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ROCK CARVING ON AYODHYA HILL: AN AVENUE FOR GEOHERITAGE, GEOCONSERVATION AND ENVIRONMENTAL SENSITIZATION

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Abstract:

The present paper aims to throw light on the environmental sensitivity illustrated through art on a hill signifying interface of nature and culture. Ayodhya Hill in Purulia district, displays an aspect of aesthetic attachment of humans with nature in the form of in-situ rock cut sculpture 'Pakhi Pahar' which has transformed the bare hill into a piece of art. For the past three decades the hill has been sculpted by a group of local artists, creating around 65 birds. Even the boulders lying on the foot of the hill are sculpted, to save these fragile components of nature from stone quarrying and crushing machines which are demolishing and fragmenting the rocks and hills of the chotanagpur terrain to gather stone chips for commercial use.

It may also be argued by a few, that the natural environment of Matha range of Ayodhya Hill is infringed upon for the sake of art. The present researcher seeks to explain through empirical observation, narrative analysis and perception study of local people whether Pakhi Pahar is an "Aesthetic Regard" or "Aesthetic Affront" for nature. This paper also tries to bring in to focus the future potential of this cultural landscape in developing as a tourism site and giving employment to the local youth

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1.0 Introduction:

Geoheritage is defined as those parts of geodiversity that are important for reconstructing Earth's history (Sharples, 1993). Humans have evolved during geological time and through natural selection from ancestor species, it follows that human history is part of the Earth's history. One of the most important benefits of conservation of geoheritage is that it gives us an understanding of the history of the planet and our place in it (Gray, 2019).

The Ayodhya Hills of Purulia district, an extension of Dalma Hills of Jharkhand is an important Geoheritage site. This detached remnant of the 'Chhotanagpur Gneissic Complex' (CGC) represents one of the oldest exposed terrains of West Bengal. It is predominantly composed of gneissic rocks located in the sub-humid tropical climate (Dasgupta, 2015). With an average altitude of about 600 metres, the hill is ideal for rock climbing and trekking. Besides there are also a few

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planation surfaces with heights above 500 m representing an extension of the Ranchi surface (Nag, 2015) The entire range is encapsulated with deep forests and numerous waterfalls (e.g. Bamni falls, Turga falls) amidst the hills. Moreover, few lakhs of people residing in and around forest, directly or indirectly depends on this forest for fodder, fuel wood, small timber and other tangible or intangible benefits.

Even the small isolated hills like Joychandi, Mama Bhagne , GarhPanchakot could not escape from the traps of mining for the collection of stone chips for construction purpose. Similarly, Ayodhya Hill located in Purulia district of West Bengal is under threat from the mainstream development projects. Many parts of Ayodhya hill has been altered by construction of dams, roads and other projects. Seven forested hills were cut down for 'Purulia Pump Storage Plant' (PPSP) which included more 350000 trees and even the upcoming project at Thurga is posing a major threat to the forests, elephants and tribals (Adhya, 2018). Moreover hill cutting is very rampant in Ayodhya Hill to acquire moorum (local name used for stone chips for construction purposes). This is changing the entire geomorphological and lithological characteristics of this Hill.

1.1 Bird on the Hill : A Cultural Landscape in Ayodhya Hill:

The almost 244 metres high hill known as Murra Buru (local name predominant among the santhals meaning bald hill), forming a part of Matha range that is connected to Ayodhya Hill, displays an aspect of aesthetic attachment of humans with nature, in the form of in-situ rock cut sculpture 'Pakhi Pahar', that has transformed a hill into a piece of art and has become an avenue of geoconservation (Mazumdar,2015). This is a unique story of a man Chitta Dey the master sculptor of Pakhi Pahar (local name for Bird on a hill) for whom hills are not lifeless geographical phenomena, but living creatures that inspire him to create art.

For the past three decades, the veteran artist has been sculpting images of birds on Ayodhya Hill in Purulia district of West Bengal, giving it the name Pakhi Pahar (meaning bird hill in bengali), which is now become the hub of climbing enthusiasts from all over the world. The hill has been painstakingly sculpted by a group of artists to create around 60 birds where the smallest bird has a wing span of 17 metres and the largest one possesses a wing span of 37 metres (Bag,2015). The rock samples collected from Matha Range of Ayodhya Hill is geologically composed of granite and gneiss which after being checked by the geologist, the work finally started in 2008 though preliminary work started in 2002.

1.1.1 Geoconservation and environmental sensitivity through art and aestheticism:

The artists here has not only instilled life in this bare rock body through his aestheticism and art but has also taken an initiative to restore the geomorphologic identity of this area which is the most affected thing in almost all kinds of development related activities throughout the world.

In addition to the sculpting of birds on Murra Buru, the artist here has another approach which is devoted to carving the scattered boulders and small rocks around the foothills of Pakhi Pahar with representation of local flora and fauna on the verge of extinction, so that they are preserved for future generation. The creations of floral patterns and animals like spotted deer, turtle and pangolin, decorate the trail leading up to Pakhi Pahar, part of the Matha region of the Ayodhya range of hills, estimated by geologists to be 250 million years old (Bag, 2015). Chitta Dey, the master sculptor chose the themes consciously, centuries later, he believes, that these carvings could be evidence of the animal life once found in the region. For development, he says, cares little for nature. There is yet another motivation behind this art i.e. to save these sculptured boulders from inroads of crushing machines which are demolishing and fragmenting the rocks and hills of the

Chotanagpur terrain to gather stone chips for roadways, railways and industrial use. Thus the artist is helping in restoring the morphological appearance of these fragile landscapes through engraving them so that they retain their true identity.

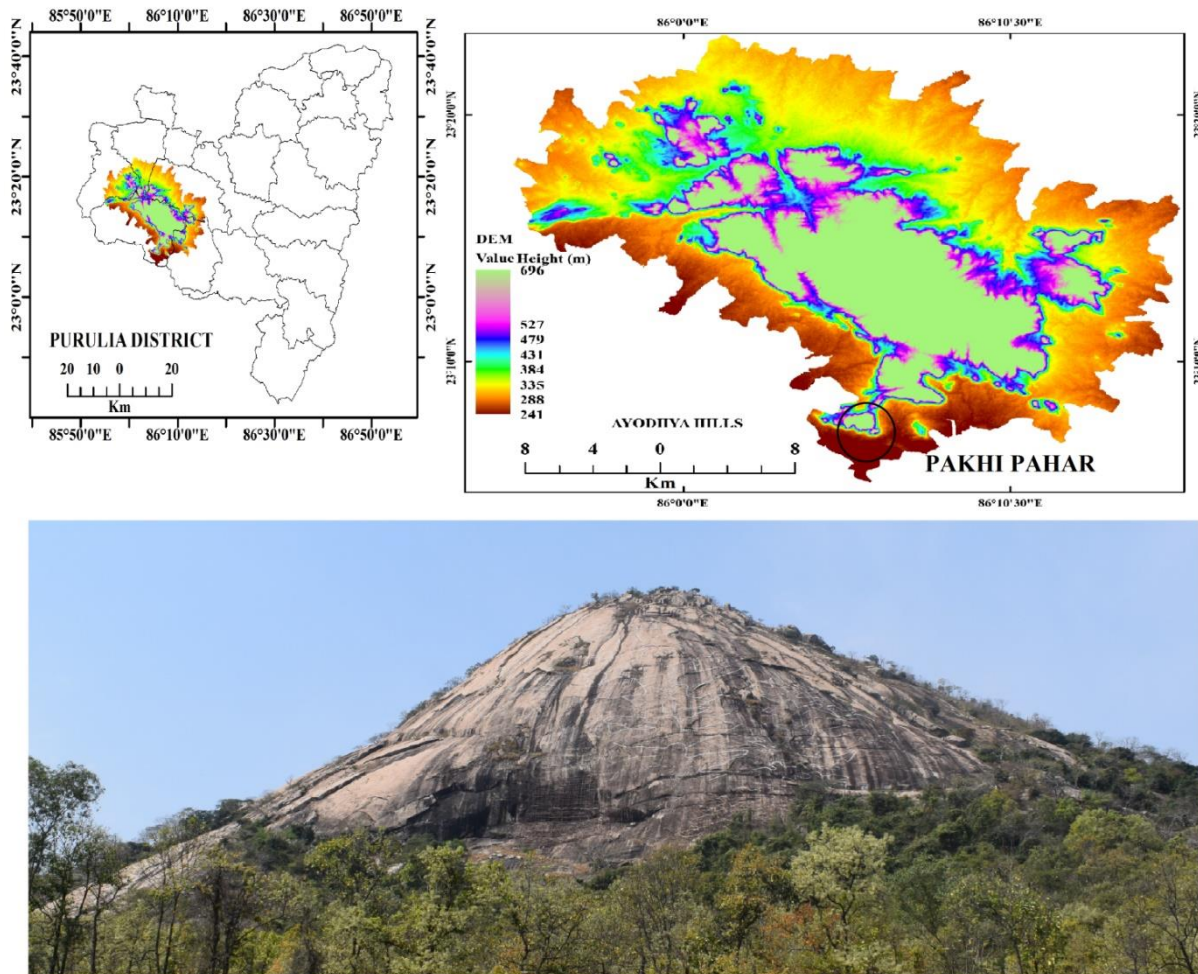


Fig 1: Location map of the study area (Source : Prepared by the authors)

1.1.2 Research Method and study participants:

An investigative questionnaire was designed with some questions focusing on the attitude of the local community on the in situ rock carving in Murra Buru. Another set of questions focused on the impact of growing tourism site in Pakhi Pahar on the local communities. Follow up questions and focused group discussions were also undertaken in order to collect more information regarding the attitude of the local people. Data was collected through a diagnostic survey in the four surrounding villages of Pakhi Pahar namely Srirampur, Dhaska, Khudidi, Digardi in January, 2020, almost 15 years after the sculpting was started. For the purpose of the study 33% of the total number of households were selected as the sample size which resulted in surveying 80 households-one person per household. The households were chosen on the basis of simple random sampling and the number of household from each sample village was chosen on the basis of proportionate sampling method. It was therefore a representative group which allowed the objective of the research to be met. Respondents were interviewed in Bengali language.

The demographic and social characteristics of the surveyed population revealed that the study group comprised of 22.5 % female respondent and 77.5 % male respondents, which is higher than

the number of female participants as the females were less likely to take part in the survey. The age distribution was also distinctly varied among the respondents of this study with the largest age group aged between 25 and 45 years old. The educational background of the surveyed group characterized higher number of respondents having obtained primary level education followed by middle level education.

The questionnaire included 10 questions, with some questions on the attitude of the local community on the in-situ rock carving and related changes while others on community perception on tourism impact. These invited response on a 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). Numeric code values ranging from 1 to 5 were assigned, where 1 corresponds to significant non acceptance and 5 corresponds to significant acceptance. The interviews also included question demographic characteristics such as age sex and education taking into account Hibszer’s (2013) finding that perception of an area are significantly affected by personal filter (age, sex and educational level). Moreover we took into account the primary income source and the involvement of the sampled household in the sculpting work of Pakhi Pahar, in order to understand how the influence on people’s earning opportunities shaped their attitude towards this Art.

Table 1: Perception of local people on rock carving in Ayodhya Hill

Questions	Strongly Agree (in %)	Agree (in %)	Neutral (in%)	Disagree (in %)	Strongly Disagree (in%)
• Was the Sculpting of Pakhi Pahar a good idea?	1.2	87.5	10.0	1.2	0
• Do you like living in close proximity to Pakhi Pahar?	1.2	93.8	5.0	0	0
• Has any development taken place in your area since the beginning of the sculpting work?	7.5	78.8	10.0	3.8	0
• Do you believe that Pakhi Pahar is a display of artist’s aesthetic attachment with Ayodhya Hill?					
• Do you see art as an effective tool of geoconservation in Murra Buru ?	8.8	62.5	27.5	1.2	0
• Has the number of tourist increased after the sculpting of Pakhi Pahar?	2.5	33.8	57.5	5.0	1.2
• Are you happy with this increased inflow of tourist in your area?	36.2	63.8	0	0	0
• Do you believe that there is potential of growing tourist sector centering Pakhi Pahar?					
• Has the increase of tourist benefit you personally?	11.2	50.0	23.8	6.2	8.8
• Do you want to be a part of this tourism sector?	2.5	25.0	56.2	13.8	2.5
	3.8	13.8	2.5	43.8	36.2
	13.8	65.0	16.2	5.0	0

Source: Computed by the authors based on field study

1.2 Result and discussion:

The villages surrounding the Pakhi Pahar mostly consist of tribal people who are inextricably linked to the forests of Ayodhya Hill for making their homes, cultivation tools, livelihood and several other religious and social customs (Adhya,2018). A key factor denoting people’s attitude toward anthropogenic changes in their environment are emotional and likely to result in conflict if their existence , and particularly their ability to earn income , is directly related to those changes without any alternative available(Barber, Biddlecom, & Axinn, 2003). However in case of Murra

Buru, it was a bald hill devoid of much vegetation. Therefore no forest had to be cleared for creating this masterpiece. The small patches of forest available was not disturbed and is still availed by the locals for their daily needs. It is worth emphasizing here that 87.5 % of the respondents agreed that this in-situ sculpting was a good idea. 93.8 % of the respondents agreed to their liking in living in close proximity of Pakhi Pahar. Most of the villagers revealed that this area was their place of birth and they always liked staying here and the sculpting of Pakhi Pahar has further increased the liking of their residential place. Further discussions also revealed, that they had feared earlier, that this sculpting work might encroach their hill or restrict their visit, as it has happened in some parts of Ayodhya Hill for various developmental projects. Over the years they have come in tune with the fact that the artist had no such intention apart from creating this masterpiece without devoiding the locals of their Murra Buru.

78.8% of the respondents believe that infrastructural development has taken place in the area since the beginning of this sculpting, *Srirampur Pakhi Pahar Prathamik Vidyalay* a primary government school was established in this remote area after the start of this project. This was done as the result of the initiative taken by the sculptor and other members of this organization. *Aayna Training Centre* is another landmark initiative associated with this project where training is given to booming sculptors as well as inmates of various jails in association with *Flight for Harmony Foundation*. This training centre also runs a free primary school for the local kids of the area where sculpting and other art forms form a mandatory part of the curriculum. This is done to instill the art and love of sculpting in the coming generation so that this artwork of Pakhi Pahar continues for years to come and this magnificent dream comes to reality. Even the Road connectivity has become better in this area after Pakhi Pahar. Moreover this art has instilled a life in this section of Ayodhya Hill which might have else been obliterated by mining actives for extraction of minerals or would have been demolished and fragmented to gather stone chips for industrial use, roadways and railways.

62.5 % of the respondents agreed that the in situ sculpting in Ayodhya Hill was a display of the artist's aesthetic attachment with the Ayodhya Hill. From the questionnaire survey it is studied that majority of the respondents in selected sample households have attained primary level of education. However based on the sample study, there is no evidence to support significant correlation ($p=0.430$) between the education level of the respondents and their viewpoint towards Pakhi Pahar as the display of artist's aesthetic attachment towards Ayodhya Hill. The villagers of the surrounding village unanimously agreed on the fact that the appreciation of people, especially of the tourists towards this bald hill has increased severely since this in situ sculpting of birds took place in this hill. Apart from a few respondents, majority of villagers gave the credit of this appreciation to the artist and held the viewpoint that, this art was a display of his devotion towards Ayodhya Hill.

There lies a significant difference between the two groups of respondents i.e. the ones who themselves or any one of their family members is involved in the sculpting of Pakhi Pahar and those who are not, in terms of their view point of art being an effective tool of environmental sensitization in Murra Buru [$U=132.0$, $N1=69$, $N2=11$, $p=0.00$, 2-tailed, Mean rank $N1$ (not involved in sculpting work)=36.91, Mean rank $N2$ (involved in sculpting work)=63.00]. Therefore based on the sample we can assert that the ones who are directly or indirectly involved with the sculpting work are more likely in viewing art as an effective tool of environmental sensitization in Murra Buru. From participant observation it was understood that apart from ones involved with art, the villagers in general were hardly bothered with the intention of art towards geoconservation. Most of them complained about the lack of irrigation facility and job opportunities in the area and had the opinion that this art was some sort of government project. On which they held the opinion that

instead of spending on this art it will be more beneficial if it is spent on providing the above mentioned facilities.

All the respondents agreed that there is an increased inflow of tourists with the sculpting of Pakhi Pahar. More than half of the respondents were happy with the increased inflow of tourists and took pride on the fact that this area which was once remote is now a tourist hub and receives tourists from all over the world. However few were critical of the increase in the number of tourists on the ground that it doesn't bring any benefit to them. Harrill (2004) highlights, the residents who receive more economic gain, are nearly all supportive of the tourism industry, because tourism development usually involves a trade off between economic benefits and environmental or cultural costs.

From further investigations, majority of the respondents were unable to identify the tourism potential of this area. Most of the respondents in the study area said that this work has been taking place for a decade now and will take several more years to complete. Therefore they don't think that any development of tourism is going to take place drastically, as, if it had to it would have been taken place by now. The only thing that has increased is the number of daily tourists who come and leave without giving them the hope of a growing tourism sector in this place. However, the majority of the community, nearly 70 percent, are willing to engage in tourism activities in future through tour guiding, working in hotels, providing the services like foods & beverages, accommodation (homestay tourism) and selling of handicraft and other products with the hope of increased income as they have very limited livelihood opportunities to survive in this area. Further, they are willing to receive proper trainings related to tourism in order to improve their knowledge, skills, and capacity building etc. The economic benefits that the residents perceive from tourism development include more employment opportunities (Belisle & Hoy, 1980; Tyrrell & Spaulding, 1984; Davis et al., 1988), increased income (Murphy, 1983; Tyrrell & Spaulding, 1984; Davies et al., 1988; Lankford & Howard, 1994; Jurowski et al., 1997), investment opportunities (Sethna & Richmond, 1978) and business opportunities (Davis et al., 1988) (Canalejo, Tabales, & Cañizares, 2016). Community involvement and their knowledge, attitudes, awareness about tourism are vital to have a sustainable tourism development and also to divert the actual benefits of tourism development to the local community. This should be made the priority before further development of tourism in this area.

A small portion of the respondents have agreed to be benefitted by the increase in the number of the tourists, this involves few who are employed in working as porters, cooks and several others who help during rock climbing courses which take place in this area specially during winters. Rock climbing courses are prevalent in various places in Ayodhya Hill. However Murra Buru became a hub for the rock climbers mainly after the publicity of this area since the sculpting of Pakhi Pahar. There is a significant correlation ($p=0.000$) between the respondents who have benefited personally from the increase in the number of tourists and the ones who believe that there is a potential of growing tourism sector centering Pakhi Pahar. The correlation coefficient is 0.492 which means there is a moderately positive correlation. Thus one can say that only the respondents benefitting personally from the increased inflow of tourists could foresee the potential of Pakhi Pahar being the centre of a growing tourism sector.

1.2.1 Narrative of the Tourists on their experience in Pakhi Pahar:

The narratives stated or given by the tourist in the Visitor's Book, throw some light on their perspective towards the art form in Pakhi Pahar. 140 narratives are gathered from the Visitor's Book and are analyzed with the help of NVivo 12 Plus software in order to run word frequency

query. It was found that the majority of the narratives (42 references on artist) portray praises on the expertise and talent of the **artist** and his conception of idea. This was followed by the narratives of the tourist (24 references on completion) who are looking forward towards the **completion** of this majestic art form. Next most frequently referred word in the narrative was **nature** (18 references on nature) where tourists have mostly commented on the beauty of mother nature in the lap of Pakhi Pahar and the effort of the artist in preserving it. Following **nature**, the three most frequented words were **aesthetic** (eleven references), **experience** (11 references) and **creativity** (11 references). Apart from these highly frequented words found in the narratives, the other narratives involves references and comments on Ayodhya Hill, tourism potential of Pakhi Pahar, future of this art form, contribution of Pakhi Pahar towards the heritage of India, involvement of jail inmates through “Flight to Harmony” foundation in this project and greatness of the artist in creating history in India through Pakhi Pahar.

The following are few selected narratives of the tourists which gives us an insight of their vision and perspective profoundly.

- Ms. Anuradha Das, Kolkata, India (Visited on March , 2010) -*When Adam and Eve was sent to world and told “ Spread thy kind”, did they know that nature holds such beauty for them? I wonder , as I wondered in the woods in and around Pakhi Pahar! A venture which is unique in kind, perfect in projection and great as a conception. My reactions are just overwhelming and I am mesmerized by the artist’s courage and persistence.*
- Prasanta Kr. Goswami, Kolkata, India (Visited on December, 2013)- *During my visit to AyodhyaPahar, I came to know the name of Pakhi Pahar and Mr. Dey’s activities. I am surprised and take great pleasure to visit the sculpture project on Pakhi Pahar. It will be of educational value and tourism attraction in near future. Thanks to Mr. ChittaDey and also to Govt. of India, the patroniser. I will again visit it on completion.*
- ArdhenduKar , Burdwan, India (Visited on October ,2014)-*In today’s world where man is driven by greed and is destroying nature , it very astonishing to find a man like ChittaDey and his aesthetic attachment with Ayodhya Hill which has driven him to create this masterpiece.*
- S.Majumdar, West Bengal , India (Visited on February , 2014)-*This is a unique project and focuses on bringing out our heritage and culture in Art form for the coming generation, to see and appreciate not only limited to our country but also to in representing India in the International area of art and culture. I would be keen to come sometime in future when the project takes shape to really appreciate and be happy.Great thought and endeavor..*
- Kumar Verial, Purulia, India (Visited on March, 2016)- *Beautiful channelization of hidden capacity and talent of individuals from varying backgrounds. Especially the involvement of jail inmates deserves appreciation.*
- Dr. Th(eunis) Limonard, Netherlands (Visited on December, 2009)- *I think this part of Bengal particularly Ayodhya Hill is very interesting. This is a very commendable project. Surely it will entertain the tourists. A watch tower is needed to take the view of the art work. Thanks to all concerned with the project.*

2.0 Conclusion:

The trend towards environmentally oriented visual art, which started in the 1960s in Great Britain and USA, has obtained many names according to different points of view. The terms ‘earth art’,

'land art', 'field art', 'site art' and 'environmental art' classify the art form more specifically. All these concepts describe the artist's experimental studies with natural elements like water, snow, ice and grass, and the use of natural forces like gravity, wind and growth in art. (Jokela, 1995).

Environmental art is seen as an effective movement that emphasizes in developing positive relationship with nature by focusing on ecological concerns through art work. However, there still lies a conflicting relationship between an artist and the natural environment, as nature is altered though in some cases in a minute way. Thus a careful evaluation is required when assessing its aesthetic and ethical value.

The work of the master sculptor Chitta Dey truly adheres to aspect of "environment art" which believes in revealing the feature which is already present within the rocks of the Matha Range in the Hill Region of Ayodhya in Purulia by only sculpting out the excess with the aim to work in harmony with the natural environment rather than disrupting it. This further takes stand for the aesthetic regard for nature in his art work. His creations including the majestic Pakhi pahar (Bird on a hill) to floral patterns and animals like spotted deer, turtles and pangolin and many a like, primarily celebrates an artist's connection with nature using natural materials.

The term "environmental art" often encompasses "ecological" concerns, with which many artists started creating works in collaboration with the physical world to draw attention to ecological issues as well our relationship and contribution to them (Wientraub, 2019). This characteristic of "environment art" is also augmented in the artwork of Dey, where his choice of themes were done with the belief that centuries later, these carvings could be evidence of the animal and plant life once found in the region.

Though from the point of view of a geomorphologist and environment activist the sculpting of Pakhi Pahar may be criticized on the ground of over manipulations of the land, marking the land through artificial means and disrupting the system dynamism. It may also be argued that the natural environment of Murra Buru constituting a part of the Matha range of Ayodhya Hill is infringed upon for the sake of art. Yet it can be validated on the ground that the harm done to the hill is far less when compared to the entire disappearance of the hill in the hands of the developmental projects which is rampant in this area. Moreover the geoconservation effort looks more commendable when one realizes that this in situ rock carving has not only given employment to the local youth but has also brought tourists to a place that was once under the Maoist belt and were zones of seditious activities in Purulia (Bhaya & Chakrabarty, 2016). Thus this artwork can be an avenue of geoconservation negotiating between development and ecological concern.

The perception study of the locals and narrative analysis of the tourists throw light on their attitude towards this artwork. However lack of awareness of the locals and their indifference towards the geoconservation approach of the geoheritage, through carving will act as an obstacle towards the holistic development of this venture. Lack of education is thought to be one of the greatest threats to geoheritage (Wang et al., 2019). The need to solve such a problem involves raising public awareness of the value of geoheritage through geoeducation (Gray, 2008; Loon, 2008).

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