ECOTOURISM POTENTIAL OF SOME VINDHYAN GORGES IN AND AROUND BHILWARA DISTRICT

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ABSTRACT: *Gorges and canyons are popular ecotourism destinations round the globe. These generate revenue for the government as well as strengthen the rural economy. Vindhyan is the mountain range that separate northern and peninsular India. It runs through Rajasthan state and from south-east part of Bhilwara district. Vindhyan gorges of Bhilwara district and adjoining area were studied from year 2013 to 2016 to know their potential to develop them as tourist site. Regular visits on three season basis including random visits were done and data related to the ecology and tourism was collected. It was found that the gorges have an enormous potential as ecotourism spot. Camping, hiking, hot air ballooning, rock climbing, bird-watching are some activities which can be developed according their geography. Proper management and efforts are the key factor which can promote tourism and conservation in these Vindhyan gorges.*

Key Words: : *Gorge, Vindhyan, Ecotourism, Bhilwara, Conservation*

Introduction:-

Travelling has been associated with the human society since its inception.As basic needs of man fulfills he seeks for pleasure and peace and so towards travelling.In this changing scenario of human civilization, various new aspects of tourism are appearing.Ecotourism is one of the recent aspects of tourism having nature tourism in its base. Ecotourism is the environmental sensitive traveling to comparatively undisturbed natural areas having objectives of study, watching specific flora and fauna, conservation and understanding cultural and natural history (Boo, 1990;Mouloin, 1991; Carter and Lowmen, 1994;Ceballos-Lascurain, 1998)which involves economic benefits to the local community also (Ryel and Grasse, 1991; Goodwin, 1996). It is being widely promoted as a solution to the pressures that nature and natural resources face due to the developmental processes. It focuses on local cultures, wilderness adventures, volunteering, personal growth and learning new ways to live on our vulnerable planet (Sankaranarayanan, 2014). So the principal objectives of ecotourism is to encourage protection to the natural resources as well as economic development of local community (Qin, 2003; Li, 2001)

Gorges are geographical structures having deep and narrow valleys result of fluvial erosion and recession of waterfall (Singh, 2015; Joshi and Bhatnagar, 2016).Gorges, due to their undisturbed ecology, native and endemic fauna and flora, natural scenery having water streams andnature carved stones are becoming preferred sites for the nature lovers.These are also a favourite destination for the sports activities such river rafting, bungee jumping, trekking, and rock climbing. Canyons and gorges outside India are popular destinations for nature lovers, birdwatchers, researchers and students.Governments in many countries had developed them as recreational sites as well as source of revenue generation. Columbia River Gorge and Flume Gorge (USA), Cheddar Gorge (UK) and Royal Gorge, Colorado and many other gorges are among the most preferred ecotourism destination due to the efforts of the gorge authority which provides diverse recreational sport activities in the naturalness of the gorges.

Vindhya mountain range is a broken range of hills and among the seven chief holy mountain ranges of India. It geographically marks the border between Northern and Peninsular India and makes the southern escarpment of the central upland of India. The mountains are flat-topped and plateau-like due to their horizontal sandstone structure. The range is characterized by the presence of deep gorges formed by the rivers due to land erosion during their flow. In Rajasthan state, the Vindhyan range is located in the south-east part in Dholpur, Bharatpur, Karauli, Sawai Madhopur, Bundi, Kota, Bhilwara, and Chittorgarh districts. Study of gorge biodiversity and their potential as tourist point has been a neglected aspect in India. Scanty information is available on the gorge biodiversity besides a single checklist (Sharma and Singh, 2006). Gorges, outside India, are important recreational destinations (Ramsey *et al.,* 1993; Grant, 2005, Spanos *et.al*., 2008; Nemanza, 2011; Hubenov,2012) but in India, their promotion as tourist site is still needed.So this study has been designed to explore the capacities of Vindhyan gorges as tourist site.

Material and Methods-

The primary data for the study were collected by visiting the gorge areas. Selected Vindhyan gorges were visited from the year 2013 to 2016 to study their ecology, avifauna and ecotourism potential. Early morning visits were made on three season basis (summer, winter, and monsoon) to collect data related to the birds and nature. Data of different aspects of tourism were collected along with these visits with additional random visits. Due to high visitor number of visitor in monsoon, frequent visits were also made during the monsoon season to know the number of visitors and related activities. Local people and tourists were interviewed to know different aspects of gorge tourism. Ecological data were also recorded to know the ecology of the gorges. Secondary source such as Brochures, Publicity materials of the tourism department were also used.

Study area

Vindhyan gorges in Bhilwara district are located in the south western direction on the periphery of Bhilwara and Chittaurgarh district. These gorges already had been studied to know their avian fauna composition (Sharma and Singh, 2006). We also selected the same gorges for our study.

1. Menal (Chittaurgarh)

Menal gorge (N 25005.543" E 075010.264") is located in the Rawadada gram panchayat of Chittaurgarh district of Rajasthan on NH-76 (Chittaurgarh-Kota), 70m km away from Bhilwara. The gorge runs parallel to the highway from Ladpura, Mandalgarh. This gorge is 5km long with varying deepness and width in its entire length.

2. Kekariya (Bhilwara)

The gorge of Kekariya (N25008"21.48" E075001"52.52") is located in the village Kekariya of gram panchayat Sarana of Mandalgarh Subdivision, Bhilwara (Rajasthan). It is 15km from the subdivision headquarter Mandalgarh. The gorge is located in the backside of the village and isolated from the human settlement. The gorge is 1560m in length with varying width on the entire length having east facing sharp cliffs on the upper side.

3.Tahla (Bhilwara)

The gorge of Tahla (N 25007.401" E 075002.255") is located 15km away from Mandalgarh subdivision headquarter of Bhilwara district. It is located outside to the village. The length of the Gorge is 650m and has comparatively more width than other nearby gorges, Kekariya and Chainpuriya.

4. Chainpuriya (Bhilwara)

The gorge of Chainpuriya (N 25008.020" E 75002.883") is located 17 Kms from Mandalgarh subdivision headquarter of Bhilwara district and 2km from the gorge of Tahla. It is located just on the periphery of the village.

Result and Discussion-

We found in the above study that the Vindhyan gorges have excellent potential for tourism especially ecotourism. Various nature-based and adventure activities can be initiated and run in a managed way keeping both conservation and tourism in a balance.It will not only helpful for conservation and preservation of these gorges but also for the economic development of the villages. The detail discussion of each gorge separately is being done here.

Menal- Menal is located on the highway (NH-76) having an easy approach for tourists. It is famous for the ancient temple of Lord Shiva known as "Mahanaleshwar" on which the name of the place Menal was kept. The actual and initial name was 'Mahanal' that has become Menal later. The temple was built in the eleventh century A.D. by the Chauhan rulers in the Bhumija style of architecture. The temple is kept under the protection of Archaeological Survey of India which is under the Ministry of Culture, a premier organization for the archaeological researches and protection of the cultural heritage of India (Figure 1).River Menali makes a seasonal waterfall behind the temple. Rainwater coming from the nearby highland takes shape of a stream and falls as a waterfall in the gorge. The fall is 141 feet high and an attraction of the tourists and nature lover during monsoon (Figure 2). A platform is there as a watchpoint to see the waterfall. Stairs lead to the inside of the gorge near this platform. Tourists, nature lovers and visitors including students, researchers come to see the gorge and the temple throughout the year. The number increases manifolds in the monsoon when the waterfall starts and the surroundings become lush green. There is a temple of goddess Jogniya, 6km away from Menal and very frequently visited by the people. The gorge has temple on one side of the gorge and huge grassland on the other side of it. The grassland is undisturbed and supports a variety of birds with the diverse habitat present in the gorge. Disturbance level

here is high in the gorge as people often come for recreation, picnic and enjoyment mostly after the showers in monsoon and when the waterfall is on its full. The most noticing fact is that no entry fee is collected from the tourists. The arrangements for the tourists by the management are not sufficient so the things become sometimes out of order.

Birdwatching (103 species have been reported during our study), Wildlife exploration, the study of the native flora and fauna, hiking and rock climbing may be some tourist activities, which can be promoted in Menal.

Kekariya-The gorge of Kekariya is located behind the village. A kachcha road connects the nearby village to Kekariya parallel to the gorge. The gorge has sacred groves on either side with a good density of trees and the presence of native people. Ruins of a Shiva temple is also there which is visited by the local people on special occasion especially in Hindu month "Shravan" (Figure 3). The gorge is located in the backside of the village and isolated from the human settlement having east facing sharp cliffs on the upper side. The vegetation of the gorge is the part of dry deciduous forest having a variety of trees along all its length, on the bottom, slopes and on the flat terrain of the gorge. The gorge has a small temple of Lord Shiva in the middle of the gorge named "Gupteshwarji". Local people worship the god and this number rises especially in the month of "Shravan". Besides the gorge, there are sacred groves on either side of the gorge having a temple of Devnarayan, the adored deity of Gurjar community. A large area is declared as "Sacred" by the people and cutting of trees is totally prohibited. This nourishes the fact that the animals are the important part of our culture (Joshi, 2018). The gorge has more or less water throughout the year. Streams cascade down from the slopes of the gorge during Monsoon and together with the green environment, makes an eye-catching view. The rainwater also accumulates near the temple in the mid of the gorge as a small tank and is a perennial source of water for animals. The water of this tank is treated as sacred by the villagers and avoided for bathing. Open agriculture land is situated adjacent to the gorge. People sometime visit the gorge and its adjoining area to worship at the temple and to graze the livestock. They also come to the gorge to collect wood for fuel and fodder. The surface of the land is rocky having small sandstone exposed to the stratum. Sharp edges of the exposed stones make it difficult to pass vehicle like cars but vehicle transporting goods like tractors pass from the route frequently. The gorge is narrow and totally isolates a person from the outer world. The disturbance level is not as high as Menal as the gorge is quite unknown for the tourists.

It is the best suitable gorge for the true nature lovers who are in seek for peace in the lap of nature and also a heaven for birdwatchers as it is the breeding site of threatened birds.

Tahla:- The gorge is an open type with good vegetation cover and located at a distance from the busy highway. It is located outside the village. High east-facing cliffs with a number of streams, falling from the high cliffs present a wonderful view (Figure 4). The cliffs have colonies of critically endangered Long-billed vultures. The gorge has plenty of water in monsoon. An anicut stores the flowing water which is used by the livestock. Although surface water in the gorge dries up sooner but the presence of riparian vegetation indicates the availability of underground water in the gorge. At some points, groundwater emerges out on the surface and accumulates under rocks.

The gorge can be a good tourism site for wildlifers as it is the foraging and breeding ground of canids and birds. It is also a living laboratory to study the flora, fauna and geology for researchers and for students to gain practical knowledge of conservation education.

Chainpuriya-The gorge of Chainpuriya is located just on the periphery of the village. It is comparatively narrower than the Tahla gorge and has low vegetation cover especially in the gorge bottom as there is no topsoil remained due to the yearlong erosion by water. The pleatue on the terrace of the gorge is suffering from denudation (Figure 5). A big area can be seen without vegetation on it. Rainwater does not accumulate in the gorge due to the lack of any pit or pond in the gorge. There are no high cliffs, so cliff loving birds can hardly be seen here. The gorge also has open agriculture land in the vicinity. There is agriculture land and personal farmhouses in the opposite side of the village having fairly good vegetation. The greenery in this area attracts birds from the gorge and affects bird diversity of the gorge. Grazing is a common phenomenon in the gorge but it is confined chiefly to the terrace.

There is no waterfall in the gorge so the general attraction is not here but the researchers, who are seeking for the habitat diversity and geology, can prefer the gorge. The native flora and fauna are also worth studying.It is also good for the amateur rock climbers.

From the above discussion it has become evident that these gorges have a good potential to be developed as eco-adventure tourism sites. Monsoon is the best season to visit the gorges, as the lush green landscape creates eyecatching natural scenery. The water flowing down in cascades from steep rocky slopes gives it a perfect shape. Rain water is a boon for the gorge ecosystem which keeps water streams alive and

satisfies water needs of the gorge biodiversity.The undisturbed environment, a variety of microhabitat, plenty of life resources sustains the biodiversity of the gorge in its best form. A rich diversity of birds has been recorded in the study and most of them were resident. This study is among the few studies done on the birds in Bhilwara district. Other studies have been done by Joshi and Bhatnagar (2015, 2016). 103 species of birds were recorded from Menal, 82 species from Kekariya, 74 species from Tahla and 59 species from Chainpuriya in our study. It included threatened bird species like Indian vulture, Egyptian vulture, Wooly-necked stork and River tern. Thus the gorges are a lucrative destination for birdwatchers also. Besides the birds, these gorges are home of other wild animals also. In other words, these gorges are perfectly the "nature conserved gene reservoirs" where nature conserved habitat protects plants and animals in its natural forms and if conserved properly, these will be maintained for the years and generations.

In addition to the treasure of biodiversity, gorges are the laboratory of geological studies also. Sandstones rocks in the gorges make geological formations such as monoliths, mesas, buttes and badlands (Grant, 2005; Spence *et al.*, 2011) many of which are historical monuments and attract tourists. The rocks in Vindhyan gorges are of sandstone and lime stones and this area of Bhilwara district is famous for commercial mining of sandstone. High cliffs and beautifully water eroded rocks are add on to the beauty of the gorges. These may be thus the preferred site for researchers and students. Gorges have been promoted as the recreational and ecotourism site across the globe where various sports activities like camping, hiking, trekking, rock-climbing are conducted. These are important source of revenue for the government and also for the local community. In India, Satkosia gorge in Orissa offers a number of tour packages to the tourists. Here the gorges are being developed as the ecotourist spot. But work is yet to be done to promote gorges as ecotourism site in India.

Among the four Vindhyan gorges of the study, it is found that Menal gorge has the maximum potential as tourist spot. The best thing of this gorge is that it is already a popular tourist destination for local people. Its geography, heritage, historical monument, natural scenery, biodiversity and wildlife make this gorge a perfect ecotourism destination for the tourists of all interests. Ancient temple and the waterfall are the main attraction of Menal gorge. Flat terrain of these gorges specially in Menal, Kekariya and Chainpuriya make them suitable for nature camps. Department of forests have mounted camps on cemented platform near the Menal gorge in the premise of the office of the department of forests for comfortable stay of tourists in the night (Figure 6,7)). They also developed watch tower to see the beautiful panoramic view of the gorge, placed decorative benches on the bank of the gorge for taking a full view of the gorge and planted medicinally important plants having labels. But no such efforts are seen in the rest of three gorges. Hiking, trekking, eco-trailing, bird-watching are suitable sports for all gorges and rock climbing for amateurs can be developed due to high cliffs in Kekariya and sloppy depth in Menal. But the first requirement of all this planning is to take the local people together. They must be made aware towards conservation and its significance. If local community socially accepts ecotourism, then they will keep on supporting and cooperatively working for better sustainable ecotourism development (Bansil et.al., 2015). Hence we must keep the local communities as the first target group then service sector at second and visitors as the third target group, to make the environmentally aware, educated, and to find the best possible ways to develop the socio-economic scenario of these rural areas.

The above discussion makes it obvious that the potential of the gorges is far better than that has been explored so far. Here are some recommendations which may be helpful to promote and develop ecotourism in the Vindhyan gorges of Bhilwara and adjoining areas.

1. Proper publicity should be made through social media and print media especially in those seasons when the tourist activity could be managed in a better way. Gorges other than Menal should be brought in light by introducing their specialties in terms of biodiversity as well as their natural beauty.
2. Excursion tours can be planned by combining these four gorges in a package for tourists seeking for bird-watching, wildlife exploration and study.
3. Small tracking route should be designed in the gorges for hiking. These should be made in such a way that will not disturb the birds and other animals.
4. Bird watching sites should be identified and demarcated. Some arrangements of binoculars can be done on hiring basis to see the birds from a distance.
5. Trees important from medicinal and conservation point of view should be planted in the gorges having their name on the labels to make the people familiar with them.

6. Photography points can be developed at some specific places for the visitors having photography as hobby.
7. Local people having knowledge of indigenous trees should be promoted to be associated with conservation. It will generate alternative livelihood for them.
8. A minimum entry fee should be charged from the visitors. It can be utilized for maintenance of the garden and trees.
9. Vendors should not be allowed in the area near the gorge. They should be kept outside the gorge area. It will prevent habitat degradation in the gorge.
10. Grazing and wood-cutting must be prevented in the gorge area to minimize disturbance level and protect the biodiversity of the area.
11. Notice boards or glow shine boards or other signage should be placed at the proper places having details of birds and vegetation found in the area to make the people familiar with biodiversity.Booklets of the same can be published and distributed free to publicize the spot.
12. There should be proper parking arrangements outside the gorge area. Vehicles were found scattered outside the gorge of Menal which gives a bad impression to the tourists.
13. Hot air ballooning, rock climbing and hiking can be introduced in the gorges by hiring experts of this field.
14. Awareness and conservation camps, workshops and training programmes should be organized near the gorges to educate people the importance of gorge biodiversity. School and college students should be brought frequently to the area for cultivation of biodiversity conservation spirit in them.
15. Association of Non-Governmental Organizations to promote ecotourism will become effective. Local people should also be a part of the efforts done to promote the activities.

Deteriorating environment and depleting natural resources are the biggest threat to the environment and it can only be preserved by their sustainable management and conservation. The sustainable eco-tourism development in fact, is an exercise to manage sustainable resources. It also leads to environmental stability and defers those developments which may result in negative changes in ecosystem. This tourism not only protects nature but also strengthens the local people who are the host, conserver and preserver of the local environment and ecosystem. Gorges of Bhilwara district along with adjoining areas are the ultimate places where nature can be seen in the best way.Cumulative efforts of forest and tourism department for their development and promotion will definitely helpful both for the nature and local community.

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Figure- 1- temple at Menal

Figure- 2- waterfall at Menal

Figure- 3- gorge of Kekariya

Figure- 4- gorge of Tahla

Figure- 5- Gorge of Chainpuriya

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Figure-6 – camping sites

Figure-7 – benches for gorge view