

Human Impacts on Gharana Wetland (Reserve), Jammu (J&K, India)

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Abstract: *Gharana Wetland (reserve) is a 'Border Tourism Site' located close to Indo-Pak border in Jammu district. It is home to thousands of migratory birds during winter season. Various anthropogenic causes have put immense pressure on this wetland and it is on the verge of disappearance. This study puts light on the numerous causes which have led to the shrinkage of this very wetland and also to suggest various steps to be taken for the conservation and management of this important wetland reserve.*

Keywords: Wetland, encroaching, weeds, reserve, pollution

1. Introduction

Wetland ecosystems are the main contributors for the nation's wildlife bio-diversity, productivity and economy (Stanley, 2004). Wetlands are generally distinguished from other water bodies or landforms based on their water level and on the type of plants that thrive within them. Specifically, wetlands are characterized as having a water table that stands at or near the land surface for a long enough period each year to support aquatic plants (Venkataraman, 2008). Wetlands provide many important services to human society, but at the same time ecologically sensitive and adaptive systems (Turner *et al.*, 2000). Wetlands are especially beneficial under extreme drought or flood conditions for their ability to retain water, reduce runoff, filter sediments and provide water purification (Hartig *et al.*, 1997). They comprise both land ecosystems that are strongly influenced by water and aquatic ecosystems with special characteristics due to shallowness and proximity to land. Wetlands play a key role in pollution elimination and flood control, serve as breeding and nursery grounds for many species of fish and wildlife and help maintain ground water supplies and quality (Koc, 2008). Wetlands also act as pollution assimilation agents for nitrate pollution created by upstream agriculture (Rai, 2008).

Man's dependence and association with the wetlands has been started since the beginning of civilization. The increasing world population and over-exploitation of wetland resources demand for human habitation and permanent change of landscape could be identified as the inherited problems during the past few decades (Sarma and Saikia, 2008). Due to anthropogenic concerned threat problems and improper management, these wetlands are reducing in number and area size day by day. People use these wetlands for various purposes like irrigation, catching of fishes/aquaculture, and washing of clothes, bathing animals and also as waste lands for dumping (Kumari and Lal, 2008). Therefore, appropriate measures should be adopted to conserve and save these important natural resources.

Home to thousands of migratory birds during winter season, Gharana Wetland (reserve), located close to Indo-Pak border

in Jammu district has been notified as a protected water body and declared 'Important Bird Area' (IBA). The state government has accorded sanction to notify Gharana Wetland (reserve) in the interest of Wildlife preservation and development in Jammu and Kashmir. The Deputy Commissioner of Jammu has declared the area 'Wetland Reserve' under Jammu and Kashmir Wildlife Protection Act, 1978.

The reserve, known as 'Bird Watchers Paradise', supports a population of different species during every winter with most of the species being migratory, endangered or covered under different schedules of the act. Various anthropogenic causes have put immense pressure on this wetland and it is on the verge of disappearance. This condition can be well imagined from the fact that encroachment by the locals being one of the major reasons for wetland shrinkage has reduced the wetland area to less than half its official size. The present study has been done to highlight the various threats being faced by this wetland due to human activities and also to identify the mitigation to these threats.

2. Research Methodology

Study Area

Gharana Wetland (reserve) is located about 30km from Jammu city, extending to the Pakistan border in the west of Gharana village. This wetland is 8km from Ranbir Singh Pura town. Gharana is located between 32°50'28"N and 74°35'04"E. its altitude is about 400m. This area is located in R.S.Pura tehsil, west to Jammu city (Fig-1). The soil of the area is Coarse Loamy to Fine Loamy. The annual rainfall is about 1,100mm. Important species of plants present in the study area are *Lantana camara* (Jari), *Cannabis sativa* (Bhang), *Melia azadirachta* (Drenk), *Acacia nilotica* (Kikar), *Adhatoda vasica* (Branked), *Calotropis Procera* (Ak), *Dalbergia sisoo* (Tali). Gharana village consists of 100 houses with a population of about 300. The main occupation of the people here is farming.



Figure 1: Satellite image of study area (Gharana wetland)

Methodology

A questionnaire based survey was conducted in the study area where the local residents were asked questions regarding the respective wetland and its various other aspects. Questionnaire was divided into two sections, namely, Social aspect and Environmental aspect. Environmental aspect was further divided into- General awareness and Awareness with respect to Gharana wetland. The respondents were of various age groups, religious denominations, occupations and educational backgrounds. Most of the questionnaires were individually administered, and the questions explained to the respondents. The respondents were allowed ample time to complete the questionnaires. As far as possible, the questionnaires were administered on taboo and communal labour days or weekends in order to keep disruptions of farm work or other socio-economic activities of the inhabitants to the barest minimum.

3. Results

Social Aspect

Besides the majority (60%) of the locals, many of them were also migrants (40%) from POK during 1947 division. They were mostly Hindus (90%) belonging to either schedule caste or schedule tribe (58%). Illiteracy (80%) rate was very high with majority of the families being joint (98%). Farming (90%) was found to be the main occupation of the locals. (Table 1)

Environmental Aspect

General awareness- It was seen that locals were ignorant about wetlands (99%) and their benefits (99%) with no idea about pollution (97%) and its effects (97%) as a result of which fertilizers and pesticides were being used with more than prescribed limits in the fields (90%). (Table 2)

Perception of respondents about Gharana wetland – for residents of Gharana village, Gharana wetland meant a dumping site (50%) and place for bathing domestic animals (50%). Majority of them were against demarcation (98%) of

wetland and even against the coming of migratory birds to this wetland (100%). Encroachment (96%) was seen as a prominent reason for wetland shrinkage (99%). Military activities have also been seen as a reason for wetland shrinkage. Moreover the employees employed at the Gharana wetland were also not properly trained (40%).
(Table 3)

Table 1: Socio-economic status of people residing in Gharana wetland

Question	Options	Response (%)
1) Native state	a) Jammu and Kashmir	60
	b) Bihar	NIL
	c) Migrant	40
	d) any other specify	NIL
2) Religion	a) Hindu	90
	b) Sikh	10
	c) Muslim	NIL
	d) Christian	NIL
3) Caste	a) Kshatriya	2
	b) Shudra	40
	c) Brahmins	NIL
	d) SC/ST	58
4) Educational status	a) Literate	2
	b) Illiterate	80
	c) 10 th pass	10
	d) 12 th pass	8
5) Reasons for leaving school	a) Poverty	90
	b) distance from school	NIL
	c) lack of interest	10
	d) any other reason	NIL
6) Distance from the school	a) at few steps	100
	b) less than 1km	NIL
	c) more than 1km	NIL
	d) more than 10km	NIL
7) Living alone or with family	a) alone	2
	b) with family	98
8) Type of family	a) Nuclear	2
	b) Joint	98
9) Number of family members	a) 1	2
	b) 2	NIL
	c) 4	NIL
	d) more than 4	98
10) Type of migrant	a) Seasonal	NIL
	b) Temporary	NIL
	c) Permanent	100
11) occupation	a) Farming	90
	b) labourer	7
	c) Army	3
	d) any other specify	NIL
12) Daily Income	a) Rs 200	7
	b) Rs 500	3
	c) Rs 1000	NIL
	d) none	90

Table 2: General awareness of Gharana village residents on environmental aspect

Question No.	Options	Response (%)
1) Do you know what wetlands are?	a) Yes	1
	b) No	99
2) Do you know the benefits of wetlands?	a) Yes	1
	b) No	99
3) Do you know what is pollution?	a) Yes	3
	b) No	97

4) Do you know the effects of pollution?	a) Yes	3
	b) No	97
5) Do you apply fertilizers and pesticides in your fields? If so, in what doses?	a) Yes, more than required	90
	b) Yes, less than required	NIL
	c) No	NIL
	d) Sometimes as required	10

Table 3: Perception of respondents regarding Gharana wetland

Question No.	Options	Response (%)
1) significance of Gharana wetland	a) Dumping site	50
	b) Place for bathing animals	50
	c) Nothing	NIL
	d) any other specify	NIL
2) should wetland area bedemarcated	a) Yes	2
	b) No	98
3) Do migratory birds pose any harm to you	a) Yes	100
	b) No	NIL
4) Have any efforts been made by the authorities for awareness regarding wetlands	a) Yes	70
	b) No	30
5) Positive effects of Gharana wetland	a) Good dumping site	40
	b) Good for bathing animals	20
	c) Good for washing Clothes	20
	d) Good for fishing	20
6) should bathing of domestic animals be done in the wetland water	a) Yes	98
	b) No	2
7) Have you never been opposed of doing so	a) Yes	80
	b) No	20
8) why do you pass through the wetland water	a) It is a shortcut	90
	b) To cool themselves	NIL
	c) Just for fun	10
	d) Any other specify	NIL
9) why do you dump the domestic waste along the wetland sides?	a) It is an open area	80
	b) Never opposed of doing so	10
	c) Everyone dump here	10
	d) Any other specify	NIL
10) Don't you find wetland tourism a good source of income	a) Yes	2
	b) No	98
11) Is bursting crackers a good way of avoiding birds	a) Yes	99
	b) No	1
12) why do migratory birds come here?	a) Don't know	90
	b) To destroy crops	5
	c) To drink water	2
	d) To bath	3
13) Are the wetland employees properly trained	a) Yes	1
	b) No	40
	c) Partially trained	40
	d) Don't know	19
14) Do you hunt Water Fowls	a) Yes	95
	b) No	5
15) Do you use wetland water for irrigation of fields	a) Yes	96
	b) No	4
16) Why are the villagers encroaching the wetland area?	a) To increase their field area	95
	b) To grow more crops	50
	c) To dry up the wetland	5
	d) Any other specify	NIL
17) What are the causes of wetland shallowness?	a) Siltation	10
	b) Weed growth	60

	c) Waste dumps	30
	d) Any other specify	NIL
18) Does the Army activities(bunkers) effect the wetland	a) Yes	50
	b) No	50
19) According to you whether the wetland area has shrunken or expanded since the course of time	a) Expanded	NIL
	b) Shrunken	99
	c) Don't know	1
	d) Remained as such	NIL
20) negative effects of Gharana	a) Obstruction in the path to fields	20
	b) Occupies field area	40
	c) Migratory birds come here and destroy crops	40
	d) Nothing	NIL

4. Discussion

On the basis of the results obtained by questionnaire based survey conducted from the fellow residents of Gharana village, it is quite clear that most of the inhabitants around the study site are from economically poor section. Their main occupation is agriculture. The local residents bath and wash their cattle's in the wetland water. The abiotic resources are also being extracted from this wetland and utilized in various ways by local people (Sarma and Saikia, 2008). It was also observed during the study that people were totally blank towards the concept of wetlands, there benefits, pollution and its effects. It was also seen that the fertilizers and pesticides so applied were more than the required dose resulting into significant impact on the wetland ecology (Anand *et al.*, 2010; Anwaruzzaman & Khatun, 2012; Bain *et al.*, 2012; Olhan *et al.*, 2009). Many other problems were also witnessed in the Gharana wetland area like dumping of solid waste (Gupta *et al.*, 2012), sewage, siltation, encroachment, eutrophication, weed infestation (Anand *et al.*, 2010; Anwaruzzaman & Khatun, 2012; Gupta *et al.*, 2012) and overgrazing. Fuel wood harvesting has also been seen as a major threat to the tree diversity of many wetlands and so is true for this wetland (Anand *et al.*, 2010; Wuver and Atluquayefio, 2006).

5. Conclusion

The information generated from this study gives us a clear picture depicting the threats of intense anthropogenic pressure on the Gharana wetland. It can be seen that the locals are totally ignorant about the result of their activities on or around the respective wetland. The residents of Gharana village have low social and economic status with farming as the main occupation of most of them. They don't have any idea about pollution. Moreover, Gharana wetland is only a water body for them along which they can dump their waste and in which they can bath their animals. It has been found during the study that 'illiteracy' seems to be the main reason for such an attitude of the locals despite of having a government school in the village itself. The conservation and management of wetlands calls for a comprehensive strategy. Looking at the various threats being faced by Gharana wetland, we must adopt certain ways for its conservation and management which include adopting National Environment Policy, 2006; Capacity Building and Community Participation as the main strategies to overcome the problems being faced by the Gharana wetland. Although,

many efforts are being made by the state government and the wildlife department of the state, but, such efforts will not pay off unless we at individual levels don't recognise our duties towards NATURE.

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