Aspiring
Geopark Belogradchik Rocks
European Geoparks Network

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A. Identification of the Area

1. Name of the proposed Geopark
The name of the proposed Geopark is **Belogradchik Rocks** after the name of the famous natural monument “Belogradchik rocks” near the town of Belogradchik in North West Bulgaria.

![Administrative map of Vidin District](image)

**Figure A.1.1. Administrative map of Vidin District:**
1 – Geopark area; 2 – State border; 3 – District boundary; 4 – Municipality boundary; 5 – District centre; 6 – Municipality centre

2. Surface area, physical and human geography characteristics of the proposed Geopark

2.1 Physical geography
The total area of the Geopark is 1,373 square kilometers. It is situated in the most northwest part of Bulgaria between the ridge of the West Balkan and the Danube (Figs. A.1.1, A.2.1). The area covers part of Vidin district, the most northwestern region of Bulgaria, including 4 municipalities: Belogradchik, Dimovo, Chuprene and Ruzhinci. The area is defined by the administrative boundaries of the municipalities including the most attractive geosites of this part of the country. In the center of the Geopark are the famous Belogradchik Rocks (Fig. A-3) distributed in the form of an elongated strip in east-west direction with a length of 18 km and a width of 3-4 km.

The southwest part has a high relief while northeast part is a hilly plain, part of the Danube plain. Morphologically, Geopark area can be divided into three parts from southwest to northeast:
- Balkan, with medium to high mountain relief, and altitude of the highest peaks over 2000 m;
- Fore-Balkan, with transient low mountain relief, typical of the northern peripheral parts of the Balkan chain with highest peaks 900-1100 m;
- Danube Plane, with a hilly plain relief, whose altitude is gradually reduced to 30 m at the Danube. This subdivision is largely predetermined by the boundaries of the tectonic units in the area.

Balkan part is composed mainly of metamorphic and igneous rocks of Neoproterozoic and Early Paleozoic age. This is the true Balkan with steep peaks and deep valleys. Its highest peaks are Midzhur (2168 m), Obov vrah (2033 m), Martinova chuka (2011 m) and Replyanska tsurkva (1969 m).

Medium Fore-Balkan part is composed of Paleozoic and Mesozoic rocks. It coincides entirely with the large Belogradchik anticline which core is composed of Paleozoic and Triassic rocks but the limbs are of strong Upper Jurassic – Lower Cretaceous limestones, forming an impressive inverse relief. Morphologically, the Fore-Balkan part is represented by ridges, plateaus, hills, valleys and gorges.
The highest peaks in this part are located on the protruding limestone ridges in the anticline limbs with NW-SE direction, cut by deep gorges of Stakevska, Chuprene and Lom rivers, originating from the West Balkan.

Northeast Danube Plane falls in the West Moesian platform with flat and hilly terrain and average altitude of 130 meters. It is composed mainly of Neogene and Quaternary sediments and is crossed by 100-150 m deep river valleys of Archar, Skomlya and Lom rivers oriented to the northeast.

**Climate**

Overall, the climate is continental to humid in the southern uplands. Due to the significant displacement between the southwest and northeast of the area, the climate is quite different. In the northeast part the average temperature in July is 20°C and in January it is 0°C. These temperatures decreased drastically in southwest direction.

The average rainfall for the Fore-Balkan and Danube plane is 500-600 mm/m² but in the southern part of the area it reaches 1200-1400 mm/m² per year. Snowfalls can occur from October to May and represent an important part of the annual precipitation, the stock of which is gradually released when it melts in the spring and strongly influences the rate of flow of the rivers.

**Landscape and ecology**
Generally, the landscape is dominated by forests and grassland. Priority habitats are Balkan range bedstraw-beech forest, Balkan range subalpine beech forests, Moesian-Carpathian andropogonid steppes, Continental bat caves, Balkan range ramonda carbonate cliffs, Balkan range spruce forests, Balkan range Bruckenthalia heaths, Balkan range fir and fir-beech forests, Balkan range Scots pine forests, Moesian thermophilous maple woods (Acer monspessulanum) and Moesian lilac thickets. In the area is situated one of the largest biosphere reserves in Bulgaria the Chuprene Reserve (since 1977). Reserve "Chuprene" was created for protection of the most northern pine forests in the country populated by 68 species of birds. It is the northernmost habitat of spruce (Picea abies) and the northern locality of dwarf pine (Pinus mugo) in the country.

Geopark area includes also parts of the following protected areas NATURA 2000: PZ Western Balkan - to protect the habitat of beech forests oak forests, semi-natural dry grasslands and scrubland facies on limestones, PZ Makresh - to protect the habitat of the Balkan-Pannonian oak forests, and PZ West Balkan - for the protection of birds (including white-back woodpecker, long-legged buzzard, lesser kestrel, owl, white stork, mountain lark). Waterfall Belata voda of Stavekska River and Chuprene beeches near Stakevtsi village are natural landmarks. Geological landmarks s. str. are Belogradchik rocks, Pine Stone and Magura cave.

Identified rare and endangered plant species in the Geopark area are: High-mountain bisserka (Melica altissima), Mountain yellow cream (Lilium jankae), Sheet covering streptopus (Streptopus amplexifolius), Tomasinian crocus (Crocus tommasinianus), Bulgarian erantis (Eranthis bulgarica), Mountain peony (Trollius eropaeus), Narcissus resembling pasque-flower (Anemone narcissiflora), Alpine clematis (Clematis alpina), Pink peony (Paeonia mascula), Round leaf rosyanka (Drosera rotundifolia), Stefcho’s sedum (Sedum stefco), Velenovski hen (Sempervivum velenoskyi), Bulgarian alchemilla (Alchemilla bulgarica), Kovachev broom (Chamaecytisus kovacevi), Pea vetches (Vicia pisiformis), Creeping senega (Polygala supine), Banat senega (Polygala hospita), Red lime (Tilia rubra), Yellow gentian (Gentiana lutea), Spotted gentian (Gentiana punctata), Belladonna (Atropa belladonna), Serbian ramona (Ramona serbica), Siberian melic grass (Symphyandra wanneri).

In the Geopark area are established the following rare and endangered animal species: Apollo butterfly (Parnassius apollo), Stag beetle (Lucanus cervus), Rhinoceros beetle (Oryctes nasicornis), Barbel (Barbus meridionalis), Bullhead (Cottus gobio), Plain pond turtle (Emys orbicularis), Hermann’s tortoise (Testudo hermanni), Snake snake (Elaphe longissima), Black stork (Ciconia nigra), Griffin (Gips fulvus), Goshawk (Accipiter gentilis), Sparrowhawk (Accipiter nisus), Long-legged buzzard (Buteo rufinus), Golden eagle (Aquila chrysaetos), Kestrel (Falco naumanni), Peregrine falcon (Falco peregrinus), Wood grouse (Tetrao urogallus), Rock partridge (Alectoris graeca), Owl (Bubo bubo), White breast swift (Apus melba), Black woodpecker (Dryocopus martius), Red-backed shrike (Lanius colurio), Redstart (Phoenicurus phoenicurus), Spotted rock thrush (Monticola saxatilis), Semi-collared flycatcher (Ficedula semitorquata), Raven (Corvus corax), Hedgehog (Erinaceus concolor), Greater horseshoe bat (Rhinolophus ferrumequinum), Lesser horseshoe (Rhinolophus hipposideros), Greater mouse-eared bat (Myotis myotis), Lesser mouse-eared bat (Myotis blythii), Grey long-eared bat (Plecotus austriacus), Pipistrelle (Pipistrellus pipistrellus), Schreiber’s bat (Miniopterus schreibersii), Garden dormouse (Eliomys quercinus), Snow vole (Chionomys nivalis), Wolf (Canis lupus), Brown bear (Ursus arctos), Otter (Lutra lutra), Goldie (Martes martes), Wildcat (Felis silvestris), Pwc (Lynx lynx), Ibex (Rupicapra rupicapra).

**Hydrography**

There are three main river valleys in the area - Archar, Skomlya and Lom, flowing entirely within the Geopark and flowing into the Danube. The length of the longest Lom river is 92.5 km.
The southern Balkan part is drained by Lom river in which flow the waters from the drainage basin of Stakevska and Chuprene rivers. The rate of flow of Stakevska river and Lom river at their junction could reach 15 m$^3$/s in the spring. In September their rate of flow drops dramatically to less than 3 m$^3$/s. Archar river drains the western part of the area. The cross-section upstream of the river valleys is characterized by a deep incision and steep slopes. Downstream they enter the flat terrain and become lowland rivers. Skomlya is a small river that flows only in lowland, from the middle of the area to the Danube. Sometimes in the summer Archar and Skomlya rivers run dry and remain without water until autumn.

As the limbs of the Belogradchik anticline are composed of limestones, the middle Fore-Balkan part is covered by large karst fields with two perennial high-flow karst springs (geosites No 38 and 40).

### 2.2 Human geography

#### Population

The North-West Region of Bulgaria, including Vidin, Montana and Vratsa districts, is the most economically underdeveloped region of Europe. Geopark “Belogradchik rocks” covers sparsely populated area of Vidin district with high unemployment and low incomes.

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Agro-climatic conditions favor the cultivation of grain, fodder, industrial crops and perennial plants.

The territory of the Geopark is defined as an area without risk of drought, so the population is mainly engaged in agriculture, livestock, herbs, logging and wood processing.

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</table>

Warm and slightly dry regions (flat and hilly lands and riparian areas of the transition to the Danube plain) favors growing medium thermophilic cultures including corn, beans, soybeans, sunflowers, beets.
The entire population of the four municipalities is 19,573 people living in 58 settlements. Distribution by municipalities is as follows: Belogradchik – 6,602 people (18 settlements), Dimovo – 6,514 people (22 settlements), Ruzhintsi – 4,374 people (10 settlements), and Chuprene – 2,083 people (8 settlements).

Rural depopulation is the main feature of the human geography of the area. Statistics for the population of the municipalities shows that this trend has continued since the 30s of the 20th century (Tables 2.1-2.4).

3. Organization in charge and management structure (description, function and organigram) of the proposed Geopark

Organization in charge

After the unsuccessful application of the Geopark in 2010, including only geomorphological formations near Belogradchik town, a new concept of the Geopark was developed. Following the recommendations of EGN for a significant extension of the area, in 2014 was registered a Non-governmental organization (NGO) of four municipalities in whose territory crop out rocks of whole Earth history from Proterozoic to Quaternary.

Geopark “Belogradchik Rocks” is managed by “Association for development of Northwest” (ADNW). This is a voluntary association of four municipalities whose territory covers Geopark: Belogradchik, Dimovo, Chuprene and Ruzhintsi, based in the town of Belogradchik.

ADNW is registered according to the basic principles and provisions of the Constitution and laws of the Republic of Bulgaria.

The main objectives of ADNW are:

- To develop the potential and resources of the North-West in order to achieve sustainable development in the region;
- To carry out activities to maintain and promote the geological heritage of the region according to the principles of the geoconservation and sustainable use of geological phenomena: landscape, rock, fossil and mineral sites, by informing the public, advice to the authorities, research and cooperation with similar regions and scientific institutions in the country and abroad.
- Prepare information and education programs to promote the relationship of geological heritage with historical and cultural heritage of the region.
- To create a management plan for the geological attractions of the Geopark and access to ensure sustainable management, identification and protection of geosites, and use them for education, interpretation and geotourism.
- Make all the necessary legal and factual actions for the establishment of the Geopark on the territory of the four municipalities and its nomination for inclusion in the European Geoparks Network, in accordance with national and international regulations;
- To promote the development of the Northwest Region as an attractive tourist destination at national and international levels;
- To develop environmental protection, including waste management and pollution prevention;
- To promote the region to Bulgarian and foreign investors to help eliminate unemployment and to stimulate raising the standard of the local population.
- To preserve cultural, historical and ethnographic heritage in Northwest Region and create conditions for development of different forms of sustainable tourism: geotourism, ecotourism, rural tourism, etc.

Function of the ADNW

The governing bodies of the Association are the General Assembly and the Management Board (Fig. A.3.1).

The General Assembly is the supreme body of the Association. It consists of delegates of all municipalities selected and authorized by the competent authorities. The General Meeting shall be convened at least once a year by Management Board or by the initiative of one third of the members.
According to article 25 § 3 of the Statute of ADNW the Sessions of the General Assembly shall be public and shall be conducted by the President. The President shall invite to meetings of the General Assembly members of the research projects, investors, local organizations and other groups that are working on issues on the agenda or need for their opinion. For each session of the General Assembly a minute is required, which shall be signed by the President of the Management Board.

The Management Board is operational, permanent body of ADNW, whose members and President are elected by the General Assembly. The board is composed of members of the Association, but may include persons who are not members. The mandate of the Board is for a period of two years.

The Management Board:
- represents the association and determine the representative power of its individual members;
- ensure the implementation of the decisions of the General Assembly;
- disposes of the property of the Association in compliance with the statute;
- prepare and submit to the General Assembly a draft budget;
- prepare and submit to the General Assembly a report on the activities of the Association;
- determine the order and organize the activities of the Association, including the common benefit, and is responsible for it;
- determine the address of the Association;
- takes decisions on all matters which by law or the Statute do not belong to any other authority;
- fulfills the obligations laid down in the statutes.

The President of the Board:
- Represents ADNW to public authorities and/or other legal entities and individuals from home and abroad and the operational management of the Association;
- Performs internally relationships and coordination between the ADNW bodies;
- Convenes and preside over the meetings of the Board and the General Assembly;
- distributes tasks, manage, coordinate and monitor implementation of authorized personnel and staff;
- appoints and dismiss the paid operating personnel;
- concludes transactions on the additional activity and administer the property and funds of the Association in compliance with the Constitution and laws;
- organizes the implementation of assistance activities;
- reports on its activities to the Board;
- convenes and presides over the meetings of the Board.

![Organigram of the proposed Geopark](image)

**Figure A.3.1. Organigram of the proposed Geopark**

Geopark Director is a permanent member of the Management Board. He maintains the relationship of the Board with working groups and offers performance or termination of activities related to Geopark development. Director shall organize the activities of the working groups and manage the implementation of the development plan, offering new measures to protect and promote geodiversity. Director is responsible for international relations and implementation of projects for the improvement and promotion of the geosites, for implementation
of educational activities in geopark and links with the business community and the public. The working groups are composed of experts in various fields of earth sciences, archaeology, public relation and GIS:

- Structural geology, igneous and metamorphic rocks;
- Paleontology and stratigraphy;
- Geomorphology and karst;
- Biodiversity and landscape;
- Archaeology and history;
- Museums and visitor centres;
- Culture and public relations;
- GIS documentation and analyses.

They include local experts and experts from the University of Mining and Geology, Bulgarian Academy of Sciences, Sofia University and State University of Moscow, Russia.

4. Application contact person

Prof. DSc Dimitar Sinnyovsky, author of the present Application Dossier

e-mail: sinsky@mgu.bg

Prof. Sinnyovsky is the coordinator of the Register and Cadastre of the Bulgarian geological phenomena, created in 2003 by the Project of the Ministry of Environment and Water, the author of the original Bulgarian methodology for estimation of the geological phenomena (Sinnyovsky et al., 2002) and co-author of the first Bulgarian Geopark “Iskar Gorge” represented at the Third European Geoparks Network Meeting in Eggenburg (Jelev et al., 2003).

The present Application Dossier is made on the basis of the newly developed geological database of the Geopark Belogradchik Rocks, under the Project 02-72 funded by the National Science Fund of the Ministry of Education and Science (Sinnyovsky, 2014). The Geopark area has been significantly expanded, far beyond the famous Romantic Valley, which was the previous application. In this study new geoconservation approach was applied with precise GIS documenting of the area and scientific estimation of geosites of aesthetic, scientific, historical, cultural and spiritual value www.mgu.bg/geopark-belogradchishki-skali/. 
B. Geological heritage

1. Location of the proposed Geopark

Geopark “Belogradchik rocks” is located in Northwest Bulgaria between the Balkan ridge and the Danube (Figs. A.1.1, A.2.1). Its southwest and northeast boundaries coincide with the state border with Serbia and Romania. UTM-coordinates of the Management centre based in the town of Belogradchik are 34 T 636144 E; 4831949 N (N 43°37ʹ41ʺ; E 22°41ʹ15ʺ).

2. General geological description of the proposed Geopark

2.1 Regional geological setting

Geopark Belogradchik Rocks includes all types of igneous, volcanic, sedimentary and metamorphic rocks from Neoproterozoic to Quaternary. It covers parts of four major morphotectonic units: West Balkan, West Fore-Balkan, Kula zone and Moesian platform (Fig. B.2.1). The first three of these units are part of the Alpine Carpathian-Balkan orogen belt. Moesian platform is product of the epihercinian (or epicaledonian) consolidation.

West Balkan zone is represented by Berkovitsa and Vratsa Units, separated by Plakalnitsa thrust. The southern boundary is outside the area. Northwest boundary with Fore Balkan is the Vratsa thrust. West Balkan is composed of Neoproterozoic high-grade and Cambrian low-grade metamorphic rocks, covered by Late Paleozoic terrigenous deposits. Remarkable feature of Berkovitsa unit is the ophiolitic complex, product of oceanic spreading zone.

West Fore-Balkan is composed of Montana and Belogradchik Units built of Paleozoic and Mesozoic rocks, separated by Vredernik thrust. They are the building blocks of the large Belogradchik anticline, forming an impressive inverse relief with steep limestone edges in both limbs (Figs. B.2.2; B.2.3).

Kula Zone is separated from the Fore Balkan by the Fore-Balkan thrust and the boundary with the Moesian platform is the so called Peri-Carpathian fault. This zone is considered to be part of the South Carpathians, composed of Cretaceous and Paleogene sediments covered by post-tectonic Neogene and Quaternary deposits.

Moesian platform is a stable zone with epicaledonian or epihercinian consolidation. It is composed of Late Paleozoic and Mesozoic rocks established in drilling sections in the northern part of the Geopark. These sediments are entirely covered by Neogene and Quaternary deposits.

Figure B.2.1. Tectonic units and major faults: 1 – Peri-Carpathian thrust; 2 – Fore-Balkan fault; 3 – Vredernik thrust; 4 – Vratsa thrust; 5 – Plakalnitsa thrust

2.2 Stratigraphy

West Balkan

Berkovitsa unit builds the southern part of the West Balkan zone, composed mainly of Neoproterozoic and Early Paleozoic rocks. The oldest rocks of the unit (and in the Geopark) are the rocks of the ophiolitic Chernirah metabasic complex (Neoproterozoic) composed of three metamorphic units: Kopilovtsi metagabbro and ultrabasites, Monastir metabasites and Ruptsi pillow lavas.
Figure B.2.2. Schematic geological map of the Triassic System in the Belogradchik Tectonic Unit (Belogradchik anticline) (after Tronkov, 1998): 1 – Neogene; 2 – Lower Cretaceous and Jurassic; 3-4 – Upper Triassic; 5 – Ladinian; 6 – Anisian; 7 – Lower Triassic – Petrohan Terrigenous Group: a. Belogradchik Formation; 8 – Permian and Carboniferous; 9 – Early Paleozoic; 10 – Paleozoic granites and gneisses; 11 – geological boundary; 12 – fault; 13 - current directions in the Petrohan Terrigenous Group based on data from 366 measurements of the cross-bedding direction.

Figure B.2.3. Idealized geological profile of the Belogradchik Tectonic Unit (Belogradchik anticline) (after Tronkov, 1998): 1 – Lower Cretaceous; 2 – Jurassic; 3 – Triassic: a. – Petrohan Terrigenous Group, b. – Iskar Carbonate Group; 4 – geological phenomenon "Belogradchik Rocks", formed in the rocks of the Petrohan Terrigenous Group; 5 – coal-bearing Carboniferous and Permian; 6 – Paleozoic granites and gneisses; 7 – other Paleozoic and older rocks; 8 – fault.
The younger Berkovitsa metamorphic complex (Cambrian) is composed of low-grade metamorphic rocks: chlorite-sericite and quartz-sericite schist, diabase, keratophyre, gabbro, marble, meta-sandstones and tuffs. Stakevtsi massiv (Cambrian) is composed of biotite and amphibole gneiss, granite-gneiss, gneiss-schist, muscovite-chlorite and granate schist, amphibolites, leucocratic granite and granodiorite. The youngest rocks in Berkovitsa unit are Carboniferous and Permian continental terrigenous deposits: conglomerates, sandstones, siltstones, argillites and coal shales of Stakevtsi, Levishite, Milina, Midzhur and Rikovtsi Formations.

**Vratsa unit** is restricted by Plakalnitsa and Vratsa thrusts as a narrow strip, northeast of Berkovitsa unit. It is composed of low-grade metamorphic rocks of the Berkovitsa low-grade metamorphic complex (Cambrian): chlorite-sericite and quartz-sericite schist, diabase, meta-sandstones and tuffs. These rocks are covered by terrigenous continental Carboniferous and Permian deposits of Stakevtsi, Levish, Starchovdol and Vran Formations.

**West Fore-Balkan**

**Montana unit** is restricted between Vratsa thrust from SW and Vedernik thrust from NE. Its pre-Mesozoic basis is represented by Ordovician-Silurian Sredogriv metamorphites: metamorphosed sandstones, siltstones and conglomerates with olistoliths of basic and acidic igneous rocks. They are covered by Lower Permian terrigenous complex composed of continental conglomerates, breccia-conglomerates, gravelites, sandstones and siltstones with andesite and dacite tuffs, lavas and breccias. Mesozoic sedimentary cover is represented by Lower Triassic sandstones, Jurassic terrigenous-carbonate deposits and thick Middle Jurassic – Lower Cretaceous carbonate complex.

Belogradchik unit occupies the outer zone of the Fore-balkan. It is composed of more variegated rocks of different ages and types. Pre-Mesozoic basement of the unit is composed of Devonian, Carboniferous and Permian sedimentary, igneous and volcanic rocks. Devonian is represented by two units – Struindol diabase and Shashka siltstone. Carboniferous rocks are of different origin. The igneous rocks are united in Belogradchik Pluton (Upper Carboniferous) composed of granite, plagiogranite, porphyry granite, granodiorite and diorite.

The Upper Carboniferous Rayanovtsi Formation is composed of different sedimentary and volcanic rocks: conglomerates, gravels, sandstones, siltstones, shales, basalt and andesite-basalt lavas and breccias with thin tuff interbeds. Permian is represented by diorite and granodiorite porphyry dikes, plagiogranite and dacite porphyry.

Triassic is composed of red Buntsandstein sandstones and conglomerates (Belogradchik and Slivovnik Formations) forming the famous Belogradchik Rocks, covered by sandy, biogenic and nodular limestones and dolomites (Kaluger, Edivetar, Babino and Toshkovdol Formations).

Jurassic sediments overlying transgressively the Triassic carbonates, are the sandstones and gravelites of the Kichera Formation (Middle Jurassic). This unit is represented by four official members with type sections in the area: Venets, Kreshtenitsa, Granitovo and Oreshets, whose rocks were used as building stones for the medieval Belogradchik fortress and the medieval mosque in Belogradchik town. They are covered by sandstones, marls, zoogenic and silty limestones (Bov and Polaten Formations) and thick limestones of the West Balkan Carbonate Group (Middle Jurassic – Lower Cretaceous) including the famous “ammonitico rosso” facies. The youngest rocks of the unit are the clayey limestones and marls of the Salash Formation (Berriasian-Baremian) cropping out in the limbs of the Belogradchik anticline.

**Kula zone**

Kula zone is composed of Cretaceous and Palloogene sediments. The building lithostratigraphic units are: Rabisha Formation...
(Albian-Cenomanian) – marls and limestones, Kula Formation (Turonian-Maastrichtian) - turbidites, Kladorub Formation (Campanian-Paleocene) - siltstones and marls, Ruzhintsy Formation (Campanian-Paleocene) – sandstones, conglomerates and breccias. In the area is discovered a single section of two formations of the Mediterranean type Upper Cretaceous: Mirkovo Formation (Coniacian-Santonian) – motley limestones and marls and Krasava Member of the Zavala Formation (Campanian) represented by its famous bituminous shale. The outcrops of these rocks are very restricted, because they are almost entirely covered by Neogene and Quaternary deposits. Scarce outcrops still exist in the valleys of the catchment area of Archar River north of the Geopark area.

There are a few but important outcrops within the Geopark, which are declared geotopes. One of these geotopes is the iridium layer at the K/T boundary in Kladorub Formation near Kladorub village. Another important geotope is the Lower/Upper Cretaceous boundary in Rabisha Formation at Rabisha Mound, with proved thermal maximum on the basis of nannofossil and palynological evidence. Very interesting phenomenon is the single outcrop in North West Bulgaria of the so called “couche-rouge” facies (Mirkovo Formation, Coniacian-Santonian) and the bituminous shale of the Krasava Member of the Zavala Formation, characteristic for the Mediterranean type Upper Cretaceous in South Bulgaria.

**Moesian platform**

Moesian platform is covered entirely by Neogene and Quaternary deposits.

Neogene rocks are represented by several lithostratigraphic units: Opanets Formation (Langhian - Lower Serravalian) – marls and clays with shelly limestones, Dimovo Formation (Upper Wolinian – Lower Bessarabian) – sands and sandstones with clays and limestones, Krivodol Formation (Upper Bessarabian) – clays with sandy conglomerate and limestone interbeds, coal shale and lignite coal, Furen Formation (Upper Bessarabian) – limestones with intercalations of sandstones, sands and clays, Smirnenski Formation (Upper Tortonian - Messinian) – alternation of clays, sands, sandy clays and marls, Archar Formation (Upper Messinian) – quartz sands, Brusartsi Formation (Levantian-Piacenzian) – sandy clays, sands and lignite coal.

Quaternary is represented by Eopleistocene, Pleistocene and Holocene deposits. Eopleistocene is composed of fluvial-proluvial deposits, covering the Neogene rocks and cropping out at 90-100 m above the river beds. Pleistocene is represented by aeolian-fluvial, aeolian and aeolian-fluvial-deluvial deposits. Most interesting of these modern deposits are the aeolian clays called “loess”. They are deposited in aeolian way by the wind in periglacial environment in drying condition of the glacial deposits in the flooding planes of the glaciers.

3. **Listing and description of geological sites within the proposed Geopark**

The proposed List of Geosites (Table B.3) in Geopark “Belogradchik Rocks” is accomplished during the implementation of Project 02-72 (Sinnyovsky, 2014): “Development of new category protected area in Bulgaria – Geopark, on the example of the Belogradchik Rocks”. The proposed List of Geosites is the final result, accompanied by comprehensive scientific description of each geosite. However, the most important result of the project is the geological map of the geopark area developed on ArcGIS by the students in Geoinformatics of the Geology and Geoinformatics Department in the University of Mining and Geology “St. Ivan Rilski” Sofia.

Here is represented a brief description of the geosites due to the limitation of the application form. Description of the sites of non-geological value are given in section C.4. **Listing and description of non-geological sites and how they are integrated into the proposed Geopark**.

**Listing of Geosites**
### Table B-3. List of Geosites in Geopark Belogradchic Rocks

<table>
<thead>
<tr>
<th>Name</th>
<th>Unit</th>
<th>Rock</th>
<th>Age</th>
<th>UTM coordinates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geosites of aesthetic value (Named Rock Pinnacles)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Torlak and Falcon bridge</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0643381 E 4828053 N</td>
</tr>
<tr>
<td>2. Borovitsa (Pine) Stone</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0639726 E 4827872 N</td>
</tr>
<tr>
<td>3. Sbegovete</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0635125 E 4831322 N</td>
</tr>
<tr>
<td>4. Adam and Eve</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0637072 E 4831936 N</td>
</tr>
<tr>
<td>5. The Wedding</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0634128 E 48304128 N</td>
</tr>
<tr>
<td>6. Rock mushrooms</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0635991 E 4831460 N</td>
</tr>
<tr>
<td>7. Stone mushrooms (Izvos)</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0635807 E 4829696 N</td>
</tr>
<tr>
<td>8. The Madonna</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0635847 E 4830499 N</td>
</tr>
<tr>
<td>9. The Monks</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0636104 E 4831237 N</td>
</tr>
<tr>
<td>10. Nefertiti</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0636254 E 4830973 N</td>
</tr>
<tr>
<td>11. The Bear Cube</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0636277 N 4831226 N</td>
</tr>
<tr>
<td>12. The Chinese wall</td>
<td>Belogradchik Fm</td>
<td>Red sandstone</td>
<td>Early Triassic</td>
<td>34 T 0636224 E 4830973 N</td>
</tr>
<tr>
<td>13. The Castle</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0636378 E 4830618 N</td>
</tr>
<tr>
<td>14. Markashnitsa</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0636676 E 4829084 N</td>
</tr>
<tr>
<td>15. Sabubin Stone</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0637459 E 4828829 N</td>
</tr>
<tr>
<td>16. The Dinosaurs</td>
<td>Belogradchik Fm</td>
<td>Red sandstone</td>
<td>Early Triassic</td>
<td>34 T 0636364 E 4830822 N</td>
</tr>
<tr>
<td>17. The Ship</td>
<td>Belogradchik Fm</td>
<td>Red sandstone</td>
<td>Early Triassic</td>
<td>34 T 0631495 E 4830940 N</td>
</tr>
<tr>
<td>18. Alice in the Wonderland</td>
<td>Belogradchik Fm</td>
<td>Red sandstone</td>
<td>Early Triassic</td>
<td>34 T 0635341 E 4830123 N</td>
</tr>
<tr>
<td>19. The Leopard</td>
<td>Belogradchik Fm</td>
<td>Red sandstone</td>
<td>Early Triassic</td>
<td>34 T 0635251 E 4829984 N</td>
</tr>
<tr>
<td>20. The Lion</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0636038 E 4830941 N</td>
</tr>
<tr>
<td>21. The Rider</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0635833 E 4830782 N</td>
</tr>
<tr>
<td>22. Jabba from “Star Wars”</td>
<td>Belogradchik Fm</td>
<td>Red sandstone and conglomerate</td>
<td>Early Triassic</td>
<td>34 T 0635303 E 4829153 N</td>
</tr>
<tr>
<td>23. The Schoolgirl</td>
<td>Belogradchik Fm</td>
<td>Red sandstone</td>
<td>Early Triassic</td>
<td>34 T 0636378 E 4830618 N</td>
</tr>
<tr>
<td>24. Haidut Velko</td>
<td>Belogradchik Fm</td>
<td>Red sandstone</td>
<td>Early Triassic</td>
<td>34 T 0635471 E 4831287 N</td>
</tr>
</tbody>
</table>

**Geosites of scientific value**
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>25.</td>
<td>Outcrop of loess deposits</td>
<td>Aeolian deposits</td>
<td>Loess</td>
<td>Pleistocene</td>
</tr>
<tr>
<td>26.</td>
<td>Stratotype of the Ruzhintsi Fm</td>
<td>Ruzhintsi Fm</td>
<td>Conglomerates, intraclast breccia, marls, sandstones</td>
<td>Campanian-Paleocene</td>
</tr>
<tr>
<td>27.</td>
<td>Stratotype of the Kladorub Fm</td>
<td>Kladorub Fm</td>
<td>Hypo-siltstones and marls</td>
<td>Campanian-Paleocene</td>
</tr>
<tr>
<td>28.</td>
<td>Cretaceous/Tertiary boundary</td>
<td>Kladorub Fm</td>
<td>Hypo-siltstones and marls</td>
<td>Maastrichtian/Danian</td>
</tr>
<tr>
<td>29.</td>
<td>Section of the Mirkovo and Zavala Fms</td>
<td>Mirkovo and Zavala Fms</td>
<td>Red limestone and bituminous shale</td>
<td>Coniacian-Campanian</td>
</tr>
<tr>
<td>30.</td>
<td>Lower/Upper Cretaceous boundary</td>
<td>Rabisha Fm</td>
<td>Marls</td>
<td>Albian/Cenomanian</td>
</tr>
<tr>
<td>31.</td>
<td>Ammonico rosso</td>
<td>West Balkan Carbonate Group</td>
<td>Limestones</td>
<td>Late Jurassic</td>
</tr>
<tr>
<td>32.</td>
<td>Stratotype of the Oreshets Member</td>
<td>Kichera Fm</td>
<td>Yellow sandstones</td>
<td>Middle Jurassic</td>
</tr>
<tr>
<td>33.</td>
<td>Stratotype of the Granitovo Member</td>
<td>Kichera Fm</td>
<td>Red sandstones and gravelites</td>
<td>Middle Jurassic</td>
</tr>
<tr>
<td>34.</td>
<td>Stratotype of the Kreshhentitsa Member</td>
<td>Kichera Fm</td>
<td>White sandstones and gravelites</td>
<td>Middle Jurassic</td>
</tr>
<tr>
<td>35.</td>
<td>Stratotype of the Venets Member</td>
<td>Kichera Fm</td>
<td>Pink sandstones and gravelites</td>
<td>Middle Jurassic</td>
</tr>
<tr>
<td>36.</td>
<td>Stratotype of the Belogradchik Fm</td>
<td>Belogradchik Fm</td>
<td>Red conglomerates and sandstones</td>
<td>Early Triassic</td>
</tr>
<tr>
<td>37.</td>
<td>Permian/Triassic boundary</td>
<td>Borovitsa/Belogradchik Fms</td>
<td>sandstones/conglomerates</td>
<td>Permian/Triassic</td>
</tr>
<tr>
<td>38.</td>
<td>Variegated volcanic rocks</td>
<td>Rayanovtsi Fm</td>
<td>Andesites, lattes, tuffs</td>
<td>Carboniferous</td>
</tr>
<tr>
<td>39.</td>
<td>Variegated volcanic, igneous, and sedimentary rocks</td>
<td>Rayanovtsi Fm</td>
<td>Breccia-conglomerate, sandstone, gravelite, diorite, diabase, gabbro</td>
<td>Permian</td>
</tr>
<tr>
<td>40.</td>
<td>Carboniferous granite</td>
<td>Belogradchik Pluton</td>
<td>Granite, pegmatite veins</td>
<td>Late Carboniferous</td>
</tr>
<tr>
<td>41.</td>
<td>Carboniferous granodiorite</td>
<td>St. Nikola Pluton</td>
<td>Granodiorite</td>
<td>Late Carboniferous</td>
</tr>
<tr>
<td>42.</td>
<td>Devonian siltstone</td>
<td>Shashka siltstone</td>
<td>Siltstone and marl</td>
<td>Devonian</td>
</tr>
<tr>
<td>43.</td>
<td>Devonian volcanic rocks</td>
<td>Struindol diabase</td>
<td>Diabase</td>
<td>Devonian</td>
</tr>
<tr>
<td>44.</td>
<td>Disconformity Ordovician/Jurassic</td>
<td>Sredogriv metamorphites/BovFm</td>
<td>Metamorphosed sandstones/marls</td>
<td>Ordovician/Middle Jurassic</td>
</tr>
<tr>
<td>45.</td>
<td>Plastic sharing zone</td>
<td>Sredogriv metamorphites</td>
<td>Metamorphosed shale</td>
<td>Ordovician</td>
</tr>
<tr>
<td>46.</td>
<td>Stratotype of the Sredogriv metamorphites</td>
<td>Sredogriv metamorphites</td>
<td>Quartz keratofire</td>
<td>Ordovician</td>
</tr>
<tr>
<td>47.</td>
<td>Metamorphosed igneous rocks</td>
<td>Sredogriv metamorphites</td>
<td>Metadiorite</td>
<td>Ordovician</td>
</tr>
<tr>
<td>48.</td>
<td>Neoproterozoic ophiolitic complex</td>
<td>Monastir metabasites</td>
<td>Pillow lavas</td>
<td>Neoproterozoic</td>
</tr>
<tr>
<td>49.</td>
<td>Neoproterozoic ophiolitic complex</td>
<td>Monastir metabasites</td>
<td>Cumulative gabbro</td>
<td>Neoproterozoic</td>
</tr>
</tbody>
</table>

**Geomorphological and karst forms**
Taking into account the significant expansion of the area this List of Geosites will be supplemented in the near future by new non-geological geosites and geosites of scientific value concerning Neoproterozoic, Early Paleozoic, Tertiary and Quaternary rocks.
Short description of the existing geosites

Geosites of aesthetic value

1. Tourlac and Falcon Bridge. “Tourlac” is a single 30 m high rock resembling the profile of a human face therefore it is named after the name of the local population - "tourlacs". It is located near the legendary “Falcon Bridge” the historical site near the large Roman settlement destroyed by the Hun invasion in 441 to 447 after Christ.

2. Borovitsa (Pine) Stone is the highest single rock monument (113 m high) corresponding to the term “butte” after the rock monuments in Monument valley (Tronkov, Sinnyovsky, 2012). It is a natural landmark, included in the State Register of the natural landmarks and Register and Cadastre of the Bulgarian geological phenomena. Together with the surrounding nameless rocks the area resembles a miniature model of "The Gloves" in Monument Valley, Arizona.

3. Sbegovete is a large area with many geological phenomena of aesthetic value, similar or even more spectacular to those near Belogradchik town. However, they remain unnamed and unknown, as many years have been inaccessible in the border area with the former Yugoslav Federation. Now they are tourist destination for practicing long trips for one day.

4. Adam and Eve are two 16-18 m high glued to the base rock giants, resembling man and woman. These are among the first named rocks in the area. They are situated at the fair lawn near the town of Belogradchik along the old way through the Romantic valley, documented on graphics from the 19th century. In fact all cultural events of the town are held in this valley.

5. The Wedding is rock group like a wedding procession. This rock group is one of the earliest named, but because of its remoteness from the town it remained unknown and rarely visited. The wedding consists of several 5-6 m high figures resembling a wedding procession led by the bride, who is wearing a gorgeous wedding dress. It is situated on one of the ridges southwest of Belogradchik and at
sunrise silhouettes can be seen from 20 km away from the east.

6. **Rock mushrooms** are characteristic for packet 2 of the Belogradchik Fm composed of alternating conglomerates and sandstones, favorable for the formation of such phenomena.

7. **Stone mushrooms** are formed in a cross bedding level of packet 2 of the Belogradchik Fm and represent large “hanging stones” preserved in their original tilted position.

8. **The Madonna** is a 10 meter high rock pillar resembling a praying woman. It was named in the 19th century and then became an emblematic rock for the Belogradchik area, because it is visible from the town.

9. **The Monks** are an assemblage of seven protruding cone-shape rocks with a height of 18-20 m. They are also among the emblematic figures of the Belogradchik rocks.

10. **Nefertiti** is 10 m high rock resembling in profile the characteristic hairstyle of the Queen of Egypt Nefertiti (1370-1330 BC), the wife of the pharaoh Amenhotep IV.
11. **The Bear Cube** resembles faced bear with well-shaped head and a bee perched on the nose. It is a 15 m high rock monument part of the rock assemblage in the Romantic valley.

12. **The Chinese wall** is a magnificent natural vertical wall with a length of about 100 m and a height of over 30 m, one of the most impressive rock formations in the Romantic valley.

13. **The Castle** is a 30 meters high compact group of rocks with rounded shape and diameter of about 150 m, high elevated above the surrounding rock landscape. The upper part is represented by jagged rocks resembling battlements of a castle.

14. **Markashnitsa** is a picturesque valley planted with vines and surrounded by impressive 50 meters high rock giants. It gives the name of one of the wonderful local wines.

15. **Sabubin Stone**, named in the middle age, is a wide compact circular monolith with a diameter of 200 meters and a height of about 70 meters, overlooking the green woodland.

16. **The Dinosaurs** is a large rock assemblage composed of protruding rocks resembling herbivorous dinosaurs. The rocks are named by one of the prominent Triassic experts in Bulgaria Dimitar Tronkov.
17. The Ship is the only named rock in Sbegovete area, resembling a shipping keel. This is one of the many imposing rocks in the area, appropriately named by local people.

18. Alice in Wonderland is rock assemblage composed of several rocks with a height of 6 to 12 meters, representing fabulous characters of Lewis Carroll’s story “Alice in Wonderland”. It is situated on a ridge and can be seen from many places south of Belogradchik town and north of Izvos village.

19. The Leopard is a single rock with a height of 6 meters resembling the head of a leopard protruding above the forest. It is on the same ridge as Alice and can be seen from many places.

20. The Lion is a truly impressive 15 meters high figure of a seated lion, which can be seen only from the south on the way to Madonna.

21. The Rider is rock assemblage with a height of 15-20 meters resembling a horse and rider, clearly visible from both sides as it is located on a ridge between two valleys.

22. Jabba from “Star Wars” is rock composition of two rocks one of which resembles the galaxy’s most powerful gangster of George Lucas’ space saga “Star Wars”. The rocks are situated in vine valley and can be seen from the road east of them.
23. The Schoolgirl is a landmark for the Belogradchik rocks, resembling a schoolgirl with beret and backpack. It can be seen from many places because the 10 m high rock looks the same way from the north and south.

24. Haidut Velko is the head of a man named after the hero from the medieval rebellions against Turkish invaders. It is the highest rock situated on the top of the rock group “Kaleto”.

25. Outcrop of loess – aeolian deposits formed during Pleistocene glacial epochs from dry ice deposits in the floodplains of glacial "braided" rivers.

26. Stratotype of the Ruzhintsi Formation (Campanian-Paleocene) represents the only outcrop of nearshore deposits in Kula zone (Carpathian type Upper Cretaceous and Paleocene).

27. Stratotype of the Kladorub Formation is a unique Campanian-Eocene sequence of mixed clayey-silty-carbonate sediments including the iridium layer at the Cretaceous/Tertiary boundary.

28. Cretaceous/Tertiary boundary is marked by 10 cm iridium layer (second thickness in the world), which is the result of the impact of Earth with a huge asteroid at the end of Cretaceous 65 million years ago, known as “the asteroid that killed the dinosaurs”.

29. Section of the Mirkovo and Zavala Formations is unique for Bulgaria outcrop in Kula (Carpathian) zone of the so called “couche-rouge” facies and bituminous shale, characteristic for the Mediterranean type Upper Cretaceous in South Bulgaria.

30. Lower/Upper Cretaceous boundary is recognized by nannofossils and palynoflora in the Rabisha Formation. This is the place where the unit is first described and the term “Carpathian type Upper Cretaceous” is introduced by Tzankov (1960).

31. Ammonico rosso is outcrop of the famous facies at the lower level of the West Balkan Carbonate Group (Upper Kimmeridgian – Lower Tithonian), characterized by red limestone beds with many ammonites.

32. Stratotype of the Oreshets Member of Kichera Formation is a representative outcrop
described for purposes of the Geopark. These yellow sandstones were used as building stones for the walls of the medieval Belogradchik fortress.

**33. Stratotype of the Granitovo Member of Kichera Formation** is a representative section described for the needs of the Geopark. It is composed of red Middle Jurassic sandstones in a scenic area with picturesque landscape.

**34. Stratotype of the Kreshtenitsa Member of Kichera Formation** is a representative section described for the purposes of the Geopark. These white sandstones were used as building stones for the walls of the medieval Belogradchik fortress and mosque. They have characteristic weathering resembling karst forms, like “The dinosaur’s step” (photo).

**35. Stratotype of the Venets Member of Kichera Formation** is a representative section of Middle Jurassic rose sandstones described for the needs of the Geopark.

**36. Stratotype of the Belogradchik Formation** is in fact a geological walk, starting from the medieval coal mine (described by Franz Tula, 1877) through the Romantic valley to the Belogradchik fortress. This is the whole section of the Lower Triassic Buntsandstein facies in which the famous Belogradchik Rocks are formed. It was thought that further detailed subdivision is impossible because of the fluvial origin of the rocks. Now for the purpose of Geopark an official unit is erected - Belogradchik Formation, subdivided in six clearly distinguishable packets. Five of them crop out in the Romantic valley composing the stratotype of the unit so all named rocks are strictly attached to certain levels.

**37. Permian/Triassic boundary** is the transgressive boundary between Karlovitsa and Belogradchik Formations in a picturesque valley near 113 m high butte “Pine Stone”.

**38. Variegated volcanic, igneous, and sedimentary rocks** is outcrop of the Rayanovtsi Formation (Permian) with extremely divers volcanic, igneous and sedimentary rocks: conglomerates, breccia-conglomerates, gravelites, sandstones, siltstones, shale, basalt, andesite, latite, diabase, diorite, gabbro.
39. **Variegated volcanic rocks** is an outcrop of the Rayanovtsi Formation (Permian), composed of diverse volcanic-sedimentary rocks: sandstones, tufo-sandstones, basalt, basaltic andesite, latite, lava-breccia and tuffs.

40. **Carboniferous granite** is an outcrop of pegmatite veins within Late Carboniferous Bi-granite of the Belogradchik Pluton.

41. **Carboniferous granodiorite** is an outcrop of Late Carboniferous granodiorite of the St. Nicola Pluton.

42. **Devonian siltstone** is an outcrop of the Shashka siltstone, represented by red siltstones and marls.

43. **Devonian volcanic rocks** is an outcrop of the Struindol diabase, Devonian unit composed of diabase or dolerite, diabase tuffs and thin shale interbeds.

44. **Disconformity Ordovician/Jurassic** is an outcrop of an impressive disconformity between Ordovician metasandstones of the Sredogriv metamorphites and Jurassic marls of the Bov Formation.

45. **Plastic sharing zone** is an outcrop of black milonitized zone with quartz lenses and bands within the metasandstones of the Ordovician Sredogriv metamorphites.

46. **Stratotype of the Sredogriv metamorphites** is a type section of the Sredogriv metamorphites – the unit composed of Ordovician and Silurian low-grade metamorphic rocks represented by metamorphosed conglomerates, sandstones, siltstones and shales altered into sericite, sericite-chlorite, green and black schists and kalkschists including olistoplates of metabasites and metagranitoides.

47. **Metamorphosed igneous rocks** – outcrop of Ordovician metadiorites of the Sredogriv metamorphites.

48. **Neoproterozoic ophiolitic complex** - outcrop of the oldest rocks in the Geopark, Neoproterozoic pillow lavas belonging to the Monsatir metabasites.

49. **Neoproterozoic ophiolitic complex** - outcrop of cumulative gabbro belonging to the Monsatir metabasites.

**Geomorphological and karst forms**

50. **Midzhur peak** (2168 m), the highest peak in the West Balkan is geotope of geographic value.

51. **Vedernik** (1124,2 m) is the highest peak of the rock arc in the southern leg of the Belogradchik anticline. It is emblematic peak for the Belogradchik region. The complicated tectonic structure of the surroundings of Vedernik Peak provided a large karstified carbonate terrain with a number of characteristic karst forms. The high and inaccessible cliffs provide good conditions for generation of rock Buzzard, which is part of the protected biodiversity.

52. **Belogradchik arc - Venetsa** (903,6 m) is the highest peak of the rock arc in the northern leg of the Belogradchik anticline. It is represented by the limestones of the West Balkan Carbonate Group.

53. **Magura Cave** is one of the largest caves in Bulgaria (2500 m long), developed in the limestones of the Cherepish Formation. It is geosite of scientific, aesthetic and cultural value included in the Indicative List of UNESCO. Here are preserved cultural layers of human habitation containing traces or remains of man’s activities from the Late Paleolithic and Bronze ages. The attraction of the cave are the wall drawings attracting
thousands of visitors every year. There are impressive cave formations - stalactites, stalagmites, columns, flowstones, “cave milk”.

54. Kozarnika Cave is an archaeological phenomenon, with evidence for the first human settlements in Europe. It is developed in the Upper Jurassic limestones of the West-Balkan Carbonate Group. Over the past five years the cave was the subject of intense archaeological investigation of Bulgarian, French and American archaeologists. In the cultural layers are discovered necklaces of Miocene fossils (gastropods and bivalves) from the Neogene formations, cropping out in the northern part of the Geopark, close to the Danube. Archaeologists believe that the cave was not just a home to primitive people, but it was a manufactory for ornaments of fossils collected tens of kilometers away from it. Recently the cave is subject of students practice for Bulgarian and foreign students.

55. Lepenitsa Cave is a rock niche in the Belogradchik Formation visited by many tourists as part of the geotrail No 5 between the Natural museum and the cave. Here are preserved cultural layers and Roman pottery.

56. Karst Spring “Vreloto” is a high-flow karst spring. The geosite is part of the karst complex formed in the limestone of the West-Balkan Carbonate Group. It is visited by students of the University of Mining and Geology, Sofia, Geological Faculty of Sofia University and State University of Moscow.

57. Karst spring “Tolovishko vrelo” is a high-flow karst spring, situated in the northern part of the area. It is part of the karst complex of Magura Cave, developed in the Upper Jurassic – Lower Cretaceous limestones of the Cherepish Formation.

Geosites of historical value for the Bulgarian geology

58. Franz Toula’s outcrop is the outcrop of Middle Triassic limestone on the old way to Vidin town where the Winner professor Franz Toula (1877) determined the first Bulgarian fossils. It is revived by the prominent expert on Triassic geology prof. Dimitar Tronkov.
59. **Old coal mine Zelenigrad** is the entrance to the medieval coal mine preserved up to now, where Franz Toula (1877) determined the first Bulgarian plant fossils (see also Toula’s drawing on Fig. D.2.7).

60. **Ancient gold mining** is an excavation of boulders removed from Stakevska River during the ancient gold mining at the time of the Roman Empire. It is situated near the legendary Falcon Bridge, where was situated the ancient settlement centre of an area with well developed ancient crafts.

4. **Details on the interest of these sites in terms of their international, national, regional or local value (for example scientific, educational, aesthetic)**

**Estimation of geosites**

Scientific estimation of the geosites is made following the original Bulgarian methodology for estimation of geosites developed for the Register and Cadastre of the Bulgarian geological phenomena (Sinnyovsky et al., 2002) (Fig. B.4.1). Most of the listed geosites are of aesthetic value – named famous rocks and groups of rocks in the natural phenomenon “Belogradchik rocks”.

Geopark “Belogradchik Rocks” covers an area of extremely variegated geological structures and remarkable geodiversity. In fact, geodiversity of the proposed Geopark has no analogue in the world. Here crop out rocks of all ages and types from Proterozoic to Recent. However, in the focus of the Geopark are the wonderful “Belogradchik rocks” - impressive sandstone pinnacles formed in the famous Lower Triassic Buntsandstein facies.

The French traveler Jerom Adolf Blanqui (1843, p. 150-152), messenger of the Eastern Committee of Alphonse de Lamartine, left the first written impressions of the Belogradchik Rocks as beautiful and exquisite natural phenomenon: “The narrow mountain gorges of Ollioules in Provence, the passage of Pancorbo in Spain, the Alps, the Pyrenees, the wildest mountains of Tirol and Switzerland do not hold nothing that can compare to this”. This is the first independent assessment of the rocks as phenomenon of continental value.

The problem with geographical context of significance of the geological sites has been analyzed in detail by Wimbledon (1996). In the category “globally significant site”, he assigned sites that are “vital in defining the course and essential stages in the inorganic and organic evolution of the globe”. At the other extreme in scale of significance, he put “inspirational features like the Nigardsbreen glacier (Norway), Dinosaur National Monument (USA) or the sandstone pinnacles of Belogradchik (Bulgaria)”. Thus, 150 years after monsieur Blanqui, Wimbledon confirmed the exceptional merits of the Belogradchik Rocks and pointed them out as one of the global standards among the geological phenomena.

For that reason concentration of the geosites is high in the central part of the area. After recommendation of EGN for enlargement of the Geopark in the list are included many geosites of scientific, educational and cultural value. Nevertheless most of the remarkable geodiversity is still not represented in this list. It will be included in the future development plan of the Park.

**Classification of geosites**

Geosites are grouped according to their category and class (Table B-3). The
domination of the geotopes of aesthetic value is predetermined by the picturesque landscape of Belogradchik area due to the wonderful rock pinnacles formed in the red sandstones of the Lower Triassic Buntsandstein facies. This fact predetermines high concentration of geotopes in Belogradchik area.

Geosites of the other municipalities are predominantly of scientific, historic and cultural value. Many of these geosites are estimated and described during the implementation of the Project 12-72 of the National Science Fund of the Ministry of Education “Scientific development of a new category protected area in Bulgaria – National Geopark, on the example of the Belogradchik rocks”. This project was performed in the lights of the recommendations of the EGN Coordination Committee from November 10, 2010 for further efforts to resubmit an application.

First of all the area was significantly enlarged to meet the requirements of Guidelines and Criteria for National Geoparks seeking UNESCO’s assistance to join the Global Geoparks Network (2007).

The new enlarged area includes also sites of scientific, ecological, archaeological, historical and cultural value. They are still rare in the periphery of the Geopark map, but many geosites are in process of preparation for the needs of the geoconservation.

Including four municipalities between Serbian border and the Danube the new Geopark area of 1373 km² corresponds to the requirement for well-defined limits and a large enough surface area to serve local economic and cultural revival of one of the most underdeveloped regions in Bulgaria and Europe. Along with the beautiful rocks pinnacles and geosites of scientific value, the new extended list of geosites includes non-geological sites of great historical, archaeological and cultural value of continental significance like Magura Cave with its Paleolithic wall paintings, Kozarnika Cave with the evidence for the first European settlements (38 000 years ago), ancient Roman strongholds, road stations, aqueducts, mines and settlements.

Recent efforts of the municipality of Belogradchik are directed to improvement of the infrastructure. Consequently, most of the roads in the area have been renovated, and the most popular geosites – Belogradchik fortress and Magura Cave meet the growing number of tourists.

First rocks are named in the mid 19th century. In the early 20th century the rocks appear in postcards and stamps. They became known in the mid 20th century, when they became the subject of tourists. However, the western part of the rock pinnacles in the border area with the former Yugoslav Federation remains inaccessible for ordinary tourists up to 1990. After the fall of the Iron Curtain all sites are accessible for local people and tourists.

Geographical context of significance

As mentioned above, in general Belogradchik rocks are estimated as geological phenomenon of global significance (Wimbledon, 1996). However, the single geosites of aesthetic significance should be evaluated separately to serve the Geopark.

Geosites of aesthetic value (morphological forms)

We believe that the named rocks, subject of many postcards, brochures, leaflets, publications and promotional materials must be included in the list of geotopes. These are predominantly morphological forms in the Romantic valley near Belogradchik town. In fact, each of these rock monuments has its own distinct features. If they were in the flat landscape, they would be included in the State Register of natural landmarks as individual protected areas. Here they are estimated against the many other rock monuments, each of which has its own history and a place in local stories. From this point of view none of the named rocks in the area is of continental value, but in general they are of global significance.
# EXPERT CARD

for estimation of geological phenomenon

**NAME** ........................................................................................................................................

**LOCATION:** district .............................................. populated area ...........................................

**CATEGORY:**

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<th>High scientific value</th>
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<td>6. Entertainment value ......</td>
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<td>7. Ethnographical value .....</td>
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<td>16. Access and communications</td>
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Total........ (max. 44) Total........ (max. 44)

**Assessment of significance:**
- Global (38-44)
- Continental (31-37)
- Regional (25-30)
- National (18-24)
- Local (12-17)

**Threshold of significance (12)**
- Do not fulfil the requirements (below 12)

**Date ..................** Expert ................................................................. Signature

"GESOSERVIS" LTD. SOFIA

**Figure B.4.1.** Expert card for estimation of geological phenomena (Sinnyovsky et al. 2002)
Therefore, each of the rock monuments of aesthetic value is estimated by a simplified methodology involving only part of the criteria used by Sinnyovsky et al. (2002) to evaluate geotopes of the Register and Cadastre of the Bulgarian geological phenomena.

With full respect to the natural variety of the Belogradchik Rocks, Tronkov (1998) and Tronkov, Sinnyovsky (2012) used a rough and simplified scientific approach to reveal schematic classification into three main morphological groups. It is of local significance and reflects the natural stratigraphic sequence of the Triassic continental rocks, passing from thick massive conglomerates at the base to more or less layered conglomerates and sandstones upward in the section. Most of the stone figures are formed at the transitional level between the massive lower part and the stratified middle and upper part of the Belogradchik Formation. The monuments formed by the fractures in the lower massive portion of the section are simple vertical cliffs with uneven walls. Stratification of the rocks above this level gives more interesting and varied forms that look different depending on the angle of view and the light.

Morphotype M (from Monks): The rock figures of this morphotype represent massive vertical columns and blocks with vertical and nearly vertical walls that reach heights of more than 20 m. They include, for example, figures from the rock group, the Monks, the figure Adam from the rock group Adam and Eve, and so on.

Morphotype E (from Eve) includes figures of analogous shape with uneven walls due to elongated horizontal grooves. The columns possess ring-like depressions (constrictions) and/or bulges, rarely with transitions to the vertical walls. For example, this morphotype can be illustrated by the figure Eve from the rock group Adam and Eve, the Frogs, the Pigeon, and so on.

Morphotype S (from Schoolgirl) is composed of vaguely distinct, horizontal or slightly inclined to the southeast, plate-like elements, arranged one on top of another in vertical succession in irregular and uneven vertical columns. Typical examples are the famous monuments the Schoolgirl and the Lion. Some of the figures are represented by only one morphotype, others are combined. The elements of Morphotype S usually cover and raise those of Morphotype E, such as the Lion near the Schoolgirl, or they can have a basement of elements of Morphotype M, followed upward by elements of Morphotype E and higher of Morphotype S, like the Dinosaurs. Interesting figures are the Rider and the Sphinx where split columns of one or two different morphotypes rise.

Some of the emblematic rock monuments are of national significance: Borovitsa (Pine) Stone, Adam and Eve, Nefertiti, the Madonna, the Bear Cube, the Schoolgirl, the Lion, the Wedding, the Monks, the Dinosaurs, Haidut Velko, the Rider, etc. Other geotopes like Sbegovete, Rock mushrooms, Torlak, Alice in Wonderland, Jabba, the Castle, the Leopard, the Ship, the Chinese Wall, Sabubin Stone and some others, not included in the list, are of local significance.

**Geosites of scientific value**

Some of the Geosites of scientific value represent globally important events, e. g. the iridium layer at the Cretaceous/Tertiary boundary or the anoxic event at the Lower/Upper Cretaceous boundary.

The Cretaceous/Tertiary boundary would be very important geosite for each geopark in the world. It provides unlimited possibilities for interpretation, without calling into question the global catastrophe: from the large meteor impact, turned the Earth into desert, to the mass extinction of organisms inhabiting the Earth. The second record thickness of the iridium layer at 10 cm (against 20 cm in Tunisia) is also one of the reasons to be proud of this geosite.

The oldest rocks in the area – Neoproterozoic metabasites and pillow lavas, part of the Chernivrah ophiolitic complex, are products of oceanic spreading zone. This geosite is of regional (for the Balkans) but also of continental significance, because it provides an opportunity for field training of
students in geology, international workshops, or field trips during international conferences. This geosite is a good possibility for demonstration of such an old example of processes now operating in the oceans.

Another kind of geosites of continental value are the outcrops of well known and widely distributed in Europe facies like Buntsandstein, Ammonitico rosso and Couche-Rouge. Buntsandstein is the indigenous rock of the Belogradchik rocks. It was deposited in the German Basin, and spread across present day Poland, Germany, Denmark, Baltic Sea, Netherlands and south England. As it is not very popular on the Balkans, so these outcrops should be of scientific value for the Triassic history of this part of Europe.

Ammonitico rosso is stratigraphically condensed pelagic facies widely distributed in the Alpine-Mediterranean Jurassic. It contains many ammonite nodules and represents one of the famous fossiliferous levels in the Mesozoic. It crops out in both limbs of the Belogradchik anticline and is very perspective for development of geosites aimed at collecting fossils.

The Cocuhe-Rouge facies is characteristic for the Mediterranean type Upper Cretaceous, composed of motley Senonian limestones and marls. It is widespread in the Srednogorie Zone in South Bulgaria, but their presence in Kula Zone (a single outcrop near Ruzhintsi village) is one of the surprising geological facts in Bulgarian geology. In support of this fact are the overlying oil shales that are unique to Western Srednogorie.

In process of investigation is another famous facies – the Lower Cretaceous Urgonian facies, widespread in the Alpine-Himalayan belt. This facies, represented in the central part of the area is of potentially high scientific value.

**Geomorphological and karst forms**

The presence of several carbonate formations predetermines the availability of extensive karstified fields. The oldest carbonate portion of the section is the Iskar Carbonate Group. It is not very thick and provides narrow limestone belts in the limbs of the Belogradchik anticline. The main carbonate units are the Upper Jurassic – Lower Cretaceous West Balkan Carbonate Group and Cherepish Formation. They are intensively karstified and contain numerous caves. The largest one, the Magura Cave, is of aesthetic, scientific, archeological and cultural value. Besides the geological and archeological significance, this place is of great importance for the local and national vine industry. This is the only place in Bulgaria where naturally sparkling wine Magura is produced, aging in the branches of the cave. Kozarnika Cave is not so impressive, but recently in this cave many artifacts of continental significance were discovered. The C\(^{14}\) dating showed that the age of some artifacts is 38,000 years. Relationship with geology (paleontology) consists of collecting well preserved Neogene fossils for making necklaces. According to archaeologists, this cave was the manufacture of these ornaments.

The list of geosites included also some landmark for the area peaks: Midzhu (2168 m) the highest peak in the West Balkan Mountain, Vedernik (1124 m) the highest peak in the southern rock arc and Venetsa (903 m) the highest peak in the northern Belogradchik rock arc. These include the two largest karst springs – Vrelo and Tolovitsa vrelo.

**Geosites of historical value for the Bulgarian geology**

Two geosites of historical value for the Bulgarian geology are devoted to the first geological researcher of the area - the Austrian professor Franz Toula. He determined the first Bulgarian fossils - Carboniferous megaflora from the old coal mine Zelenigrad and Triassic fauna from the outcrop to the old road to Vidin. Ancient remains of gold mining along the rivers (Rupee) are common in Northwest Bulgaria, because all the rivers flowing from the West Balkan to the Danube are gold-bearing. The geosite at Stakevska River near Falcon bridge represents rupees preserved from the Roman age.
C. Geoconservation

1. Current or potential pressure on the proposed Geopark

No serious current or potential pressure on the proposed geopark is available. The area is absolutely devoid of industrial sites that could pollute the environment. In terms of land use, there are no important urban centres in the surrounding territory, so the land is used only for agricultural purposes in the north-east part of the area and forestry in the south-west part of the area. Most of the southern part of the Geopark is of forestry estate. Of major tourist interest are the Belogradchik Fortress and Magura Cave. They are visited by about 50,000 tourists a year. The tourism is characterized by ecotouristic, nature touristic and rural touristic practices with low impacts on the sites.

As a source of contamination can be identified two quarries: for gabbro-diabase near Oshane village, and activities related to traditional livestock area - cattle, sheep, pigs, which are currently limited primarily to personal holdings. Natural and geographical factors suggest good conditions for self-purification of air. Beneficial effect in this direction have both very high percentage of natural forest vegetation within the southern part of the Geopark area and the orientation of the main hill and mountain ridges in relation to the dominant northwest air flow.

Some geosites in the Romantic valley could suffer by the touristic influence but protection measures are undertaken in the frame of the natural landmark “Belogradchik rocks”. Despite the available excavations of ancient gold mining, gold washing has not been practiced in the present day. The fossil collection is also not developed, despite the fossiliferous levels in the Upper Jurassic.

Possible future pressure on Geopark can be expected after the construction of the highway E 79 to the Danube Bridge 2 at Vidin. On the other side the presence of the bridge and the renovation of the international road E 79 will increase the accessibility.

2. Current status in terms of protection of geological sites within the proposed Geopark

The current status of the most geosites of aesthetic value is of natural landmarks in the frame of the declared natural landmark “Belogradchik rocks” on the area of 598,7 ha (Fig. C.2.1) by Ordinance № 601/01.07.1987 of the Committee of Environmental Protection: “Based on members 18 and 22 of the Nature Protection Law, in order to preserve unique geomorphological formations, as well as the habitats of rare and endangered animal and plant species, the territory of the natural landmark “Belogradchik Rocks” in the land estate of the town of Belogradchik, Vidin District, is protected.” This protected area is in the Indicative List of UNESCO.

In the frame of the project for establishment of the Register and Cadastre of the Bulgarian geological phenomena, Tronkov and Sinnyovsky (2003) proposed an extension of the area to the west, including “Sbegovete” area: “Considering the international importance of the geological phenomenon “Belogradchik Rocks”, as well as the perspectives for future development of the tourism in the country, in the present project is proposed expansion of the protected territory to the west with 84,4 ha – the area of forest unit 276 of the forestry estate.”

Most of the tourist trails and geotrails in Belogradchik area are within the protected area (Figs. D.2.1, D.2.2) which was the unsuccessful EGN submission in 2010. It includes most of the morphological diversity of the red Triassic sandstones. However, many of the wonderful red rocks stayed outside the area like the protected natural landmark Borovitsa (Pine) stone, declared natural phenomenon by Ordinance № 1187/19.04.1976 of the Ministry of Forests and Environment Protection: “Rock formation “Pine Stone” - sandstone with an outcrop of 15 black pine trees in the locality of the same name in the area of Borovitsa village”.
Chuprene biosphere reserve is one of the largest in Bulgaria. It was declared a nature reserve with a total area of 1,439 hectares by Order No.358/02.09.1973 of the Committee for Environmental Protection. In 1977 it is included in the list of biosphere reserves program "Man and Biosphere". On the territory of Chuprene municipality are developed 10 ecotrails whose endpoints are beautiful landscapes, interesting geological formations or habitats of rare and endangered species (Figs. D.2.3, D.2.4). In order to ensure the protection of biodiversity on the territory, elements of the national ecological network - protected areas NATURA 2000 are developed. The scope of the analyzed territory includes parts of the following protected areas NATURA 2000:

- Protected Zone Western Balkan - BG0001040 to protect the habitat of beech forests oak forests (Oak oak), semi-natural dry grasslands and scrubland facies on calcareous terrains, etc.;
- Protected Zone Makresh - BG0000521 to protect the habitat of the Balkan-Pannonian oak forests, etc.;
- Protected Zone West Balkan - BG0002002 for the Protection of Birds (including Woodpecker, Long-legged buzzard, Lesser kestrel, Owl, White stork, Mountain lark).

Figure C.2.1. Map of the protected area “Belogradchik rocks”: 1 – boundaries of forest units; 2 – boundaries of forest stands; 3 – road; 4 – dirt road; 5 – drainage system; 6 – number and area of forest unit; 7 – number of forest unit from the land estate; 8 – settlement; 9 – elevation; 10 – a) fountain, b) spring; 11 – venerable tree; 12 – a) protected area, b) area, proposed for protection in the Register and Cadastre of the Bulgarian geological phenomena
NATURA 2000 protects a wide variety of habitats (subalpine beech forests, mountain forests, rocky habitats - carbonate cliffs and continental caves, dry grasslands, meadows, Moesian andropogonid steppes ...). Each site is ruled by measures to maintain and restore habitats at a favorable conservation status, taking into account economic and social requirements. This implies a concerted management of the sites, involving scientists and associations as well as landowners and local authorities. On the cliff areas, the reproduction of the Golden eagle (*Aquila chrysaetos*), Kestrel (*Falco naumanni*) and the Peregrine falcon (*Falco peregrinus*) is being observed. Sharing the information must be a way for the outdoor practitioners to go on their activities without disturbing the nesting of rupestrine birds.

3. Data on the management and maintenance of these sites

Most of the sites of aesthetic value are on the territory of the protected area of the natural landmark “Belogradchik Rocks”. The Belogradchik Rocks are robust rock pinnacles that do not need any special protection measures. These natural rock sculptures have been shaped by erosional forces for at least 35 million years ago (since the Eocene).

During the last century large portion of the protected area has been covered by forests. Standard measures provided by the Law for Protected Areas in Bulgaria are applied in the protected area “Belogradchik Rocks”. According to the Protection Ordinance the following activities are prohibited:

- Building, quarrying and other activities that change the natural appearance of the area or its water drainage;
- Pasture of animals;
- Hunting;
- Damaging or uprooting plants, gathering herbs;
- Lighting of fire and burning down the vegetation;
- Felling, except cultivation and sanitary;
- Mountaineer training and organized mountaineering activities.

In the area of the natural landmark are allowed:

- Conduction of cultivation and sanitary felling outside the period of nesting (1 March – 15 August);
- Afforestation with tree species, native for the area;
- Building of alleys, viewing grounds, etc., for exposure of the geosites and development of the cognitive tourism in accordance with a predefined project.

![Figure C.3.1. Panorama of the Belogradchik Rocks – lithograph on painting by J. Szombathy from 1875, published by Toula (1877)](image)

Most common problem of these erosional formations is the balanced ratio between the plantation development and the exposure of the rock monuments.

![Figure C.3.2. Roman fortress “Kaleto” (up) and the entrance to the medieval fortress – aquarelle by Felix Kanitz (1873) stored in the Bulgarian Academy of Sciences](image)
In the conditions of the geological factors mentioned, the forces of erosion have finished their last, most determined act by creating the enormous labyrinth of the “Belogradchik Rocks”. They represent a well preserved ancient topographic relief, very resistant to recent climate factors and erosional processes. It is enough to compare the panorama visible from the center of Belogradchik at present, to the painting of the same panorama made by Szombathy in 1875 and published by Toula (1877) (Fig. C.3.1), or to the magnificent color painting of “Kaleto” above Belogradchik by Felix Kanitz (Fig. C.3.2) to understand that there is no observable changes in the rock monuments during this period.

Changes in the landscape that have occurred in the documented historic past and happen at present are almost entirely linked to the rapid and uncontrolled forest growth which is now in condition to cover large part of the rock figures. The rich impressions, reflected in Blanqui’s wonderful description have been inspired by a single travel through the valley south of Belogradchik. The forest vegetation in this valley was then represented only by “bouquets of trees” (“bouquets de bois”) and the author could observe many rock figures that are now entirely covered by the dense and high forest vegetation.

Sanitary felling specified in the Order for protection, had never been occured. With the establishment of the Geopark these problems will be solved in close synergy with the State Forestry Belogradchik and State Forestry Chuprene.

Management measures concerning non-geological sites (historical, archeological and cultural sites) are included in the development plans of the Municipalities. So far several tourist trails are available, developed as Geotrails during the Project of the National Science Fund: No 1 Belogradchik rocks in the Romantic valley, No 2 Planinitsa, No 3 Sbegovete, No 4 Vedernik, No 5 Lepenitza Cave, No 6 Kozarnika Cave and No 7 Bioreserve Chuprene. They are marked by information signboards with information about the biodiversity and geological phenomena (Fig. C.3.3).

Figure C.3.3. The tourist routes are marked by signboards with information about the biodiversity and geological phenomena (Geotrail No 5)

Figure C.3.4. The available geotrails are maintained under European structural funds and National operational programs

Figure C.3.5. Tourist information board with information about the routes for mountain biking
The available geotrails are maintained by the municipalities under European structural Funds and Regional Development Programmes (Fig. C.3.4) such as Operational Programme 'Regional Development' and Operational Programme 'Environment'. There are several routes for mountain biking, well marked by information signs and proclaimed on the tourist information boards (Fig. C.3.5).

4. Listing and description of non-geological sites and how they are integrated into the proposed Geopark

The pearl of the Geopark is non-geological site, but closely tied to the red rocks. This is the Belogradchik fortress and the Roman stronghold at the top of the rocks near Belogradchik town visited by thousands of tourists. There are many other sites of historical and archaeological value. Best studied are included in the List of geosites.

Magura and Kozarnika caves have been described in the class of geomorphological formations. However, they are of continental significance from the point of view of their archeological value. That is why we put them in the list of non-geological geosites too. Below is given short description of the other non-geological sites, following the List of geosites (Table B.3).

61. Belogradchik Fortress including the Roman stronghold "Kaleto" is the most spectacular and most visited place in the Geopark "Belogradchik rocks". It is of especially high aesthetic, historical and cultural value, attracting tens of thousands of visitors per year. "Kaleto" (The Stronghold) occupies the highest and naturally inaccessible part of the rocks. This is an antique Roman stronghold built with the red sandstones of the Belogradchik Formation in the 3rd century after Christ. The walls of the medieval fortress are built of Middle Jurassic sandstones from the Kreshtenitsa and Oreshets Members of the Kichera Formation (colored in white and yellow). In the sixth century Emperor Justinian I decided to reinforce the fortress but it was destroyed by the barbarians.

After the establishment of the new Bulgarian state in 681 the fortress was restored. Later it was used by Bulgarian, Byzantine, Hungarian and Turkish garrisons. The latest renovation made by Italian and French fortificators dates from the early 19th century.

62. Latin Stronghold is geosite of historical value. Here are preserved Roman military equipment, trenches carved into the red sandstones and additional retaining walls, built with the same stones. It is part of a well organized system of fortified posts for signaling when passed caravans of gold.

63. Latin stronghold Izvos is another stronghold, situated on a naturally inaccessible mound 5 km south of the former near Izvos village. It has good visibility to the Latin stronghold near the Belogradchik Fortress. Here are discovered traces of ancient fortification and Roman pottery.

64. Latin stronghold Granitovo is Roman fortification around the elevation 512,1
Gradište in the limestones of the West-Balkan Carbonate Group. At this place is preserved Roman pottery and flat limestone blocks in front of the fort for protection from enemy arrows.

65. Antique stop „Anishte” is a complex of ruins including central building with a representative apsidal form surrounded by six additional facilities and a bath complex. It is a well studied object including nanofossil investigation of the lime for mortar. Lower Cretaceous age was determined and the source of the material was located near Salash village, where the Cretaceous part of the West Balkan Carbonate Group crops out.

The building stones are fluvial boulders mainly of Jurassic limestone (West Balkan Carbonate Group) and Upper Carboniferous volcanic rocks (Rayanovtsi Formation).

66. Medieval church “St. Troitsa” near Borovitsa village was built in 1864 with building blocks of red sandstones of the Belogradchik Formation, therefore known as “Red church”. It is declared cultural monument, located in picturesque surroundings of the Pine Stone. At the moment it is in the process of restoration and renewal.

67. Medieval mosque “Hadzhi Husein” is situated on the way to the Belogradchik Fortress. The mosque does not work for a long time because there are no Muslims in the region, but it is declared immovable cultural heritage. It was built up in 1751 by white and yellow building blocks similar to these of the Belogradchik fortress.

These are the Jurassic sandstones of the Kreshcenitsa and Oreshets Members of the Kichera Formation. Since it was not found an
old quarry for these stones, probably for construction purposes are broken down huge blocks of sandstones on the southern slope of Belogradchik Arc northeast of the town.

68. Ratsiaria is an archaeological object near Archar village on the Danube, including remains of the late Roman and early Byzantine city Ratsiaria. In 1986, in the ruins of a residential building, the Bulgarian-Italian team of archaeologists discovered a treasure of gold ornaments - four rings, hair pin, a pair of earrings with turquoise and pearls, bracelet, two necklaces and four spoons, one of which is broken into several pieces.

Ratsiaria was populous and rich city, destroyed during the Great Migration, beginning with the invasion of the Huns. In one of their many campaigns against Byzantium - in 442, they forced the Danube, burned the city (including the building in which the treasure is found) and killed the majority of its population.

69. Historical museum in Belogradchik is set in "Panov's house", an immovable cultural heritage, outstanding representative of the Fore-Balkan Revival architecture, built in 1810. It has two floors, with walls lined with boards, two verandas with stone-built first and second floor bay issued. Here are exposed tools from 18-19th century: wooden plow, shinnik, threshing, threshing rollers. There are also weapons from 19th century, icons and two graphs of the Belogradchik rocks of the Austrian-Hungarian traveler Felix Kanitz from 1873. Attention is paid to livestock as a main occupation of the area, the cultivation of vineyards, cotton and other crops, and the development of crafts: blacksmiths, goldsmith, homespun, pottery, tailoring. Beauty and radiance of exposed in the "Gold room" female ornaments from the second half of the 18th century: bride crown, earrings, bracelets, buckles and forehead, gives the visitors a lot of glamour, charm and ring.

70. Museum of Natural History in Belogradchik contains more than 3000 exhibits of animals and plants. Of these, 39 are representatives of European and global protected species listed in the Bern Convention, and 128 exhibits (fauna and flora) have the status of endangered under the Law of the Biodiversity in Bulgaria.

71. Geological Museum in the newly built Visitor Centre near the Belogradchik fortress in Belogradchik town under the Operational Programme 'Regional Development'. In this building will be exposed the geological samples collected by the students of the University of Mining and Geology "St. Ivan
Rilski" Sofia, during the just-completed Project 02-72 (Sinnyovsky, 2014).

72. Astronomical observatory is situated near the Latine stronghold, not far from the Belogradchik fortress. It is opened for visitors, but so far it is not appropriately used for tourist purposes. Astronomical Observatory of the “Institute of Astronomy” of Bulgarian Academy of Sciences has three telescopes, computer processing and storage of the electrophotometric observations data. It works with two devices - CCD-camera and electrophotometric devise for counting photons.

Observations are performed of the Moon, the ring of Saturn, the moons of Jupiter, the sickle of Venus, comets, stars, star clusters and galaxies.
D. Economic Activity & Business Plan (including detailed financial information)

1. Economic activity in the proposed Geopark

Economically the area falls in the North-West Region (NWR), including three districts: Vidin, Montana and Vratsa. North-West region of level 2 has the lowest contribution to the national GDP in Bulgaria, and lags far behind the indications of other regions in the EU. The area is underdeveloped in many aspects due to complex factors. To mitigate differences between regions at national level is taken policy for the implementation of integrated territorial investment for NWR to direct special resources focused on improving the condition of the area.

Four municipalities included in the Geopark area belong to Vidin district. GDP per capita for the district ranks last in NWR, in 2011 the value of this parameter is 2340 €. Specific for the area is the ratio industry/agriculture sector. For the same year this ratio is 12% to 33% (29% to 5% for the country). The data are indicative of a very underdeveloped industry in Vidin district and clear preponderance of the agricultural sector.

The main activities in the economy of the Geopark area are manufacturing, trade and agriculture.

Belogradchik municipality covers 411 square kilometers. It maintains 239 small businesses in the non-financial sector, 104 of them working in the field of trade, and 24 - in agriculture, and their number has increased compared to the previous three years. As far as the municipality is mountainous, logging is one of the main activities. The town has State Forestry, which employs more than 40 persons and takes care of the sites in the natural landmark "Belogradchik rocks". In the field of hospitality operate 35 companies. Given the tourism resources of the municipality and the potential for tourism development, the available facilities and equipment is essential to attract tourists: there is one hotel **** (Fig. D.1.1) and many small hotels and guest houses. The unemployment rate in 2011 was 26%, with an average of 10.4 % for the country. High unemployment is characteristic of the whole area, due to low education and skills of the population, lack of jobs and the overall stagnation of the economy.

Figure D.1.1. Four-star hotel “The Rocks” in Belogradchik town

Dimovo municipality covers 402 square kilometers. It is a rural area, which is heavily dependent on agriculture and livestock as a source of employment and income. Suitable climatic conditions and fertile soils favor the development of bread and fodder production, viticulture, fruit, vegetables, sheep and cattle. The main industrial plants on the territory are the Enterprise for the production of pumps and metal products, the Garment factory and the second largest mill in the district in Archar village. The average business is limited mainly in farming or in agricultural production. These activities are characterized by the production of environmentally friendly products, which are realized not only the local market but also outside the municipality. There are 108 single-member companies with mixed activity-mainly trade and restaurants, and three consumer cooperatives in decline.
Small private companies are engaged mainly in trade and services.

**Chuprene municipality** covers 327 square kilometers. It is a mountain area with more than 50% of the territory covered by forests. The main businesses, located in the municipality are in wood-processing, food processing, and electrical production. In the municipality centre is situated the State Forestry, more than 30 persons.

The largest share of the local economy is concentrated in Gorni Lom village, where are situated four hydropower plants. The unemployment rate is about 22%. On the territory of municipality Chuprene is the Natural reserve "Chuprene" with an area of 1,439 ha. The other landmarks in the municipality are: "Bekinska shobarka" – Chuprene village, "Replyanska glama" – Replyana village, "Bella wall" - Dolni Lom village, Midzhur Peack (2168 m), Three Ears Peak (1567 m), caves "Left dry cave" and "Right dry cave"- Dolni Lom.

There are 10 ecotrails in the area intended for ecotourism (Figs. D.2.3, D.2.4). Hunting tourism is practiced in the frame of the Farm for breeding game "Midzhur", located on 19,500 hectares on the slopes of the Western Balkan. The only state-owned enterprise in the municipality is State Forestry Chuprene which main activity is logging and forest management. In the municipality operate 9 cooperatives and 24 single-member companies in the field of trade.

**Ruzintsi municipality** covers 233 square kilometers. It is a rural area. Local economy is characterized as weak. Overall, the economic fundamentals are a small proportion of the region and country. The structure of the economy in the municipality is determined by the following sectors: agriculture, livestock, trade, forestry and wood processing industries. Most of the companies working on the territory of the municipality are small and oriented predominantly in the field of trade. There are 65 small enterprises in the non-financial sector, 42 of them working in the field of trade. Agricultural companies are engaged in crop and livestock breeding.

2. **Existing and planned facilities for the proposed Geopark (e.g. geo-education, geo-tourism, tourism infrastructure etc)**

**Existing facilities**

Tourist facilities are available in the surroundings of the Belogradchik rocks, Magura cave and Chuprene biosphere reserve. So far all activities directed to the touristic attractions and amelioration of the local infrastructure are performed in the frame of the projects at municipal level. For example the new visitor centre in Belogradchik is built under the Programme of the European Regional Development Fund and the Regional Development Operational Program worth € 1.5 million. Ecotrails are developed under European structural funds and National operational programmes (Figs. C.3.3-C.3.5). Some of them are described as geotrails during the Project 02-72 (Sinyovsky, 2014).

Most of the hotels are in the town of Belogradchik, including one four stars hotel and many small hotels and guest houses (see Fig. D.1.1). In Belogradchik area are developed 7 ecotrails generally connected with Belogradchik rocks (Figs. D.2.1, D.2.2).

Geotrail No 1 includes the Romantic valley with most of the geotopes of aesthetic value (Geosites No 4,6,8,10-13, 16, 20, 21, 23), the type section of the Belogradchik Formation, described for the purpose of the Geopark (Tronkov, Sinyovsky, 2014) and the type section of Venetsa member (Geosites No 35, 36), Rock arc Venetsa (52) and non-geological sites (No 69, 70).

Geotrail No 2 includes outcrops of the uppermost packet of the Belogradchik Formation, the boundary with the overlying Slivovnik Formation, transgressive boundary Toshkovdol Formation - Kreshhtenitsa Member in its type area (Geosite No 34) and Mogyla Formation (Middle Triassic).

Geotrail No 3 is an exciting travel to the unknown part of the Belogradchik rocks which starts from the Belogradchik fortress (Geosite
No 61) Latin stronghold (Geosite No 62), astronomical observatory (Non-geological site No 72) and ends at the point from which a unique landscape of Sbegovete is viewed.

<table>
<thead>
<tr>
<th>Name</th>
<th>Trail</th>
<th>Length in km</th>
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<tbody>
<tr>
<td>Belogradchik rocks</td>
<td>Belogradchik centre – Romantic valley – Venetsa (TV-tower)</td>
<td>5.5</td>
</tr>
<tr>
<td>Planinitsa</td>
<td>Belogradchik – Chachin kamak – Planinitsa and back</td>
<td>9</td>
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<tr>
<td>Sbegovete</td>
<td>Belogradchik fortress – Reduta – Sbegovete and back</td>
<td>9</td>
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<tr>
<td>Vedernik</td>
<td>Belogradchik fortress – Reduta – Sbegovete and back</td>
<td>17</td>
</tr>
<tr>
<td>Lepenitsa Cave</td>
<td>Belogradchik – Natural Museum – Lepenitsa Cave and back</td>
<td>6</td>
</tr>
<tr>
<td>Kozarnika Cave</td>
<td>Church “St. Georgi Pobedonosets” – old road to Vidin- rood to Oreshets – Kozarnika and back</td>
<td>12</td>
</tr>
<tr>
<td>Bioreserve Chuprene</td>
<td>Stakevtsi- Bela voda - Bioreserve Chuprene and back</td>
<td>10</td>
</tr>
<tr>
<td>Martinov kamak</td>
<td>Chuprene- Manastirka-Funnel - Vedernik</td>
<td>3.5</td>
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<tr>
<td>Bekinska shobarka</td>
<td>Chuprene- Manastirka-Tsurina – Bekinska shobarka</td>
<td>4</td>
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<tr>
<td>Vitosha tulip</td>
<td>Chuprene – Belata voda - Okuke- Bekinska shobarka</td>
<td>4</td>
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<tr>
<td>Shepard’s house</td>
<td>Chuprene – Youth house-- Popovitsa-Shepard’s house</td>
<td>11</td>
</tr>
<tr>
<td>Midzhur Peak</td>
<td>Gorni Lom- Mandra-Dzhuruzhin kresh - Goat’s beck - Midzhur</td>
<td>15</td>
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<tr>
<td>Yellow gentian</td>
<td>Gorni Lom – Summer resort – Preslap</td>
<td>5</td>
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<tr>
<td>Serbian ramonda</td>
<td>Varbovo- the bridge - Venetsa</td>
<td>0,5</td>
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<tr>
<td>Apollo butterfly</td>
<td>Varbovo - Fountain - Preslap</td>
<td>4</td>
</tr>
<tr>
<td>Golden eagle – Roman post</td>
<td>Replyana-Good morning - Glama-Bolvan</td>
<td>4</td>
</tr>
<tr>
<td>Dark hole</td>
<td>Targovishte- Dark hole – Roman road - Bolvan</td>
<td>5</td>
</tr>
</tbody>
</table>

Figure D.2.1. List of geotrails in Belogradchik area

Figure D.2.2. Map of ecotrails in Belogradchik area

Figure D.2.3. List of ecotrails in Chuprene area

Figure D.2.4. Map of ecotrails in Chuprene area
Geotrail No 4 is continuation of the former up to the highest peak in the Fore Balkan part of the Geopark – Vedernik (1124 m) (Geosite No 51).

Geotrail No 5 starts from one of the first tourist points “Mental Stone” with wonderful view over the Belogradchik Rocks, passes through the Natural Museum (Non-geological site No 70) and ends at Lepenitsa Cave (Geosite No 55).

Geotrail No 6 is developed specifically for the needs of the Geopark during the Project 02-72 (Sinnyovsky, 2014). It starts from the church “St. Georgi Pobedonosets” on the old road to Vidin, and ends at Kozarnika Cave (Geosite No 54). This route includes the outcrop of Franz Toula - geosite of historical value for the Bulgarian geology (Geosite No 58) and outcrops of Babino (Middle Triassic) and Kichera (Middle Jurassic) Formations, including the type section of its Oreshets Member (Geosite No 32).

Geotrail No 7 is definitely devoted to the biodiversity of Chuprene biosphere reserve, but it passes through interesting outcrops of the high-grade metamorphic Stakevtzi massive, subject to the future development plan of the Geopark.

On the territory of Chuprene municipality are developed 10 ecotrails whose endpoints are beautiful landscapes, interesting geological formations or habitats of rare and endangered species (Figs. D.2.3-D.2.4). These routes are in metamorphic terrains with many outcrops of the oldest rocks in the area: Kopilovtsi metagabbro, Monaster ultrabasites and Ruptsi pillow lavas (Neoproterozoic). They are subject of development as geotrails in the future management plan of the Geopark.

Most tourist attractions are designed around sites of historical and cultural value. These are the most visited sites in the area – Belogradchik fortress (~50 000 visitors per year) and Magura Cave (~30 000 visitors per year). The last amelioration for the visitors of Belogradchik fortress is the new small auto-train between the centre and the fortress (Fig. D.2.5). It restricts the flow of cars to the fortress and makes easy access to it.

The latest acquisition of the Geopark is the newly built Visitor centre near the Belogradchik fortress (Fig. D.2.6) implemented through a project of the municipality under European Regional Development Fund and the Regional Development Operational Programme.

![Figure D.2.5. The new auto-train for tourists from the centre of Belogradchik to the medieval fortress](image)

This building will be the new Geological Museum of the Geopark, which is to be arranged with the samples collected during the three years Project 02-72 of the National Science Fund, implemented by the students and professors of the University of Mining and Geology “St. Ivan Rilski” Sofia.

![Figure D.2.6. The newly built Visitor Centre will by the new Geological Museum of the Geopark](image)
Magura Cave (Geosite No 53) is another geosite developed for tourism purposes. It is well known in Bulgaria and visited every year by thousands of tourists. Along with its attractive cave formations and famous Paleolithic wall drawings, Magura Cave attracts visitors with its naturally sparkling wine "Magura", aged in its depths, and other wines and grape brandy of the same brand.

**Planned activities**

The future activities will be financed by projects of ADNW under Operational Programme Regional Development in its Priority axis 3 “Sustainable tourism development”, Rural development programme (2014-2020) in its priority segment “Ensuring the sustainable management of natural resources”, National Science Fund and others.

Among the most urgent tasks facing the Geopark are placing information boards at the geosites with new information about the significance, geological position, genesis and age of the geological phenomena and arrangement A ranking of the geological museum in the new building of the Visitor Centre near the Belogradchik fortress.

Very important are the activities for amelioration of the existing geosites and scientific research of new geosites in the enlarged part of the Geopark area. Many new geosites of scientific value could be developed in the southern and northern parts of the Geopark concerning Neoproterozoic, Early Paleozoic, Tertiary and Quaternary rocks.

Construction activities are envisaged for some of the geosites, e.g. excavation of the impressive angular unconformity between Carboniferous and Lower Triassic near Geosite No 69, after the sketch of Toul (1877) (Fig. D.2.7); excavation of the unit boundaries in the stratotypes described as geosites of scientific value (Geosites No 26-36), and build a path to the outcrop of the iridium layer at the Cretaceous/Tertiary boundary (Geosite No 28), which is 2 km away from the road to Kladorub village.

![Figure D.2.8. Attractive apps for mobile phones are required to attract tourists](image)

Creating a new website is also among the priorities of the Geopark. The existing site on the webpage of the University of Mining and Geology “St. Ivan Rilski” ([www.mgu.bg/geopark-belogradchishki-skali/](http://www.mgu.bg/geopark-belogradchishki-skali/)) represents the result of the Project 02-72 only in Bulgarian. Activities related to popularization of the Geopark require all new information to be based online. Attractive apps for mobile phones will be developed on the available geosites database (Fig. D.2.8).

3. Analysis of geotourism potential of the proposed Geopark

Geotourism potential of the proposed Geopark has been recognized by conducting many national and international events devoted to the Geological Heritage at Regional and European level.
First international event in Belogradchik was the First Subregional Meeting 6-12 May 1995 dedicated to the Protection and Conservation of the Geological Heritage in South-East Europe, organized with the financial support of UNESCO, the help of the European Association for the Preservation of the Geological Heritage (ProGEO) and the active participation of scientists and nature protection institutes from all Balkan countries (Zagorchev, 1996). It was supported by all Bulgarian geological institutions with the special assistance of the Bulgarian Academy of Sciences and the National Museum “Earth and Man” (Sofia). This important for the Balkans event ended with the signing of Resolution supporting efforts toward a full integration of geological and geomorphological site protection in national and European legislation. A joint Declaration was adopted (signed at Bansko), based on the principles of the International Declaration of the Rights of the Memory of the Earth (Digne Declaration) and on the Convention concerning the protection of cultural and natural heritage (Bansko Declaration, 1996). All materials from this conference were published in a special edition of Geologica Balkanica, volumes 1 and 2 (1996).

The next event held in Belogradchik was the Meeting of the European Association for the Preservation of the Geological Heritage ProGEO’1998. Selected papers on all aspects of the geological heritage of Europe were published in Special Issue “Geological Heritage of Europe” of Geologica Balkanica (1998). At this meeting new GEOPARKS Initiative of UNESCO was first widely proclaimed (Patzak & Eder, 1998).

In 2009 Belogradchik took part in the campaign for the New Seven Natural Wonders of the World. This campaign attracted many tourists from Bulgaria and Region. The culmination was the Fest of the town on June 29, 2009 when many people and central mass media came to Belogradchik. This gave impetus to the local stakeholders and hope of the local people.

The next peak was in 2012, when Belogradchik Rocks won the national vote for “Wonders of Bulgaria” and became the symbol of the material heritage of Bulgaria among many emblematic sites of the Bulgarian historical heritage like Rila Monastery with more than 1,000,000 visitors per year, the medieval Bulgarian Capital Tsarevets - 340,000 visitors, and others.

These examples demonstrate the great spiritual influence and charm of the Belogradchik Rocks on the human perceptions, summarized through centuries by many travelers, poets and painters - from the enthusiastic words of Blanqui in 1843 (see B.4) to the recent vote.

However, historical assessments of many famous individuals, all the attention of the ProGEO activities at the dawn of GEOPARKS Initiative and recent categorical vote of Bulgarians for the Belogradchik Rocks as a new national symbol are based on their aesthetic impact. Until the development of Project 02-72 (Sinnyovsky, 2014) nobody appreciates the scientific value of the area.

This Project provided a remarkable database including many sites of global and continental significance. Geosites like the iridium layer at the Cretaceous/Tertiary boundary, many famous facies like Buntsandstein, Ammonitico rosso, Urgonian, Couche-Rouge, Proterozoic ophiolitic complex, entire range of igneous, volcanic, sedimentary and metamorphic rocks of all Phanerozoic systems make the proposed Geopark area a natural geological museum. After a careful interpretation and adaptation of scientific data to the public, this remarkable geodiversity could be used for the purpose of geotourism along with the famous landmarks and landscapes of the area. The unique geodiversity of scientific value, mentioned above, is a wonderful prerequisite for development of a world standard for scientific geological heritage of a Geopark.

4. Overview and policies for the sustainable development

Geo-tourism and economy

Tourism in the area has great prospects from existing municipal resources, making it one of
the priority sectors of the local economy. Tourism resources of the area include both natural and historical monuments. Natural monuments are concentrated predominantly on the territory of Belogradchik and Chuprene municipalities. These are the remarkable Belogradchik Rocks, Magura Cave and Chuprene Biosphere Reserve with well developed tourist ecotrails and geotrails (see D.2). Belogradchik fortress is visited approximately by 50 000 tourists per year. Most of these tourists visit also the Magura Cave (about 30 000), which is 18 km north of Belogradchik town. Tourists prefer Belogradchik town, because there are many hotels, but some of them stay in guest houses or hotels in the other settlements. For example, the second largest hotel in the Geopark is located in the historical place Falconets in Ruzhinski municipality.

The most remarkable cultural event in the area is the traditional Annual Bulgarian-Serbian Assembly at the State border between the villages Salash (Bulgaria) and Novo Korito (Serbia) which dates back to 1925. It includes folk festival and reenactments of historical events with many beer, wine and local foods.

Ecotourism in Chuprene municipality is directed mainly to the beautiful landscapes of the highest part of the West Balkan including Midzhur Peak (2168 m) and Chuprene Biosphere Reserve. Here is situated the wonderful hut “Forest Paradise”, a modern chalet providing an exciting stay in authentic Balkan condition, rising up to 1,450 meters above sea level. "Forest Paradise" offers contemporary accommodation, cleanliness, comfort and relaxed atmosphere among the pine forests of the Balkan Mountains.

The most remarkable cultural event in the municipality is the Tourlac’s Folk Festival, held every year under the title “Kada kum prase i ti wrecu” (when the best man carries a pig you should have a sack) showing the motto of the local people “take the moment” in their dialect. The fest is accompanied by degustation of local wines, brandies, delicious local dishes and craft products.

Architectural, historical, cultural and scientific monuments (Non-geological sites No 61-72) complement the beautiful landscape and make possible to provide a diverse tourism products and attract tourists from the country and abroad. In order to fulfill its mission of sustainable economic development over the territory, the ADNW provides support to the local stakeholders in a way that they can take more advantage of their belonging to the Geopark. At the moment the municipality of Belogradchik conducts an interesting policy for stimulation of the local production. Recently, a shop “Made in Belogradchik” was opened to sell only local goods. This is a good possibility for the local producers to link their products with the Geopark and to sell eco-products with its logo.

ADNW will disseminate similar initiatives as a best-practice regarding the good agro-ecological balance and will encourage formation of professional organizations on the territory of the Geopark. It will run a programme for manufacturing of geo-products and/or other similar products directed to craftsmen, tradesmen and service industries. It aims at improving the network of local actors through collective actions.

ADNW envisages the foundation of the local label of quality “The Rocks” for the best product of the year for each branch of production. This symbolic initiative will be a good practice for promoting regional ecological production and thus to support the producers of wine, cheese, honey, wood, accommodation and herbs. The policy will be about structuring, networking and enhancing the existing businesses and their products. Depending on the actions, the policy will be conducted with suitable partners of the neighboring areas.

ADNW will provide every year a leaflet with list of best products on the territory of the Geopark, promoting activities and contributors to preserve a rich heritage and to develop the local economic potential.

In 2013 the author of this Application Dossier was delighted to meet an interesting practice of the producers of bread, chocolate
and ceramics in Bouges Subalpine Geopark in France, producing goods related to the geological heritage: sea urchin fossils made of chocolate, bread or ceramic, and St. Jacques Towers made of meringue (Peisser, Renau, 2010). This experience could be embedded in the bread bakeries in Dimovo town. It could be also introduced in the work of the children school “Child complex” in Belogradchik developing traditional crafts: carving, painting, dances, etc.

**Geo-education**

Database developed during the Project 02-72 (Sinnyovsky, 2014) is available in all municipalities and organizations within the Geopark. Selected facts of the long geological history of the area will be interpreted for the needs of basic education in the regional schools. Most interesting geosites will be described in a popular style to reach children and create interest in earth sciences.

Geo-education will be easily involved through the scholar organization “Child complex”. The existing in their curricula “Topographic orientation” could be modified with GPS-orientation and “rock hunting”. There are several routes developed especially for this purpose. At any point on the route is placed a note (in bright colors) containing the coordinates of the next point but in a different coordinate system. This requires continuous adjustment of the GPS devise and helps children to become familiar with the devise and coordinate systems. It also allows children to situate themselves within a large scale environment, enabling them to navigate through it, including landmark recognition. This “topographic game” is part of the practical education of the first year students in “Geoinformatics” in the University of Mining and Geology in Sofia.

Adult education takes place in the form of public meetings, seminars and workshops mainly in the frame of the National programme “Administrative capacity”. Passive forms of education are exhibitions, devoted to the geological heritage of the region. The last event of national character, namely the photographic exhibition devoted to the Belogradchik Rocks, was held in the National Museum “Earth and Man” in Sofia. It was opened by the President of the 42th National Assembly Mikhail Mikov on March 6, 2014 (Fig. D.4.1) and within two months it was visited by many people. Next several months it is envisages to represent the exhibition in all settlements of the Geopark area.

**Geo-heritage**

Geoheritage is in the focus of the sustainable development of the area. Maintaining and extension of the tourist facilities will increase the interest to the natural wonders of the area and attract more visitors. Geopark gives the area unlimited possibilities to popularize its geological heritage and develop its tourist potential. Significant enlargement of the area
and development of more geosites gives opportunity to all settlements in the four municipalities to take part in regional planning and strategy for regional sustainable socio-economic and cultural development, safeguarding the environment. This is the only chance for the local community to acknowledge and restore its remarkable natural and cultural heritage in a way that will enable the next generation to be proud of it.

5. Policies for, and examples of, community empowerment (involvement and consultation) in the proposed Geopark

During 20th century the area was object of state investments in tourist development, because hotels and tourist attractions are state property. Local people were engaged mainly in the construction and service sector. After the economic changes after 1989 appear many small hotels and guest houses, demonstrating hope for the development of tourism. This hope was stimulated by the permanent efforts of the local authorities for popularization and promoting of the geological phenomena.

At the beginning of this century the municipality of Belogradchik applied its natural landmark “Belogradchik rocks” as Natural Park. Then a Public Council with advisory functions was created as the relation between the local authorities and the public. Later activities accompanying the promotion of the Belogradchik Rocks for the New Seven Natural Wonders of the World and the Wonders of Bulgaria are discussed within the council meetings with the local public.

One of the most discussed topics on these meetings is the private forest property. The main concern of the people is that after the change of the status of their forests will change the mode of use and they will not be able to use their forests. During the discussion of the establishment of Nature Park “Belogradchik Rocks” this problem was not so important because of its restricted territory. However, it turned out to be the decisive factor in the failure of the Nature Park ”West Balkan” in 2007.

The present consultations concerning all these aspects clearly define the difference between Nature Park and Geopark. It was clarified that this kind protected area does not change the status of the land estate. After registration of ADNW, functions of the Public Council are transferred to this association.

During the implementation of Project 02-72 (Sinnyovsky, 2014) local authorities expressed their involvement in promoting their geological heritage as well as offering new opportunities for tourism development to their local stakeholders. For example the mayor of the village of Granitovo organized a guiding group of local people who know very well the area to help the scientists in recognition of their geological and cultural heritage (Geosites No 33, 64). In return chemical analyses of the water sources were made in the picturesque site “Podmola” near the village (Geosite No 33).

6. Policies for, and examples of, public and stakeholder awareness in the proposed Geopark

All activities concerning the preservation of the geological heritage and initiatives for establishment Nature Park or Geopark on the territory of the proposed area, including seminars, meetings and campaigns, have been widely disclosed and attended by an unlimited number of residents of the area. The campaign for the New Seven Natural Wonders of the World in 2009 gained national character and Belogradchik rocks garnered 7,000,000 votes (Fig. D.6.1). Then all the inhabitants of the area were proud of their geological heritage and the attention of the national mass media. This year visitors of the rocks increased seven times, and the stakeholders were encouraged in their efforts to develop their business. In the days around the Feast of the city on June 29 (St. Peter) the hotels in the town were crowded. Unfortunately, these campaigns are limited in time and do not have the potential to establish a sustainable interest to the region. This
brings some disappointment among local stakeholders that “again nothing happens”.

Figure D.6.1. The peak of the campaign for the New Seven Wonders of the World on 29.06.2009

The next significant event in 2012, held in the light of the national campaign “Wonders of Bulgaria” under the auspices of the Finance Minister Simeon Dyankov (Fig. D.6.2), gathered all professional organizations in the region: wine-producers, hotel, crafts, services, grain, woodworking, herbs and more. The discussion was whether the Geoparks philosophy, based on the principle “Nature for Man” is very suitable for achieving sustainable development in the region.

Figure D.6.2. Round table with the participation of the Minister of Finance and stakeholders in the region held on 07.05.2012 in Belogradchik, which started the campaign “Wonders of Bulgaria”

Recent discussions on the Geopark initiative were focused on the land estate. People want arguments whether Geopark initiative is applicable to their area and will contribute to a positive impact of the local economy. They want to know how Geopark can contribute to their livelihood and what exactly will be the change of the status of their land estate. Obviously this is one of the most important themes already discussed when the area applied for Nature Park.

The public was acquainted with the Charter of the EGN and principles of geoconservation. The positive answer of these questions started the procedure for registration of the ADNW which involves public authorities and local communities, and represents their interests.

In terms of the location of the park area between the two neighboring countries Serbia and Romania, the idea of Geopark establishment was supported by these countries. Good contacts between Belogradchik and Serbian Knyazhevats municipalities will be developed in a new direction: the traditional Annual Assembly of the two communities on the State border will become an international event of the Geopark. In July, 2013 an initiative to open a new checkpoint on the State border between the two municipalities was already at an advanced stage due to negotiations under the auspices of the President of the 42th National Assembly Mikhail Mikov. Then the idea of the author for establishment of cross-border Geopark was adopted (Fig. D.6.3).

Figure D.6.3. The President of the 42th National Assembly Mikhail Mikov, the mayor of Belogradchik Boris Nikolov (left) and representatives of Knyazhevats municipality at the Serbian-Bulgarian state border on July 20, 2013
**E. Interest and arguments for joining the EGN/GG**

Belogradchik is an emblematic place not only for the Bulgarian geoconservation, but also for the GEOPARK Initiative of UNESCO. This is the place where the GEOPARKS Programme was first widely publicized at the Belogradchik Workshop of ProGEO’1998 Meeteng by Patzak and Eder (1998). So this town has historical significance for the GEOPARK Initiative.

The main reason to apply this Application dossier to join the European Geoparks Network is the remarkable geodiversity of Geopark Belogradchik Rocks that deserves to be presented to Europe and Worldwide. In terms of geodiversity the proposed area does not have analogue among the European Geoparks. Its historical and cultural heritage is also of continental value.

Another strong argument is the clearly declared desire of the local authorities and indigenous population to be involved in the policy for the conservation of their natural and cultural heritage with hope for socio-economic improvement of the rural environment in the most underdeveloped region in Europe.

EGN membership will allow us to reveal the high scientific value of the area which remained in the shadow of the wonderful rock pinnacles. The remarkable geodiversity represented by entire range of igneous, volcanic, sedimentary and metamorphic rocks from Neoproterozoic to Quaternary makes the proposed Geopark a true field geological museum.

Logo ‘UNESCO Geopark’ will encourage local people to feel proud of their place and to involve in the preservation and promotion of their remarkable geological heritage, biodiversity, unique culture and long history through the EGN initiatives. This will allow local people to say: “At last something happened”.

Participation in EGN will provide more opportunities to keep on developing innovative approaches through collaboration with other European Geoparks.

Additional impetus for the present application was the conversation of the author with the coordinator of EGN prof. Nickolas Zouros on the 12th European Geoparks Conference in Cilento, Italy 2013, who encouraged this application by the words: "Why are you so late? Not you, Europe is losing by the fact that there is no Bulgarian Geopark in EGN".
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