Geoheritage Field Workshop
on

BAGH DINOSAUR NATIONAL PARK, DHAR DISTRICT, MADHYA PRADESH

16-20 November 2022

Mandu-Manawar-Bagh, Dhar District, Madhya Pradesh

Post-excursion Report

Organised by

M. P. Ecotourism Development Board
Department of Forest, Madhya Pradesh
&
The Society of Earth Scientists

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PREAMBLE

India is blessed with great geodiversity since it has recorded 3.5 billion years's history of evolution of Earth. Some of this geodiversity is visible through the unique sections that are present on the globe The Indian rock record bears the signature of various global geological events including evolution of life, mass extinction, making of Himalaya, meteoritic impact craters etc. Over the last decade, there is a growing interest in the conservation of geoheritage through the establishment of Geoparks. UNESCO defined Geopark as, *"single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development."* In simpler words, Geoparks are regions of geological and geographical significance with an exquisite landscape that holds scientific, educational, aesthetic and cultural value.

The Late Cretaceous continental-marine-continental sedimentation took place over Precambrian basement with a hiatus during Cenomanian (100.5-93.9 million years) marine transgression along Narmada graben. The reactivation of Precambrian Narmada-Son lineament gave way to inland marine incursions. The continental sediments, overlying marine strata, contain well-preserved dinosaur eggs, nests and bones, and fossil wood representing Late Cretaceous vegetation of the region. The end-Cretaceous outburst of lava in central and western India- the Deccan Trap was responsible for the demise of Dinosaur, which overlies/cover the fossiliferous sediments. Undisturbed well-preserved sedimentary successions (8-19 m) are available for geological studies. It is one of the oldest discovery of Dinosaur fossils from Asia. Bagh Dinosaur Geoheritage Site is one of the best-exposed dinosaur fossil site of India. A Fossil museum at Mandu adds feather on the cap. The Dinosaur Fossil Park is under development as a Geopark by Government of Madhya Pradesh.

A three-day field workshop was organised by Ecotourism Development Board, Department of Forest, Madhya Pradesh.

OBJECTIVE

The main objective of geoheritage field workshop is to assess the status of geosites of Bagh-Manawar region, conservation measures taken and further needs, scope of development as a Geopark and getting UNESCO tag. The area falls under Tribal region and have both cultural and archaeological significance. The art and craft of Bagh is world famous. The entire region bears excellent blend of geological, archaeological and cultural heritage and bringing all together keeping local citizens in the centre is as per the concept of Geopark. Keeping all the objectives in mind geoscientist, researchers, social activists, press and media, local administration, tourism and host Forest department officials came together and interacted closely. This report is gist of all the activities during the workshop and further recommendations are also made to take up future course.

GEOLOGICAL SIGNIFICANCE

The Dhar district of Madhya Pradesh has a rich paleontological, geological and geomorphic heritage. The dinosaurian nesting sites in the Maastrichtian (72-66 Million Years) Lameta Group of rocks have drawn the attention of many palaeontologists,

sedimentologists and stratigraphers. The Precambrian basement rocks, Nimar sandstone, Bagh Group, Lameta Group, Deccan Traps and the Intertrappean rocks in this region have a story to tell about the evolution of the Earth and the processes that unfolded over millions of years. The imprints of global events like the splitting of continents, marine transgression, Deccan volcanism, mass extinction and evolution are preserved in this rock-record. The fossil-rich lithostratigraphic units of the region represent a geological history of the past 100 million years of the Cretaceous-Paleogene Period. Moreover, the area has a diverse geology and exposes a variety of vertebrates, invertebrates, trace fossils and fossil wood.

The Cretaceous Period in the history of the Earth witnessed a series of global events, one of which is the ~100m global sea-level rise. The Tethys Sea invaded through the intracratonic rift and laid down a marine sedimentary succession over the Precambrian basement, famously known as 'Bagh Beds.' The Bagh Group of rocks with its constituent lithostratigraphic units is well-exposed at the Dinosaur Fossil National Park (Bagh), Sitapuri, Phutibawari, Rampura, Zeerabad, Ghursal, Bagh Caves and River sections in the Dhar district. The Nodular Limestone that extensively developed in the Lower Narmada valley is a product of the Late Cretaceous marine transgression and forms one of the key ingredient in the manufacture of cement. The Bagh Group rocks yield abundant time-diagnostic fossils, which give important information about the Cretaceous paleoclimate, palaeoposition of India, faunal endemism, and the tectonic events, which led to the development of the Narmada rift.

The overlying the marine limestones is the continental Lameta Group of rocks well-known for the contained dinosaurian eggs and bones and fossil wood. Dinosaurs were the largest and the most successful group of terrestrial animals on the Earth. They are reported from very few localities and stratigraphic sections in India. The Cretaceous sedimentary rocks of this area have yielded fragmentary bones, teeth, eggs, egg shells, coprolites and nests of dinosaurs. Apart from the dinosaurian remains, a variety of plant fossils, trace fossils, and marine organisms like echinoderms, bivalves, shark teeth, gastropods, bryozoans, ammonites, microfossils and nanno-fossils have been recovered from the area which is crucial to understanding the mechanics of evolution, adaptation, survival, extinction and dispersal patterns.

The Deccan Trap, one of the largest volcanic provinces in the world is characterized by the eruption of huge volumes of lava in a relatively short time span. It has covered the sedimentary succession of the Bagh and Lameta Group of rocks in most of the Dhar district and exhibits splendid structures in the area. Mega columner joints observed in the Deccan basalts at several places. The Deccan Traps have been mainly linked with one of the largest mass extinctions witnessed in the history of the Earth that occurred during this time. However, it is equally important to study the sediments preserved within them known as intertrappeans. These rocks provide an opportunity to understand the paleoclimate, faunal behaviour, timing and duration of volcanism and the role of Deccan volcanism in the Cretaceous-Paleogene (K-Pg) mass extinction. The Intertrappeans exposed at Bharundpura, Gujri Phata and Bhagwania sites has yielded ostracods, charophyte, molluscs and fish remain typical of fresh water, low energy, lacustrine environment.

ARCHAEOLOGICAL & CULTURAL SIGNIFICANCE

The archaeologically significant **Bagh Caves** are a group of nine rock-cut monuments of 5th & 6th Century AD exposed in the Bagh area. These cave are mostly cut in the Nimar sandstones exposed along Baghini River and are presently conserved by the Archaeological Survey of India. The paintings on the walls and ceilings are still preserved in some of the caves. Bagh caves are one of the most important attraction of the area.

Bagh Print, a traditional Indian handicraft with motifs printed in natural colours is peculiar to the Bagh area of Dhar District. The fabric is printed by blocks using natural pigments and dies. Bagh prints is also registered as Geographical Indication Registry of India. It combines the culture and tradition of the region and provides support to the local handicraft entrepreneurs.

Ever since the civilizations have existed, there have been folklores, myths and legends around fossil discoveries. In the abstract of a research article titled Fossil Folklore of India: The Siwalik Hills and the Mahabharata, it has been noted that “most often, large vertebrate fossils have been explained as bones and teeth of giant humans, dragons and monsters, saints and heroes. Smaller invertebrate fossils were often interpreted as sacred or curious relics based upon their resemblance to familiar or sacred objects….Fossil ammonites (shaligramas), for example, are worshipped as the disc (chakra) of the Hindu god Vishnu across the country.” Similarly, the paleontological remains found in Bagh and Manawar towns of Dhar district of Madhya Pradesh have assumed great cultural/mythological significance for the indigenous tribes of Bhils and Bhilalas inhabiting these regions. They, being ‘idol worshipers’, relate structures on various fossils with mythological stories and accordingly worship them since ages.

This is in keeping with the legacy of indigenous tribes preserving their natural ecosystem through association of sacred values and beliefs to the evolutionary relics through a collective responsibility for their maintenance and protection.

EXCURSION

Day-I: 16.11.2022

Inauguration and interaction: All the delegates assembled at the Forest Guest House, Indore and jointly proceeded to the historical place of Mandu where the stay was arranged in The Dino Museum & Resort, a best place for a geoheritage field workshop. A late evening meeting and interaction was organised, which was attended by delegates, senior forest officials and press personnel. First presentation was made by Ms. Vedika Gupta on ‘UNESCO Global Geopark- Criteria and benefits’. It was followed by the presentation by Dr. Sameeta Rajora, CEO, Ecotourism Board elaborating the constitution, aim and objectives of the Board. Mr. Vishal Verma presented about the planning of development of Bagh National Park. Presentations were followed by interactions. Dr. Satish Tripathi clarified various doubts about the potentiality of Bagh as UNESCO Global Geopark. The Chief Conservator of Forest Shri N. K. Sanodiya also interacted with the geoscientists and assured all round support in establishing the Bagh Geopark. All arrangements for the field workshop were successfully organised by Sri P K Parashar, SDO, Forest and Sri Santosh Chauhan, Forest Ranger.

Day-II: 17.11.2022

The workshop started with visit to the Dino Museum at Mandu, which houses abundant gastropods, bivalves, echinoderms, fossil wood, dinosaur eggs and nests. The museum also houses artefacts, jewellery and weapons of the local tribe, 3D models showing the location, slope and elevation of Mandu. Later, the team visited Sat Kothadi Caves, a cultural heritage site in the Mandu town. These are series of seven caves carved in the Deccan Basalt and forms part of the famous Mandu Fort. Short excursion was made to the Jahaz Mahal and the Hindola Mahal of the Mandu town built in the second half of the 15th century. It is a famous monumental building made

of the limestones and sandstones of the Bagh Group rocks exposed in the vicinity. The caves, forts, steep cliffs and natural scenery offers spectacular views which are important part of tourism and shows the city's rich heritage, history, landscape and culture.

At the Dino Museum, Mandu

Field transects were taken along the Bharudpura, Gujri Phata and Bhagawania intertrappeans. The rocks showed presence of fossiliferous-sedimentary succession sandwiched between the lava flows. The section shows presence of abundant delicate bivalves and gastropods embedded in the claystones and siltstones. Dr. Vivek Kapur explained importance of the faunal elements from the intertrappeans. Dr. Kapur reported presence of ostracods, molluscs, charophytes and fish remains from the Gujri Phata site indicative of fresh water lacustrine/palustrine environment.

Thick columnar basalts at the Bharundpura section with vesical cylinders.

The section of thick columnar basalts at the Bharundpura section displays vesicle cylinders disposed in a circular pattern to ellipsoidal pattern which are attributed to the gas bubbles rising buoyantly through the lava. The structure is unique to the Dhar district and allow us to understand the heterogeneities of the volcanic rocks, tectonic activity, and past volcanism in the area. Dr. Vivek Kale briefed about the mantle-plume and plate tectonics- two widely accepted models of Deccan Volcanic eruption. He also suggested the columnar jointing with dispersed pipe vesicles at Bharudpura to be the basal part of flow and its core. Brainstorming discussions were held regarding the emplacement of the structure based on observations made by different participants.

Day-III: 18.11.2022

The large radial-jointing structures observed in the Deccan basalts of the Singhana village and referred as 'War Bonet' owing to its resemblance to the radial feathers on the headdress of the native Americans. Dr. Vivek Kale explained about the different flow geometries and suggested the structure to be part of the crystalline basaltic core. Later, sections of Bagh and Lameta Groups exposed along the Kukshi-Bagh Road and Baghini River were visited. The Rampura section exposes the Nodular Limestone overlain by Coralline Limestone of the Bagh Group rocks. Dr. Tapas Kumar Gangopadhyay and Dr. Satish Tripathi briefed about two hardgrounds present in the Nodular limestone. The hardgrounds in Bagh Group are characterized by borings and bryozoan encrustations, which signifies synsedimentary cemented carbonates and a break in sedimentation. Inoceramids, an extinct genus of bivalves, is abundantly recorded in the Bagh Group rocks.

Radial-jointing structures observed in the Deccan basalts of the Singhana village.

Raisinghpura section exposed along the Madhya Pradesh State Highway-35 near the Maa Bagheswari Temple shows Nimar sandstone, lowermost unit of the Bagh Group is exposed here; it is conformably overlain by the Nodular limestone. The Nimar sandstone occurs interbedded with ferruginous mudstones and shows herringbone cross-stratification suggesting deposition in a transgressive, tidally-influenced

environment. The excursion was led to the Bagh River section at Jamaniyapura which showed presence of abundant oysters, *Inoceramus*, echinoderms and *Thalassinoides* trace fossils. The maze structure of *Thalassinoides* burrows observed in the Nodular Limestone represents firmground *Glossifungites* Ichnofacies and omission surface suggesting break in sedimentation.

An interaction with the local people was also organised where geoscientists and forest officials discussed importance of conservation of geological heritage and understood view of the people. They were also appraised with the economic benefits that development of Geopark will bring to the region. It has been proposed that a Bagh festival can be planned and interaction and training of the people will be integral part of this festival.

The next stop was the Bagh Caves, located on the western bank of Baghini River, spanned by a small bridge. The caves are carved in the Nimar sandstones and

Nodular limestone of the Bagh Group and capped by Lameta Group of rocks. The Nimar sandstones in the Bagh Caves shows splendid sedimentary structures, and trace fossils. The overlying Lameta Group of rocks contains dinosaurian eggs. The Bagh caves is a geologically as well as culturally significant site and is an important resource to the tourism industry. The Archaeological Survey of India has used the best methods of conservation and restoration of the site, in order to preserve the site while ensuring its earlier state. The last stop on this day was the Bagh National Park. The park is readily accessible on the road that connects Bagh with Jobat (State Highway 39). The Bagh Group rocks in this region are overlain by the cherty sandstones of the Lameta Group of rocks. The park preserves abundant petrified wood logs, inoceramids, trace fossils, dinosaurian eggs and nests recovered from the lateral extension of the lithostratigraphic unit. Visitors can explore the space by taking a walk/cycle through the rolling landscape and discover the contained fossils. The landscape, topography, geology and culture of the area further makes it ideal to develop as geopark.

Field photograph of the petrified wood from the Lameta Group of rocks preserved at the Bagh Dinosaur National Park, Bagh.

Field photograph of the dinosaur nest preserved at the Bagh Dinosaur National Park.

Day IV: 19.11.2022

Day started with a visit to the Haripad Museum, which houses Mr. Vishal Verma's personal collection of paintings, rocks, minerals, fossils (vertebrates, echinoderms, bivalves, bryozoans, brachiopods, gastropods, dinosaur eggs, trace fossils, plants fossils), artefacts and whatnot. Some of the large specimens of petrified wood logs and inoceramids were also donated to the Bagh National Park. It is Mr. Verma's passion project cataloguing collection of more than 30 years. The museum displays Bagh's rich geological and cultural legacy.

The next stop was Sitapuri located on the western bank of Man River. Here the Bagh Group rocks unconformably overlies the Precambrian (?Bijawars) and are inturn overlain by the Lameta Group of rocks that yield abundant petrified wood logs. Macrofossils like gastropods, brachiopods, bivalves and ammonites are common and diverse in the Deola Chirakhan Marl. Dr. Gangopadhyay observed variable sizes and faunal assemblage of bivalves, gastropods, ammonites, and echinoderms and suggested the marl represents a mass mortality event in the sedimentation history of Bagh Group of rocks. At Borlai, the section displays Coralline limestone capped by Deccan basalts. The limestones are cross-bedded and contains fragments of bryozoans indicating deposition in a high-energy regressive sea.

During the end of the day, the team visited the Saagar cement factory, Zeerabad and interacted with officials. Discussions were held at the end of the day. The ideas and concepts regarding the geopark were intensely discussed and a roadmap was drawn to bring UNESCO recognition.

BAGH DINOSAUR PARK- AN ASPIRING UNESCO GLOBAL GEOPARK

Bagh Dinosaur National Park fulfils all the criteria of an aspiring UNESCO Geopark and is best candidate to be the member of Global Geopark Network. The motto of UNESCO Global Geoparks is *"Celebrating Earth Heritage, Sustaining Local Communities".* UNESCO Global Geoparks are fundamentally about people and about exploring and celebrating the links between our communities and the Earth. These criteria are evaluated as below:

1. **Geological heritage of international value**: Bagh is one of the oldest known dinosaur nesting sites of Asia. Since then extensive geoscientific researches have been carried out on dinosaur eggs, bones and nesting sites. Geologically, very significant, the stratigraphic sequence of the area represent a continental-Marine-Continental sequence of sediments with prolific development of life and their preservation in the form of fossils. However, dinosaurian fossils assume maximum importance and significance as Indian dinosaurs are endemic species and thrived when Indian subcontinent was isolated and moving fast northward. Therefore, this geological heritage assumes utmost International significance.
2. **Management:** The Bagh Dinosaur National Park is managed by Ecotourism Development Board, Department of Forest, Government of Madhya Pradesh supported by local committee 'Van Mitra' and a National Scientific Advisory Committee. <u>These committees needs further strengthening with inclusion of</u>

more effective member from different domains. These committees help in management of this aspiring Geopark.

3. **Legal Protection:** The core area of geological heritage is legally protected by under section 35(1) Wildlife Protection Act, 1972, which gives ample security to conservation of fossils and landscape. There is also identified an encircling buffer zone with in situ fossil sites, archaeological site (Bagh Caves) and sites of local handicrafts and artisans.
4. **Visibility:** Bagh is a very well known for its dinosaurian and associated fossils. The geological domain covers a period of Late Cretaceous which ends with massive eruption of basaltic lava flows resulted in to demise of mammoth creature Dinosaur. Several International and national field workshops were organised to understand scientific and tourism potential of the region. A separate page in the website of the Ecotourism Board is also proposed which will contain all relevant information.
5. **Education:** The area encompasses great educational value by understanding how sea level rise encroach inland areas and the development of life. Secondly, what happens when the sea water recedes and how land life develops. What were the forests and how large creatures lived and what was their habits and habitats. The mixed forests, archaeological sites, local art and handicrafts, tribal lifestyle adds to the value of the region. Geotours will be organised including all components to educate visitors. Local community mainly women will be trained to become Geoguides for an inclusive and empowered future. Educational institutions will be partners to impart knowledge about earth processes.
6. **Sustainable Development:** The Bagh region is mainly a triable belt and development of Geotourism will strengthen local population. The Geotourism support conservation of geological and archaeological heritage, protection of landscape and forest, development of local art and handicraft to national and international level. Local people will be encourages to develop 'Home Stay' in typical Adivasi style with local cuisines. As such, Geotourism will provide economic support to local community, which are instrumental in conservation of our natural resources.
7. **Cultural, Archaeological and Nature (Forest) Components:** The region has mainly Tribal population and their culture and traditions are always matter of interest for all. Local handicrafts (e.g. Bagh prints etc.) are now have international recognition and of great economic support for local people. Bagh caves assume importance for archaeological point of view and is an added advantage for an aspiring Geopark. There are mixed forest in this region and forest cover is also satisfactory. The protection and conservation of fossils will also be instrumental in conservation and development of forests.

GEOCONSERVATION ALSO BENEFITS ECOTOURISM AND CONSERVATION OF FOREST

Geology and the soil developed over it form the base for the type of forest. Therefore, both are intricately associated with each other. The conservation of geological heritage ultimately resulted into the conservation and prolific development of forests. The ecotourism conserves all the components of nature and their interaction with the community. The involvement of local people in preservation of our ecosystem is vital

and adding an additional gradient of geological heritage make it complete. Hence, geoheritage conservation adds to the conservation of forests vis-à-vis development of ecotourism.

COMMUNITY PARTICIPATION, SDGS AND LIVELIHOOD PROMOTION

Dialogue with the host community: Comprehensive engagements with the indigenous tribal community of the adjoining villages in Bagh through grassroots institutions of Local Citizen Committee and Gram Panchayats is imperative. Multiple workshops and discussions with the different stakeholder groups such as women, school children, tribal youth, SHGs and cooperatives, NGOs and local leaders will be conducted for:

- Sensitisation of the community about conservation of the geoheritage and context of the proposed project.
- Understanding and addressing the concerns of the locals with the proposed project to prevent any potential conflicts/resistance.
- Collaboratively identifying the sustainable local livelihood potential through promotion of Geotourism and Cultural Tourism.

Promotion of Sustainable Development Goals – The proposed project must align with the Sustainable Development Goals such as development of resilient, inclusive and equitable infrastructure, quality education and climate action. The landscape, geological, forests and cultural wealth of the region should not be disturbed while developing a Geopark. Installation of solar lights connecting the geo-points and signages among other design interventions.

Livelihood Promotion and Skill Development with emphasis on Women's Empowerment

- Only eco-friendly vehicles such as e-rickshaw, cycles, horse-riding etc. must be allowed inside Bagh for sight-seeing. This will prevent pollution and traffic congestion and help preserve the pristine landscape of Bagh. Additionally, this will promote livelihood opportunities for the locals.
- Development of a Mahila Tribal Haat in the vicinity of the geopark or Bagh Caves, run and managed by the tribal women entrepreneurs of handicrafts, indigenous cuisine/snacks and sweets, jewellery, terracotta artifacts and paintings among others.
- Rental huts/ homestays managed by the community to provide tourists with an experience of tribal hospitality and culture through presentation of folklore and folkdance among other artistic expressions.
- Women's cooperative can run the geopark guesthouses and local cafes. Skill development for hospitality (observing best hygiene practices, management of the outlets etc.) would be necessary for quality services.
- Skill development of tribal youth as tour guides for geotourism and cultural tourism. The youth might take up jobs of organizing treks, cycling and camping during the peak tourist season.
- Running therapeutic herbal oil massage centres can be considered by women SHGs as well as a source of livelihood.
- Development and sale of herbal medicine by tribal community should also be explored.

It is therefore pre-requisite to rigorously conduct geoheritage sensitization workshops with the tribal community including men, women, youth and children. This must involve a collaborative **Manthan** on potential livelihood and entrepreneurship opportunities that the geoheritage conservation through development of Geopark will usher for the youth and women.

RECOMMENDATIONS

Basic Requirements of Bagh Dinosaur National Park

1. An attractive entry Gate
2. Bio/Green Toilets at THREE different locations
3. An information and View point opposite to the entry gate
4. Path with local stone base connecting various Geo-points systematically. It should be constructed in such a way that E-Rickshaw can ply
5. Rest chairs at appropriate places
6. Water Taps at appropriate locations
7. Solar lights at proper places
8. Signage and information boards, information brochures
9. Plantations to green the park

The aforementioned basic needs should be completed in a defined time-frame. Technical information for signage and preparing documents to be obtained through QR Code will be prepared by the SES. The costing given is tentative.

1. An expert committee with scientists (Geology, Geography and Biology), archaeologists, civil and forest officials (Not more than 8 no)
2. A Local Citizen Committee including elected representatives, eminentlocal people, and people related with art and craft (Not more than 10 no.)
3. Workshops with local people to educate them.

As proposed a suitable date for **'APNI DHAROHAR MAHOTSAV, BAGH'** as an annual event may be decided and all above works may be completed before it. Honorable Chief Minister/Forest Minister may be invited to open the Dinosaur Park and the Bagh event.

THE TIMES OF INDIA, INDORE
FRIDAY, NOVEMBER 18, 2022

Bagh dino site may be India's first Unesco Global Geopark

Country's Leading Geologists & Paleontologists In Dhar To Prepare Dossier For Unesco | To Be Completed By Oct 2023

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Bagh (Dhar): India's first Unesco Global Geopark might come up in Bagh area of MP's Dhar district, Asia's oldest dinosaur fossil site that tells an extraordinary story of evolution from the late Cretaceous era, around 100.5-60 million years ago.

The country's leading geologists and paleontologists have reached Bagh, brainstorming ways to prepare a dossier for Unesco to win the tag similar to the one given by Unesco for heritage sites. Backing their efforts is Madhya Pradesh Ecotourism Development Board, which is confident of its ability in connecting with local communities in preserving, educating and protecting forests, while inviting nature lovers to catch a glimpse of the past.

MP Ecotourism Development Board CEO Dr Sameeta Rajora, who was instrumental in preserving the fossils found here, said, "The story needs to be told. Bagh is so rich in fossils and geological heritage. You dig anywhere you will find fossils. Fossilised trees, basaltic columns are found lying on the roadside. People dig them out (for construction and other development work) and discard them without knowing the value."

TIMES Special

Unesco Global Geopark, a new label ratified by the world body in November 2015, aims at recognizing single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development.

It has awarded 177 global geopark tags in the world. "Small countries like Malaysia, Iran and Chile have Unesco geoparks. Despite having vast geological heritage, India is yet to get one. Bagh is the area that qualifies on all parameters for geopark," Dr Satish C Tripathi, secretary of The Society of Earth Scientists, told TOI.

Tripathi, a former deputy director general of Geological Survey of India (GSI), is leading the team of scientists in Bagh to prepare a checklist for the Unesco dossier. "We will complete it by October next year," Tripathi said.

Bagh area shot to limelight when a perfectly preserved dinosaur egg was discovered by amateur explorers, led by a secondary school physics teacher, Vishal Verma, in 2006. As the word went around, dinosaur nesting sites were discovered, and so were hundreds of dino eggs, bones and teeth.

In 2011, the state forest department declared 89.4 hectares of Bagh as Dinosaur Fossil National Park, paving the way for several associated conservation projects.

"This is a small portion of land where fossils and geological findings are found. Fossils of giant gymnosperms (trees), shark teeth and geological formations tell a tale of earth's evolution," Verma said. The Bagh area is around the Narmada river and once had the largest population of dinosaurs in these parts. Experts have found fossils of carnivorous (Abelisaurus) and herbivorous (Sauropods). After the mass extinction event, lava filled the area, creating the Deccan Plateau. The sea invaded, leading rare marine animals like 12-15 ft long sharks into the area. Their fossils have also been found in the area.

Dr Rajora, who is facilitating scientists in working for Global geopark said, "We are ready to be custodians of the idea. We have been preserving fossils and geological heritage sites till now."

But why is the tag needed? Experts say in unison: "it will help preserve the area, attract tourists, boost local economy and educate people."

"Why do people visiting Bhopal go to Bhimbetka? It is because it has a World Heritage Site tag. The same will happen to Bagh," Dr Rajora said.

PRECIOUS FINDS

Bagh finds date to the late Cretaceous (100.5-66 Ma). It's the oldest discovered dinosaur site in Asia and home to dinosaurs of Indian origin

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प्रेमविजय पाटिल ● धार

मध्य प्रदेश ईको टूरिज्म बोर्ड ने धार जिले को बाग और मांडू क्षेत्र में डायनासोर की हलचल वाली स्थली को जियोलाजिकल हेरिटेज बनाने के लिए गंभीरता दिखाई है। इसके लिए 16 से 19 नवंबर तक देश के 20 वैज्ञानिक इस क्षेत्र के करीब 300 किमी हिस्से का भ्रमण कर अध्ययन करेंगे। इसके निष्कर्ष को मप्र ईको टूरिज्म बोर्ड को सौंपा जाएगा। इसके बाद वैज्ञानिक की राय दस्तावेज के रूप में यूनेस्को के पास पहुंचेगी, जिससे अंतरराष्ट्रीय संस्थान से प्रामाणिकता मिलने की पहल हो पाएगी।

बता दें कि धार जिले में डायनासोर के करीब 100 अंडे वर्ष 2002 में प्राप्त हुए थे। तभी से धार जिले के बाग क्षेत्र के ग्राम पाडलिया में डायनासोर नेशनल पार्क निर्माण का कार्य चल रहा है, जिसकी गति वर्तमान में सुस्त है। धार जिले में करीब दो दशक पहले जिला वन मंडलाधिकारी रह चुकीं समिता राजौरा वर्तमान में ईको टूरिज्म बोर्ड की मुख्य कार्यपालन अधिकारी हैं। उन्होंने इस क्षेत्र में पर्यटन और रोजगार की संभावना के मद्देनजर यह पहल की है।

इस बारे में सोसायटी आफ अर्थ साइंस के सचिव डा. एस. त्रिपाठी ने बताया कि 20 वैज्ञानिक चार दिन यूनेस्को के मानक अनुसार अपना भ्रमण करेंगे। इसकी शुरुआत 16 नवंबर को दोपहर दो बजे इंदौर से होगी। शाम चार बजे ये वैज्ञानिक मांडू पहुंचेंगे, जहां जीवाश्म पार्क पर इस प्रोजेक्ट पर विमर्श किया जाएगा। इस मंथन के बाद वैज्ञानिक मनावर, बाग और मांडू के उन स्थलों पर पहुंचेंगे, जहां व्यापक स्तर पर जीवाश्म मिल रहे हैं। खासकर डायनासोर जीवाश्मों की स्थली का सूक्ष्मता से अवलोकन किया जाएगा।

ये हैं मानक : डा. त्रिपाठी ने बताया कि यूनेस्को जियोलाजिकल हेरिटेज में मुख्य रूप से भू-गर्भीय धरोहरों को तो महत्व देता ही है, साथ ही पुरातात्विक महत्व, प्राकृतिक सौंदर्य वाली स्थली के साथ-साथ सांस्कृतिक और कला की गतिविधियों को भी इसमें महत्व देता है। धार जिला इन सभी मानकों को पूरा करता है। यहां मांडू और बाग की पुरातात्विक धरोहर हैं। घने वन हैं। साथ ही संस्कृति के रूप में यहां पर वाग प्रिंट की कला है। यहां का स्थानीय भगोरिया नृत्य भी संस्कृति का एक हिस्सा है।

डा. त्रिपाठी ने बताया कि अन्य प्रोजेक्ट में बहुत बड़ी रकम खर्च करनी होती है, जबकि इस प्रोजेक्ट में केवल हमें हमारी जानकारी ठीक से संकलित करके रखना है। जो धरोहर हैं, उनको सुरक्षित रखना है। इस तरह से करोड़ों रुपये के बजट या आर्थिक विषय पर हमें बहुत चिंता करने की आवश्यकता नहीं रहेगी। उन्होंने बताया कि जो चीजें मौजूद हैं, उसको दुनिया तक जानकारी के रूप में पहुंचाया जाए। यही वैज्ञानिकों का काम होगा और उसकी प्रामाणिकता और वैधानिकता को सबके सामने रखा जाए।

मप्र ईको टूरिज्म बोर्ड की पहल

निष्कर्ष के आधार पर डायनासोर की धरती को मिलेगा जियोलाजिकल हेरिटेज का दर्जा

300 किमी हिस्से का भ्रमण करेंगे

धार जिले की बाग गुफाओं की इन धरोहरों को जियोलाजिकल हेरिटेज का एक हिस्सा बनाया जाएगा। ● फाइल फोटो

ये होंगे लाभ

- यूनेस्को से प्रामाणिकता मिलने पर अंतरराष्ट्रीय पहचान मिलेगी।
- स्थानीय स्तर पर पर्यटन को बढ़ावा मिलेगा।
- विदेशी पर्यटकों के आकर्षण का केंद्र बनेगा।
- रोजगार के नए अवसर पैदा होंगे।

धार में बन सकता है पहला जियोलाजिकल पार्क

संकल्प लिया • विज्ञानियों ने शुरू किया अध्ययन, अक्टूबर 2023 तक यूनेस्को को भेजेंगे प्रस्ताव

प्रेमविजय पाटिल • धार

मध्य प्रदेश इको टूरिज्म बोर्ड की पहल पर देश के 12 विज्ञानियों ने बुधवार से जिले के बाग और मांडू क्षेत्र में जियोलाजिकल पार्क बनाने के लिए अध्ययन शुरू कर दिया। विज्ञानियों के अनुसार यूनेस्को के मापदंड जिले में पूरे हो रहे हैं। यूनेस्को को अक्टूबर 2023 तक डोजियर यानी प्रस्ताव बनाकर प्रस्तुत करने का लक्ष्य रखा गया है। इसमें जाने-माने जियोलाजिकल विज्ञानी डा. सतीश त्रिपाठी ने संकल्प लिया है कि इसे हर हाल में धरोहर बनाकर रहेंगे।

मप्र इको टूरिज्म बोर्ड की मुख्य कार्यपालन अधिकारी समिता राजौरा ने मांडू में विज्ञानियों के समक्ष बुधवार रात पावर पाइंट प्रजेंटेशन के माध्यम से बाग व मांडू की अपार संभावनाओं पर जानकारी दी। नेशनल डायनासोर पार्क बाग के भव्य स्वरूप की जानकारी दी। उन्होंने कहा कि ईको टूरिज्म में पर्यटकों को प्राकृतिक गतिविधियों से जोड़कर पर्यटन को बढ़ावा दिया जाएगा। स्थानीय लोगों को रोजगार मिलेगा।

विज्ञानियों की टीम ने मैदानी स्तर पर भ्रमण किया। • नईदुनिया

जीवन का यह लक्ष्य

डा. त्रिपाठी ने कहा कि हम पूरी ताकत लगाएंगे, ताकि वर्ष 2023 अक्टूबर तक यह प्रस्ताव यूनेस्को तक भेज दिया जाए। इसके बाद यदि मान्यता मिलती है तो चार साल तक हमारे पास गतिविधियां करने का मौका रहेगा। विश्वस्तर पर धार जिला का नाम होगा। चार साल बाद फिर यूनेस्को से परीक्षण करेगा। देश में एक भी जियोलाजिकल पार्क नहीं है। हम मध्यप्रदेश में धार जिले को यह सौगात देने की कोशिश करेंगे। मेरे जीवन का यह लक्ष्य है।

पंचायतों में सुरिक्षत होंगे जीवाश्म

समिता राजौरा ने जिला पंचायत के मुख्य कार्यपालन अधिकारी को कहा कि कुछ स्थान ऐसे है, जहां पर ग्राम पंचायतों के माध्यम से महत्वपूर्ण जीवाश्म को सुरक्षित किया जा सकता है। कतिपय लोग जीवाश्म को नुकसान पहुंचा सकते है। वैज्ञानिकों के माध्यम से जियोलाजिकल पार्क बनाने की पहल शुरू कर दी है। विज्ञानियों के मार्गदर्शन से डोजियर को यूनेस्को को समय पर प्रस्तुत किया जाएगा। दुनिया में करीब 100 जियोलाजिकल पार्क है, लेकिन अपने देश में एक भी नहीं है। इस संबंध में सोसायटी आफ अर्थ साइंस के राष्ट्रीय सचिव व वैज्ञानिक डा. सतीश त्रिपाठी ने बताया कि यहां पर अपार संभावनाएं है। देश की सबसे महत्वपूर्ण साइट यहीं पर है। मांडू के महल है, डायनासोर की हलचल की स्थली है। बाग प्रिंट जैसी सांस्कृतिक विधा है। लोकल खानपान है।

नियाटी

धार

सरदारपुर-राजगढ़-बदनावर-कुक्षी-मनावर-गंधवानी-धरमपुरी www.naidunia.com

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एक्यूआइ 68
पेज नं. 12

नीलगाय से किसान बेहाल फसलें कर रहीं चौपट

बाग और मांडू की डायनासोर की धरती बनेगी जियोलाजिकल हेरिटेज

प्रेमविजय पाटिल• धार

धार जिले के लिए एक अच्छी खबर यह है कि देश के जाने-माने वैज्ञानिक धार जिले के मांडू और बाग में जियोलाजिकल हेरिटेज को लेकर विशेष रूप से प्रक्रिया करेंगे। मध्य प्रदेश इको टूरिज्म बोर्ड द्वारा इसके लिए पहल की गई है। इस क्षेत्र में जहां डायनासोर की हलचल रहा करती थी उस हलचल को अब अन्य लोग भी जान सकेंगे। इस दिशा में यह एक महत्वपूर्ण प्रवास होगा।

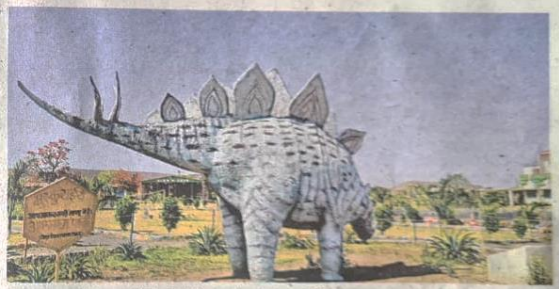
इस संबंध में नईदुनिया से चर्चा करते हुए सोसायटी आफ अर्थ साइंस के सचिव डा. संतोष त्रिपाठी ने बताया कि देशभर के प्रमुख साइटिस्ट मध्यप्रदेश इको टूरिज्म बोर्ड यानी वन विभाग के माध्यम से 16 नवंबर को हम अपनी प्रक्रिया शुरू करेंगे। जो 19 नवंबर तक जारी रहेगी। उन्होंने बताया कि पूरे विश्व में अब कल्चरल हेरिटेज के साथ-साथ जियोलॉजिकल हेरिटेज काफी महत्व माना जा रहा है। उन्होंने बताया कि आप

मप्र इको टूरिज्म बोर्ड की पहल

सोसायटी आफ अर्थ साइंस के माध्यम से 16 नवंबर से बड़े स्तर पर होगी कवायद।

लोग इस बात को जानना चाहते हैं कि 4 गीगा ईयर पहले क्या हल चल रही होगी। उन्होंने बताया कि 6 करोड़ों साल पहले ज्वालामुखी फटा है। उसमें डायनासोर जैसी प्रजाति लुप्त हुई है। इस तरह की सारे तथ्यों को हम 16 नवंबर को लोगों के सामने प्रस्तुत करेंगे। इसमें कुछ प्रमुख वैज्ञानिक, इस विभाग के वरिष्ठ अधिकारी व अन्य लोग शामिल होने जा रहे हैं। मांडू के डायनासोर पार्क में यह आयोजन होने जा रहा है।

त्रिपाठी ने बताया कि हम इस बात पर विशेष फोकस कर रहे हैं कि किसी भी तरह से लोगों को इस बात की जानकारी हो कि डायनासोर आखिर में क्यों लुप्त हो गए। और क्या स्थितियां बनी। उसके बाद क्या हालात बने। डा त्रिपाठी ने बताया कि यूनेस्को आजकल जियोलॉजिकल सिग्निफिकेंट धरोहर के लिए भी कार्य कर रहा है। उन्होंने कहा कि जिस तरह से यूनेस्को विश्व धरोहर की घोषणा करता है। वैसे ही इस दिशा में भी कदम उठाया जा रहा है। देश में अभी तक एक भी जूलॉजिकल सिग्निफिकेंट नहीं है। इस तरह की धरोहर नहीं है। उन्होंने कहा कि हाल ही में एक सम्मेलन मेन में हुआ था। इसमें विश्व की जियोलॉजिकल धरोहर के बारे में चर्चा की गई। अब जबकि मेघालय के मलूम केव जो चेरापूंजी के पास है, उसके लिए प्रयास किया जा रहा है। वहां की विशेषताओं को बताया जाएगा। उन्होंने कहा कि इस बार हम अगले दो-तीन दिन में धार जिले के मांडू और बाग के क्षेत्र में यह काम करने जा रहे हैं। इससे पर्यटन को बढ़ावा मिलेगा। मध्यप्रदेश इको टूरिज्म बोर्ड द्वारा इसके लिए हमें जिम्मेदारी दी गई है। हम लगातार दो-तीन दिन अध्ययन करेंगे। उसके बाद इस बाग और मांडू वाले क्षेत्र में जियोलॉजिकल हेरिटेज के तहत यहां पर पर्यटन की संभावना



धार जिले के मांडू में जीवाश्म पार्क में विज्ञानियों का इस आयोजन होना है। • नईदुनिया

पर विशेष रूप से फोकस करेंगे। उन्होंने बताया कि जिस तरह से विश्व धरोहर होती है। जियोलॉजिकल धरोहर के तहत हम यहां पर बाग मुख्य व आसपास क्षेत्र का अवलोकन करेंगे। उसके लिए भी एक विशेष साइट तय की जाएगी। उन्होंने कहा कि यहां पर डायनासोर की हलचल रही है। इसलिए डायनासोर के द्वारा के बारे में विशेष रूप से खोज करेंगे और उसकी जानकारी सबके सामने आएगी।

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Miss Sofiya Khan, Ujjain
Mr. Ankit Rathore, Ujjain
Mr. Vishal Verma, Manawar
Dr. Satish Tripathi, Lucknow

Dr. Sameeta Rajora, CEO, MPEDB
Sri N. K. Sanodiya, CCF
Sri G. D. Warwade, DFO
Sri P. K. Parashar, SDO
Sri Santosh Chauhan, Forest Ranger