

## UNESCO GEOPARK INITIATIVE AND BULGARIAN GEOCONSERVATION

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**ABSTRACT.** Twenty years ago at the ProGEO'98 meeting in Belogradchik, Bulgaria, the UNESCO GEOPARK initiative was announced. This year the scientific conference "Geoparks and Modern Society" devoted to this event will be held in the small northwest town with participation of geoconservationists from more than 15 countries from four continents. The Geopark initiative was launched as an instrument for coordination of the efforts to promote the international recognition of significant examples of the Earth's geological heritage, popularize knowledge on the Earth's history and trigger local sustainable development. Its original version was designed to set up a world network of areas called "geoparks", where significant geological features are recognized. Despite the initial enthusiasm, after a series of procedures, in 2001 the UNESCO Executive Board surprisingly decided that the UNESCO geosites/geoparks programme should not be pursued. Meanwhile the initiative received a huge international response and dozens of geoparks were developed in the frame of several years. At present, the European Geoparks Network comprises 71 Geoparks from 23 countries and the Global Geoparks Network includes more than 120 geoparks. Bulgaria was one of the first countries in Europe with scientifically developed geopark "Iskar Gorge". Unfortunately, due to lack of funding, this geopark remained in a working version. Despite the perfectly developed documentation and professional scientific description of 72 geosites, the next project, Geopark "Belogradchik Rocks", underwent two unsuccessful applications in the European Geoparks Network for the same reason. The new geopark projects "Rila" and "Burgas Lakes" are still in development. The main themes of the Bulgarian geopark projects are completely different and require individual approaches. Regarding the growing requirements of the Global Geoparks Network, development of an upgraded evaluation methodology for geosites in geopark environment, including both generally accepted and specific characteristics is necessary. This should be among the main purposes of the newly established National Committee of Geodiversity and Geoparks which has to take up its mandate as recommended by UNESCO's International Geoscience and Geoparks Programme from 2015.

**Keywords:** UNESCO GEOPARK Initiative, Bulgarian geoparks initiatives

### ИНИЦИАТИВАТА НА ЮНЕСКО ЗА ГЕОПАРКОВЕТЕ И БЪЛГАРСКАТА ГЕОКОНСЕРВАЦИЯ

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**РЕЗЮМЕ.** Преди двадесет години на срещата на ProGEO'98 в Белградчик, България, бе обявена инициативата на GEOPARK на ЮНЕСКО. Тази година в малкия северозападен град ще се проведе международна научната конференция "Геопарковете и съвременното общество", посветена на това събитие, с участието на геозащитници от повече от 15 държави от четири континента. Инициативата за геопарковете стартира като инструмент за координиране на усилията и насърчаване на международното признаване на значими примери на геоложкото наследство на Земята, популяризиране на познанията за историята на Земята и принос към устойчивото местно развитие. Оригиналната версия на инициативата е да се създаде световна мрежа от зони, наречени "геопаркове", притежаващи важни геоложки особености. Въпреки първоначалния ентузиазъм, след поредица от процедури, през 2001 г. изпълнителният съвет на ЮНЕСКО изненадващо реши, че програмата "Геосайтове/Геопаркове" на ЮНЕСКО няма да бъде следвана. В същото време инициативата получи огромен международен отзвук и в рамките на няколко години бяха разработени десетки геопаркове. Понастоящем Европейската мрежа от геопаркове обхваща 71 геопарка от 23 държави, а Глобалната мрежа включва над 120 геопарка. България е една от първите страни в Европа с научно разработен геопарк "Искърско дефиле". За съжаление поради липса на финансиране този геопарк остава в работен вариант. Независимо от перфектно разработената документация и професионалното научно описание на 72 геотопа, следващият проект Геопарк "Белградчишките скали" претърпя две неуспешни кандидатури в Европейската мрежа по същата причина. Новите проекти "Рила" и "Бургаските езера" все още са в начален стадий на разработка. Основните теми на българските проекти за геопаркови са напълно различни и изискват индивидуален подход. По отношение на нарастващите изисквания на Глобалната мрежа от геопаркове е необходимо разработването на усъвършенствана методология за оценка на геотопите в паркова среда, включваща както общоприети, така и специфични характеристики. Това трябва да бъде сред основните цели на новосъздадения Национален комитет по георазнообразие и геопаркове, който трябва да влезе в своите правомощия съгласно препоръките на Международната програма за геонауки и геопаркове на ЮНЕСКО от 2015 г.

**Ключови думи:** Инициативата Геопаркове на ЮНЕСКО, български геопаркови инициативи

### Introduction

This year marks 20 years since the announcement of the UNESCO GEOPARK Initiative at the ProGEO'98 Meeting in Belogradchik (Patzak and Eder, 1998). This event produced a big impact on the Bulgarian geoconservation. It prompted the financing of a big project for compilation of a National inventory of geosites and designation of areas with significant geological heritage appropriate for geoparks establishment. Within four years after the meeting a State Registry and Cadastre of the

Bulgarian Geological Phenomena was created on the basis of a remarkable database including well illustrated scientific dossiers of 188 geosites in Bulgarian, English and Russian, evaluated according to the original Bulgarian methodology developed specifically for assessment and characterization of the nominated geosites. At the same time, as the essence of the project, the scientific foundations of the first Bulgarian geopark Iskar Gorge were laid, presented at the 3rd European Geoparks Meeting in Eggenburg, Austria (Jeleu et al., 2002).

## Historical review of the GEOPARK initiative

The idea for creation of a global network including areas with geological heritage of international value under the auspices of UNESCO was first hinted in the “Draft Programme and Budget 1998-1999” (document 29 C/5, para. 02036) as an initiative to “promote a global network of geo-sites having special geological features” (UNESCO General Conference, 1997). It was announced at the ProGEO’98 Meeting in Belogradchik as a new UNESCO GEOPARK Programme which acts in the framework of two internationally agreed action plans (Patzak & Eder, 1998): the Agenda 21 for Environment and Development into the 21st century including education, public awareness, training and capacity building, and the 1972 Convention for protection of the World cultural and natural heritage. This initiative was launched to create a UNESCO GEOPARK Programme “in response to the numerous requests from the Member States expressing their interest in improving the international recognition of their national geological heritage” (Patzak & Eder, 1998).



Fig. 1. Participants in the ProGEO’98 meeting in Belogradchik among the Belogradchik rocks

The Division of Earth Sciences took the initiative to coordinate international efforts to prepare the framework of future conservation activities and launching of a new dedicated programme endorsed at the 156th session of the UNESCO Executive Board (UNESCO Ex. Board, 1999a). It was aimed to promote the international recognition of significant examples of the earth’s geological heritage, popularize knowledge on the earth’s history and trigger local sustainable development. Its original version was designed to set up a world network of natural “parks” where “significant geological features” are recognized. Pursuant to the programme, the Executive Board undertook an initiative on geoparks, focused on the preservation of significant examples of the geological environment intended to contribute to the local sustainable development. According to this document the Geoparks programme was envisaged as a separate entity designed to complement the World Heritage Convention and the Man and the Biosphere (MAB) programme.

At least initially, it was planned to make use of the existing structures of the IGCP Programme for the further development of this new initiative. Geoparks, designated to integrate geoconservation with biological conservation like “natural parks”, were envisaged to be under the exclusive authority of

the government in the country where it is situated. As a consequence the Geopark initiative encouraged identification of geodiversity in many nature parks with established infrastructure, budget and management plans to provide a geological framework of their natural heritage.

Considering the approval of this initiative by the 29th UNESCO General Conference (1997) and having examined document 156 EX/11 Rev. of the UNESCO Ex. Board (1999a), at its 30th session the Director-General was invited to implement the corresponding plan of action by preparing a feasibility study on developing a UNESCO geosites/geoparks programme and to submit it to the Executive Board preferably at its 159th session but not later than the 160th session (UNESCO Ex. Board, 1999b, Decision 3.3.4, p. 11).

The result of the feasibility study was reported at the 160th session of the UNESCO Executive Board (2000a) with a conclusion that geological heritage promotion is an important recognized need, and that an alternative to the World Heritage List is required for the recognition of geological/geomorphological sites of national, regional and international importance that may not rank as of World Heritage value. In other words, geoparks are proposed as an alternative UNESCO designation because not all of the world’s scientifically or historically important geosites could meet the ‘outstanding universal value’ criterion required by the 1972 UNESCO World Heritage Convention (Hose, 2012).

After considering various approaches to geological heritage conservation and referring to the support expressed by governmental and scientific agencies in many countries, the feasibility study recommended that the geoparks activity should be integrated into the World Network of Biosphere Reserves within the MAB programme, through developing a “Geoparks seal of excellence”. It should have three main purposes: 1) the use of geological sites in educating the broad public, 2) the use of their potential as a tool ensuring sustainable development, and 3) the conservation of the geological heritage for future generations.

The Director-General presented the results of the feasibility study at the sixteenth session of the MAB International Coordinating Council in November 2000 (UNESCO Executive Board, 2000b). Some delegations agreed on the importance of safeguarding geological sites, but disagreed on making such activity an integral part of the function of the World Network of Biosphere Reserves. Following the recommendation of the MAB International Coordinating Council against inclusion of a Geoparks programme as part of the World Network of Biosphere Reserves the UNESCO Executive Board made the same conclusion and invited the Director-General “not to pursue the development of a UNESCO geosites/geoparks programme, but instead to support ad hoc efforts with individual Member States as appropriate” (UNESCO Ex. Board, 2001a,b).

This short but dramatic period of the early history of the UNESCO geoparks initiative is indicative of the enormous difficulties faced by its supporters in the Member States. However, the idea turned out to be attractive and was well accepted in many European countries. Meanwhile in June 2000 the European Geoparks Network was established at

Lesvos, Greece, by four regions of different European Countries—France, Germany, Spain and Greece. Over the next few years many natural parks in Europe applied to join it. Many countries started to recognize and estimate geological sites or landscapes of international value within their national boundaries. In February 2004 in Paris, the UNESCO international group of experts decided to establish Global UNESCO Network of Geoparks. It was also decided to include the existing 17 European Geoparks and 8 new Chinese Geoparks in the Global UNESCO Network of Geoparks which now includes more than 120 global geoparks. In October 2005 the European Geoparks Network signed the “Madonie declaration” according to which it is recognized as the official branch of the UNESCO – Global Geoparks Network in Europe.

Despite UNESCO’s central role in establishing this network, its relationship to Geoparks has been defined as ‘ad hoc’ for over a decade. However, this ‘ad hoc’ arrangement does not allow UNESCO and Geoparks to capitalise upon many of the potential benefits of a more formalised relationship (UK National Commission for UNESCO, 2012). The growth of the Geoparks network has also created potential long-term risks which need to be addressed. According to the UK National Commission for UNESCO (2012) the geopark access to UNESCO branding could help raise the profile of sites, strengthen recognition of Global Geoparks as a brand and convey internationally recognized quality and standards. As a result of the long term international efforts UNESCO’s General Conference approved, on 17 November 2015, the International Geoscience and Geoparks Programme (UNESCO General Conference, 2015) in order to provide an international status to a former Global network of sites of geological significance UNESCO. Thus, the Geopark concept underwent a new development and the existing geoparks received the label “UNESCO Global Geopark”.

## Bulgarian initiatives

The first Bulgarian geopark “Iskar Gorge” was developed under the project of the Ministry of Environment and Water for the Register and Cadastre of the Bulgarian geological phenomena. The problems and perspectives of this area were discussed at the 3rd European Geoparks Meeting in Eggenburg (Jelev et al., 2002).

The Iskar Gorge is a remarkable 100 km long canyon crossing the Balkan Mountain, where metamorphic, igneous and sedimentary rocks of the whole Phanerozoic Earth history are exposed: Neoproterozoic-Ordovician diabase-phyllitoid complex, Early Paleozoic (Ordovician, Silurian and Devonian) graptolitic black shales, Carboniferous anthracite coal deposits with well preserved megaflora, continental terrigenous and volcano-sedimentary Permian deposits, complete Triassic section including the famous Buntsandstein facies and Alpine carbonate Triassic, representative Jurassic section, Urgonian type Lower Cretaceous, Mediterranean (volcano-sedimentary) and North European (platform) type Upper Cretaceous, Cretaceous/Tertiary boundary iridium layer, Paleocene, Eocene and Neogene sediments, as well as different genetic types of Quaternary deposits including loess. It includes unique geological phenomena of scientific and educational value as for example Ordovician-Silurian, Silurian-Devonian, Jurassic-

Cretaceous and Cretaceous-Tertiary chronostratigraphic boundaries, sequence-stratigraphic successions, global impact events, deformational phases marked by angular unconformities, neotectonic events, different genetic types of ore deposits and deposits of industrial minerals. Besides its geological advantages as a real canyon with its neotectonic evolution, forming it as one of the most impressive canyons on the Balkans, the Iskar Gorge preserved several outcrops of historical value for the Bulgarian geology, as for example the outcrop near Chelopek village, which is one of the first fossil deposits in Bulgaria, where in its “Inoceramid Cretaceous” marked with “1” on Fig. 2, Franz Toula (1878) described first Upper Cretaceous fossils in Bulgaria – ammonites, echinoids and bivalves.



Fig. 2. Part of the first map of the Iskar Gorge by Franz Toula (1878) at a scale 1:288000 made in 1875 during his route Sofia-Berkovitsa-Vratsa-Ljutibrod-Sofia: 1 – Inoceramid Cretaceous; 2 – Orbitolinid Cretaceous; 3 – bryozoan sandstones; 4 – Caprotina (Requienia) type limestone

The foundations of the Geopark Iskar Gorge were developed according to the existing UNESCO criteria for a geopark in operation at that time: 1) it embraces a territory, including one or more sites of scientific importance, not only for geological reasons but also by virtue of its archeological, ecological or cultural value; 2) it has a management plan designed to foster sustainable socio-economic development (by geotourism); 3) in its territory should be demonstrated methods for conservation and enhancing geological heritage and provided means for teaching geoscientific disciplines and broader environmental issues; 4) it has to be proposed by the public authorities, local communities and private interests acting



together; 5) it could be part of a global network that will demonstrate and share best practices with respect to Earth heritage conservation and its integration into sustainable development strategy.

Unfortunately, due to lack of funding, this geopark remained in a working version for many years. Now a new initiative of three Iskar municipalities – Mezdra, Svoge and Novi Iskar is about to revive this wonderful project and reinforce the efforts to create “Iskar Canyon” Geopark (Fig. 3).

The concept of the next geopark project “Belogradchik Rocks”, founded in one of the most disadvantaged areas in Europe – Northwest Bulgaria, is based on the famous rock ensemble of the Belogradchik Rocks, considered to be the most famous geological phenomenon in Bulgaria with global significance. It is based also on the remarkable geodiversity of the area between the Balkan ridge and the Danube, including almost all petrographic types of sedimentary, igneous and metamorphic rocks belonging to all Phanerozoic systems. Despite the perfectly developed documentation and professional scientific description of 72 geosites, it underwent two unsuccessful applications in the European Geoparks Network for the same reason as geopark “Iskar Gorge”.



Fig. 3. The mayors of the Iskar municipalities Svoge, Mezdra and Novi Iskar decided to use the remarkable geological heritage of the Iskar Gorge, as for example of its entrance near Lyutibrodo village, and to reinforce the development of Geopark “Iskar Canyon”

Nevertheless, during all these years the Bulgarian geoconservationists continued to work on identifying geodiversity in three perspective geopark areas - “Belogradchik Rocks”, “Rila” and “Burgas Lakes”.

Documentation of the aspiring Geopark “Belogradchik Rocks” is entirely completed on the basis of the existing methodology for evaluation and characterization of geosites, and only financial support to fulfill the recommended by the GGN Bureau actions is required. Recently the geological setting of the area was reviewed by Tronkov and Sinnyovsky (2012). Up to now this wonderful geological phenomenon has been estimated by many experts and ordinary people. Words of admiration over the beauty of Belogradchik Rocks have been expressed by many writers and poets. It is not possible to mention all the works of art and science inspired by their appearance, as for example the famous aquarelle of Felix Kanitz from 1873 (Fig. 4). However, it is worth to remember the inspiring comparisons to other remarkably beautiful places of nature in different parts of Europe made by the French traveler

Jerom Adolf Blanqui (1843): “The narrow mountain gorges of Olioul in Province, Pancorbo Pass in Spain, the Alps, the Pyrenees, the wildest mountains of Tirol and Switzerland hold nothing that can be compared to this”.

Recently the Belogradchik Rocks became the most famous opera scene in the world and the cannons from Kanitz’s aquarelle have been replaced by stage sets (Fig. 5).

Now the rocks are the majestic background of the spectacles of the summer festival of the Sofia Opera and Ballet „Opera of the Peaks – Belogradchik Rocks” where spectacles are performed in the open air inside the Belogradchik Fortress. This wonderful idea attracts many visitors from Bulgaria and abroad and contributes to the global promotion of the natural and cultural potential of the Belogradchik Rocks.



Fig. 4. View of the Roman fortress “Kalet” at the top of the Belogradchik Rocks - aquarelle by Felix Kanitz from 1873



Fig. 5. The summer festival of the Sofia Opera and Ballet “Opera of the peaks – Belogradchik Rocks 2018”

Geopark Rila (Синьовски, 2014; Sinnyovsky, 2015; Sinnyovsky et al., 2017a) is at a stage of scientific characterization of geomorphosites related to the main theme of the geopark – fossil glacial geomorphology and alpine landscapes. Additionally, several geotrails of historical value for the Balkan geology and geomorphology are under development. Rila Mountain is the highest mountain on the Balkan Peninsula. It has wonderful alpine landscapes but also remarkable cultural heritage dating back to Roman times. The famous middle age Rila Monastery attracts millions of visitors every year. This makes the task of creating Geopark Rila very difficult and responsible, because the main theme of the geopark should be involved in the context of the remarkable spiritual heritage of the mountain.

Besides places and events related to its centuries-old history, the mountain also offers many opportunities for popularizing well-forgotten events occurring during the new history of Bulgaria. The so-called Kaiser's roads which were built by Tzar Ferdinand 100 years ago to connect Bulgaria with the newly liberated Bulgarian territories south of Rila, can be turned into wonderful geotrails (Синьовски и др., 2017) to demonstrate both the Quaternary glacier formations and the wonderful alpine landscapes (Fig. 6). These roads are known for having passed the high guest of Tzar Ferdinand, the German Emperor and King of Prussia Kaiser Wilhelm II at the end of the Second World War. At the sight of Pirin Mountain from Nehtenitsa area under Yakoruda Cirque he exclaimed: "O wonderful incomparable picture! Who in Europe has ever thought that the Balkan Peninsula hides such magnificent scenarios and mountain landscapes".



Fig. 6. The Kaiser' Road through Zavrachitsa Pass

Geopark "Burgas Lakes" (Sinnyovsky et al., 2017b) is the newest idea, devoted to the wonderful maritime landscapes, focused on the Quaternary sea level changes, lagoon formation and beach sand modeling. Its initial stage includes investigation of the concepts concerning the sea level changes of the Black Sea due to a Bosphorus two-way exchange of water between the brackish or freshwater Black Sea and the fully marine Mediterranean Sea driven by the Milankovitch climatic cycles. The catastrophic sea-level rise due to an abrupt Early Holocene saltwater flooding of the Black Sea announced by Ryan et al. (1997a,b), linked to the biblical legend about Noah's Flood, triggered tremendous interest by the wide public.

Important part of the region's geodiversity are the old marine terraces outlining the ancient shorelines of the Black Sea basin: the Nymphaean, the Neoeuxinian, the Karangatian, the Early Euxinian and the Chaudinian (Fig. 7). They are represented by flattened surfaces or sediments dated on the basis of rich bivalvian fauna. Ramsar sites and dune habitats are subject of intensive research due to the rare and protected inhabiting species. These biotopes are the link between geodiversity and biodiversity within the lake complex and have a high potential for geomorphosites and geoecotrails to be developed for geotourism purposes (Sinnyovsky et al., 2017b). The remarkable geodiversity of the area is complemented by the ruins around the ancient towns Anhialo (Pomorie) and Apolonia (Sozopol) testifying to the long history of life on the Black Sea coast. The establishment of a Geopark on the Black Sea coast will add this unique seaside to the European

Geoparks Network and will expand its geography to the lullaby of the ancient European civilization – Pontus Euxinus.



Fig. 7. The Atanasovsko Lake is part of the Burgas Lake Complex, formed after the subsidence of the Black Sea coast in the last several thousands of years

## Conclusions

The main themes of the Bulgarian geopark projects are completely different and require individual approaches. The diverse themes presuppose development of an upgraded evaluation methodology for geosites in geopark environment, including both generally accepted and specific requirements. The present paper represents the history of the UNESCO Geoparks which was discussed at the International Conference "Geoparks and modern society - protection, promotion and sustainable use of Earth heritage in park environment" in Belogradchik, dedicated to the 20th Anniversary of the UNESCO GEOPARK Initiative announced at the ProGEO'98 Meeting in the small northwest Bulgarian town. The Bulgarian experience in geopark development and the previous achievements of the Bulgarian geoconservation shows that many efforts should be made for recognition of the Bulgarian geoparks as Global Geoparks. Despite its natural beauties and advantages, surpassing many geoparks with the label "Global Geoparks", without administrative and legal changes, Bulgarian geoparks have no chance to become part of the Global Geoparks Network. Although Geoparks initiative is a bottom-up process, without state funding, this idea is condemned to failure in Bulgaria. An important role in this direction could be taken by the establishment of a National Committee of Geoconservation and Geoparks, according to the recommendations of the International Geoscience and Geoparks Programme (IGGP). This committee, recognized by the National Commission for UNESCO, will coordinate identifying and evaluation of the geological heritage, raising public awareness of its importance, and will promote the development of new UNESCO Global Geoparks, provide information at the national level about the global and regional networks of UNESCO Global Geoparks, and initiate supporting actions for sustainable development of geopark areas in the country.

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