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## **Wetland Restoration, A Need for Sustenance: A Case Study Chatra Beel of English bazar, District Malda, W.B, India**

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### **Abstract**

English bazar is an agrarian, semi-urban town bifurcated by river Mahananda adjoining Bangladesh. Due to this location criterion the district's population has increased step by step following different political events. As per census report, the district population has been increased 5 times since last 60 years of development. Here to give space to this growing population, the poor coordination has been observed among regional wetland management organization and development project which have encroached the wetland, becoming threat to wetland conservation. Here the authors have tried to signify the experiences and challenges on wetland preservation taking the Chatra Beel of English bazar block of district Malda as case study.

**Keywords:** Wetland Management, Productive Ecosystem, Land Cost Benefit, Bio-diversity, Quick Abolition.

### **1. Introduction**

As per the convention held in Iran 1971 "wetland is areas of marsh, fen, peat- land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh or brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters."

This productive ecosystem plays a significant role in the ecological sustainability of a region. Being an essential part of civilization meeting many crucial needs for lives on earth, such as source of drinking water, protein production, water purification, energy, fodder, biodiversity, flood storage, transport, recreation, research education, sinks and climatic stabilizer it acts both directly and indirectly in the ecosystem.

More than 5.2 million hectares of wetlands are thought to have existed in India and in West Bengal 3, 32,764 hectares in 1900s. Since then- extensive loses have occurred and more than half of the original wetlands have been drained and converted to other uses. The mid 1950s to the mid-1970s were a time of major national wetland loss. Actually destroying or degrading wetlands can lead to serious consequences such as increased flooding, extinction of species and decline in water quality. Human activities cause wetland degradation and loss of changing water quality, quantity and flow rates, increasing pollutant inputs and changing species composition. To save the wetlands from degradation and deterioration and making plans to restore the wetlands –Chatra Beel of English bazar has been sampled as a basis for micro level analysis.

### **1.1. General Causes of Wetland Degradation**

- 1) Burgeoning population:** in last 60 year the population of Malda district, has increased approximately 5 times (937580 to 3997990). Migration, development of transport and medical facilities are prime causes for population explosion. But as there is no scope for horizontal expansion for urban extension, people has selected wetlands and agricultural lands as their residential space and refilling of wetland have become a common practice.
- 2) Unplanned development and urbanization:** Malda district especially English Bazar town is enclosed by river Ganga in west, Bangladesh in the east. So there is no scope for

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expansion of the town horizontally. So the town has become an example of unplanned development to support the population with the growth of educational hub and development in tertiary sectors.

3) **Intensified human activity:** Unlawful human activities like garbage throwing, refilling by sand and soil,

unmanaged fishing practices, animal bathing are equally responsible.

4) **Other causes:** Lack of proper legislation, absence of management structure, lack of awareness about the ecosystem and biodiversity are also responsible for wetland degradation.

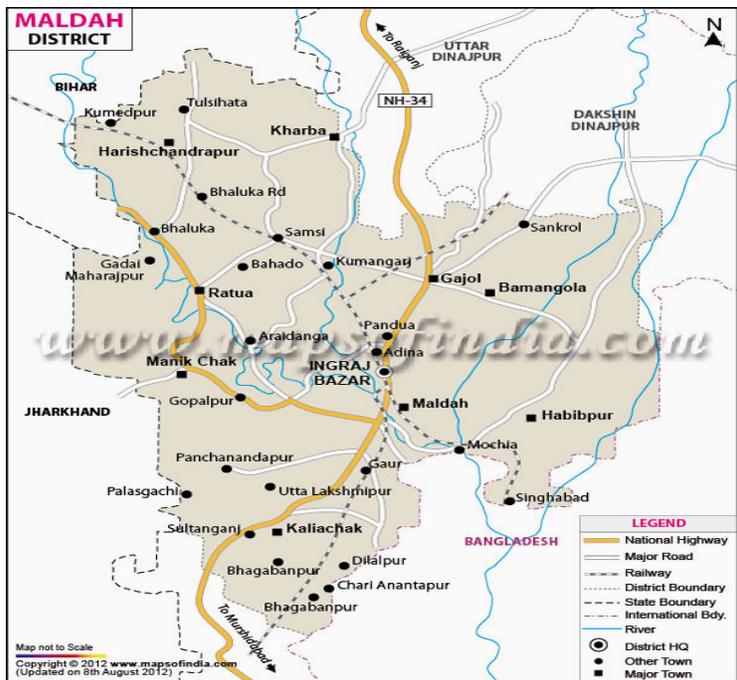


Fig 1: Study area

**1.2. Special Referances to Chatra Beel**

Malda District comprises with 15 blocks, among these English bazar Block is most populous. Chatra, Bhatia – gabgachi, Sagardighi beel are situated in English bazar block. Chatra beel is located stretching English bazar town from NW to SE with a length of 3.20 km and from east to

west it is 1.50 km in width. This beel is the natural kidney of the town but now-a-days it has become a dustbin of the town. People refill the beel with solid materials and garbage for their own interest. The water quality of the beel is reiterating in a continuous order, and now the beel are encroached by the local residents and has been converting into residential area.



Fig 2: Location of chatra Beel

**2. Findings**

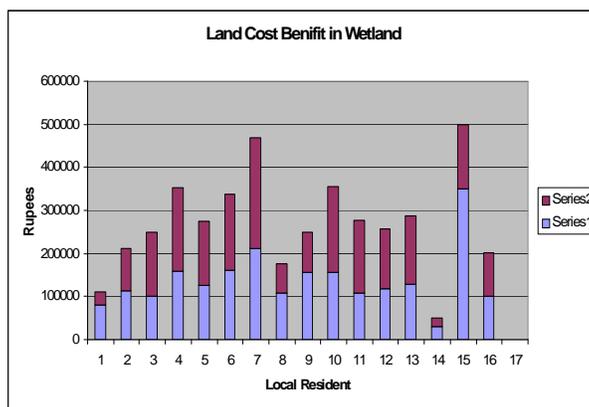
1. Quick disappearances of wetland from the district map. In last 30 years 15 wetlands are abolished and this land area converted to residential areas like Bank colony, Tulshi more, Krishnapally extended slum etc.
2. In the district of Malda the ground water level has decreased 20 feet in last 37 year. In 1971 the average depth of ground water level was 169 feet and now it has come down to 189 feet. Use of bore well is one of the factors responsible for it. As we know wetland functions both as reservoirs for storing water and filtering for recharging. So restoration of wetland is mandatory to maintain the balance between urban growth and development.
3. Disappearance of aquatic plant, animal and migratory birds. Aquatic plants like makhana (highly nutrias, fully organic, non-cereal food grown at present only in Harischandrapur Block situated in Tal region) kalmi, kachu hinghe and medicinal plant like thankuni, brahmi, kulekhera are not yet found which were cultivated profoundly.
4. Inundation in every consecutive year along with bank

erosion is the burning problem of the district. Ideal wetland functions as natural sponge that trap and slowly releases flood water. So where the aerial periphery is decreasing slowly – then it is to be thought by planners how to stop inundation within the agricultural land and residential areas.

5. Jute is second most cultivated wetland cash crop in Bengal. Farmers of the district facing problems of jute-retting which is not possible without plenty of water.
6. The water quality of Chatra beel is continuously deteriorated because it is used as a dustbin by local residents. All the sides of Chatra beel is connected by several drains. It is revealed from the primary sources that 90% family of the region throw their daily garbage in Chatra beel, 80% throw their liquid materials through drains, 30% family use the beel as their toilets, and 15% family disposes solid materials in beel.

**3. Discussion**

Following table will reveal the fact about resettlement within the town zone by acquiring the wetland taking the advantage of low price per katha.



Series 1= Actual Cost of Land Purchasing  
Series 2= Total Benefit

The population pressure is ever increasing in town area. And the price of the land of Englishbazar municipal area is beyond the reach of the lower-middle class family. Naturally people belong to the group gathered around the Chatra beel area, purchased land with a minimum price and filled it with soil and other solid materials. Approximately 50% of the Chatra beel area is encroached in this process. From the year 1985, people from the different regions came here. Most of them are Muslim with a large number of family members. In 1985, the average rate of land price in Malda town is Rs 50000 for 400 sq.feet. Mojibur Rahaman who came at that time, purchased the same amount land by paying Rs.30000 and refilled it by only Rs 180 and save Rs 19900 from the market value. it is proved from the above table that people who reside there, saved an amount ranging from Rs. 15000 to 250000 for purchasing the land. Consequently, the tendency to encroach Chatra beel and convert it into residential area is ever increasing ensuring the advantage of urban advantage.

**3.1. Spearman’s Rank co-relation between Land price, Year of purchasing, Area of land to show**

The relationship and positive approach for growth of settlement in and around Chatra beel.

Year of purchasing-rank	Area(in sq.feet)-rank	Cost (in Rs.)-rank
1985 -16	360-16	30000-16
1989-15	750-6.5	100000-14
1990-13	789-5	106515-12
1990-13	590-15	80830-15
1990-13	700-10.5	101500-13
1991-10.5	700-10.5	112000-10
1991-10.5	800-4	124000-8
1992-8.5	1000-1	158000-4
1992-8.5	750-6.5	127500-7
1993-6	595-14	107100-11
1993-6	882-3	154350-6
1993-6	670-12	117250-9
1994-3.5	714-9	155000-5
1994-3.5	990-2	220000-2
1995-2	600-13	180000-3
2000-1	720-8	350000-1

**3.2. The formula**

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

Sl.no	Name	Age	Sex	Educational qualification	Family member	Year	Area of land( in sq. Feet)	Cost of land purchasing	Earth filling area	Earth filling (in CFT)	Cost of earth filling	Total cost for land	Average rate of malda town land price	Total benefit in terms of money
1	Atikul momin	45	M	Illiterate	5	1990	595	80300	590	1770	900	81200	110000	28800
2	Najrul sk.	50	M	Illiterate	4	1991	700	112000	700	2100	1260	113260	210000	98740
3	Ramjan ali	52	M	Illiterate	7	1989	750	100000	750	2250	1150	101150	250000	148850
4	Niyamat sk.	42	M	V	4	1995	600	132000	600	1800	27000	159000	300000	141000
5	Manirul sk.	38	M	Vii	4	1991	800	124000	800	3200	2020	126020	250000	123980
6	Raja sk.	55	M	Viii	7	1992	1000	158000	1000	3000	3000	161000	300000	139000
7	Anguri bibi.	59	F	Illiterate	6	1994	990	207900	990	2970	4500	212400	400000	187600
8	Jiadduin sk.	62	M	V	6	1993	595	107100	595	1785	1800	108900	170000	61900
9	Fatema bewa	48	F	illiterate	6	1993	882	154350	300	1200	1200	155550	250000	94450
10	Saiful sk	52	M	iii	7	1994	714	155000	400	1200	1800	156800	300000	143200
11	Janatunessa bibi	59	F	illiterate	4	1990	789	106515	700	2100	1050	107565	250000	142435
12	Ramsar ali	50	M	v	4	1993	670	117250	670	1440	1500	118750	220000	101250
13	Huzur momin	42	M	ii	4	1992	750	127500	700	2100	2100	129600	250000	120400
14	Mojibur rahaman	56	M	x	7	1985	400	30000	200	700	180	30180	50000	19900
15	Doublu rahaman	45	M	Iv	6	2000	720	350000	-	-	-	350000	450000	100000
16	Najim sk.	40	M	iii	6	1990	700	101500	-	-	-	101500	250000	148500

Source: primary data

### 3.3. The results

- I). Between year of purchasing and cost of land= 0.89(highly positive correlation)  
 II). Between area of land and cost of land=0.49(moderate positive correlation)  
 III). Between year of purchasing and area of land=0.18(low positive correlation)

Correlation is made between price of land and year of land purchasing; the result is 89 which is positively highly co-related. I.e. in consecutive years the price of land have become higher, and same between area and price of land is 0.49 which is also moderately positively co-related.

## 4. Conclusion

### 4.1. Restoration and Beautification scheme of chatra beel are compulsion.

- 1) Chatra beel is the most important part of the district's ecosystem and environment for the life and livelihood. To protect this wetland following steps should be taken by different Government agencies, NGOs and Social organization.
- 2) To stop the conversion of wetland to residential area with immediate effect. And to declare conversion of wetland as strict punishable offence.

- 3) Immediately stop the encroachment of wetland with a strong legal action.
- 4) Throwing of garbage and solid materials should be stopped and public awareness programme should be initiated for this objective.
- 5) Water of Chatra beel should be purified for using it for drinking water.
- 6) Afforestation programme should be initiated along the beel side and make park, restaurant, and picnic spot. Boating and fishing facilities, different type of water sports like paragliding may be organized in Chatra beel.

In this manner Chatra beel may be converted in to a tourist destination reenergizing district's economy.

From this research work an attempted has been made to restore wetland only not to protect ecosystem and bio-diversity but also to reenergize economy through wetland centered tourism. So it is a hope that by the wetland restoration and by restructuring of the aquaculture and planning for tourism development can make some financial support to the district itself.

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