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## Importance and Productivity of Bakhira Lake (Sant Kabir Nagar, India) for the Livelihoods of Tribals and Locals

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**Abstract:** Bakhira lake is in Sant Kabir Nagar district of Eastern Uttar Pradesh in India. It is a vast stretch of water body expanding over an area of 29 km<sup>2</sup>. This is an important lake of eastern UP, which provides a wintering and staging ground for a number of migratory waterfowls and a breeding ground for resident birds. This is also used for farming activities as it is connected to Bakhira Canal which covers the people of 15 km from its origin. The villagers from the surrounding villages depend on it for their livelihood in the form of fishing, agricultural activities and fuelwood collection from it. The Siberians birds travel across 5000 km at the time of winter's. Best time to visit to Bakhira lake is in winters Nov–Jan. During this time migratory birds from Tibet, China, Europe & Siberia come here, covering about 5000 km. There are more than 30 species of fish found in the lake. However the dominant species are *Labeo rohita* and *Chana* sp.

**Keywords:** Bakhira, Sant Kabir Nagar, tribals, locals, productivity, livelihoods, migratory birds

### Introduction



Bakira lake, Sant Kabir Nagar, UP

There is one Bird Sanctuary, namely Bakhira Bird Sanctuary located in Sant Kabir Nagar District at a distance of about 3.4 Km from end point of the project towards southern side of the lake. The Eco-sensitive zone of this Sanctuary has already been notified to 1 Km from radius around the outer boundary of the Sanctuary area. So the project section does not fall in eco-sensitive zone of this Sanctuary.[5,6]

There is folklore about ancient Bakhira village caving in to earth and becoming inundated because of its dishonest population. It is said a merchant came to the village and did a deal with a villager for purchasing mustard seeds at a certain rate per measure of measuring vessel (Local word 'Seyi' which is spherical in shape). When the merchant came to take delivery of the consignment the villager said that he had quoted the rate for the mustard seeds per measure of the 'Seyi' upside down. The dispute was taken to the village elders. The village elders gave the verdict that Mustard Seeds should be measured with 'Seyi' neither in straight position nor in upside down position but in 'Horizontal' position. Thus the merchant was cheated by the whole ancient Bakhira village and the saying goes that there came an immediate earthquake and the whole Bakhira village capsized into the earth and it became inundated.[1]

The predominant land-use by the tribals and the locals is agriculture. Both Kharif and Rabi agriculture is practiced in both the districts. Only 32.2% land are irrigated land, whereas in Sant Kabir Nagar district the irrigation land is 60.4% of total geographical area of these districts. Tube wells are the main source of irrigation and followed by canal and wells. In the project districts main crop grown area paddy, wheat, maize, peas, tilhan and sugarcane. Environmental Management Action plan has been developed for implementing the mitigation measures at different locations by the tribals and locals participating in several projects implemented by the government.

Many species of fish are found in lake which are used as food by the tribals and locals. These are categorized into different taxa as shown in tables below.

There are certain protected areas in the connected sanctuary of Bakhira. The PAs are constituted and governed under the provisions of the Wild Life (Protection) Act, 1972, which has been amended from time to time, with the changing ground realities concerning wildlife crime control and PAs management. Implementation of this Act is further complemented by other Acts viz. Indian Forest Act, 1927, Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 and Biological Diversity Act, 2002 and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. The Wildlife Crime Control Bureau of the Central Government supplements the efforts of provincial governments in wildlife crime control through enforcement of CITES and control of wildlife crimes having cross-border, interstate and international ramifications. In order to strengthen and synergise global wildlife conservation efforts, India is a party to major international conventions viz. Convention on International Trade in Endangered Species of wild fauna and flora (CITES), International Union for Conservation of Nature (IUCN), International Convention for the Regulation of Whaling, UNESCO-World Heritage Committee and Convention on Migratory Species (CMS). Many animal species are on the threshold of extinction as their primary natural habits are getting rapidly eradicated. Animals are not the only ones who are endangered. Lands like mountains, hill forests, dunes, and plains have the same risk as human beings are continuously destroying them for their selfish interests. Several areas also have significant risks of being polluted. So, if they are reserved under the status of a wildlife sanctuary, they are preserved better.[7,8]

At present the tribals and locals in Bakhira lake area are involved in productivity of various works:-

**Production and distribution of electricity, Natural horticulture, A range of farming enterprises**

**Production of wine, Animal grazing**

SL. number	Order	Family	Scientific name	Common name	Local name	IUCN Status	Seasonal Abundance	Economic value
1			<i>Gibelion catla</i>	Catla	Bhukur	LC	TY	Food fish
2			<i>Labeo bata</i>	Bata labeo	Bata	LC	TY	Food fish
3			<i>Labeo calbasu</i>	Black rohu	Karonchi	LC	TY	Food fish
4			<i>Labeo dero</i>	Kalabans	Khaira	LC	SM	Food fish
5			<i>Labeo rohita</i>	Rohu	Rui	LC	TY	Food fish
6			<i>Cirrhina reba</i>	Reba carp	Raia	LC	SM	Food fish
7			<i>Cirrhinus mrigala</i>	Mrigal	Nain/ Mrigal	LC	RS	Food fish
8			<i>Aspidoparia morar</i>	Morar	Kenwachi	LC	WN	Food fish
9	Cypriniformes	Cyprinidae	<i>Hypophthalmichthys nobilis</i>	Bighead carp	Briged	DD	TY	Food fish
10			<i>Ctenopharyngodon idella</i>	Grass carp	Grass	DD	TY	Food fish
11			<i>Cyprinus carpio</i>	Common carp	China	VU	TY	Food fish
12			<i>Esomus danricus</i>	Flying barb	Dendua	LC	TY	Ornamental
13			<i>Hypophthalmichthys molitrix</i>	Silver carp	Silver	NT	TY	Food fish
14			<i>Amblypharyngodon mola</i>	Mola carplet	Dhawai	LC	SM	Food fish
15			<i>Securicula gora</i>	Dariyari	Chal	LC	WN	Food fish
16			<i>Puntius sarana</i>	Barb/ Olive barb	Puthiya	LC	TY	Food fish
17			<i>Puntius sophore</i>	Pool barb	Jatpunti	LC	SM	Ornamental
18			<i>Puntius ticto</i>	Ticto barb	Tit punti	LC	SM	Food fish/Ornamental
19		Siluridae	<i>Wallago attu</i>	Fresh water shark	Padhani/Barari	NT	WN	Food fish/Ornamental
20		Bagridae	<i>Mystus bleekeri</i>	Tengar catfish	Tengra	LC	WN	Food fish/Ornamental
21			<i>Mystus cavasius</i>	Gangetic mystus	Sutahawa tengra	LC	SM	Food fish
22			<i>Mystus tengara</i>	Tengra catfish	Tengana	LC	SM	Food fish
23			<i>Sperata aor</i>	Long whiskered catfish	Dariai tengara	LC	TY	Food fish
24			<i>Sperata seenghala</i>	Giant river catfis	Dariai tengara	LC	TY	Food fish
25	Siluriformes	Schilbeidae	<i>Ailia coila</i>	Gangetic ailia	Patasi/Minti	NT	RS	Food fish/Ornamental
26			<i>Clupisoma garua</i>	Garua	Baikari/Karahi	LC	TY	Food fish
27			<i>Eutropiichthys vacha</i>	Batchwa vacha	Banjhoo	LC	TY	Food fish
28		Pangasiidae	<i>Pangasius pangasius</i>	Pangas catfish	Payasi	LC	TY	Food fish/Ornamental
29		Heteropneustidae	<i>Heteropneustes fossilis</i>	Stinging catfish	Singhi	LC	SM	Food fish/Ornamental
30		Clariidae	<i>Clarias batrachus</i>	Air breathing catfish	Mangur	LC	SM	Food fish/Ornamental
31		Clupeidae	<i>Gudusia chapra</i>	Indian River Shad	Suhia	LC	TY	Food fish
32	Clupeiformes		<i>Gonialosa manmina</i>	Ganga river gizzard shad	Majhali suhia	LC	TY	Food fish
33		Engraulidae	<i>Setipinna phasa</i>	Gangetic-hairfin anchovy	Phansi	LC	TY	Food fish
34	Osteoglossiformes	Notopteridae	<i>Notopterus notopterus</i>	Bronze featherback	Patra	LC	WN	Food fish/Ornamental
35	Mugiliformes	Mugilidae	<i>Sicamugil cascasia</i>	Yellowtail mullet	Yellowtail mullet	LC	RS	Food fish
36		Channidae	<i>Channa gachua</i>	Dwarf Snakehead	Chanaga	LC	TY	Food fish
37			<i>Channa marulius</i>	Great snakehead	Saur	LC	TY	Food fish
38			<i>Channa punctata</i>	Spotted snakehead	Girai	LC	TY	Food fish
39			<i>Channa striatus</i>	Asian snakehead	Sauri	LC	TY	Food fish
40	Perciformes	Ambassidae	<i>Chanda nama</i>	Elongate glass perchlet	Chanri	LC	TY	Food fish/Ornamental
41			<i>Parambassis ranga</i>	Indian Glassy Fish	Chanri	LC	WN	Food fish
42		Badidae	<i>Nandus nandus</i>	Gangetic leaffish	Dhebri	LC	RS	Food fish/Ornamental
43		Anabantidae	<i>Anabas testudineus</i>	Climbing perch	Kawai	DD	TY	Food fish
44		Osphronemidae	<i>Trichogaster fasciata</i>	Banded gourami	Khosti	LC	WS	Food fish/Ornamental
45	Synbranchiformes	Mastacembelidae	<i>Mastacembelus armatus</i>	Zig-zag eel	Bam	LC	TY	Food fish/Ornamental



Sl. Number	Taxa	Number of species	Percentage (%)
1	Family : Cyprinidae	18	40.00
2	Family : Bagridae	5	11.11
3	Family : Channidae	4	8.89
4	Family : Schilbeidae	3	6.67
5	Family : Ambassidae	2	4.44
6	Family : Clupeidae	2	4.44
7	Family : Notopteridae	1	2.22
8	Family : Mugilidae	1	2.22
9	Family : Badidae	1	2.22
10	Family : Osphronemidae	1	2.22
11	Family : Mastacembelidae	1	2.22
12	Family : Siluridae	1	2.22
13	Family : Pangasiidae	1	2.22
14	Family : Heteropneustidae	1	2.22
15	Family : Clariidae	1	2.22
16	Family : Engraulidae	1	2.22
17	Family : Anabantidae	1	2.22
Total		45	

## Discussion

Exploitation can be best characterized as animal harvesting at an extremely rapid pace. The rate here is often quicker than the animal's ability to recovery. Although this is very common in fishing, other animal groups like mammals, domestic or wild birds, and reptiles are also susceptible to it. The problem with over exploitation is that if multiple individuals of a specific specie are over-exploited, the specie might be on the verge of extinction where from it will never be able to recover.[9,10] One of the biggest examples of this problem can be seen in fishes. Over the last century, certain species of fish like tuna or salmon have been massively exploited, so much so, that there's a huge decline in the size of the new fishes. This has also affected the natural breeding ability of the fish. Wildlife fragmentation in the connected Bakhira sanctuary increases the vulnerability of wildlife as it straight away reduces their inhabited space. It also reduces their resources and increases the possibility of human-animal conflict. [2]



The Bakhira Wildlife sanctuary is located 44 km east of Gorakhpur city and situated in Sant Kabir Nagar district, Uttar Pradesh. The Bakhira Wildlife sanctuary was established in 1990. On the occasion of World Wetland Day 2022, which is 2nd February 2022, Bakhira Wildlife sanctuary was listed as one of the Ramsar sites in India. It is the largest natural flood plain wetland in Uttar Pradesh. Along with this Khijadiya Wildlife sanctuary, Gujarat was also listed as a Ramsar site. The occasion was facilitated by the Union Environment Minister Bhupendra Yadav. This makes the number of Ramsar sites in Uttar Pradesh up to 10 and makes India have the largest number of Ramsar sites among the countries of southern Asia. The total number of protected Wetlands in India also increased to 49.[11]

In 1990, it was declared a bird sanctuary by the forest and Wildlife department, under the Government of Uttar Pradesh. The wildlife sanctuary is an open habitat and a large variety of migratory birds reside there. It is also known as Bakhira Tal which means wetlands. It is the largest natural wetlands of Uttar Pradesh and it is a perennial wetland. The source of water is rainfall and the river Ami (a tributary of the Rapti river). The area covered by the Bakhira wildlife sanctuary is about 29 sq km. The name Bakhira is from the village which is situated adjacent to the river. The villagers mostly depend on the wetlands for their livelihood. Bakhira is a bird sanctuary and there are more than 40,000 birds and those are of 30 different species. During winters there are a lot of migratory birds seen in the sanctuary. It keeps the birds safe from poaching and hunting.[12]

The wildlife sanctuary helps to conserve different species of birds found in India as well as migratory birds. Birds are a part of wildlife and it is equally important to conserve and protect them with proper measures. Bakhira wildlife sanctuary plays an important role in protecting wildlife. It provides breeding and nesting grounds to resident and migratory birds in huge numbers. The migratory birds are from China, Tibet, Siberia, and Europe. Bakhira wildlife sanctuary also provides shelter for aquatic animals and plants. There are various fishes, amphibians, and reptiles found there. However, the climatic conditions of wetlands are harsh and Rocky soil makes it hard for the aquatic species to flourish.[3]



## Results and Conclusion

The area of 29 square kilometers becomes delightful due to the presence of migratory birds from October to February in the lake adjacent to Bakhira town on Khalilabad-Mehdawal road, about 16 km from Sant Kabir Nagar district headquarters of UP. The Central Government has declared Moti Jheel of Bakhira as a bird sanctuary by issuing a notification in 1990. In this lake, during the winter, the lake remains resonant with the tweets of migratory birds. After the arrival of October and till the beginning of March, their

return starts. The remaining eight months are deserted. The total area of the lake is 2894.21 hectares but the demarcation of the lake is hanging due to administrative indifference. There have been many initiatives in this regard, but every time the hopes die.

In the pages of history, the beautiful view of the pearl lake of Bakhira, the lake remains resonant with the flock of colorful exotic birds. Everyone who comes here is lost for a moment. The area of the lake is spread over 29 sq km. In this, dozens of species of local birds as well as migratory birds add to the beauty of the lake. Various types of fish and other aquatic flora present in the lake are important. The livelihood of hundreds of families living on the banks of the lake is also dependent on it. This lake is very important from the point of view of tourism.

Bakhira Lake became a bird sanctuary in 1990. Behind this, along with preserving the migratory birds coming to the lake, the government had made an action plan for its development several times. An action plan was made for the construction of the dam, watch tower, guest room, jetty construction and other necessary constructions around the lake, but the plan is incomplete due to the slowness of the responsible.[13]

The biggest obstacle in the development of the lake is the land of the cultivators. Unless the farmers get compensation for their land, the talk of development is meaningless. The local responsibilities of the district are not working in this direction even after complaining dozens of times. This has become the biggest obstacle in its development.

Employment opportunities for tribals and locals are provided now which will increase due to the arrival of foreign, non-state and district tourists. They will get financial strength. The district will get a high position in the tourism map of domestic and foreign tourists who will be entertained by these tribals and locals thus getting financial support and employment.[4]

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