

A CASE STUDY ON

GHARIAL AND TOURISM: ROLE OF NATIONAL CHAMBAL SANCTUARY IN CONSERVATION OF GHARIALS AND PROMOTING TOURISM

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Introduction about Gharial:

The scientific name of Gharial is 'Gavialis Gangeticus'. The Gharial is characterized by its extremely long, thin jaws and sharp teeth. The name Gharial derived from male Gharial's snout, a sublime part of its nostril which resembles the 'Ghara' (an Indian pot) and this part of Gharial helps in creating hiss by snorting which alerts its presence. Traditionally Gharial is considered the 'Vahana' or vehicle of river Ganga. Gharials are one of the most unique creatures of this world. They dwell in deep fresh flowing rivers. They survive on fish only. Gharials nest between March to May and the female Gharials lay eggs in sand banks, depositing upto 60 eggs at a time. These eggs are hatched for approximately 90 days. These eggs and the young ones are guarded by the Gharials as long as they are unable to survive themselves. The mortality rate of the eggs and the young ones is maximum in the initial year of their infancy.



Young Gharials Basking in Sun

The Gharial is typically a resident of flowing rivers with deep pools that have high sand banks and good fish stocks. Exposed sand banks are used for nesting. Once found abundantly in Indian subcontinent with its range extending throughout the Gangetic plains, Indus river in Pakistan, Northern Nepal, Bhutan, Bangladesh and East Burma. The Indian Gharial is now confined to India, Nepal and Bangladesh in scattered and isolated locations. Today Gharials have very little population in India limiting their presence at countable locations. In India the major breeding populations of Gharials are confined to two rivers only Girwa and Chambal. The two rivers run along the borders of Uttar Pradesh, Madhya Pradesh and Rajasthan. A very few non-breeding population is found in some other rivers of India.

Conservation of Gharials:

The Gharial is one of the most endangered of all crocodylians. It is estimated that there are less than 200 breeding adults. This represents a decline of about 80% since the 1940s and qualified it for Critically Endangered listing on the IUCN Red List. The drastic decline in Gharial numbers over a period of 60 year is attributed to a number of factors like habitat destruction, hunting for skins, killing by fishermen, killing for medical purposes, egg

collection, pollution, accidental drowning in fishing nets. Human influences on riverine habitat are the major threat to the Gharial, with sand-mining, agriculture, irrigation channels, dams, barrages, modification to river course all combining to create an irreversible loss of Gharial habitat (IUCN 2009). The species is listed as Schedule I under the Indian Wildlife (Protection) act, 1972.

The estimated population of Gharials was around 4000-5000 in 1940, around 400 in 1997 and around 200 in 2006. The late 1970s saw a drastic decline in Gharial population and distribution. In 1975 the Crocodile conservation project (Project Crocodile) was initiated by the Government of India, UNDP & Food and Agriculture Organization (FAO) in Uttar Pradesh for the conservation of Gharials. The project involved two phases- Captive breeding and Rehabilitation. Gharial eggs collected from the sand belt, incubated and the resultant hatchlings were released in the rivers. The partial incubation is done in wild nests and the rest incubation done in the conservation centers. In 1991, however Project crocodile was ironically discovered to be 'over successful', in that Gharial population had increased so tremendously that aid was no longer found to be required. The Union ministry of Environment and Forest felt that the project had served its purpose and withdrew funding for the captive-breeding programme. Not surprisingly, by 2006 the Gharial had dwindled down to less than 200 individuals.

Facts about National Chambal Sanctuary with regards to Gharials:

After the primary survey crocodile expert Mr. H.R. Basterd visited the area and it was decided to declare this river from Kota Barrage to Yamuna River and extent of 600 km. as sanctuary. Therefore, vide Gazette Notification No. I 7835 XIV-3103-78 Jan. 29-1979 U.P. II 15-12-X(2)-82 Bhopal 24.12.1982 (M.P.) and Vol. 35 No. 24 Sept. 1983 (Rajasthan). Chambal was declared National Chambal sanctuary.

Details are as follows: -

1. Name of the Sanctuary - National Chambal Sanctuary
2. Total Area of Sanctuary - App. 600 sq.km. of Chambal river width 1000 m from either bank
3. Territory - Uttar Pradesh, Madhya Pradesh and Rajasthan

4. Date of Notification - Gazette Notification

- (i) U.P. - No. 7835 - XIV - 3103 - 78 Jan 29, 1979
- (ii) M.P. - No. 15-12 - X (2) -82 Bhopal 24.11.1982
- (iii) Rajasthan - Vol. 35, No. 24, Sept 15, 1983.

Chambal river accounts for about half (48%) of the world's Gharial population (IUCN, 2008). The National Chambal sanctuary was founded over Chambal River in 1978-79 under the crocodile conservation project to protect Indian Gharials as a riverine sanctuary. It stretches along 425 km length of Chambal River in three states. It is one of the few places to spot Gangetic Dolphins (*Platanista Gangetica*). It also supports some of the rare species of turtles and it is an ideal place for migratory birds. This is perhaps the only wetland sanctuary in India for the conservation and management of crocodiles. Unpolluted and deep Chambal water, sandy islets and banks of River Chambal make it a perfect place for the basking and nesting.

Priorities of government are Protection of suitable habitat for the Gharials in their natural environment; monitoring and managing existing population, identification and minimization of anthropogenic influences, ensure that conservation programs involve local people, education, research and the active participation of all stake holders.

Apart from the above mentioned plans and programmes, the forest departments under the respective states take all the necessary steps in protecting and safeguarding the interest of the Gharials in the region of National Chambal Sanctuary. Some of the steps are:-

- River patrolling to check illegal sand mining.
- Intensive foot patrolling along the Chambal River to check illegal sand mining.
- Developing a network of department and the local people to counter anti-environmental elements.
- Conducting raids and arresting people under Wild Life (Protection) Act, 1972.
- Preventing and combating forest fires.
- Identification and Protection of Gharial nests.
- To prevent poaching and hunting etc.

Role of Deori for Conservation of Gharials:

Deori is situated at a distance of around 45km from Gwalior, around 10 km from Morena and around 10 km from Rajghat Bridge of Chambal River. After the notification of wildlife sanctuary, the government banned the fishing practices (1978-79). Collection of Gharial eggs and the work in hatchery at Deori also began from 1978-79. Gharial sanctuary at Deori is the only of its kind in the entire state of Madhya Pradesh and is open for public. The center helps in breeding and rehabilitation of the Gharials and crocodiles. Active efforts are also being made to protect the Gangetic Dolphins. After having a discussion with the caretaker of hatcheries “Mr. Khemraj” and “Mr. Jagannath Kushwah” we have gone to the insights of the functioning and management procedures of the Deori Gharial conservation center. Gharials lay eggs in the month of March-April at the river bank under the sand. The guards everyday go to the nesting places and checks for the eggs. After finding the place of egg laying the team of the sanctuary excavate the place and dig out some of the eggs for conservation at Deori and some eggs are left for the female Gharial. Then the excavated eggs are then taken and kept at hatchery at Deori conservation center keeping in mind not to change or alter the original position of the eggs. A female Gharial gives 18-52 eggs in a breeding season. The young Gharials come out of the eggs after 60-65 days of their birth. These young Gharials are kept in hatcheries specially designed for their rehabilitation. Each Gharial is given a unique identification code by making a small cut mark on their tail. The water of the hatchery is keep on changing on regular basis, initially every day and then in the interval of two-three days. For the initial 15 days the young Gharials do not eat anything and then they are given small fishes. The young Gharials are kept seperate as per their age group in different hatcheries. They are brought up till the time they gain a length of 120 cm. For the acquisition of this length they take approximately 3-4 years. After getting the length of 120 cm it is assumed that they can survive themselves in free environment hence they are freed in Chambal River.

Deori is not only a Gharial conservation centre but also a place where visitors satiate their curiosity to see and know about the Gharials. Deori Gharial conservation centre is open for public and it remains open round the year. It has hatcheries and pools where the young Gharials are kept and visitors get a chance to see these Gharials. Visitors get enthralled after seeing these tiny and newly born Gharials basking in the sun, crawling in the sand outside the pool, jumping and swimming in the water pools. Especially the children get very excited about these young Gharials and they keep on gazing these beautiful reptiles for so long because they do not get chance to see these reptiles anywhere else.

Deori also has a museum where one can find more information and knowledge about the Gharials and the Deori conservation centre. It is also open for the visitors. This museum contains information about the number of Gharials bred here and released later on after their initial conservation. It also provides information about the Chambal sanctuary and the other species of animals which found here. Deori conservation is gaining popularity among the folk with every passing day. It attracts tourists and visitors to visit this conservation centre and creates more curiosity among the visitors to know and visit the whole Chambal sanctuary. So it is one of the factor which is a stimulator for the growth of tourism in the region.



Gharials in water pool at Gharial conservation centre Deori, Morena

Tourism Activities at National Chambal Sanctuary:

There are different types of Tourism and allied activities are carried out by the visitors at National Chambal Sanctuary spanning the three states. Some of the activities which are in terms of tourism are carried out by the tourists are as follows: -

- River Safari - The Chambal river is one of the pollution free rivers of India which provides a perfect habitat for the Gangetic Gharials and the Gangetic Dolphins and other aquatic animals, land animals and birds. The boatmen in the Chambal River take the visitors to the long stretch of the Chambal River. The visitors get a chance to have a glance of the Dolphins and other aquatic animals.
- Nature Walks - The visitors also take a walk along the bank of River Chambal in morning, afternoon and the evening by the permission of the sanctuary officials and they are often accompanied with the officials.
- Village Walks - The rural area and the rural life of these three states can be experienced by the visitors by having walks around the areas. One may choose to experience a fascinating rural life across the River Chambal.
- Jeep Safari - It is another activity which enthralls the visitors. Visitors can take Jeep safari and experience the great historical and geographical landscapes. The Bhareh Jeep safari to the confluence of Chambal and Yamuna Rivers is 90kms (2 hrs) from the Chambal Safari Lodge.
- Camel Safari - Visitors who come here want to experience the different aspects of cultural and geographical elements. To enhance the experience of visitors' camel ride is given to them. Camels take the visitors from the banks of River Chambal to the Ater fort, Bhind in Madhya Pradesh.

Apart from these prime tourist or visitor activities there are a number of other activities which can be taken by the visitors at the National Chambal Sanctuary. These are: -

Horse Safari

Bateshwar temple visit

Ater fort visit

Bird watching etc.

SWOT Analysis:

Strengths:

- National Chambal sanctuary supports largest population of Gangetic Gharials in India and it is also last surviving habitat of Gangetic River Dolphin.
- Chambal is one of the cleanest river of India.
- National Chambal sanctuary is home to eight species of turtles, some of them are endangered.
- National Chambal sanctuary is one of the finest ecotourism and wildlife tourism destination as it has got a lot of biodiversity in its ecosystem which can attract tourists and researchers.
- Tri-state Chambal sanctuary and management committee ensures sufficient flow of water in Chambal river to save and conserve the habitat of different species of endangered aquatic animals in Chambal river.

Weaknesses:

- State conflicts over sharing of water for different purposes like irrigation, hydel power projects, drinking water and so on.
- Lack of co-ordination and information sharing mechanism among personnel of forest and police of these three state departments.
- Lack of trained, skilled and adequate human resource in National Chambal sanctuary which results in harmful and illegal consequences on its biodiversity.
- Lack of machinery and equipments which can examine the contaminated fish which are given as food to the Gharials, which results in excretory and nervous system diseases in Gharials.
- Lack of adequate tourist information centre.
- Past negative image of the Chambal area because of Dacoits creating a barrier for the promotion of this place as a tourism destination.

Opportunities:

- Tourist facilities can be developed in Sheopur, Morena, Dholpur, Bhind and Etawah. This can be developed as a tourist circuit.

- A number of archaeologically significant places exist in Morena, Dholpur and Bhind like an eighth century Shiva temple, Mahabharata era remnants at Sihoniya, pre-historic script written in caves of Pahargarh, Fort of Ater and number of Mughal and Scindia era buildings.
- National Chambal sanctuary can be promoted as unique adventure and ecotourism destination as it has got the potential of tourism activities like boating, river crossing, camping, bird watching, nature walk, village walk, camel safari, jeep safari, horse riding. But it should not be taken place at the habitat and nesting place of the Gharials.
- Rural and village tourism along the river side of Chambal can attract tourists for the unique experience of rural life of Chambal.
- Tourism activities in the area will ultimately enhance the economy of region and standard of their lives by creating job opportunities and cross cultural interaction with the tourists.

Threats:

- Illegal sand mining by organised armed groups. These illegal sand mafias affect the habitat and nesting of Gharials.
- Impact of fisheries in Chambal River on Gharials.
- Increased river bank agriculture is very dangerous for the Gharials, Dolphins and other aquatic animals.
- Poaching and illegal hunting of Gharials for different purposes is one of the major threats for the survival of the Gharials.
- Cattle grazing along the bank of river Chambal, a threat for the natural habitat of the Gharials which results in the destruction of the nesting places of the Gharials.
- Contaminated fish from the nearest river like Ashan and Sankh in which human biological waste is thrown, are given as a food to the young Gharials at Deori Gharial conservation centre.
- Water contamination from river Yamuna into river Chambal.

Conclusion:

National Chambal sanctuary is one of its kind a unique sanctuary which not only provides a safe shelter to the animals but also it is protecting and conserving some of the critically endangered species like Gangetic Gharials, Gangetic Dolphins and turtles. It is a wonderful place for these endangered species because they find a perfect natural habitat in river Chambal. This world is not only for human beings but also for all species and they have right to survive carry their generations. So the efforts which were taken by the government of India to protect these critically endangered species are really need to be appreciated and encouraged.

The National Chambal sanctuary is also playing a key role in attracting a number of tourists to interact with these animals with close proximity and to see them in their natural habitat. Our effort is meant to highlight the steps and measures taken by the government and other associated agencies for the betterment of whole ecology and environment. These kinds of steps and efforts must be taken by other respective governments and other stake holders to protect and conserve other endangered species in their natural habitat. Some other conservation centres can be formed as Deori for the breeding and conservation of other animals across the nation.

By these kinds of efforts we are not only protecting the ecology and environment but also we are encouraging the general people to do so by making them a part of tourism. Tourism will bring tourists to these conservation centres or sanctuaries and it will result in contribution to the society economically, socially, environmentally and some other aspects also. Tourism can also be promoted through these kinds of activities which attract them to visit these places.

The ultimate aim is to take initiative for the betterment of the human society, animal conservation, environment upgradation and ecological balance.

References:

Taigor, S.R., Rao, R.J. 2010, Habitat Features of Aquatic Animals in the National Chambal Sanctuary, Madhya Pradesh, India. Jiwaji University.

Tiwari, S.K. 1998, National parks of Madhya Pradesh: State of Biodiversity and human infringement, APH Publishing Corporation, New Delhi, 117-119.

IUCN, Red List of Threatened Species, 2007, available at www.iucn.org.

Stevenson, C., Whitaker, R. Gharial *Gavialis Gangeticus*, Surrey, UK and Tamil Nadu, UK.

Vyas, R., Singh H. Biodiversity survey of Gandhi Sagar Reservoir, Madhya Pradesh. *Zoos' Print Journal* 19(7): 1525-1529.

Bashir, T., Khan, A., Gautam, P., Behra, S.K. Abundance and Prey Availability Assessment of Ganges River Dolphin (*Platanista Gangetica Gangetica*) in a stretch of Upper Ganges River, India. *Aquatic Mammals*, 2010.

Panda, WWF India New Letter, July-September 2012.

Da Silva, A., Lenin, J. 2010. Mugger Crocodile *Crocodylus Palustris*, Pg 94-98 in *Crocodyles. Status Survey and Conservation Action Plan. Third Edition*, ed. by S.C. Manolis and C. Stevenson. Crocodile Specialist Group: Darwin.

Banerjee, S. 2013. Conservation of the Critically Endangered Gharials (*Gavialis Gangeticus*) by Forest Department of Uttar Pradesh State in the National Chambal sanctuary, Uttar Pradesh, India.

Sharma, R.K., Singh, H., Dasgupta, N. 2011. A Survey of Habitat Inventorization and Habitat Potentiality for Sustenance of Gharial in Son (*Gavialis Gangeticus*) Gharial sanctuary, *International Journal of Biodiversity and Conservation*, Vol. 3(1), pp 19-23.

Nair, T. 2010. Ecological and Anthropogenic Covariates Influencing Gharials (*Gavialis Gangeticus*) Distribution and Habitat use in Chambal river, India. Thesis Report submitted to Tata Institute of Fundamental Research, pp 24-27.

Kishwan, J. Additional Director General of Forests, The Gharial: Our River Guardian, Ministry of Environment and Forests, Government of India.

Website-<http://www.hindustantimes.com/news-feed/newsmartimportedstories/chambal-aquatic-animal-survey-planned/article1-203185.aspx> accessed on 04/03/14.

Website-<http://www.hindustantimes.com/india-news/bhopal/chambal-valley-to-be-new-tourist-attraction-of-madhya-pradesh/article1-1079474.aspx> accessed on 04/03/14.

Website-<http://www.hindustantimes.com/india-news/newdelhi/110-gharials-dead-officials-don-t-know-why/article1-279899.aspx> accessed on 04/03/14.

Website-<http://www.hindustantimes.com/india-news/sand-mafia-attempts-to-run-over-ias-officer-in-madhya-pradesh/article1-932608.aspx> accessed on 04/03/14.

Website-<http://www.gharialconservationalliance.or> accessed on 28/03/14.