with volcanic sites

Each aspiring Geopark must have its own geosite inventory, which has to be presented during the application process. For example in 2009 the Novohrad-Nógrád Geopark enlisted 76 geosites (5 international, 40 national and 31 regional significance).

Around the same time the province of Leon (Spain) selected 125 geosites (Fuertes-Gutiérrez et al. 2010) from their previously enlisted, initial 285 geosites under the criteria of:

- The site should posses a relevant intrinsic value (refer to ethical belief that some things are of value simply for what they are rather than that they can be used by humans);
- The site has to be representative of the geodiversity of Leon, every geological terrain and subject must be represented;
- As far as possible, every geographical area in Leon should be represented in the inventory and sites already protected (within protected areas) would be favoured (as a special demand of the regional government);

5 different categories were distinguished according to these criteria:

1. Points:

Small-sized (usually about 1 ha) isolated features, which are vulnerable because of their dimensions, their resistance to visitor pressures is quite low. They can be easily popularized by means of simple panels for their interpretation.

2. Sections:

Chronological (stratigraphical) sequences and/or features having linear spatial development (e. g., a gorge or some braided channels along a river). They are usually composed of smaller outcrops. In the event of one element being damaged, the whole sequence would lose value. That increases the fragility and vulnerability of sections.

Visitors should follow a marked route where they would find material for the understanding or interpretation of the sites. It is of the highest importance to preserve the whole section.

3. Areas:

Larger-sized sites including just one type of interest. Their fragility and vulnerability is low because of their dimensions.

They should be interpreted similarly to points, even though they can stand a higher pressure.

4. Viewpoints:

They include two different elements: a large area with geological, geomorphological interest and high aesthetic value beside an observatory from where the area may be viewed. The conservation of viewpoints should involve both the preservation of the observatory and the conservation of the landscape that is viewed, to avoid any activity that causes a visual impact.

Quite peculiar as far as their management is concerned: they can withstand high pressures as the geological sites of interest are at a distance.

5. Complex areas:

Large Geosites with a physiographic homogeneity. They are composed of several points, sections, areas, and/or viewpoints, sites with high geodiversity. The fragility and vulnerability of whole is quite low, but it must be understood that they are composed by elements whose status might be different.

They are sites that can be incorporated into the net of regionally protected nature areas (many of them are already included). They can sustain much use and visitor numbers and can be popularized using guides and/or designing itineraries along the various localities included in the complex area.

There are geosite case studies for this unit but they are incorporated to the Geopark Case Studies of Module 2, look at them there.

The Geotur guide should be able to identify and characterise the main geotourism destinations of his/her geopark.

1.3. Managing geosites within geoparks, short case studies from Spain, Italy, Romania, Hungary and Slovakia.

A geopark requires a stable, efficient, flexible and self-sufficient management structure with strong cooperation among the stakeholders, to fulfil the obligations arising from the protection, promotion, economic development and networking of the Geopark.

Although at the birth of the geopark initiative the main idea was to encourage bottom up approach and avoid multi labelling of already existing protected territories, the truth is that most existing geoparks' managements are built on already existing structures, where there is one organization in the background to provide staffing and financial stability to the geopark.

Most of those geoparks, which grew up by grassroots movements and created their own management structure are dealing with difficulties in all sides.

Among the present 81 members and 26 countries of the European Geoparks Network in 2020, several management models exist.

In Andalusia (Spain) 3 of 4 UNESCO Global Geoparks (Cabo de Gata-Níjar Geopark, Sierras Subbéticas Geopark, Sierra Norte de Sevilla Geopark, with the exception of the Granada Geopark) are previously designated Natural Parks and under the Junta de Andalucia.

Adamello Brenta UGGp's (Italy) core territory is the Adamello Brenta Regional Naturpark but it includes the areas of 40 municipalities outside the Naturpark.

Hațeg Country Dinosaurs Geopark (Romania) was a new designation, its creation was initiated by the University of Bucharest, which is still the scientific stakeholder and contract base with the Ministry of Environment for the geopark.

In Hungary the Bakony-Balaton UGGp is managed by the Balaton-upland National Park Directorate, the geopark team is among the staff of the Directorate.

The transnational Slovak Hungarian Novohrad-Nógrád UGGp's management structure stands on bilateral cooperation of NGO-s and main municipalities of both countries, including the important stakeholders, nature conservation authorities amongst them.

Most of the geosites in both countries are protected and managed by these nature protection agencies, for example on the Hungarian side by the Bükk National Park Directorate, even though it is headquartered outside the geopark.

To establish a unified visual appearance at the interpretation of the geosites a common layout was worked out and used even at the informative panels of the geosites.

Since a new management body had to be created by this grassroots movement (the geopark's border does not correspond to the outline of protected areas, although several protected landscapes and nature reserves are within its confine), stability is a main issue.

(All of the transnational geoparks are wrestling with same difficulties, to found able cross-border management organization the European Grouping for Territorial Cooperation (EGTC) as an European legal instrument seems to be adaptable in Europe.)

The above mentioned facts show that geosite management differs on the ownership of the property and the management structure of the Geopark in each case, even within the same country. But what is the same even if participation and methods can be different, they contribute to the mission of the geopark.

Fig. 4.3. The logo of Ipolytarnoc Fossils

For example the Ipolytarnoc Fossils Nature Conservation Area (within Novohrad-Nógrád UGGp) got state protection status by law in 1944. As the property of the Hungarian State it has been managed by the Bükk National Park Directorate (BNPD) since the 1980s.

Its main mission is to protect and to authentically and on high level interpret its unparalleled geological and palaeontological resources of the Lower Miocene epoch, the 23-17 million year-old marine and terrestrial sediments. A subtropical palaeohabitat was destroyed and at the same time conserved by a sudden volcanic catastrophe, that is why it is called as a Prehistoric Pompeii by the international scientific literature.

Because of the newest discoveries and geotouristic developments it has become an important nature tourism destination in the region. But the site does not focus only on its own heritage, the BNPD decided in partnership with the geopark to reshape some exhibitions. The site now promotes itself as the gateway to the transnational geopark with a visitor centre propagating the heritage and the other geosites of the region.

The Geotur guide should be able to characterise the management of his/her geopark, identify its main stakeholders and recognise those who are responsible for the most important on the spot, geosite management.

1.4. Potential for linking geosites thematically as continental geoheritage routes within a united Europe.

There is an increasing demand for multi-day long thematic route offers as destinations in the geotourism. Attractive geosites can profit from this interest, because through their heritage and accessibility they can be systematically classified and linked. These routes can provide regional and cross-country adventures as well. The can be marketed as special geoproducts, providing chances to local enterprises and cottage industries to grow.

Examples of regional geoheritage routes within national boundaries:

- The German Volcano Route invites its visitors to embark on a 280 km long discovery tour. The signposted holiday and discovery route connects 39 places of interest - as regards geology, cultural history and industrial history - which are related to volcanic activity in the Eifel.

- The Geopark Karawanken-Karavanke Geobike Grand tour has the duration between 5 and 7 days with a distance of 221 km. It connects five main points in the: 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.
  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 groups are mountain bikers.

- The suggested 900 km long Pannonian Volcano Route in the Carpathian-Pannonian region has more than 50 selected stops of volcanic spectacles. (Harangi 2014).

  A wide variety of volcanic features is presented to visitors, including maar lakes, cinder cones, lava flows, domes and bubbling springs. The fiery natural heritage is presented clearly and understandably in museums, visitor centres and mines.

  The sheer abundance of volcanic features and their integration into the historic and cultural traditions offers volcano tourists an extensive geodiversity to explore. The remarkable volcanic heritage has been embraced by the tourism industry and includes not only the dormant volcanic landscapes, but also attractions such as the local historic architecture, the vineyards established on the fertile volcanic soils as well as the natural mineral springs, which are utilised for health and wellness purposes.

This route has logical connections to neighbour countries and it can be extended to a continental volcano route.

Example for continental geoheritage route projects:

The Atlantic Geoparks Project as the European Atlantic Geotourism Route: The main objective of the project is to promote and disseminate the geological and cultural heritage of the Atlantic Geoparks as a basis for an economic development, culture and sustainable tourism strategy, beside to create a common identity and an internationally recognized image.

- The Atlantic Geoparks partnership is composed of three partners from Portugal, two from United Kingdom, three from Spain, three from Ireland and one from France. The partnership includes nine Geoparks, two aspiring Geoparks and a university, all supported by the Global Geoparks Network. It winds an intriguing transnational path from Ireland and the UK, to France, Portugal and Spain over to the Atlantic Islands of Lanzarote and down to the Azores.

  It links 12 dramatic landscapes that host vibrant communities, rich local cultures and unforgettable visitor experiences.

  The project is expected to have a significant influence on the increase in the number of tourists and visitors to the Geoparks; to boost the economic activity by creating new businesses and increasing the number of jobs in the service sector; finally and hopefully it will influence regional policies by sensitizing public authorities about the need to legislate and manage the geological areas under both, economic and environmental sustainable criteria supported by European policies and the recommendations of UNESCO.

  The European Atlantic Geotourism Route is expected to expand with the incorporation of new geological areas. Currently, there is no geopark recognized by UNESCO on the French Atlantic coast, so the project will help one French natural area to obtain this distinction, as well as new ones in Portugal and in Spain.

The Geotur guide should be able to thematically link some geosites of his/her own geopark to corresponding geosites of other geoparks and give ideas on multi-days long route geoproducts.

MODULE 2: UNESCO Global Geopark program in Europe, the European Geoparks Network.

Although there are other Modules, chapters dealing with the meaning of the geopark, yet since this term is a very complex and several definitions circulate it can be helpful to define the meaning of
the geopark from a special perspective here as well.

Geopark is an informal (non-statutory) term to describe complexes of geosites, or even small geosites that are promoted for touristic purposes. The label does not formally imply great scientific or heritage importance, but the capacity and utility of an area to be used for popularization and presentation of its interests. As well as visual and aesthetic appeal and suitability for education, another key hope and aim has been that local socio-economic gains will come from such popularisation. Such aims can be integrated with historical, industrial or other social interests or activities. The term geopark evolved from an original concept for development of "geosphere" reserves, which then (during discussion between UNESCO and ProGEO) was combined with the additional element of
sustainable economic gain.

Although the UNESCO Global Geoparks are in the front line and their recognition is the greatest, it is good to know that they represent only the peak of the geoparks community, geoparks are developed at
local and country level besides the global level (with regional branches).

It is a useful summary to enlist the main landmarks of the geoparks' development (revised except from Gonzalez-Tejada et al. 2017).

- 1988: The first international meeting on geoconservation (Netherlands). One of the results of this meeting was the establishment of the European Working Group on Earth Science Conservation, which evolved in 1993 into ProGEO (The European Association for the Conservation of the Geological Heritage).

- 1991: Signature of International declaration of the rights of the memory of the Earth at the First International Symposium on the Conservation of our Geological Heritage in Digne (France).
- 1993: Publication of the Malvern Resolution at the International Conference on Geological and Landscape Conservation in Malvern (UK).
- 1996: Proposition of Geopark initiative at the 30th International Geological Congress

in Beijing (China).

- 1996: "Development of geotourism in Europe" Project financed by LEADER II.
- 1999: First proposition of UNESCO Geoparks Programme.
- 2000: Creation of European Geoparks Network with 4 members.
- 2000: Nomination of National Geoparks in China.
- 2000-2001: Feasibility studies on developing a UNESCO Geosites/Geoparks Programme deciding not to pursuit the UNESCO Geosites/Geoparks programme but to support ad hoc efforts with individual Member States.
- 2001: Signature of Convention of Cooperation between UNESCO and the EGN.
- 2004: Establishment of the Global Geopark Network (GGN) including 17 European Geoparks and 8 Chinese Geoparks at the First Global Geopark Conference in Beijing (China).
- 2007: Creation of the Asia-Pacific Geoparks Network (APGN).
- 2009: Creation of the African Geoparks Network (AGN) by African Association of Women in Geosciences (AAWG) in Abidjan (Ivory Coast) in cooperation with IUGS and UNESCO.
- 2012: The UNESCO Global Geoparks initiative proposed during the 37th UNESCO General Conference.
- 2014: Establishment of legal statute of GGN as non-profit organisation subject to French legislation.
- 2015: The International Geoscience and Geoparks Programme (IGGP) approved during the 38th UNESCO General Conference, label for the UNESCO Global Geoparks achieved.
- -2017: Creation of the Latin America and the Caribbean Geoparks Network (GeoLAC) including 4 UGGp.
- -2019: Creation of the Transnational UNESCO Global Geoparks Forum by 4 UGGp.
- -2019: Creation of the African UNESCO Global Geoparks Network by 2 UGGp.

Creation stories are important, here it is, one example excerpted from the paper of Gonzalez-Tejada et al. (2017).

Towards the end of the 1970s, a local town councillor of Digne (France), looked at ways to boost tourism, to develop some activities based around the previously discovered fossils in the area, so he asked the University of Provence, to take a preliminary inventory of the site.

When this study, performed by a young student named Guy Martini, revealed tremendous geological treasures, the councillor argued for the creation of a geological nature reserve within the region of Haute-Provence. This was finally created in 1984, after a ministerial decree, with the aim of protecting a certain number of geological (essentially fossil) sites. It wasn't until 1989 that a prefectural order would throw a protective cordon around the site that would allow the preservation of the geological heritage but still without prohibiting its commercial exploitation.

It was here, in Digne (Haute-Provence geological nature reserve) that International symposium on the protection of geological heritage held in 199, which produced the important Digne declaration.

When the EGN was established in 2000, the Haute-Provence Geopark was among the 4 founding members, Guy Martini was among the signatories. In early 2020 Guy Martini is the General Secretary of the Global Geoparks Network and chairperson of the UNESCO Global Geoparks Council.

The founders of the EGN:

At the end of the 90's, four European protected areas of natural beauty decided to work together in order to benefit from the Leader II programme. The objective of this programme was to support innovative local development projects in deprived rural areas. In this way, the Vulkaneifel Natural Park in Germany, the Maestrazgo - Aliaga Geologic Park in Spain, the Haute-Provence Geological Reserve and the Petrified Forest of Lesbos in Greece came to establish a system of transnational cooperation based around geotourism. (McKeever et al. 2005).

This cooperative programme highlighted the geological heritage of the different territories, whilst also serving as a support for economic activity within them. In effect, the four territories represented rural areas facing problems of slow economic development, unemployment and a high level of emigration and they saw the possibility of enhancing the general image of the territory by linking geological heritage and development through geotourism.

In 2000, these four partners would become founder members of the European Geopark Network (EGN), which was opened to other European countries and received the support of UNESCO in 2001.

Around the same time, China created its own National Geopark Network reflecting the rising need for a global initiative to promote those geological heritage areas, which were not well recognized at that time.

Eventually, these two networks, under the auspices of UNESCO, gave birth to the Global Geoparks Network (GGN) in 2004, with 17 European Geoparks and 8 Chinese Geoparks represented at the First Global Geopark Conference in Beijing, China.

Challenges coming from the specific features of geoparks:

In most countries nature conservation is still essentially synonymous with biological conservation. Geoheritage has tended to be protected incidentally to the protection of biological, aesthetic and cultural values, rather than given recognition for their inherent geoscientific merit. While Geoparks in most cases do not consist of only protected areas, the majority benefit from other protective frameworks already in place within their territories (Nature Reserves, Natural Parks, etc.) which tend to allow the preventive conservation of the geosites. The recognition of Geoparks by UNESCO is part of the ongoing process of granting heritage status to abiotic nature.

The Geopark is considered an holistic concept embracing the objectives of geoheritage protection, education and sustainable local development, their synergy and interaction of strengthening each one of them.

To make this true, is a huge challenge for the scientific management of a geopark, how to promote its geological heritage whilst at the same time developing geotouristic activities that will stimulate local development and provide employment opportunities for the local population who will in turn become “ambassadors for their territory. In many cases local people don’t realise that they live in a Geopark. For example, even twenty years after its creation, only around 10% of the inhabitants of the Dignes Geopark in France are aware of its existence. How then, can they be expected to act as its ambassadors? (Gonzalez-Tejada et al. 2017).

It is good to know what kind of personal drives initiated the creation and evolution of the geopark concept and its reference to the local geopark, because of behind the stepping stones there are always personalities and stories, which are very important. The guide should discover them and relate to these during interpretation, which has to be colourful, cannot be limited just to naming dry facts.

2.1. The brief history and evolution of the Global Geoparks Network (GGN);

- 2004: Establishment of the Global Geopark Network (GGN).
- 2007: Creation of the Asia-Pacific Geoparks Network (APGN).
- 2009: Creation of the African Geoparks Network (AGN) by African Association of Women in Geosciences (AAWG) in Abidjan (Ivory Coast) in cooperation with IUGS and UNESCO.
- 2012: The UNESCO Global Geoparks initiative proposed during the 37th UNESCO General Conference.
- 2014: Establishment of legal statute of GGN as non-profit organisation subject to French legislation.
- 2015: The International Geoscience and Geoparks Programme (IGGP) approved during the 38th UNESCO General Conference, label for the UNESCO Global Geoparks.
- 2017: Creation of the Latin America and the Caribbean Geoparks Network (GeoLAC) including 4 UGGp
- 2019: Creation of the Transnational UNESCO Global Geoparks Forum by 4 UGGp.
- 2019: Creation of the African UNESCO Global Geoparks Network by 2 UGGp.

Regional Geopark Networks

1. Asian UNESCO Global Geoparks: Asia Pacific Geoparks Network (APGN). Website: http://asiapacificgeoparks.org/

2. European UNESCO Global Geoparks: European Geoparks Network (EGN). Website: http://www.europeangeoparks.org/

3. Latin American and Carribean UNESCO Global Geoparks: Latin American and Caribbean Geopark Network (LACGN). Website: http://www.redgeolac.org/

The GGN year of 2004

On Friday 13 February 2004 a meeting on geoparks was held in UNESCO Headquarters in Paris. In the meeting participated members of the Scientific Board of the IGCP, representatives of the International Geographical Union (IGU) and the International Union of Geological Sciences (IUGS), and international experts on geological heritage conservation and promotion.

The following items have been discussed and decided:

a. Presentation and establishment of the "Operational Guidelines for National Geoparks seeking UNESCO's assistance" (Global Geoparks Network),

b. The establishment of a Global Network of Geoparks,

c. The foundation of a Coordination Office for the Global Geoparks Network at the Ministry of Land and Resources in Beijing China.

If there is a Geopark network on a national level existing, the applicant geopark has to be first member of this network.

For Europe the already established cooperationagreement between UNESCO's Division of Earth Sciences and the European Geoparks Network, shall serve as the mechanism for integration of national Geoparks through the label of European Geoparks into the global UNESCO Network.

Fig. 4.4 Logo of the GGN

The Division of Earth Sciences was encouraged to confirm or initiate agreements at a regional (continental) level using the cooperation agreement with the EGN as an example.

During a closed meeting of the International Advisory Group of Experts the evaluation of the existing geoparks took place. It was decided to include 17 European Geoparks and 8 Chinese Geoparks in the Global Geoparks Network.

As a result the "First International Conference on Geoparks" was held in Beijing, China from 27 to 29 June 2004, in order to promote the establishment of a worldwide network of national Geoparks with the contributions from the international governmental and non-governmental community.

In October 2004 during the 5th European Geoparks Meeting held in Petralia Sottana, Madonie Geopark, a new agreement between the Division of Earth Sciences of UNESCO and the European Geoparks Network was officially signed.

According to this agreement: "A European territory wishing to become a member of the Global Geoparks Network must submit a full application dossier to the European Geoparks Network, which acts as the integration organisation into the Global Geoparks Network for the European continent. The Division of Earth Sciences of UNESCO recognises that the European Geoparks Network is the reference to follow for the creation of other continental networks of Geoparks."

Developments and present situation:

In September 2014 the Global Geoparks Network (GGN) became a non-profit organization subject to French legislation (the 1901 law on associations) and a non-governmental organization.

Now the GGN continues to expand, since its foundation in 2004, its members' list increased from 25 to 147 geoparks from 41 countries in 2019. While the GGN as a whole comes together every two years in conferences (2004 China, 2006 Northern Ireland (UK), 2008 Germany, 2010 Malaysia, 2012 Japan, 2014 Canada, 2016 England (UK), 2018 Italy, 2020 South Korea), it functions through the operation of regional networks, such as the European Geoparks Network that meets twice a year to develop and promote joint activities.

UNESCO is the only United Nations organization now with a mandate to support research and capacity in Earth Sciences. Its flagship is the International Geoscience and Geoparks Programme (IGGP), which stands on two pillars, the International Geoscience Programme (IGCP) and the UNESCO Global Geoparks (UGGp).

The GGN membership is obligatory for UNESCO Global Geoparks with an annual membership fee. It has developed a dynamic network where members are committed to work together, exchange ideas of best practise, and join in common projects to raise the quality standards of all products and practises of a UNESCO Global Geopark.

While expanding, the GGN is drawing in new expertise and knowledge from all parts of the world and different cultures. And it's always developing models of best practice and setting high quality standards for territories that integrate the preservation of geological heritage into strategies for regional sustainable economic development.

Fig. 4.5. Logo of the UNESCO Global Geopark

During the 38th session of UNESCO's General Conference in 2015, the 195 Member States of UNESCO ratified the creation of a new label, the UNESCO Global Geoparks. This expresses governmental recognition of the importance of managing outstanding geological sites and landscapes in a holistic manner, and also provides a new international status to a former network of sites of geological significance, preferably allowing the Organization to more closely reflect the societal challenges of Earth Science today.

Now the UNESCO supports Member States' efforts to establish UNESCO Global Geoparks all around the world especially in the developing territories without a Geopark, in close collaboration with the Global Geoparks Network.

A totally new era started with the creation of the "UNESCO Global Geoparks" (UGGp) designation. The introduction of international governance with"top-down" directives from UNESCO is a new challenge to the "bottom up approached" GGN.

The UGGps in contrast to other UNESCO designations are "bottom up born territories".

This innovative approach to the protection and sustainable use of Earth heritage by the UGGps is incomparable with the other site designations based on an international convention (like World Heritage) or an intergovernmental programme (like MAB).

The GGN is an Independent Body ruled by democratic Statutes and Rules of Operation, subject to the decision of the General Assembly of its members. The GGN is the partner of UNESCO collaborating with UGGp Secretariat for the UNESCO Global Geoparks. The GGN supports the programme providing extra-budget funds and strong in-kind contribution to the UGGp The GGN serves also as the financial mechanism for the collection of the Global Geoparks annual contribution to UNESCO.

The operation of the UGGp, has been beneficial to the UNESCO in so many aspects, like giving high visibility of UNESCO in local communities through national and regional medial publishing articles and news on UNESCO Global Geoparks and their activities.

The operation of the UGGp, have been beneficial to the UNESCO in so many aspects, like giving high visibility of UNESCO in local communities through national and regional medial publishing articles and news on UNESCO Global Geoparks and their activities.

During its development the GGN quality standard constantly increased, after the UNESCO recognition fundamental features were described the new applicant has to meet with.

The four features that are fundamental to a UNESCO Global Geopark are:

a) Geological heritage of international value.

In order to become a UNESCO Global Geopark, the area must have geological heritage of international value. The geological section of each new application is sent to the International Union of Geological Sciences (IUGS) for desk-top assessment. Based on the international peer-reviewed, published research conducted on the geological sites within the area, the IUGS makes a globally comparative assessment to determine whether the geological sites constitute international value.

b) Management.

UNESCO Global Geoparks are managed by a body having legal existence recognized under national legislation. This management body should be appropriately equipped to address the entire area and should include all relevant local and regional actors and authorities. UNESCO Global Geoparks require a management plan, agreed upon by all the partners, that provides for the social and economic needs of the local populations,protects the landscape in which they live and conserves their cultural identity. This plan must be comprehensive, incorporating the governance, development, communication, protection, infrastructure, finances, and partnerships of the UNESCO Global Geopark.

c) Visibility.

UNESCO Global Geoparks promote sustainable local economic development mainly through geotourism. In order to stimulate the geotourism in the area, it is crucial that a UNESCO Global Geopark has visibility. Visitors as well as local people need to be able to find relevant information on the UNESCO Global Geopark. As

such, UNESCO Global Geoparks need to provide information via a dedicated website, leaflets, and detailed map of the area that connects the area's geological and other sites. A UNESCO Global Geopark should also have a corporate identity.

d) Networking

A UNESCO Global Geopark is not only about cooperation with the local people living in the UNESCO Global Geopark area, but also about cooperating with other UNESCO Global Geoparks through the Global Geoparks Network (GGN), and regional networks for UNESCO Global Geoparks, in order to learn from each other and, as a network, improve the quality of the label UNESCO Global Geopark. Working together with international partners is the main reason for UNESCO Global Geoparks to be a member of an international network such as the GGN. Membership of the GGN is obligatory for UNESCO Global Geoparks. By working together across borders, UNESCO Global Geoparks contribute to increasing understanding among different communities and as such help peace-building processes.

Transnational UNESCO Global Geoparks:

In many cases, geological boundaries, shaped by rivers, mountain ranges, oceans and deserts, do not follow the boundaries drawn by people. UNESCO Global Geoparks, too, do not always follow human-made borders. Some UNESCO Global Geoparks therefore naturally cross national borders, connecting the peoples of different countries and encouraging intimate regional, cross-border cooperation. It is through this strong cross-border cooperation that transnational UNESCO Global Geoparks strengthen the relationship between countries and contribute to peacebuilding efforts. In 2008, the Marble Arch Caves UNESCO Global Geopark expanded from Northern Ireland across the border into the Republic of Ireland, becoming the world's first transnational Global Geopark. Situated in a former conflict area, this UNESCO Global Geopark is now seen as a global model for peacebuilding and community cohesion. UNESCO actively supports the creation of transnational UNESCO Global Geoparks – especially in regions of the world where there are none yet.

Knowing history, not surprisingly all of the still existing cross-border geoparks are found in Europe. That is why it is useful to know more about this new initiative, since this formula, the trans-boundary cooperation is among the eternal agenda of the UN and UNESCO.

Transnational UNESCO Global Geoparks:	
Global Geoparks	Countries
Karawanken / Karavanke UNESCO Global Geopark	Austria & Slovenia
Muskau Arch / ?uk Mużakowa UNESCO Global Geopark	Germany & Poland
Novohrad-Nógrád UNESCO Global Geopark	Hungary & Slovakia
Marble Arch Caves UNESCO Global Geopark	Ireland & United Kingdom of Great Britain and Northern Ireland

Table 4.4 – The list of Transnational UNESCO Global Geoparks

The first meeting of the Transnational UNESCO Global Geoparks Forum established by the 4 Geoparks took place in September 2019 in the Muskauer Faltenbogen / Łuk Mużakowa UNESCO Global Geopark (UGGp). The meeting concluded with the signing of the Łęknica declaration. The Forum, in accordance with the UNESCO IGGP goals encourages cross-border cooperation initiatives on other continents and intends to provide advice and information to aspiring cross-border geoparks in other regions around the World.

Declaration for the establishment of the Trans-National UNESCO Global Geoparks Forum Łęknica, (Muskau Arch UNESCO Global Geopark) October 18th 2019

"There is huge interest in the creation of trans-national geoparks on Earth. Our common geological background and landscape do not recognize political division and artificial borders. This philosophy gives strength to human communities, enabling them to join forces so that they can drive forward local cross-border cooperation in order to enhance their multifaceted heritage through synergized, environmentally friendly regional developments.

So far, there are only four cross-border global geoparks on Earth, all of them in Europe. These pioneer trans-national geoparks are helping to mend the wounds of history and have found common means to preserve their heritage and to enhance the well-being of their communities.

They decided to establish the Trans-National UNESCO Global Geoparks Forum so that they can share their experiences and work out common solutions for management practices under the framework of European economic and legal background.

The Trans-National UNESCO Global Geoparks Forum encourages cross-border cooperation initiatives on other continents and will provide advice and information to aspiring cross-border geoparks in other regions around the World."

The guide should know about his/her UGGp:

- ***The number under which it is registered on the lists of the GGN and EGN;***
- ***At what stage of the GGN development it got the membership;***
- ***How it fulfils now the demands of the 4 fundamental features of a UNESCO Global Geopark.***

2.2. UNESCO Global Geoparks in Europe.

The European Geoparks Network

The European Geoparks Network (EGN) is the regional network in Europe of the Global Geoparks Network (GGN), it includes all the GGN members located in Europe.

Fig. 4.6. Logo of the EGN

The Statutes of the Global Geoparks Network is the basic document of the EGN with the EGN Rules of operation. The internal Rules of the GGN, and the Code of Ethics define and complete these Statutes.

The use of the EGN name, acronym and logo is restricted to functions authorized by, and for the benefit of the EGN and its members.

At the beginning of 2020, when celebrating its 20th anniversary, the EGN as a regional affiliate of the GGN had 75 members on their list, representing 26 countries, including 4 transnational UNESCO Global Geoparks amongst them.

Fig. 4.7. EGN map in 2020

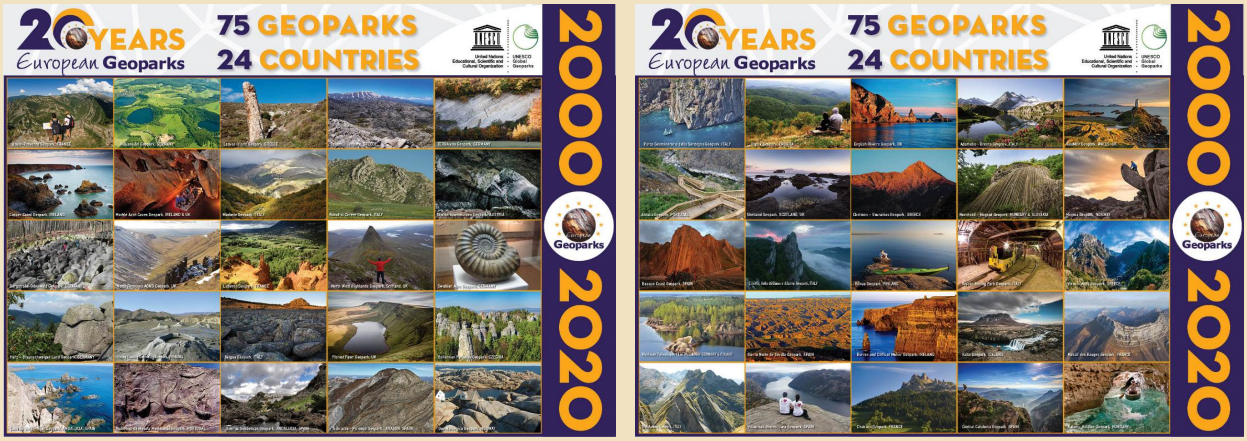


Fig. 4.8 EGN banners for the 20th anniversary of its Existence

The EGN coordination cellule is the official contact office for the EGN, its location can be modified by a decision of the EGN Coordination Committee.

At present the Coordination Cellule of the EGN is in the Haute Provence UNESCO Global Geopark at the Musée Promenade, Montée Bernard Dellacasagrande, 04000 Digne les Bains, France.

Categories of Membership		
GGN Institutional Members	*UNESCO Global Geoparks located in Europe*	*They have to designate two persons to represent them at the EGN Coordination Committee*
GGN Individual Members	*Global Geopark Professionals*	*Persons who have combined or proved professional experience in Global Geopark management from a European country*
GGN Honorary Members		*Persons who have rendered exceptional services to the international Global Geopark community or to the GGN from a European country.*
GGN Cooperating Members	*International Organizations, institutions or persons providing substantial financial or other assistance to the EGN because of an interest in Global Geoparks and international co-operation between Global Geoparks, from a European country*	*They can designate 1 person to represent them at the EGN Coordination Committee*

Table 4.3 Categories of GGN membership

The Committees of the EGN:

- **Coordination Committee:**

The Coordination Committee is the only decision making committee of the EGN, regarding regional issues. The CC meets regularly, at least twice a year, each time hosted in a different Geopark, to discuss the Network's progress and to coordinate joint programmes and activities between members.

The CC comprises the 2 official nominated representatives of each Geopark, GGN Individual members from Europe plus the representative of UNESCO, IUGS and IUCN.

The Institutional members in EGN Coordination Committee are represented by two representatives from each European Geopark, one is an Earth Scientist (using a broad a definition of that term) with experience in geological heritage protection and/or promotion and the other is a Geopark manager or a specialist on local development / community involvement / tourism.

During the EGN CC meetings each representative of the institutional members and each individual member has one vote, UNESCO, IUCN and IUGS do not have voting rights in the CC.

No individual can officially represent more than its own Geopark or Aspiring Geopark. This refers in particular to the official positions as mentioned in the Geopark Application Document. An official Geopark representative cannot provide private paid consultancy (by contract) to other Geoparks or Aspiring Geoparks.

- **Advisory Committee:**

The Advisory Committee is made up of specialists in sustainable development and the enhancement and promotion of geological heritage. These specialists include representatives of the zones that originally initiated the EGN plus elected members and representatives of international structures working in the area of enhancement of geological heritage (UNESCO, IUGS, IUCN). The Advisory Committee provides advice on all issues concerning strategy, external relations and the nomination and integration of new zones within the network. The AC has no decision making ability.

The AC advises on particular topics of discussion within the network, including the admission of new members, but does not have the ability to take decisions for the network.

The EGN members networking is strengthened by the contributions of the National Geopark Fora / Committees and the internal, thematic working groups, led by catalysts. National Geoparks Fora were established in several countries after a decision of the EGN Coordination Committee in 2007. A National Geopark Forum or Committee, including all the members of the EGN resident in a State, is working to promote Geoparks at the national level. It may be authorised to organise activities of the EGN/GGN in that State.

National Geopark Forum exists in Spain, Slovakia and Italy, it is under creation in Hungary and still does not exist in Romania.

The real strength of the EGN is shown by the year-long activities, productive networking of its thematic working groups (GGN - EGN National Fora, GGN-EGN Funding, Volcanic, Fossils, Mining, Intangible Heritage, Educational, Geohazard, Sustainable Development, Tourism and Communication).

The financial burden of networking as a member of the GGN in Europe:

Beside the costs of the geopark's 2 delegates' obligatory attendance of the annual meetings and the membership fee (1500 € in 2019) and covering the 2 re-evaluators' costs in every 4 years, the EGN member has also to cover an annual promotional fee (500 € in 2019) for the publication and distribution costs of the EGN magazine, the operation of the EGN website and other EGN promotional activities.

2.3. Past and Present Members of the European Geoparks Network (EGN) and potential, aspiring geoparks from Spain, Italy, Romania, Hungary and Slovakia.

The European Geoparks Network (EGN) was established by 4 geoparks in 2000. Membership has increased over time, but this is not a one way progress. Since it is limited to a period of 4 years, a re-evaluation process takes place, a former member might loose its membership status, such events have happened, failed geoparks got excluded from the EGN.

Despite of such setbacks the membership number steadily increased and reached 75 members, representing 26 countries by the end of 2019.

There were 13 UGGps in Spain, 10 UGGps in Italy, 2 in Hungary, 1-1 in Romania and Slovakia at that time. New aspiring Geoparks, like the Courel Mountains (Spain), Aspromonte (Italy) or red card, given to revalidated UGGp may change these statistics soon.

Brief descriptions of some European UNESCO Global Geoparks from Romania, Spain, Italy, Hungary and Slovakia.

Hateg Country Dinosaurs Geopark – ROMANIA - Number 18 on the EGN list in 2019.

The Haţeg UNESCO Global Geopark is located in the central part of Romania, in Southern Transylvania near the main routes to Hungary, Serbia and Bulgaria. The relief has an amphitheater shape with a central piedmont plain, with terraces and meadows surrounded by the picturesque mountain chains of: Retezat, Sureamu, Tarcu, Poiana Rusca. Its vegetation ranges from alpine shrubs and grasslands, spruce fir, beech forests to sessile oak forest some of them already turned into fields and grasslands. Animal fauna is very divers, comprising among other hundreds of species bears, wolfs, lynxs, deers, marmots, and birds.

The UNESCO Global Geopark area represents a tectonic basin developed as response to collision of tectonic plates at the end of the Cretaceous, followed by tectonic subsidence during the closure of the North Tethys Realm. Jurassic to Pleistocene sedimentary rocks cover the basement of Precambrian – Paleozoic metamorphic and magmatic rocks. Paleogeography reveals Haţeg area was part of an archipelago of islands during Late Cretaceous. Quaternary glacier features, old quarries and a closed copper mine exploitation are also part of the geological heritage.

The region is world famous for its dwarf dinosaurs, also known as the “dwarf dinosaurs of Transylvania”, from the end of Cretaceous, 65 million years ago. The Geopark celebrates this special heritage. More than ten dinosaur species, both herbivorous and carnivorous, have been found in fossil fluvial and lake deposits. Of particular interest, dinosaur eggs and hatch-lings were also discovered in the same deposits. Other associated fossils within the same deposits, like flying reptiles, birds, mammals, lizards, snakes, frogs, crocodiles and turtles offer a bigger picture about dinosaur’s world and their aftermaths. Most spectacular is a huge pterosaur, or flying reptile, that was named Hatzegopteryx after the region and the town. This enormous creature, perhaps the largest flying animals ever, had a 12-meter wing-span. Also well documented at the Geopark are the volcanic rocks-tuffs, lavas and craters that mark eruptions that took place during the age of the dinosaurs.

Pictures landscapes and glacial mountain lakes provide the setting for a long human history that stretches from the Paleocene to Roman Antiquity and into the Middle Ages and today. The area is very famous for its historical and cultural sites covering in time a history of more than 4000 years. Impressive are the ruins of the ancient Roman capital of the Dacia province at Sarmizegetusa Ulpia Traiana. The numerous medieval

churches and fortresses, as well as the remains of more recent castles, are important cultural heritage. Today Haţeg UNESCO Global Geopark covers 11 municipalities and 80 civil parishes and has a population of 38,500.

All the natural, historical and cultural sites of Haţeg are integrated into the management plan of the Geopark. This plan preserves the sites in order to allow visitors to experience the area's heritage. The development of sustainable tourism in the region is a major objective of the Haţeg UNESCO Global Geopark, for which farm accommodation, trails and interpretive signs are planned. Among the new attractions, the creation a dinosaur museum with life-size reconstructions of the species from the Haţeg region is the most important.

The UNESCO Global Geopark has activities in education, public awareness, land planning, and nature conservation, encouraging research and education. Interdisciplinary projects are developed by university teachers and students every year. The UNESCO Global Geopark is subject for a MSc program and a case study for the online course European Seminar in Sustainable Development. EDU-Geopark Network was created in partnership with local schools to sustain educational and training programs for kids, teachers and professionals. New courses for local curricula (Discovering the backyard Nature, Local traditions, Geotourism), training courses for tourism guides and educational events are supported. Explorers Clubs are established in 12 schools and Volunteers for Geoparks is a new program to support young people's involvement in local projects. Small info museums and geo-trails developed in partnership with local associations and communities promote geological heritage. Traditional activities and local products (handicrafts, brandy, cheese, meat) are supported in partnership with Women Association as part of the local strategy to promote geotourism and ecotourism. http://en.hateggeoparc.ro/.

2.3.1 Sierras Subbéticas Natural Park & UNESCO Global Geopark – SPAIN - Number 24 on the EGN list in 2019.

Sierras Subbéticas UNESCO Global Geopark is a mountainous area located in the central part of the "Betic Mountain Range" (South of Cordova province) coinciding with the geographical centre of Andalusia. Olive groves dominate the low and medium lands and represent the main economic activity. Mediterranean ecosystems characterize the UNESCO Global Geopark, where endemic species of flora remain isolated in the cusps after thousands of years.

This geopark is noted for its impressive karstic landscape. Massive limestone and dolostone mainly outcrop in higher terrains, where karst show a great variety of elements (poljes, great dolines, karrens, a recently occurred ponor and a dense network of cavities with about 900 caves and abysses inventoried). A very continuous and well exposed series of sedimentary rocks offer fundamental information about the last 230 million years of Subbetica's geological history.

Invertebrate marine fossils are very abundant, but the most important for their richness and scientific interest are ammonites. The UNESCO Global Geopark represents an extraordinary example of the evolution of the distal part of the South Iberian Margin (External Zones of the Betic Mountain Range) during Mesozoic. Extensive outcrops of condensed-pelagic facies (ammonitico rosso) yield abundant invertebrate fauna. Ammonites show very high diversity and abundance. The rich ammonite-bearing series permit high resolution bio-magnetostratigraphic studies that evidence the completeness of the stratigraphic record, especially that involving Jurassic-Cretaceous boundary. More than 80 new ammonite taxa have been defined from samples extracted in Sierras Subbéticas.

Associated to the karstic system important aquifers provide with fresh water the inhabitants of the district and the surroundings, and attracted first humans to settle in the area during Palaeolithic times.

The flora and fauna is particularly adapted to rocky environments and more than 1,200 plant species are catalogued, including at least 30 endemic species and several threatened species. Fungi are of exceptional interest, in particular regarding the diversity of the truffles.

The total population of Sierras Subbéticas UNESCO Global Geopark is 74,067 inhabitants (2002). Typical small white villages are located at the boundaries of the Geopark.

The Geopark is making continuous efforts to preserve and promote its valuable natural heritage. Annual courses are offered aimed at increasing general environmental awareness, knowledge of geological heritage and its close relation to natural and human history. There are important facilities to promote Geotourism: two Visitors' Centers, a Mycological Garden (the first of its kind in Europe) and several geological routes. The involvement of local communities through collaboration with entrepreneurs, teachers, artists, politicians, etc. is essential to achieve the goals of a Geopark.

The Management Plan of the UNESCO Global Geopark guarantees sustainable development as well as environmental education in the whole territory. The management body controls the activities carried out by enterprises and landowners through an authorisation control system. A PDS (Sustainable Development Master Plan) was launched in 2004, which is updated periodically. A second PDS is projected to be written, with the participation of a working group that involves all local actors. Approximately thirty enterprises are involved with sustainable development and collaborate closely with the park, through the establishment of the "European Charter for Sustainable Tourism" and the ecolabel "Andalusian Natural Park".

With regards to environmental education, several programmes are offered in the UNESCO Global Geopark: "Nature and you", for primary and secondary school and "The environmental rangers visit our school" for primary school. Training courses have been carried out for teachers. Popular science material and UNESCO Global Geopark infrastructure have been designed to be used as an excellent tool for education, in combination with activities in Nature.

2.3.2. Adamello Brenta UNESCO Global Geopark– ITALY - Number 30 on the EGN list in 2019

The Adamello-Brenta UNESCO Global Geopark is located in the Rhaetian Alps, the Italian sector of south-central Alps, in the western part of Trentino between Giudicarie, Non and Sole valleys. The Adamello-Brenta UNESCO Global Geopark represents a "key area" for understanding the geological history of the Alps and is characterized by strong geodiversity due to the presence of two big mountainous massifs (Adamello and Brenta) which are very different geologically and geomorphologically. For their scientific importance and beauty, the Brenta Dolomites were recognized as World Heritage Site of UNESCO in 2009.

The territory is characterized by the presence of the tectonic boundaries between the Austrian Alps and the Southern Alps and of the crossover of three structural segments of the Periadriatic Lineament. The geological units are testimony to a long and complex geological evolution that started in the Lower Paleozoic (ca. 400-500 million years ago): the main steps of this evolution are clearly defined from the pre-alpine orogeny, from the long phase of lithosphere extension that led to the genesis of the Adriatic passive margin, and from the Alpine orogeny, started in the Cretaceous (ca. 140-65 million years ago) and still going on (neo-tectonic, seismicity). The landscape shows evidences of the glacial morphogenesis that has intensely remodeled the area and also of the karstic phenomena, in the Dolomites group, both at the surface and at depth.

The Geopark's geodiversity is also linked to the biodiversity that governs the natural development of endemism, with more than 1,400 species of flora and almost all the species of the Alpine fauna.

The Geopark comprises the whole territory of the Adamello-Brenta Nature Park, the largest protected area in Trentino and one of the largest areas in the Alps, and the 38 municipalities belonging to it.

The geological peculiarities had a determinant influence on the lives of people in this area, and this interaction underlines the indissoluble union between human activities and their geological-environmental context: ancient shepherds' huts and precious artefacts speak of the knowledge of the Alpine culture.

The Adamello-Brenta UNESCO Global Geopark is committed to environmental education: on the themes of geology, ecology, conservation strategies, preservation of knowledge on local traditions and historical-cultural values and the implementation of joint participatory sustainable development policies. Many education projects are carried out with thousands of students every year, from the guided visits to the Park's Visitor Centres, through residential activities in the Park's houses, to classroom activities and field trips in the UNESCO Global Geopark. During summer several activities are organized in cooperation with local tourism bodies involving tourists and residents. All the work carried out by the Geopark is done following the principle of the European Charter of Sustainable Tourism, obtained since 2006

2.3.3. Novohrad– Nograd UNESCO GlobalGeopark – HUNGARY – SLOVAKIA - - Number 36 on the EGN list in 2019

The transborder Novohrad – Nógrád Geopark is part of the Pannonian basin in Central Europe comprises the administrative area of 64 settlements in Hungary (including urban county Salgótarján) and 28 settlements in Slovakia. The total area is 1.610 km2 (1. 272 km2 in Hungary and 338 km2 in Slovakia).

Being transnational, the name comes from the Slovak and Hungarian names of the very county, where the Geopark is located. The area is a recognised important centre for the Palóc ethnic group's folk art and living traditions. (For example the UNESCO World Cultural Heritage enlisted Hollókő is within its confines.)

The geological heritage of the Geopark includes diverse volcanism, represents the last 30 million years from the birth of the Pannonian basin.

Within a relatively small area a wide spectrum of volcanic activity can be investigated. Devastating pumice flows, andesitic stratovolcanoes formed under the sea and on land, long dyke networks , a basalt plateau which is noted amongst the largest uninterrupted examples in Europe, deeply eroded vents of andesite and basalt volcanoes, diatremes and a real speciality, the bundles of regularly shaped, arcuated rock columns derived from the slow cooling of the basalt and andesite lavas.

Several landscape protection areas and other protected territories belong to the Geopark. The region of the River Ipoly is an area of the NATURA 2000.

The most famous fossil site of it is the European Diploma holding Ipolytarnóc Fossils (https://www.osmaradvanyok.hu/), which is a world-recognised "Prehistoric Pompeii" due to a volcanic catastrophe, which destroyed and at the same time conserved a terrestrial paleohabitat. Managed by the Bükk National Park Directorate it has been running its in situ interpretative centre for the public since 1985.

Since its creation in 2008 the Geopark has been managed through a cross-border Slovak-Hungarian partnership. A common geopark identity manual was created and is used in the heritage interpretation, common actions target the widest audience from elementary school children to retired people, the geopark constantly gets the attention of the media.

History of the last century broke the territory into two halves, artificially separating communities and dividing landscapes by political border. The Geopark grassroots movement, inspired by enthusiastic locals on both sides of the frontier, has been building on the rich heritage of the area. By linking these attractions in an effective network within the Geopark, a mission can be achieved. The Geopark reunites people and landscape again.

2.3.4. LAS LORAS UNESCO Global Geopark (Spain) -Number 70 on the EGN list in 2019

Las Loras UNESCO Global Geopark is located in Spain, in the north of the Castilla and León Autonomous Community. The UNESCO Global Geopark is halfway between the Castilian Plateau and the Cantabrian Mountain Range. This transitional location gives the region the typical weather and environmental features of the surrounding regions. It also possesses a wide range of environments and biodiversity, with both Euro-Siberian sites as well as Mediterranean sites. In addition, the unusual topography resulted in a peculiar landscape where limestone cliffs and significant high altitude moorlands alternate with gorges and deep valleys sunk by the existing river system.

The territory of the UNESCO Global Geopark is located in a prime position to improve the understanding of the stratigraphy and sedimentary evolution of the Mesozoic deposits in this sector of the Basque-Cantabrian basin. There is an almost complete record from the Late Triassic (ca. 215 million years ago) to Paleogene (ca. 60 million years ago) with exceptional outcrop conditions. The territory has an important structural interest since it is possible to reconstruct in detail the fracturing ("rift") and structures, which occurred during the Upper Jurassic-Lower Cretaceous and during the Alpine orogeny.

Paleontology and geomorphology are other highlights of the geological heritage of the territory. There are many important paleontological sites such as Upper Jurassic floral macrofossils, skeletal remains of a Camptosaurus and also important Upper Cretaceous rudiste and coral colonies.

There are many important examples of morphogenetic systems, such as karst, scattered throughout the UNESCO Global Geopark. The morphology of the area is controlled by the different hardness of the Mesozoic substrate materials, as well as by the geological structures of the sedimentary rocks layers. In this sense, the limestones and dolomites are the competent materials compared to the loams and sands, which erode more easily. This generates the development of large and deep canyons excavated by the current river network.

The Mesozoic moorlands or “Loras” are undoubtedly the geological element, which characterize the best the region’s landscape and they are also the common feature among its whole geography. The Loras are the spatial and physiographic frame that perfectly defines the Geopark’s territorial scope. The Loras present both a connection between the geology, landscape, and cultural singularities, which is not present in other nearby areas. The presence of several castros (forts), almost one for each Lora, and the uses that humans traditionally have given to this territory throughout time, give an exceptional coherence and cohesion to this UNESCO Global Geopark.

It covers 16 municipalities of the Burgos and Palencia regions. The area has an extremely low population of less than 15,000 inhabitants. The depopulation of rural areas, one of the most pressing problems in the region, takes on a special meaning in this district, where the population density of many of its municipalities is under seven inhabitants/km2. Arable and livestock farming are the main means of livelihood for these municipalities’ inhabitants, along with the biscuit industry in Aguilar de Campoo. The oil industry is also present in the territory with the only onshore oil field in the Iberian Peninsula located in Ayoluengo.

Currently the UNESCO Global Geopark has 12 geological areas with more than 90 geosites, 16 natural sites and 81 cultural sites. A Geopark guide and various educational and informative material has been published. There are also four geological itineraries available. Almost all the schools and villages in the region participate in lectures or undertake fieldtrips. In addition, university students can participate in these field excursions.

The guide should be able to give about his/her UGGp a brief description about its natural and historical resources on high school level.

2.4. Life beyond the GGN, categories of Geoparks with examples from Spain, Italy, Romania, Hungary and Slovakia.

A number of countries are currently establishing or have established national committees responsible for coordinating Geoparks at national level and the submission of candidates for UNESCO Global Geopark designation.

There are national geoparks, which do not aspire for whatever reasons to becoming global (cannot present the fundamental features described for the UGGp or financial consideration, etc.), yet they are proud of their geoheritage and represent a strong basis for the global geoparks movement. National Geopark Forum or Committee exists in several EGN countries, Spain, Slovakia and Italy included.

- a) The Spanish Geoparks Forum coordinates the work carried out at the national level related to the Global Network and UNESCO, in addition to dealing with the correct dissemination and information suitable in new projects. It coordinates the efforts of the Spanish Geoparks, to encourage their development and to foster relationships among its members through the organization of events and common projects and acts as interlocutor of the Spanish Geoparks to the GGN for those aspects that are not addressed in the GGN meetings.

- b) The Slovak National Geoparks Network. In Slovakia the national geoparks' concept was accepted in 2008. The Interdepartmental Commission of the Geoparks Network (Commission) of the Slovak Republic(SR) was constituted in 2015 that has the statute of the advisory body of the Minister of Environment and is composed of representatives of all ministries involved, both professional and academic spheres. The Commission fulfils tasks of the National Commission for Geoparks and in accordance with the concept it represents the Managing Committee of the Geoparks Network of Slovakia.

  At the end of 2019 three geoparks are in function in Slovakia: the Banská Štiavnica Geopark, the Banská Bystrica Geopark and the cross-border Slovak-Hungarian Novohrad-Nógrád Geopark.

Fig. 4.9 Logo of the Slovak Geoparks Network

The official declaration of the Geoparks Network (GN) of the SR with its logo and awarding the title "Geopark of the SR" for the 3 active geoparks resulted from procedural rules of the concept for awarding membership in the GN as a new support for the UNESCO initiative in the territory of Slovakia in 2016. With this step meeting the targets of Agenda 2030 was facilitated on one side, and on the other side awareness of the society about geoparks was expected to increase, whereby local initiatives in any other potential territories in Slovakia will be encouraged for the purpose of constituting geoparks or providing geotouristic services.

The purpose to the establishment of a geopark in these territories (mainly in economically less developed territories) is to stimulate the complex approach to the management, protection and presentation of the heritage of the Earth in combination with the sustainable and economic development that is based on the ecologically considerate tourism.

The Banská Štiavnica Geopark. In the 601 km2 large area (which coincides with a Protected Landscape Area) the massive Štiavnica stratovolcano dominated the landscape during the earlier Tertiary. At its foot, this stratovolcano had the diameter of 50 km and probably reached the height of about 4,000 m. With its dimensions, the Štiavnica stratovolcano is the highest volcano in the whole area of the Carpathian Mountains.

The geohistory with its representative 63 geosites and the ore mining heritage makes the territory unique in the world. The town of Banská Štiavnica and technical monuments in its surroundings is on the UNESCO World Cultural Heritage List.

These values created the framework for the establishment of the Banská Štiavnica Geopark, to ensure a harmonic, balanced and sustainable development of the territory and improve the quality of the landscape.

Banská Bystrica Geopark. The region of Banska Bystrica is unique because of its varied geoheritage (crystalline complex, classic Permian rocks, Mesozoic carboniferous rocks with caves, Neogene volcanic rocks, Holocene travertine, rare minerals first described there, 46 geosites) and its mining heritage.

Before the discovery of America this region as part of the Hungarian kingdom was noted for the largest copper deposit in the then known world, at least thought so by the Europeans. The towns of Banska Bystrica and Kremnica were the centres of entrepreneurial families of Thurzo and Fugger, who mined precious metals (gold, silver and copper) in the surroundings of these settlements and exported them to other parts of Europe. Many monuments connected to mining can be still found there.

The geopark project was initiated and prepared with the active cooperation of the regional, local self-governments, professional institutions in the territory and representatives of the private sector. The geopark is managed by an organization of a public-private partnership.

There are aspiring geopark projects as well (Little Carpathian Mountains, Sandberg-Pajstun and Zemplín) intending to become members of the National Geoparks Network in Slovakia.

In Hungary the aspiring geopark of the Bükk-region is in advanced preparation, but other geopark initiatives surfaced too. The Hungarian Geopark Committee is responsible for leading the geoparks on national level.

Case studies can provide an insight to the transformation process and the practical work done at the existing geoparks and their geosites. These examples followed a template, they can be found in the next pages.

The case study of the Hateg Country UNESCO Global Geopark (HC UGGp)

Geopark characterization

Who nominated your Geopark and when for the first time?

Hateg Country UNESCO Global Geopark (HC UGGp) is the result of a grass root effort which started in 2000 and was initiated and coordinated by University of Bucharest now in charge with the management. The geopark area is located in south west Transylvania, has a surface of 1100 sq km, comprises 12 mayoralties, 84 villages and more than 40,000 inhabitants.

When did your Geopark get the GGN membership?

In 2005

What was/is the mission of your Geopark?

To sustainably develop the local communities based on research, education and promotion of the local geodiversity, nature and culture heritages.

Did your Geopark had a slogan and logo as a special identity at that time? Please give them and describe their meaning.

"Journey through Ages" – the idea that when you travel to the geopark, you have the privilege of traveling in time, from deep geological time to the age of humans.

The logo is a stylised dinosaur, with 3 significances:

- The dinosaur has a friendly, not dangerous look, because most of the dinosaurs in Hateg were dwarves.
- The form is derived from a celtic shield discovered in the territory, It is also an acronym, a D and a G, from Dinosaurs Geopark.

Did your Geopark correspond with other territorial designations, meaning had the same boundary as a national or nature park etc?

It was designated on the national level as a natural park, because the geopark label was not present in the Romanian legistlation and is overlapping three Natura 2000 sites. Also there are some site on the Tentative List for UNESCO WHS.

The case study of the Hateg Country UNESCO Global Geopark (HC UGGp)

Enlist the main geological times, which are represented in your Geopark:

The rocks in our geopark are covering 600 million years of Earth history. The main stratigraphic interval represented by geopark rocks are: Proterozoic (metamorphic rocks), Paleozoic (Devonian) represented by metamorphic and magmatic rocks, Mezozoic: Jurassic (J2 and J3 - marine sedimentary rocks) Cretaceous (marine and continental sedimentary rocks K1 and K2, Campanian and Maastrichtian continental deposits bearing dinosaurs bones and eggs, Upper Cretaceous magmatic and metamorphic rocks), Cenozoic (Paleogen – ? Paleocene volcanic rocks, Eocene – Oligocene (?) sedimentary rocks; Neogene - Badenian and Sarmatian sedimentary rocks, Badenian pyroclastic(tuff) rocks and Cuaternary deposits).

Describe the management body of the applied Geopark of that time (if you have a figure, please attach it as a separate attachment to your replying email):

In order to fulfill its role in local development University of Bucharest has created a special structure within the university, established a management team made of 6 persons, developed a management strategy and activity plans, developed local, national and international partnerships and is supporting all national and international requirements for a Global Geopark and a UNESCO designation.

The figure bellow is presenting the management structure and national and international partnerships.

Where was your Geopark's headquarters and how many visitor centers did you have at that time?

The headquarters was in Hațeg, Horea street. There was one interpretation and education center in General Berthelot village.

Geopark situation at the beginning of 2020

Describe the recent management body of your Geopark and explain the structural changes if happened (if you have a figure, please attach it as a separate attachment to your replying email):

The case study of the Hateg Country UNESCO Global Geopark (HC UGGp)

The Geopark`s Management Team has six employed staff: Dr Alexandru Andrasanu (geoscientist) – director; Dr Cristian Ciobanu (geoscientist) – geotourism, interpretation, education; MSC Adina Popa – communication, education; MSC Dan Popa – community, education; MSC Maria Tanasescu (geoscientist) – GIS, tourism; MSC Cristina Toma – interpretation, administrator. Except Alexandru Andrasanu and Cristina Toma, all the other team members are living in Hateg area. Cristian Ciobanu and Maria Tanasescu are both geoscientists and are present and available on a daily basis. Most part of the staff is also involved in scientific projects in partnership with scientists from Scientific Committee and universities. In the geopark team there is a good balance and equal opportunities for women and men.

Since 2005 new jobs were created for the geopark team.

Where is your Geopark's headquarters nowand how many visitor centers do you have?

The headquarters is now at Libertății street, Hațeg town. We have now 6 interpretation points spread out in the territory.

Has your Geopark had other changes since getting the GGN membership? (like territorial, boundary, naming, visual appearance etc.) Explain why these changes were necessary to make.

In 2018 the geopark extended its boundaries and changed its name. We extended the geopark area by adding a new municipality, Bretea Română. There are several reasons for this extension:

- Bretea Română is part of the historical and cultural area called Hațeg Country and it was left behind in the moment of geopark creation due to political issues;
- Bretea Română is member of the Hațeg Country Community Association, the local partner created in 2005, in order to support Geopark community activities;
- Bretea Română is part of the LEADER territory overlapping the new geopark area;
- Bretea Română has infrastructure, cultural and geological sites with great potential to be integrated into the geopark infrastructure and development plans;
- National Geoparks Forum and Local Community Council voted for this extension.

The case study of the Hateg Country UNESCO Global Geopark (HC UGGp)

The name change came with a refurbished visual identity. The change was to eliminate the word "dinosaurs" and the reason is the length of the name and the difficulties that come with it, especially since the term UNESCO Global Geopark had to be used.

What were the main difficulties of keeping the GGN membership so far?

The difficulties were financial and the fact that the region didn't have any interpretation infrastructure.

What kind of changes do you think would be welcome in your Geopark?

A higher degree of awareness of the inhabitants about the local values and the opportunities they offer. Also a higher degree of collaboration between individuals and between organisations.

Do you have a national Geopark forum iny our country and are you a member of it?

Yes

What are the benefits and disadvantages of becoming an UNESCO Global Geopark according to you?

One benefit is a powerful brand to use in marketing and in building recognition and partnerships.

Other benefits include the need to keep your performances high, driven by the permanent prospect of revalidation, and the benefits of networking with the other geoparks, sharing solutions and ideas.

The case study of the Hateg Country UNESCO Global Geopark (HC UGGp)

Geosites of your Geopark

How many geosites of international, national and regional-local significance do you have in your Geopark'sinventory?

30

How many geosites of your Geopark are touristic destinations NOW, having interpretative facilities?

8

How many of those geosites use English language targeting international geotourism?

All 8

Describe your main/flagship geosite:

Name: Dinosaur Valley
Owner and Management entity: private
Area: 1000 m2
Rock types: sedimentary with fossils
Age: Late Cretaceous
Protection status: protected by law
Scientific importance: The Sânpetru Formation is a Mesozoic geologic formation with dinosaur remains and other fossils. More than ten dinosaur species, both herbivorous and carnivorous, have been found in fossil fluvial and lake deposits. Other associated fossils within the same deposits, like flying reptiles, birds, mammals, lizards, snakes, frogs, crocodiles and turtles offer a bigger picture about dinosaur's world and their aftermaths.
Geotouristic importance: The dinosaurs are an important asset of the territory as it brings an advantage in competing with other similar destinations. The Dinosaur Valley is the focus point of local geotourism.

The case study of the Sierras Subbéticas UNESCO Global Geopark

Geopark characterization

Who nominated your Geopark and when for the first time, and when did it get the GGN membership?

Sierras Subbéticas was recognized as a Geopark by the Andalusian Government at the same time that it received the status of Geoparks of the European (EGN) and Global Geoparks Network (GGN). This occurred at the Global Geoparks Network meeting held in Belfast, in September 2006.

Subsequently, during the 38th UNESCO General Assembly, held in Paris in November 2015, the new Earth Sciences and Geoparks Program was approved, and the classification of existing geoparks as UNESCO World Geoparks was ratified. Sierras Subbéticas Geopark was among them.

Describe the management body structure of the Geopark when it got the GGN membership (if you have a figure, please attach it as a separate attachment to your replying email):

The Sierras Subbéticas Natural Park is the official body in charge of the Geopark's management. It was declared Natural Park in 1988. It has a sound management body and policy. The Geopark is part of the structure of the Regional Government of Environment. It has its headquarters distributed in city of Córdoba (Territorial Delegation of the Ministry of the Environment) and the territory of Sierras Subbéticas.

Most of the staff are employed directly by the Regional Government (civil servant). Some technical advisors are supplied by the Environment and Water Agency to perform certain specific tasks. Some other technical advisors are employed through public enterprises. The Geopark is also supported by staff from several other services of the Territorial Delegation as well as the Central Services of the Ministry of Environment. A geoscientist is present on daily basis working exclusively for the geopark.

Describe the recent management body of your Geopark and explain the structural changes if happened (if you have a figure, please attach it as a separate attachment to your replying email):

The case study of the Sierras Subbéticas UNESCO Global Geopark

Given that there are up to 3 geoparks in Andalusia, they are now coordinated by the General Direction of Natural Environment and Protected Areas (located in Seville, the capital), under the Regional Government of Environment.

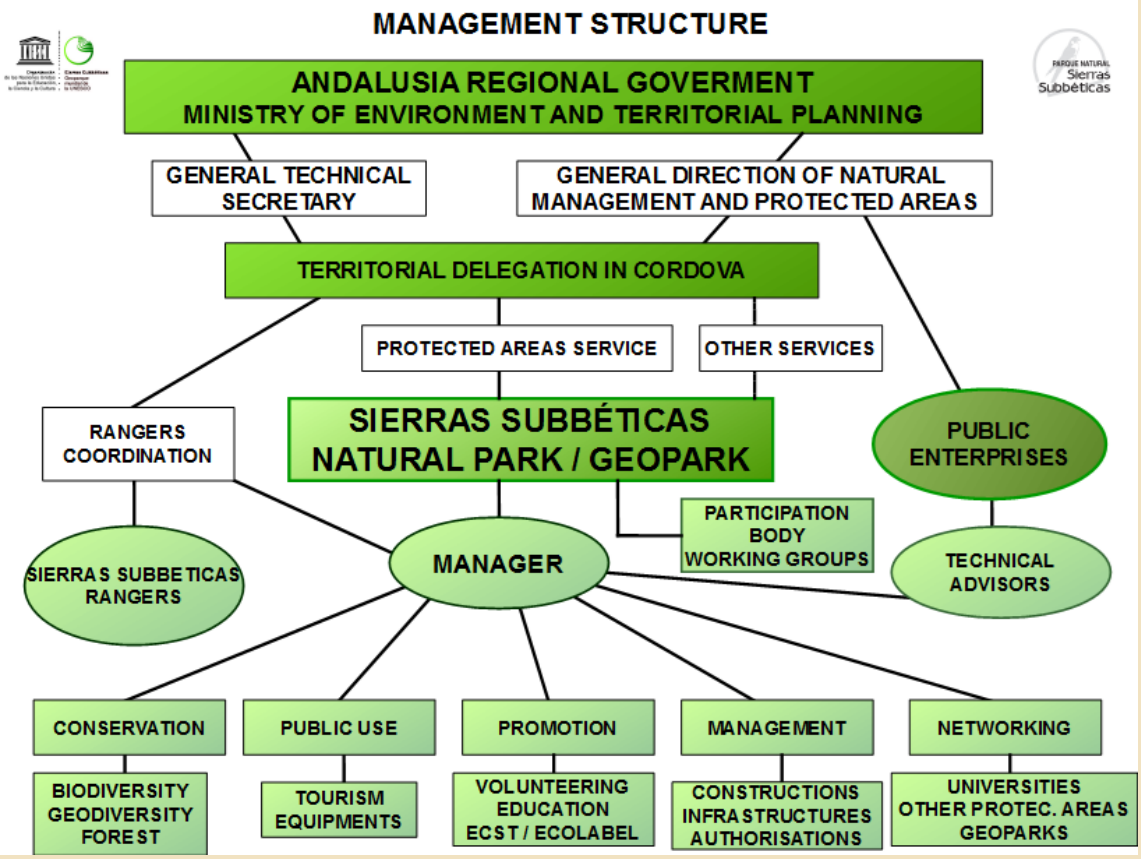


Fig. 4.10 Management Structure Sierras Subbéticas UNESCO Global Geopark

Does your Geopark correspond exactly with other territorial designations (like national or nature parks) and if yes, what are those?

Yes, it fixes the area of the so called Sierras Subbéticas Natural Park, thus declared in 1988.

The protected area within the Sierras Subbéticas Natural Park is also a Special Area of Conservation (SAC) and Special Protection Area (SPA), declared by the European Union and included into the Nature 2000 European Network.

The case study of the Sierras Subbéticas UNESCO Global Geopark

Please give the mission statement of your Geopark if it has any?

The geopark have no missions officially established. Since it was declared geopark focuses all its efforts in the three pillars that sustain any geopark: geoconservation, geoeducation and geoturism. This is sustained by the Several master plans that lay down the guidelines for the management of Sierras Subbeticas Natural Park and UGGp. These are: PORN (Plan for the Regulation of Natural Resources); PRUG (Subbéticas Use and Management Strategic Plan), II PDS (Second Sustainable Development Plan), CETS (European Charter for Sustainable Tourism), Strategic Plan for Sustainable Tourism of the Subbética 2018-2022, Andalusian Strategy of Integrated Management of Geodiversity and Andalusian Environmental Education Strategy.

Does your Geopark have a slogan and logo as a special identity? Please give them and describe their meaning.

The Natural Park official logo is a Peregrine Falcon (Falco peregrinus). Birds of pray are very characteristic in the territory, and within them, this species is the most emblematic.

The Geopark has not any official logo but an ammonite is used very frequently because this fossils is by far the most representative in the territory, due to its abundance and diversity.

Enlist the main geological times, which are represented in your Geopark:

Sierras Subbéticas is a mountainous territory located at the central part of the Betic Cordillera (External Zones). These are made up of Mesozoic rocks deposited at the South-Iberian Margin, folded and lifted during the Alpine Collision. There are also Tertiary and Quaternary deposits in the Geopark. Karst characterizes the Sierras Subbéticas landscape, with very diverse elements, such as poljes, dolines, Karren, springs, a recent ponor, etc., and around 900 caves inventoried in the district.

From a scientific point of view, the Ammonitico Rosso Facies is one of the most outstanding feature and have been included in the GLOBAL GEOSITES inventory. Moreover, the section at Puerto Escaño represents a global reference for the Jurassic-Cretaceous boundary.

The case study of the Sierras Subbéticas UNESCO Global Geopark

Has your Geopark had other changes (like territorial, boundary, naming, visual appearance etc.) since getting the GGN membership? Please, explain why these changes were taken.

No, Sierras Subbéticas Geopark had not experienced any apparent change since its GGN declaration. Changes are deeper and have been experienced in the sphere of the perception of the protected space by the local population. Over the years, the geopark declaration has represented a significant qualitative change in the mentality of local people. When Sierras Subbéticas was declared Natural Park, this was denied by land-owners, businessmen and a large proportion of the society. At that time, they all understood that natural protection arrived as an imposition that entailed restrictions on the traditional way of use and enjoinment of the territory as well as more intricate bureaucracy. In this regard, the figure of Geopark definitely helped to overcome this perception thanks to the possibilities that geoparks offer to the education and sustainable development.

Does your Geopark have any geopark produce or product? Please name some of them.

Many local enterprises, committed to environment protection and sustainable practices, have been adhered to ecotrades like the Andalusian Natural Park Trademark. This trademark is managed and promoted by the regional administration of environment, the one in charge of the Geopark. Currently, there are 8 enterprises with more than 30 products certified within this ecotrade.

Furthermore, Sierras Subbéticas was pioneer in the development of geoproducts within the framework of the EGN ad GGN, unifying criteria and protocols for this. The "Salt of Tethys Sea" is a geoproduct developed by the Geopark in collaboration with the Saltworks of San Juan de Dios.

The geological history of Sierras Subbéticas commenced with the opening of a sea (the Thetys Sea) and the consequential deposition of sat-rich evaporitic deposits. Nowadays, these deposits, at the base of the stratigraphic sequence but folded and thrusted, are partially dissolved by groundwater. Once the saltwater reach the surface and is channelized by different streams, is extracted and evaporated to produce salt, the salt of the Tethys Sea.

The case study of the Sierras Subbéticas UNESCO Global Geopark

Another restoration company have developed a geo-menu called "Flavours from the Tethys Sea". Designed in 2015, it is offered in the Zuhayra Restaurant (Zuheros). The Geopark frequently order this geo-menu for events.

We are currently working with two new partners enterprises adhered to the Andalusian Natural Park Trademak. We are trying to develop geoproducts related with the olive oil of Cañada del Hornillo, one of our most outstanding geosites, an with the quince, a fruit with strong tradition in the territory.

In terms of merchandising, there is a recent line of products based on the Sierras Subbéticas Geopark, that includes t-shirts, notebooks, badges, etc. This has been designed to be sold at the visitors centres.

Geosites of your Geopark

How many geosites of international, national and regional-local significance do you have in your Geopark's inventory?

Sierras Subbéticas Geopark includes 4 geosites of international significance (listed in the GEOSITES project), 19 of regional and 11 of local relevance.

How many geosites of your Geopark are touristic destinations now, having interpretative facilities? How many of them are free to visit? How many geosites of your geopark have visitor centres?

All the geosites with local significance and most of the geosites included in the regional list are touristic destinations, obviously not all of them with the same touristic affluence. All but one are free of charge. Some of them have visiting restrictions regulated by the Geopark for conservation purposes. The interpretation centres in the Geopark cover all the geosites and all the geoheritage in the territory. There is only one interpretation centre specifically devoted to one geosites, the Murcelagos Cave, i.e., the one that is not free of charge.

All the information about geosites and geoheritage that is offered by the Geopark is provided both in Spanish and English.

We are going to give some examples of what kind of activities and by whom are developed around our geosites:

The case study of the Sierras Subbéticas UNESCO Global Geopark

Georutes → Trekking activities around several geosites with geological explanations. Developed by private stakeholders of the tourism sector with collaboration of the Geopark.
Geobiking → Cycling routes bordering geosites or connecting them. Developed by private stakeholders of the tourism sector with collaboration of the Geopark.
Stargazing → Summer stargazing from diferent geosites. Developed by private stakeholders of the tourism sector.
Geopainting → Different painting activities and technics that connect people with the geoharitage of diverse geosites. Organized by the Geopark and the Geopark rangers.
Speleology → Courses, seminars, meetings. Developed by a Sport team, with the regular collaboration of the Geopark.
Oleotourism → Trekking activities to explore the connection between olive groves the geoheritage. Organized by olive oil enterprises and the Geopark

Please name geosites, which are linked to geo-education for schools. Are there any enterprises providing such kind of services? Please describe them.

Most of the geosites with touristic significance in Sierras Subbéticas are also regularly used for educational purposes. Some of them are La Nava Polje, Los Lanchares Lapiaz, Picacho de Cabra peak, Pinar de Rute sinkholes, Santa Rita Panoramic or Murciélagos cave. The educational activities are organized by different local schools but also by some of the enterprises of the tourism sector that work regularly in the territory. Apart from the geosites, the different interpretation centres are actively used in education.

The case study of the Sierras Subbéticas UNESCO Global Geopark

Describe your main/flagship geosite:

Name: Picacho de Cabra

Owner and Management entity: Owned by the Council of Cabra and the Fraternity of Our Lady of Cabra Highlands. Managed by these two authorities plus the Natural Park and Geopark.

Area: 36.71 Ha

Rock types: limestones and dolostones

Age: Early Jurassic.

Protection status: Rotected by the figures of Natural Park, Natural Protected Space, Special Area of Conservation (SAC), Special Area of Conservation of Birds (both within the European Ecological Network Natura 2000), Site of Community Importance and Natural Site of National Interest.

Scientific importance: During the most compressive stages of the Alpine Orogeny, at the Miocene, many first-order thrusts moved northwestward in SE Spain. One of these thrusts placed the lower Jurassic limestones and dolestones at the Picacho over Middle
to Upper Jurassic oolitic and nodular limestones. After this compressive stage, erosion took place, leaving an "island" of limestones/dolestones surrounded by oolitic and nodular limestones. This is the so-called tectonic klippe of the Picacho.

Geotouristic importance: During the XIV International Geological Congress, celebrated in 1926, the Picacho was selected as the starting point of the excursion programed in Andalusia. Subsequently, in 1929, it was declared Natural Site of National interest, one of the first protection figures erected in Spain.
The Picacho, located in the very centre of Andalusia, represents an excellent lookout to see its three major geographical a geological units. It offers also an impressive view of two other emblematic geosites in the geopark, Los Lanchares Lapiaz and La Nava Polje. Since a cultural and historical point of View, the Picacho hosts the Virgen de la Sierra Hermitage, an important place for pilgrimage all along the year. Therefore, geology, nature, science, beauty, culture, religion, and history meet all together at the Picacho de Cabra.

Number of visitors/ year: 20.000

The case study of the Sierras Subbéticas UNESCO Global Geopark

Describe your main/flagship palaeontological/ fossil site:

Name: Cañada del Hornillo

Owner and Management entity: Mostly owned by different private individuals, except the main track, that is owned by the provincial government.

Area: 34.68 Ha

Rock types: Nodular limestones. Mostly ammonites and belemnites

Age: Middle to Late Jurassic

Protection status: Protected by the figures of Natural Park, Natural Protected Space.

Scientific importance: The Cañada del Hornillo is a relevant geological place that contains a complete stratigraphic series from Early Jurassic to Early Cretaceous. This sequence provides very useful information about the continuous palaeoenvironmental changes occurred along this time at the western Thetys margin.
Particularly important is the nodular limestone formation, called Ammonnitico Rosso, that outcrops extensively in Cañada del Hornillo. It includes an impressive abundance and diversity of ammonite fossils as well as belemnites in minor extent. This extraordinarily rich fauna has provided detailed biostratigraphic, paleoecological and palaeoenvironmental control to the entire region.

Geotouristic importance: Apart from the previously mentioned scientific relevance this geosite has also great geoturistic and academic weight. The abundance of fossils, mainly ammonites, the sloping strata along the path and the olive trees growing directly from the limestone rocks, virtually without soil, make this place unique. It is an exceptional place to contemplate the organisms that inhabited the Tethys Sea as well as the strata that were once the bottom of a very convulse sea.

Number of visitors/ year: 300

The case study of the Novohrad-Nógrád UNESCO Global Geopark

Geopark characterization

Who nominated your Geopark and when for the first time, and when did it get the GGN membership?

The joint trans-boundary Novohrad – Nógrád Geopark organization applied for GGN status at the beginning of 2009 and after some extra supplemented documents and approved developments it got the membership in 2010.

Describe the management body structure of the Geopark when it got the GGN membership (if you have a figure, please attach it as a separate attachment):

At that time the transnational Geopark was managed by a cross-border partnership between two national organisations registered in each of the partner countries. Each of the organizations acted on their own national territory and can apply for financing in their country. In addition, each organisation represented the Geopark with respect to their own national representatives, institutions and organisations.

Fig. 4.11 The international management structure of the N-N Geopark in 2009

The Committee of this cross-border partnership represented the Geopark at the nternational level. Each side delegated 4 members for the term of 4 years to the Committee, which was presided over by a presidents and employed a voting system requiring a two third majority. There were experts working for the Committee, who could represent the Geopark during local and international consultations.

Description of the Nógrád Geopark organization (Hungarian side):

The Nógrád Geopark Nonprofit kft was founded by the micro-regions, representing the 63 municipalities on the Hungarian side and by private investors to lead the administrative work of the Geopark. Its headquarters was in Salgótarján. The director of

the organization was delegated to the Committee of the transborder geopark. The Nógrád Geopark Association represented NGOs, universities, the Bükk National Park Directorate, tourism organizations, experts and different stakeholders who were willing to co-operate on Geopark issues. The Association delegated three members to the Committee. The Association maintained close ties with the Slovakian partner and lead widespread consultation among governmental and private entities.

Description of the Novohrad Geopark organization (Slovakian side):

The Novohrad Tourist Information Centre was the main geopark office and the visitor centre at the same time. It was and is located in Fiľakovo and run by the municipality.

The office delegated one member to the Committee of the trans-boundary Geopark due to the fact, that it represented the 28 municipalities of the Slovakian side. The Geopark Novohrad-Nógrád Association as an NGO was an autonomous corporate body, independent of the political and state institutions. It delegated 3 members to the international Geopark's Committee.

Describe the recent management body of your Geopark and explain the structural changes if happened (if you have a figure, please attach it as a separate attachment):

After 2010 the structure of the international management body changed from the Committee to a new legal organization to make it able to apply for EU funds.

The Z.p.o. Geopark Novohrad – Nógrád (the organization which holds the trademark and all the rights of geopark according to the legal system of Slovakia) became member in the Novohrad – Nógrád Geopark Nonprofit Kft. (the organization which holds the trademark and all the rights of geopark according to the legal system of Hungary).

There are always two directors in the Nonprofit Kft: one delegated from the Hungarian, and one delegated from the Slovak side (who is normally the leader of the Z.p.o. Geopark Novohrad – Nógrád too).

In accordance with this:

- The joint, cross-border Hungarian-Slovak Geopark management body is constituted by the representatives of the national Geopark organisations duly incorporated in the two countries. On the international level, towards the GGN and other international professional institutions the Geopark is represented by experts delegated by stakeholders (like the BNPD) of the two countries;

The case study of the Novohrad-Nógrád UNESCO Global Geopark

- Each of the national organisations acts on its own national territory, can apply for financing in its country, can participate in common cross-border projects, manages Geopark activities as per working order and represents the Geopark in relation to its own national representatives, institutions and organisations.

Yet, there is a new initiative to transform this reformed management body to an EGTC (European Grouping for Territorial Cooperation), it seems that all of the recent 4 transnational geoparks (so far all of them from Europe) strive for that European legal instrument.

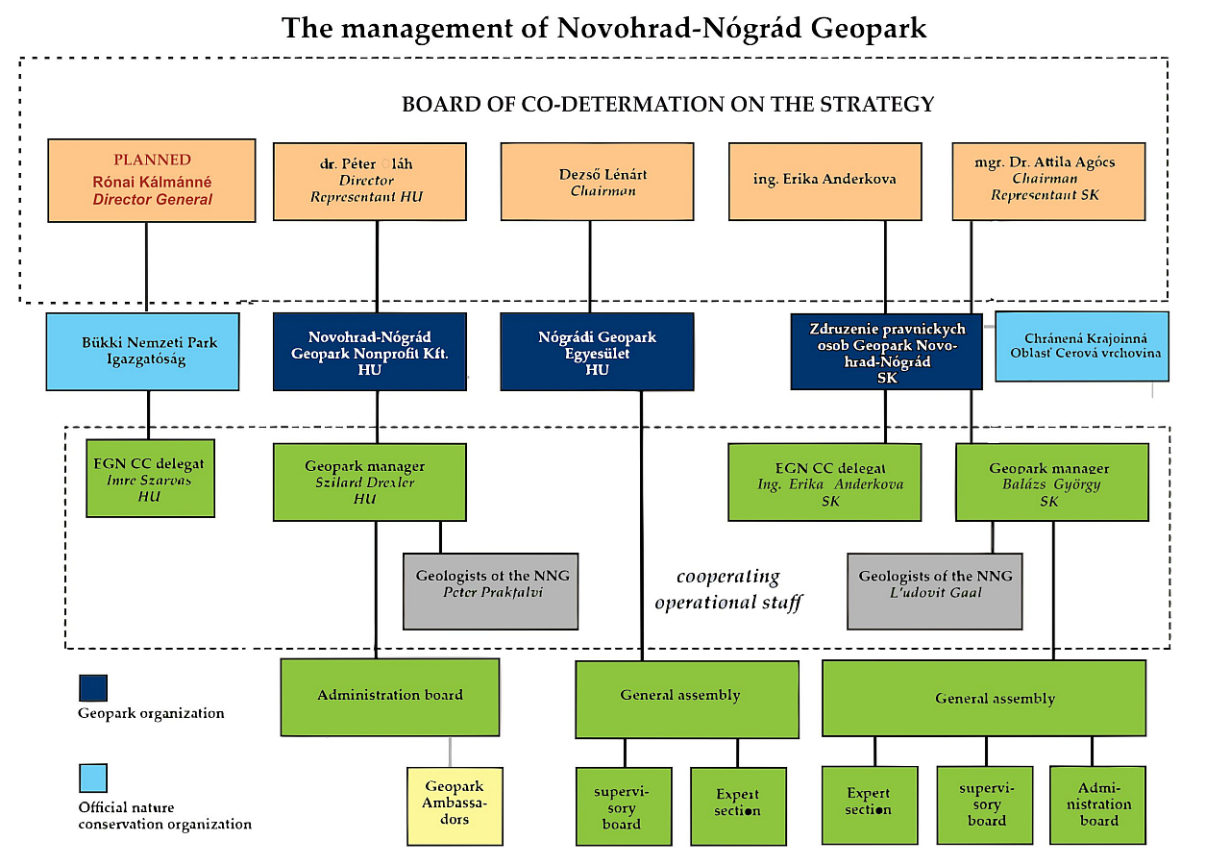


Fig. 4.12 The management structure of the N-N UGGp in 2020

The case study of the Novohrad-Nógrád UNESCO Global Geopark

Does your Geopark correspond exactly with other territorial designations (like national or nature parks) and if yes, what are those?

The geopark's boundary is totally different from any protected areas, it is not a new label sticked to a pre-existing area. It embraces the territory of 94 settlements with the purpose of regional development. But within the confines of the geopark there are several protected areas both in the Slovak and the Hungarian parts.

Please give the mission statement of your Geopark if it has any?

The unique main goal of the geopark is to across the stateborder organically reunite communities and landscape again, while to preserve its complex heritage and diversity with the tools of geotourism and other regional developments. To increase the living standards and environmental awareness of the inhabitants, preserve the identity of the local Paloc ethnic group and conserve and enrich the area's natural, historical and cultural resources for future generations.

Does your Geopark have a slogan and logo as a special identity? Please give them and describe their meaning.

Motto: Ancient world without borders

Motto: Ancient world without borders

The logo: The emblem of the Geopark depicts the Somoska/Somoskő Castle. At the very foot of the castle marked the border line between Slovakia and Hungary after the First World War, separating communities from each other and artificially the landscape for 85 years. The castle stands on a basalt outcrop which represents beautifully the human interaction with the geological past.

The case study of the Novohrad-Nógrád UNESCO Global Geopark

Enlist the main geological times, which are represented in your Geopark:

The area's stratigraphy represents deposition over the last 30 million years commencing with the initial opening of the Pannonian basin. The geology of the region is the product of a series dynamic of Earth processes. These processes include the collision of accreted terrains resulted in highly complex volcanism spanning 20 million years, the destruction and reactivation of marine basins, burial and the conservation of palaeohabitats.

Has your Geopark had other changes (like territorial, boundary, naming, visual appearance etc.) since getting the GGN membership? Please, explain why these changes were taken.

The geopark territory was 1. 587 km2 with 93 settlements during the application, in 2014 a new settlement was added to the geopark because of professional horse riding facilities there and with this extension the area got enlarged to 1.619 km2 with 94 municipalities.

New developments made changes in the management structure and the former headquarters (City Hall at Salgótarján (HU) and City Hall at Fil'akovo (SK)) got united to the Salgotarjan, Eresztveny Centre.

The common layout became widespread and the interpretation involved more geosites, geopark visitor centres multiplied from 2 to 6.

Does your Geopark have any geopark produce or product? Please name some of them.

Some agricultural products and produce, like jam, honey and palinka, chocolate and woodcraft bearing geopark logo are sold at the gift shops of the geopark visitor centres.

The case study of the Novohrad-Nógrád UNESCO Global Geopark

Geosites of your Geopark

How many geosites of international, national and regional-local significance do you have in your Geopark's inventory?

Altogether 76 geo-sites were listed, 5 of them of international, 40 of national and 31 of regional significance.

How many geosites of your Geopark are touristic destinations now, having interpretative facilities? How many of them are free to visit? How many geosites of your geopark have visitor centres?

32 geosites with geo-touristic facilities and 4 of them have visitor centres (Ipolytarnoc, Baglyasko, Holloko and Filakovo).

How many of those geosites use English or other not native languages targeting international geotourism?

The interpretative panels of all touristic geosites follow the common layout, use the 3 languages, beside the Hungarian and Slovak, the English too.

Give some examples of what kind of activities and by whom are developed around your geosites? Please enlist and name them.

Special thematic, guided tours are given by specialists of the geopark to family visitors during weekends, summer camp programs and education competitions involving geosites are organized by geopark stakeholders to schools and children.

Coal Mining heritage practices are enacted through special museum programs at Salgotarjan.

Special events, like photo and art programs at geosites by stakeholders and entrepreneurs and NGO (like the TETT Association) organized trail maintenance are frequent.

On geosites with visitor centres all kinds of activities are developed and run on daily basis, like at Ipolytarnoc Fossils by the BNPD where exhibitions, guided tours, 3d time travel movies, nature knowledge skills development practices for children etc. are in practice.

The case study of the Novohrad-Nógrád UNESCO Global Geopark

Please name geosites, which are linked to geo-education for schools. Are there any enterprises providing such kind of services? Please describe them.

Ipolytarnoc Fossils and Baglyasko geosites run by the BNPD, Salgo, Somoska and Filakovo Castle geosites are linked to school geo-education by the interpreters of the geopark teams.

At Szentkut geosite, which is a pilgrimage centre a private guiding enterprise provides geo-education to for pre-registering school classes. The municipality of Holloko World Heritage Site provides the same there.

Describe your main/flagship geosite:

Name: Castle Somoska and the curved basalt columns/stone waterfall.

Owner and Management entity: Šiatorská Bukovinka municipality.

Area: On the border of Hungary and Slovakia.

Rock types: Basalt.

Age: Pliocene, 4 Ma.

Protection status: National Nature Reserve. Somoskő Castle is State Monument.

Scientific importance: Descending from the top of the hill you will pass by stone waterfall, a range of basalt lava formations, which hardened into curved columns 4 million years ago and now resemble liquid rock pouring into a stone sea.

Geotouristic importance: Such basalt columns, with rock sea-fragments at its foot and a medieval castle ruins above it and the surrounding picturesq landscape represent a unique geosite on the state border, a very special place interwowen with historical legends represents an ideal place to understand the theory of the geopark.

Number of visitors/ year: 40 thousand people.

The case study of the Novohrad-Nógrád UNESCO Global Geopark

Describe your main/flagship palaeontological/ fossil site:

Name: Ipolytarnóc Fossils Nature Conservation Area.

Owner and Management entity: Bükk National Park Directorate.

Area: 510 hectare, Ipolytarnóc, Hungary.

Rock and fossil types: sandstone, shale, conglomerate, rhyolite tuff, shark teeth, animal footprints, petrified trees, leaf impressions, 7 million year old, still wooden, white cypress and redwood relative fossil tree trunks.

Age: Miocene, 23-14 and 7 Ma.

Protection status: European Diploma for Protected Areas, Nature Conservation Area, state protected since 1944.

Scientific importance: Unique fossil lagerstatten from the Lower Miocene, a type locality of international importance.

Geotouristic importance: High-tech interpretative visitor facilities with in situ fossil relics represents the main geoheritage attraction of the region, it is the flagship fossil site, the main gateway to the transborder geopark.

Number of visitors/ year: Approx. 65 thousand people

The case study of the Bükk-region Aspiring Geopark

Geopark characterization

Does your Geopark correspond exactly with other territorial designations (like national or nature parks) and if yes, what are those?

The desired area of the Bükk-region aspiring Geopark involves one national park which is the Bükk National Park. An other international designation is: Starry Sky Park, since 2017, given by International Dark Sky Association – equal to the area of the Bükk National Park.

Please give the mission statement of your Geopark if it has any?

The Bükk Mts are basically a national park, but there are many valuable geosites in the wider Bükk region, which are outside the territory of the national park. The Bükk region has high geodiversity, thus it is a sample area of Hungarian geodiversity research. The rich geological heritage and the bottom-up iniative provide a perfect base for the creation of a new geopark.

The high (geo)diversity of the Bükk region is briefly presented here according to its four main characters:

- Geologic character: the Bükk Mts and the connecting Upponyi Mts at its northern side are characterized by fold-and-thrust structures, which were mainly formed during Cretaceous tectogenesis.
- Geomorphological character: the Bükk Mts are rich in karst phenomena. Surface karst features are mostly formed on Triassic white and gray limestones.
- Hydrogeologic character: there is a connected large hydrodynamic karst aquifer within the carbonate rocks of the Bükk region.
- Cultural character related to geology: The Bükk region is rich in historical and architectural monuments. For instance, the aforementioned caves of prehistoric people.

Does your Geopark have a slogan and logo as a special identity? Please give them and describe their meaning.

The laurel formed cracked stone tool (spearhead) of the Bükk Szeleta culture represents the close contact between man and landscape. (Geology and geomorphology) . Made of local volcanic rocks (vitreous “quartz porphyry,” metandesite) found in the “prehistoric caves” of the karstic mountains. The geological formations of the mountains symbolize the diversity of rock types (geodiversity) and the wrinkled-covered structure of the mountains with the wavy lines. The color of the layers corresponds to the color formations of the basic formations (Jurassic shale and

sandstone, Triassic limestone formations and a carbon-Perm limestone types, shale) on a geological map of the mountains**.**

Enlist the main geological times, which are represented in your Geopark:

Permian-Triassic-Eocene-Miocene.

Does your Geopark have any geopark produce or product? Please name some of them.

Currently undergoing projects are done. Geo-accomodation and local food project initiatives and pilot programs has just started, and currently widening its importance and recognition. Stakeholders, local people and decision makers are getting more and more involved.

Geosites of your Geopark

How many geosites of international, national and regional-local significance do you have in your Geopark's inventory?

We have nearly 459 sites related to geology, geomorphology, and cultural history within the boundaries of a aspirant Bükk-region Geopark . The basic geological section to be highlighted is the key section showing the world-famous Permian-Triassic border.

How many geosites of your Geopark are touristic destinations now, having interpretative facilities? How many of them are free to visit? How many geosites of your geopark have visitor centres?

We made publications and maps about the values of the geopark in order to help visitors to explore the area. Our two tourist caves serve as a very important showcase, giving you a glimpse into a stalactite cave and a limestone tuff cave which is highly rare. We have also placed nearly 30 signs, which already have a geopark outlook., Information boards and information placed in the rain gates also help to acquire field knowledge. The hall area of the Geopark is free to visit on tourist signs.

Our thematic guesthouse was created as a geopark model project to present the values of the Geopark of the Bükk region, in a really special place, in the center of Bükkszentkereszt in 2019.

The case study of the Bükk-region Aspiring Geopark

In the Geopark Guesthouse we can provide accommodation for 28 guests in total,in 5 double and 4 quadruple rooms. Each room has a private bathroom with a shower. The guesthouse has an independent kitchenette on each floor, all our rooms have a terrace, the windows overlook the Bükk, providing an unparalleled view for those who come to us.

The special feature of the guesthouse is that the whole building aims to present the geopark, which is reflected in the names and decoration of the rooms, as well as in the displayed geo- and ecotourism offer. As a geopark center, this house will also host various trainings.

It also facilitates the market access of local producers as well as local artisans by running a local-goods-shop in the pension.

How many of those geosites use English or other not native languages targeting international geotourism?

The information materials and maps are bi-lingual, and also its possible to ask for an English guided visit in our touristic caves. On field study tours and guided interpretive walks are also available upon request.

Please name geosites, which are linked to geo-education for schools. Are there any enterprises providing such kind of services? Please describe them.

A good example is the Esztáz-kő-cave which is highly enlighted in this regard. During forest school groups we visit this cave very ofern. Caving lamps and hats are provided , and children can experience the total darkness and hands on experiences, hence other light than headlights are not provided. Because of the fact, that the main area of the desired geopark is the national park itself, and its mostly a karst area, we have more than 1000 caves. We have licensed guides who can provide extreme caving trips also.

Our caves in Lillafüred has more than 25000 young visitors, and have museum pedagogical activities. Pannon Sea Museum, Castle of Diósgyőr, are playing also important roles on interpretation, education and vocational trainings. During the hall year we receive students and youngsters, providing professional guided interpretive tours, and on field educations.

The case study of the Bükk-region Aspiring Geopark

Describe your main/flagship geosite:

Name: St. Stephen's Cave.

Owner and Management entity: Bükk National Park Directorate.

Area: East-Bükk mountains.

Rock types: Limestone.

Age: 230 My

Protection status: Strictly protected.

Scientific importance: The enclosing rock of the cave is a well-karstized Middle Triassic limestone (Fehérkő Limestone Formation). Regarding the genetics of the cavity, it is a source cave. It can be related to the sinkhole caves located on the eastern edge of the Bükk-plateu, 250 m higher, the inactive spring cave of the sinkhole caves excavated there.

Geotouristic importance: Open to public, very close to Miskolc which is the regional center of Borsod-Abaúj-Zemplén county. The cave is situated in a picturesque environment where study trails, restaurants, cable cars, and other outdoor activities can be found.

Number of visitors/ year: 60.000

The case study of the Bükk-region Aspiring Geopark

Describe your main/flagship palaeontological/ fossil site:

Name: Nagyvisnyó, Mihalovits quarry.

Owner and Management entity: Nagyvisnyó municipality, protected by law, nature Conservation management authority: Bükk National Park Directorate.

Area: Nagyvisnyó municipality (North side of the Bükk-region Geopark).

Rock and fossil types: Pseudophillipsia, trilobites.

Age: 270 My.

Protection status: Protected.

Scientific importance: Geological key section (P-02) in black, bituminous It explores the rocks of the Nagyvisnyó Limestone Formation. The thin-bedded black In limestone, black marl and limestone marl settle between the benches. The rock is extremely rich in fossils. Of its diverse ancient fauna, it is normally saline, occasionally mild an oversized, well-ventilated (oxygen-rich) tropical shallow sea can be inferred.

Geotouristic importance: Free to visit, a study interpretive site was build here in order to give information and raise awereness of the importance of this geosite.

Number of visitors/ year: 2.000

The guide should be familiar with the names of the other UGGps and other national geoparks in his/her own country.

MODULE 3: Good environmental practices in Geotourism.

The UNESCO Global Geoparks develop 'best practice' models and quality requirement for the Geoparks, so that they can integrate the conservation of geoheritage into their sustainable regional economic development strategy. Geoparks are being established in order to get closer to real economical development of local communities in a sustainable way, generally by enhancing sustainable geotourism and supporting other economical as well as cultural activities.

3.1. The tradition of the European Geoparks Week.

The European Geoparks Week (EGN Week), taking place at late May early June each year, is a European – wide festival of Geoparks aimed at raising public awareness of geoconservation and promotion of the geoheritage as well as events aimed at informing the widest audience about geotouristic and educational activities in the geoparks.

Events are varied and include public talks, activity days for schools, guided walks, exhibitions and workshops beside other programs.

These activities are coordinated and promoted at the same time across the whole EGN. It provides the Network with the opportunity to demonstrate to its communities that they are part of a wider European Network which is promoting that the sustainable use of our geoheritage can bring the economic benefit of sustainable development for local people.

- **Examples of EGN Week activities in 2019**

1. In the Sierras Subbéticas UGGp (SPAIN) from the 17th May to 2nd June 2019.

   1.1. Thematic guided walks to the San Miguel Hermitage, through the "Olive Oil Greenway" and the Bailón River route, visits to the Mycological Garden, to the Jurassic Cabra Museum, speleological visit with scholars to the Murciélagos Cave, to urban archaeological routes etc.

1.2. Celebrations of the Bicycle day in the "Olive Oil Greenway" Walk, of the European Day of Geoparks with the activity "Photography in the Geopark" , of the International Day of Museums with routes and guided visits in Priego de Córdoba.

1.3. Geo-Painting Exhibition showing the portraits of the two preceding GeoPainting Workshops 3rd Geo-Painting Workshop.

1.4. "Ammonites deliciosus". Geo-route for scholars followed by a bakery experience making ammonite-shaped biscuits.

1.5. "The Environmental Agents visit our School". Scholar Meetings with students of two villages enrolled in the project "I am a Geoparker", to share their experiences and learning about Geoparks.

2. In the Hateg Country UGGp (ROMANIA) from the 27th May to 10th June 2019.

2.1. Free guided tours on the Volcano Road and Dinosaur Valley. Daffodil Festival. Țara Hațegului Juniors Cup. Traditional Romanian blouse Day. Day of the Geopark Joy and Movement Deva

2.2. GGN Day in the GeoExplorer Clubs Dinosaur Workshop at the House of the Geopark

2.3. Hateg Country UNESCO Global Geopark – Exhibition, Bucharest UNESCO Geopark Program & Global Geoparks Network – presentations / debates – University of
Bucharest.

3. In the Novohrad-Nograd UGGp from the 27th May to 10th June 2019
3.1. Guided hiking trips on the Slovak side, crossborder guided tours to geosites of the Medves Basalt Plateau, special guided, thematic tours on the Miocene Park of the Ipolytarnóc Fossils;

3.2. Discover the Novohrad-Nógrád Geopark. Educational contests with quiz for primary to high school students, with hiking to the Tachtian diatreme and the Čakanovský profile geosites;

3.3. Geopark Family Days and presentations about the traditions and nature at Eresztveny, the headquarters of the Geopark;

3.4. Discover wetland habitats and bird watching programs for families and student classes at the Miocene Forest of the Ipolytarnóc Fossils.

3.5. Exhibition about the best photos of the 4th Crossborder Photo Marathon in Filakovo (Slovakia) and Salgotarjan (Hungary);

3.6. Filakovo castle history tours and the miners' life exhibition in the Underground Coal Mining Museum at Salgotarjan;

3.7. Exhibition opening and special guiding at the Geo-Wonders House at Salgobanya;

3.8. Screening the films of the Gödöllő International Nature Film Festival with the motto of Nature and environmental protection with the power of arts and play.

3.9. Celebration of the first Volcano Day of the EGN at Ipolytarnóc Fossils (the main gateway to the Geopark, run by the Bükk National Park Directorate), which event was linked to the EU development open day and geohazard role play programs for Slovak and Hungarian students, altogether 709 people attended it.

- **Volcano Day in Europe – EGN Week – 1st of June, 2019.**

1. On June 1st, the Azores UGGp, along with other European Geoparks, celebrated for the first time the "Volcano Day". This initiative, promoted by the Working Group "Geoparks in Volcanic Areas" of the EGN, was included in the EGN Week.

The activities promoted by the Azores UGGp included:

1.1. In Faial Island, the Azores Geopark upheld the game "The Azores Volcanoes" during the World Children's Day commemorations organized by the Horta municipality. This game includes several challenges and delivers basic notions of volcanology and geological heritage of the Azores.

1.2. In Terceira Island, the Azores Geopark, in partnership with the Natural Park, celebrated the "Volcano Day" with a session for the general public about Azores volcanoes, followed by an interpretative walk about urban geology and geodiversity in the city of Angra do Heroísmo, a World Heritage Site.

1.3. In São Miguel Island, this day was celebrated together with the Science Centre EXPOPLAB, in Lagoa city, with several materials, media, information and pedagogical activities about volcanoes, which were available to all EXPOLAB visitors on that day, with the motto "Come discover the science of volcanoes".

2. At the Novohrad-Nograd UGGp's main gateway, at the Ipolytarnoc Fossils two programs of an Interactive Volcano Show in the Ancient Pine Visitor Centre were organized, provided by the Head of the MTA-ELTE Volcanology Research Group, beside guided trips to volcanic peaks.

But not just EGN members celebrate the Geopark Week, for example all of the Slovak National Geoparks took part in the events with the active support of the Slovak Environment Agency (SEA) in 2019.

The Geotur guide should be able to create geopark week programs for his/her geopark and communicate them to the media.

3.2. Best practices reward of the GGN with examples.

In 2016, after the UNESCO recognition the GGN decided to establish the Best Practices Award, which aims to promote, enhance and encourage the development of innovative initiatives inside the Global Geoparks of UNESCO. The award recognises pioneering practices and initiatives that contribute to a more effective and dynamic network, set fantastic exemplars for others to follow and emulate, and create greater public recognition of the UNESCO Global Geoparks.

The prize honours the management and / or a partner of a UNESCO Global Geopark for the pioneering nature and quality of the initiative, encouraging all the GGN members to work in the same line.

The GGN Best Practices Awards included three awards at the beginning (in 2020 changed into 5 categories), granted by the GGN Association in partnership with the Organizing Committee of the biennial GGN Conference. In this sense, each edition of the GGN Best Practices Awards are selected from a two year period of evaluation / revalidation missions.

Since its establishment the EGN dominated among the award winners showing its still exemplar leading role within the GGN.

1. BEST PRACTICES AWARD winners in 2016.

The 2016 GGN Best Practices Awards included three awards, granted by the GGN in partnership with the Organizing Committee of the 7th International Conference on UNESCO Global Geoparks in the English Riviera Global Geopark, United Kingdom, 27-30 September 2016.

- 1st GGN Best Practice Award 2016: Lanzarote y Archipiélago Chinijo UNESCO Global Geopark, Spain. It was awarded for its geotourism initiatives. Through the Geopark Centers volcanism and volcanic landscapes are presented as the core issue for the island, conditioning the landscapes, the cultural heritage, the lives and the activities of local inhabitants. Geotourism activities include a variety of terrestrial and submarine high quality experiences.

- 2nd GGN Best Practice Award 2016: Fangshan UNESCO Global Geopark,P.R. China

- 3rd GGN Best Practice Award 2016: Dali Mount Cangshan UNESCO Global Geopark, P.R. China

2. BEST PRACTICES AWARD winners in 2018.

The 2018 GGN Best Practices Awards ceremony was held during the 8th International Conference on UNESCO Global Geoparks in Adamello-Brenta UGGp.

- 1st GGN Best Practice Award: The Adamello-Brenta UNESCO Global Geopark was awarded for its education and school co-operation programme. According to the Evaluator's observation the Geopark is collaborating with all schools of the area (infant, primary, secondary and high schools) and some schools outside the region, involving around 10.000 school children in 2016. Therefore, Adamello-Brenta UGGp is practicing an authentic, unique, sustainable and very efficient long-term cooperation programme with local primary schools. Through this educational programme all children growing up in the Geopark area are continuously getting Geopark lessons about geological basics, wildlife, nature protection and principles of sustainability. The children of the Geopark area are provided with a special comprehensive folder with a collection of proved Geopark worksheets accompanying them through the 6 years of the primary school. Teachers are trained continuously by the Geopark staff to be part of the system. Outdoor activities and children's presentations are complementing this commendable educational school programme.

- 2nd GGN Best Practice Award: Las Loras UNESCO Global Geopark (and Zigong UNESCO Global Geopark). The Las Loras UNESCO Global Geopark was awarded with the 2nd Best Practice Award for its Geo-partners and especially the Geo-bakery that sells breads in the shape of the local fossils, creating a special link between the geological heritage and local products. According to the Evaluator's observation the Geopark is collaborating with the Geo-bakery which In his showcase, exposes not only his ammonites-like bakery, but also original fossils and fragments of petrified trees. There are diverse photos and other artefacts related to the local geological heritage on the walls of his bakery. This geobaker is managing also a small but very rich Ethnographical museum, which dwells except many authentic local relicts also some paleontological samples. He is not only good geoheritage interpreter and storyteller but he also serves as a geoguide in the Basconcillos del Tozo surroundings.The baker, person with the admirable amateur palaeontological knowledge, incredibly positive energy and contagious interest in geoheritage, plays a very important role of geopark ambassador and example to follow. All that is enabled by the continuous support, advices and expert information provided to the baker by the enthusiastic and very professional team of the Las Loras Geopark team.

- 3rd GGN Best Practice Award: The Sierra Norte de Sevilla UNESCO Global Geopark was awarded as 3rd Best Practice because it has created strong links with the local communities and encourages the involvement of young local guides in Geopark tourist offer creating new jobs and improving visitors Geopark experience. According to the Evaluator's observation Sierra Norte di Sevilla UNESCO Global Geopark offered a good example of collaboration between the Geopark management and the local communities, especially supporting and encouraging the development of tourist activities on the natural heritage and the geological heritage of the area. They were impressed by the strong connection between the Geopark and the local tourist guides. There are several enterprises partner of the Geopark, which realized guided tours within the Geopark territory focusing on geology and mining heritage as well as to the nature environment. The training of how to provide the scientifically correct information in a visitors' friendly way was an example of best practice. The educational activities provided through the Geopark info-centers and specifically the educational program "Nature and You", which is developed by the Ministry of Environment and Spatial Planning with main objective to bring students from our community centres to the natural environment, facilitating the knowledge and dissemination of their heritage in another good practice of the Geopark.

3. The change of the GGN 2. BEST PRACTICES AWARD description for 2020 shows the recognition's extension emphasising its increasing importance.

Applications for the award can be submitted by the Evaluators participated in Geopark Evaluation and Revalidation field missions during 2018 and 2019 and by the evaluated UNESCO Global Geopark Managers.

The GGN Awards will be presented during the 9th International Conference on UNESCO Global Geoparks 2020. The Global Geoparks Network (GGN) Awards aims to promote, enhance and encourage the development of innovative initiatives in the UNESCO Global Geoparks.

The award will recognise pioneering practices and initiatives that contribute to a more effective and dynamic network, set fantastic exemplars for others to follow and emulate, and create greater public recognition of the UNESCO Global Geoparks.

The prize honours the management and / or a partner of a UNESCO Global Geopark for the pioneering nature and quality of the initiative, encouraging all the GGN members to work in the same line.

The GGN Awards includes six awards, granted by the Global Geoparks Network (GGN) in partnership with the Organizing Committee of the International Geopark Conference.

There will be 5 categories for the GGN Awards:

1. Conservation in Geoparks
2. Education
3. Tourism and Sustainable Development
4. Networking
5. Local participation

One Special Award for Aspiring Geoparks based on their participation in GGN activities which showed the commitment to GGN.

Selection Criteria

The main selection criteria are based on:

- Suitability and replication capability in other GGN territories;
- Effective contribution to an increasingly better functioning of the territories classified as UNESCO Global Geoparks;
- The innovative nature of the best practice example (relevant, original, unique approach, etc.).

For the Special Award for Aspiring Geoparks the criteria should be related to their participation in GGN activities which showed the commitment to the GGN:

a. Participation in International Geoparks Conference.
b. Participation in Intensive Course on Geoparks.
c. International Cooperation with UNESCO Global Geoparks.

A potential best practice from the Slovak-Hungarian state border region:

CROSS-BORDER PHOTO MARATHON IN THE SERVICE OF SUSTAINABLE TOURISM.

One of the main events during the European Geoparks Week of the transboundary Novohrad-Nógrád UNESCO Global Geopark was the Medves Photo Marathon held on 1-3 June 2018. The centre of the programme sponsored by the Olympus Company was the headquarters of the Geopark, in Eresztvény (Salgótarján, HU).

This Photo Marathon was the 4th of its kind in a row. It proved to be an exceptionally effective tool for raising public awareness of nature conservation issues, for promoting the geopark idea and sustainable tourism and for strengthening the co-operation among the main stakeholders of the Geopark and of the local inhabitants. The field of these experiments was the picturesque Medves Plateau, the largest basalt lava plateau in Central Europe, a protected landscape, which extends from the Hungarian to the Slovak territory of the trans-border Geopark. This media event provided for amateur photographers from all over Central Europe an opportunity to meet and capture the natural, historical and cultural assets of this borderless and photographer-friendly Geopark, which proudly maintains its identity.

There was a focus on controlling environmental impact, only small-group guided tours could enter the area, the tracks had prior nature conservation authority permits on both sides of the border. The tours started from Hungary and ended in Slovakia, the guides were professional experts of nature conservation organizations, like the Bükk National Park Directorate, providing expertise and surveillance. More than 100 volunteers helped manage the event, who during their work unwittingly become advocates of the Geopark. The photographers, participating in several specific and guided programmes, could compete with their best photos taken during the event in the categories of landscape, people and living nature. The programmes by themselves were exciting. For night photos, ruins of the fortresses standing on volcanic peaks were illuminated and experts delivered field lectures about astrophotography under the night sky. The dawn photos tried to catch the sunrise. Accompanying people could discover the rich folklore of the Palóc ethnic group inhabiting the Geopark. Sunset photography was paralleled by activities like catching and identifying insects and bats.

The multifaceted Photo Marathon has proved to be a very successful grassroots marketing tool of our modern time. It brought people of different interests together, made them sensitive to nature and landscape protection and strengthened the identity of the Geopark for outsiders and inhabitants alike. Its large scale forced effective cooperation among staff members and stakeholders of the Geopark. As a side effect, the output has been viewed so far by hundreds of thousands of people using different social media platforms. Through their experiences, the participants became advocates of the Geopark, shared their photos on their own websites and blogs. The exhibitions of the best photos are circulated in schools and public cultural institutions on both sides of the Geopark.

The Photo Marathon is the favourite common practice of the Slovak-Hungarian cross-border Novohrad-Nógrád UNESCO Global Geopark.

The Geotur guide should be able to invent a new or recognise an existing best practice within his/her geopark and describe them.

3.3. Geopark products, GeoFood and other initiatives;

Geoproducts are innovative, marketable local products in the service of the soft geotourism, which are deeply connected to the territory, sustainably contribute to the local development in partnership with its geopark, and raise the awareness towards the geological heritage protection of the area. Branded geoproduct offers must be quality services, like activities (guiding, biking, summer schools etc), market objects (fossil cookies, souvenirs, etc) and infrastructure, they have to comply with the key requirements of the geopark.

The producer's partner role of the geopark is to assure the quality standard of the geoproduct and the sustainable conditions in which the marketing, producing and selling process takes place.

Good examples:

- **Danube GeoTour project**

  It 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". 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.

  Its main offer is the "Geopark Karawanken-Karavanke Geobike Grand tour" which connects five main points of the Geopark. 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. 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.

- **RURITAGE project until 2022**

  RURITAGE (Heritage for Rural Regeneration) has initiated six Systemic Innovation Areas (SIAs), as frameworks to identify unique heritage potential within rural communities: Pilgrimage, Resilience, Sustainable Local Food Production, Integrated Landscape Management, Migration and Art and Festivals. These will be used as a generator for economic, social and environmental development of these rural areas.

  Magma UNESCO Global Geopark is replicator mainly for local food (GEOfood), but other European Geoparks are participating in other SIA's: Bergstrasse-Odenwald, Karawanken/Karavanke. Haute Provence, Lesvos, Psiloritis and Katla are involved in the project as role models.

- **GEOFOOD Project.**

  It is a brand for local food, products and restaurants in UNESCO Global Geoparks Registered by Magma Geopark, it got approved by the European Geoparks Network as official criteria to develop local food within UNESCO Global Geoparks.

The project is expanding and several UNESCO Global Geoparks adopted the brand to promote the connection between the unique Geoparks's geological heritage and the local food traditions.

Branding local product and restaurant with the GEOfood label means to sustain local communities in developing sustainable practices, keeping the connection with the soil, the landscape and the culture of the territory.

GEOfood is also a tourist opportunity for unique and authentic experiences that enrich both the body and the mind!

Main goals:

- To create common criteria for developing food experience in the UNESCO Global Geoparks.
- To boost local food as unique Geopark experience.
- To valorise the local SME´s in the food and tourism sector in the Nordic Countries.
- To promote the creative industries, like local chiefs and local video makers.
- To expand the tourism offer within specialized packages focused on local food.

- **GGN Brand Project**

The brand and communications project commenced in August 2018 and has involved input from 53 individual Geoparks, their local partners, and wider stakeholders, creating a fit for purpose brand from the ground up that can form the basis of our future promotion of UNESCO Global Geoparks.

The brief for this project was to create a global brand for the UNESCO Global Geopark network, underpinning opportunities to extend science education to a wider audience, and promoting more responsible tourism.

The Geotur guide should be able to identify some existing and potential geoproducts within his/her geopark and the roles of different stakeholders linked to them.

3.4. Good environmental practices from EGN members.

The operation of the UGGps partly through good environmental practices and their consequences, have been beneficial to the UN even before the 2030 Agenda for Sustainable Development was declared.

Just to enlist some:

- Women empowerment through the operation of women agro-tourism cooperatives in more than 75% of the UGGps;
- Youth employment in rural areas through a great number of enterprises operating in association with the UGGp management bodies in sections like nature activities, accommodation, food, local products, handcrafts and souvenirs;
- Bringing national investments for infrastructure in rural areas that led to better accessibility improving the quality of life of the local population;
- Encouragement the Geopark has given rural areas with decreasing populations.
- Bilateral and multilateral cooperation between UNESCO Global Geoparks that led to twining agreements between Geoparks and local authorities from different parts of the globe;
- Improvement of cross sectorial collaboration as Geoparks collaborate with the Network of the UNESCO Associated Schools (ASPNet) in many countries, improving the educational impact of Geoparks;
- School education employed in Geopark areas on nature preservation and natural disasters is significantly remarkable. Geopark program is providing an excellent outdoor school for young students and children to learn the strong linkage of nature with human life;

Transforming our world, the 2030 Agenda for Sustainable Development is a plan of action for people, the planet, prosperity, peace and partnership.

The 17 Sustainable Development Goals and 169 targets demonstrate the scale and ambition of this new universal Agenda. The Goals and targets will stimulate action in the following areas of critical importance for humanity and the planet: to end poverty and hunger and ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment; to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change; to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature; to foster peaceful, just and inclusive societies which are free from fear and violence; to strengthen global solidarity, focussed in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.

UNESCO Global Geoparks and

Sustainable Development Goals 2030

SDG	Content	Relevant Geopark Project(s) Novohrad-Nógrád UNESCO Global Geopark	Photo for illustration
1 NO POVERTY	End poverty in all its forms everywhere	• Through its partners the Geopark employs previously unemployed local people for maintenance of the infrastructure and natural resources. The Geopark advocates environment friendly tourism and regional development	
2 ZERO HUNGER	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	• The Geopark promotes local agricultural produce and sells them, beside organizes local markets at gateways and visitor centers of the Geopark	
3 GOOD HEALTH AND WELL-BEING	Ensure healthy lives and promote well-being for all at all ages	• The Geopark protects natural resources and interprets those assets in a healthy environment, partly through guided nature tours for all ages	
4 QUALITY EDUCATION	Ensure inclusive and quality education for all and promote lifelong learning	• The Geopark and its partners take part in adult training and manages guided tours for all ages	
5 GENDER EQUALITY	Achieve gender equality and empower all women and girls	• The Geopark and its partners have women in the leadership, and among the local staff women have important roles within the management structure	
6 CLEAN WATER AND SANITATION	Ensure access to water and sanitation for all	• Geopark partners bottle mineral water and sell it in Geopark visitor centers, besides free access to drinking water is available at those places, springs are protected, sewage system is installed everywhere	

Fig. 4.14. - Sustainable Development Goals in Novohrad-Nograd UGGp

7 AFFORDABLE AND CLEAN ENERGY	Ensure access to affordable, reliable, sustainable and modern energy for all	• Renewable thermal and solar energy are used at Geopark buildings and infrastructure, there is a new initiative to use electric cars and establish electric filling stations at visitor centers	
8 DECENT WORK AND ECONOMIC GROWTH	Promote inclusive and sustainable economic growth, employment and decent work for all	• The Geopark promotes local craft and produce, and sells them in gift shops of the visitor centers. The Geopark is the regional leading force for geotourism, contributing to the well-being of the local population	
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Build resilient infrastructure, promote sustainable industrialization and foster innovation	• Geopark buildings are environment friendly and tend to provide opportunities for high-tech innovations for the interpretation of geological heritage	
10 REDUCED INEQUALITIES	Reduce inequality within and among countries	• The Geopark through its partners employs women and gipsy people for the same salary as earned by man of white population in both countries of the crossborder geopark	
11 SUSTAINABLE CITIES AND COMMUNITIES	Make cities inclusive, safe, resilient and sustainable	• The Nograd county seat, Salgo-tarjan, as the main stakeholder of the Geopark takes part in the Modern Cities Program with the focus on Geopark assets. Through special programs the Geopark involves local people to know and partake in the preser-vation of Geopark heritage	
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Ensure sustainable consumption and production patterns	• The Geopark promotes bio products and educate people to lessen environmental impact, how to make the ecological footprint smaller	
13 CLIMATE ACTION	Take urgent action to combat climate change and its impacts	• The Geopark is active in raising public awareness towards environmental issues, organizes actions against pollution	

Fig. 4.15. - Sustainable Development Goals in Novohrad-Nograd UGGp

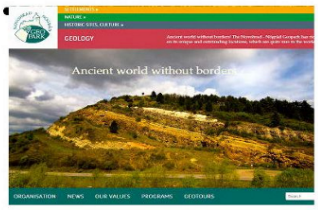
14 LIFE BELOW WATER	Conserve and sustainably use the oceans, seas and marine resources	• No present marine environment within the geopark	• X
15 LIFE ON LAND	Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	• Geopark partners are the nature conservation agencies in both Slovakia and Hungary as well, the Geopark promotes their activities concerning protection of habitats and biodiversity	• 
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Promote just, peaceful and inclusive societies	• The Geopark is a transborder Geopark uniting once separated communities and landscape again with the motto: "*ancient world without borders*"	• 
17 PARTNERSHIPS FOR THE GOALS	Revitalize the global partnership for sustainable development	• The Geopark has common projects with Slovak and Hungarian partners and contributes to the work of the Global Geoparks Network, like in the case of this very topic	• SUSTAINABLE DEVELOPMENT GOALS 17 GOALS TO TRANSFORM OUR WORLD UNESCO Global Geoparks

Fig. 4.16. - Sustainable Development Goals in Novohrad-Nograd UGGp

Goal 1: End poverty in all its forms everywhere (especially target 1.5)

Disaster risk reduction is essential to ending poverty and fostering sustainable development. The bottom-up approach of the UNESCO Global Geoparks reduces the vulnerability of local communities to extreme events and other shocks and disasters through active risk awareness and resilience training. Volcano and Geohazard Days are good examples for this.
UGGps strive for rural developments to preserve the integrity and living landscape of the countryside.

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (especially target 4.7).

UNESCO Global Geoparks actively educate their local communities and their visitors of all ages. UGGps are outdoor classrooms and incubators for sustainable

development, sustainable lifestyles, appreciation of cultural diversity and the promotion of peace like in the case of the 4 transnational UGGps in Europe.

Goal 5: Achieve gender equality and empower all women and girls (especially target 5.5)

UNESCO Global Geoparks strongly emphasize the empowerment of women through educational programmes or the development of women's cooperatives. Such cooperatives provide an opportunity for women to obtain an additional income in their own area and on their own terms. For geosite management more women are employed than man for example at Ipolytarnoc Fossils, they get equal salary and benefits.

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (especially target 8.9)

The promotion of sustainable local economic development through sustainable (geo)tourism is one of the key pillars of a UNESCO Global Geopark. This creates job opportunities for the local communities through tourism, but also through the promotion of local culture and products.

In the visitor centres local products are sold and there are constant weekend markets organised to sell local produce.

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable (especially target 11.4).

Protecting, safeguarding and celebrating our cultural and natural heritage are the foundation of the holistic approach of the UNESCO Global Geoparks. UGGps aim to give local people a sense of pride in their region and strengthen the identification with the area.

Goal 12: Ensure sustainable consumption and production patterns (especially target 12.8 and 12.b)

UNESCO Global Geoparks educate and create awareness on sustainable development and lifestyles. They teach the local communities and visitors to live in harmony with nature.

Goal 13: Take urgent action to combat climate change and its impacts (especially target 13.3)

All UGGps hold records of past climate change and are educators on current climate change. Through educational activities awareness is raised on the issue and people areprovided with knowledge to mitigate and adapt to the effects of climate change.

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development (especially target 17.6, 17.9 and 17.16)

UNESCO Global Geoparks are all about partnership and cooperation, not only between local stakeholders, but also internationally through regional and global networks were knowledge, ideas and best practices are shared. Experienced geoparks guide aspiring geoparks to reach their full potential.

The Geotur guide should be able to identify some actions taken in harmony with the goals of the 2030 Agenda for Sustainable Development within his/her own geopark and enlist some good environmental practices as examples.

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