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Management Practices on Hoar Fisheries in Itna Upazila, Kishoreganj

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Abstract: The experiment was conducted in Itna Upazila, Kishoreganj from July 2001 to June 2002. It has included survey of waterbodies, implementation of different management policies and affect of aquatic environmental issues on hoar fisheries in Itna Upazila, Kishoreganj. There are 16 hoars in Itna Upzila which were comprising of 83 jalmohals. Three management policies including revenue- based leasing system in 93% area of jalmohal, NFMP in 7% area of jalmohal with fisheries resources development project including sanctuary, have been practiced in Itna. Aquatic environmental degradation by siltation, submersible roads and flood control embankments, deforestation, conversion of water body into agricultural land, use of agro-chemicals and surface water abstraction for boro crop, social and political unwanted influence were creating a great threat to fisheries sustainability. It has been suggested that government should emphasize the sustainable haor fisheries development by implementing community-based management practices as part of an integrated holistic development plan of the haor areas.

Key words: Management practices, hoar, survey, environmental issue

INTRODUCTION

Haors are combination of floodplains and beels which in monsoon go under water and in dry months, the beels are isolated as the floodplains dry up^[1]. A haor in general may be subdivided into three major areas which have similar characteristics in terms of morphology and hydrology: the piedmont area around the hill foot, the floodplains and the deeply flooded area^[2].

Itna Upazila is uniquely endowed with haors and a great example of diversified water resources which include floodplains, beels, rivers, canals, seasonal and perennial ponds. Haors and rivers are very suitable for reproduction, growth and easy movement of aquatic fauna. They have a great ecological, economic, commercial and socio-economic importance, they provide habitat for variety of resident and migratory aquatic organisms and a large number of commercially important species. The haors are considered to be the prime sources of freshwater fish in Bangladesh. For generations, the haor has been providing to its residents nearly everything they needed for their subsistence.

Most of the haor resources are now being controlled and appropriated by a few rich and influential persons of

the area. Due to lack of proper management and due to natural and manmade causes the aquatic habitat and fisheries production of haors have gradually declined to a dangerous level. The water resources were suffering considerably from the impacts of a burgeoning human population, including over exploitation and habitat loss. The impact of human interference had been particularly damaging the fragile ecosystem and sustainability of the haors. On the other hand, the reduction and modification of aquatic habitat due to large scale natural siltation in haors, rivers and canals are also responsible for fisheries resources degradation.

The present study may contribute largely to the formulation of an appropriate haor fisheries management policy of Itna Upazila as well as for the North-East region, moreover the study may provide the valuable information to the students, teachers, researchers, planners of the fisheries discipline and other relevant persons.

MATERIALS AND METHODS

The study was conducted in Itna Upazila, under the district Kishoreganj in the North-East region of Bangladesh for a period of one year from July 2001 to

June 2002. Two main climatic seasons of Itna are the Southwest monsoon rainy season from June to September and the dry season from December to March. Reversals of wind directions occur in the spring of April to May and in the autumn of October to November. The annual flood pattern of Itna has two phases; first the early flood occurs during the pre-monsoon season of April to June, when the river and haor water level are relatively low. Secondly the deeply flooded phase occurs during monsoon of July to September. At that time, the haor areas of Itna remain as a large deeply flooded inland sea until the river levels recede at the end of the monsoon season.

Data were collected through personal observation, survey on the study area, face to face interviews with the respondents using a list of questions, Fisheries Office, Land Office, Local Govt. and Engineering Department, Cooperative Office, Union land Offices of Itna Upazila.

The length and width of the haors were measured after observing the individual haor and interviewing the haor adjacent local inhabitants. Firstly, the length and width of each haor were pointed in the land survey map prepared by kanongo, secondly the real length and width were estimated from the map with the help of scale and compasses. The area of a certain haor was simply calculated by multiplying the length and width. So the area of each haor recorded in the list was an approximate one. Informations on haor fisheries management of Itna

were collected directly by interviewing the fishermen, lease holders and jalmohal adjacent local people, from different official papers and persons related to fisheries management. Itna Upazila Fisheries Officer (UFO) was personally involved in the collection of information.

RESULTS

Haors are prevalent in Itna. Of the total area of 451.16 sq. km of Itna 244.12 sq. km including 54% area was occupied by 16 haors. The haors were bounded by Kanda, river levees, submersible pacca and katcha road (Table 1). Bonpurer haor of 41 sq. km was the largest haor in Itna and Shaplar haor of 5 sq km was the smallest.

Mainly three management policies were practiced in haor areas in Itna, comprising with 83 jalmohals, having a total area of 7307.99 acres. Among them 93% area were managed by revenue based leasing system, the rest 7% area was under the management of New Fisheries Management Policy (NFMP), of which only 2.08% area was established for fish sanctuary. Fisheries resources development project was being implemented in the jalmohal under NFMP (Table 2).

There was 30 fishermen's co-operative societies having 1,807 members in Itna. Among them 19 were registered in early '70s. Each of Itna, Raituti and Gazipur union possessed 4 societies, each of Mriga, Elonguri and

Table 1: Haors of Itna Upazila

Name of haor	Location				Area (sq. km)
	North	South	East	West	
Bonpurer haor	Aralia	Hijolia	Shohila	Sherpur	41.00
Baculfar/bolder haor	Sherpur	Kattakhal	Bold ghat	Shohila	17.45
Shaplar haor	Itna-Mruga road	Bautai	Udiar par	Inta-Noyagoa road	5.00
Kaktengorer haor	Itna-Bolda road	Bautai	Itna-Silni road	Dhanu river	10.64
Koilmar haor	Itna-Mruga road	Bautai	Bhati Rajibpur	Ital Purbagram	22.23
Lairmpasher haor	Mriga-Ajmirigonj road	Pagalshi, Kalni river	Kalni river	Bautai	15.00
Joysiddhir haor	Joysiddhi		Kalni river	Boutai	11.00
Channiar haor	Kathoir	Itna-Mruga road	Balarampur	Dhanu	20.00
Gurmer haor	Bisnupur	Ujan Rajibpur	Surma	Bautai	10.45
Mooldair haor		Chachua	Khosalpur, Surma	Dohilong	10.56
Agalfar haor	Kattakhal	Gazipur	Hatkabila	Tiarkona	9.06
Bhuglir haor	Gerajurer Khanda	Badarpur	Ujan Dhanu	Chandrapur	15.30
Ghorvhanger haor	Komolbhog	Gerajurer Khanda	Panch Kahania		6.00
Duvajonir haor	Raituti	Thaneswar	Santipur	Borma	14.43
Tolar haor	Deoshailla	Gandharbapur	Paikurtala	Pathairkandi	15.00
Gazipur hour	Bathuail	Banoria river	Dhanu	Chinai	21.00
Total	-	-	-	-	244.12

Table 2: Existing fisheries management policies of Itna

Name of management policy	Location	Area (acre)	Implementing authority
Revenue based Jolmohal leasing system	54 Jolmohals of >20 acres	6549.61	District Jolmohal Tender Committee, Kishoregonj
Revenue based Jolmohal leasing system	28 Jolmohals of ≤ 20 acres	277.02	Upazilla Jolmohal Tender Committee, Itna
New fisheries management policy	Ujan Shimul Gour Nodir Took Jalmohal	481.36	District Jolmohal Management Coordination Committee, Kishoregonj, Jaty Motshayjibi Samity
Fisheries resources development on jolmohal under NFMP	Ujan Shimul Gour Nodir Took Jalmohal	481.36	District Jolmohal Management committee, Jaty Motshayjibi Samity
Fish sanctuary	Badlar Duar of Ujan Shimul Gour Nodir Took Jalmohal	10	Upazilla and Local Fish Sanctuary Management Committee

Table 3: Union wise fishermen cooperative societies of Itna

Name of union	No. of association	No. of members	Remarks/ Registration period
Dhanpur	05	294	4 in `70sec
Mriga	03	147	2 in `70sec
Joysiddhi	02	190	2 in `70sec
Elongjuri	03	130	2 in `70sec
Baribari	02	173	2 in `70sec
Itna	04	175	3 in `70sec
Raituti	04	241	2 in `70sec
Badla	03	267	
Gazipur	04	190	2 in `70sec
Total	30	1807	

Badla union occupied 3 societies, each of Joysiddhi and Baribari union possessed 2 societies. Dhanpur union possessed 5 societies with the highest number of members and the lowest number of member was occupied by Elongjuri union (Table 3).

Mainly 9 factors were responsible for fisheries degradation in Itna. Only siltation was occurring mainly due to environmental cause where over-fishing and dewatering were caused by fishermen. Agricultural farmers were responsible for the use of agro-chemicals, surface water abstraction and conversion of water body into agricultural lands. Local Government Engineering Department (LGED) and Bangladesh Water Development Board (BWDB) had no consultation with fisheries related organization during construction of submersible roads or flood control embankments. Deforestation of floodplain forest was caused both by people and fishermen. Very limited area was seen oily layer caused by engine boats (Table 4).

DISCUSSION

Itna is completely a haor based Upazila. Of the total area of 288743 acres of Itna Upazila, 54% having the area of 156237 acres were occupied by haors, of which 2% were occupied by beels and the rest by floodplains. According to Nishat^[1] haors are the combination of beels and floodplains which in monsoon go under water and in dry season the beels become isolated from the

floodplains. The haors of Itna were filled with water during pre-monsoon to early monsoon from April to mid-September and became empty from early to the end of the dry season from mid-September to March. The haor basin of North-East region includes 47 major haors^[3]. There found a total of 16 haors in Itna. Here all the smaller and larger haors were recorded.

Itna was rich in Jalmahals. According to Ali^[4], for the purpose of revenue earning, rivers are hypothetically segmented. Each segment is termed as jalmohal. The jalmohal lease system is oriented towards generating revenue for Government and earns a substantial income for leaseholders^[5]. About 93% area of jalmohal of Itna were managed by revenue based leasing system and the rest 7% area were under NFMP. The jalmohal of above 20 acres were leased out by district jalmohal tender committee constituted by the Deputy Commissioner, Kishoreganj as the Chairmen and Revenue Deputy Collector as the Member Secretary. Member of the committee included Additional Deputy Commissioner (Rev.), District Fisheries Officer and District Cooperative Officer. Government gives priority to fishermen's co-operatives, for leasing out the jalmohals. So first time tenders become restricted among the above societies. If the highest offer is not at least 25% higher than the preceding term's lease value, the offer is not accepted, In such cases again tender is invited and this time any individual or any organization become entitled to make offer for lease settlement. If an offer for rent incorporating an increase of at least 25% over the rent of the preceding year is not received even after repeated invitation of tenders for three times in succession, the tender committee shall invite tender for the fourth time after reviewing properly the location, area and other related matters of the jalmohal. In case of inviting tender for the fourth time, the restriction that the bid value of the tender shall have to be 25% higher than the preceding year's rent shall not remain in force^[6]. The 50% of the total revenue earning from the above jalmohals is centrally distributed among Upazila parishad. Jalmohals of 3 to 20 acres have

Table 4: Aquatic environment issues

Factors	Affected area	Impact on fisheries	Causative agent
Over fishing	Every water bodies	Reduce brood stocks	Fisherman
Siltation	Rivers, Khals, Beels	Reduction of aquatic habitat, spawning ground	Upstream rivers
Deforestation	Floodplains, River banks	Reduce fish refuge area and breeding place	Local people, fishermen
Submersible road	Itna to Mriga, Kursi to Hecchuakandi	Obstacle to fish migration	LGED
Flood control embankment	Chainnar haor, Koilmar haor	Obstacle to fish migration	BWDB
De-watering	Seasonal beels, Khals	Destroy brood stock	Fishermen
Pesticides and fertilizers	1,26,345 ha Boro crop land.	Damage reproduction	Agricultural farmers
Surface water abstraction	Rivers, Canals, Beels	Reduce hectare months	Agricultural farmers
Conversion of water body into agral. land	Beel periphery, Silted river part	Reduce fish habitat	Agricultural farmers
Social and political unwanted influences	Jalmohals	Obstacle to proper management	Public representative, political person
Oil pollution	Dhanu river near Itna and Elongjuri Bazar	Oily layer on water surface	Motor boats, Cargo boats

been handed over to the Department of Youth Development. These jalmohals were leased out by Upazila jalmohal tender committee, constituted with the Upazila Nirbahi Officer of Itna as the Chairman and Youth Development Officer as the member-secretary. The members of the committee included Assistant Commissioner (land), Upazila Fisheries Officer and Upazila Cooperative Officer of Itna. These jalmohals were also leased out in the above way. Here Jubo co-operative societies were given preference.

The leasing system promotes over exploitation which results in gradually declining of production. Many lease holders of Itna reported that they have lost money in recent years. So many investors showing a declining interest in bidding for jalmohal leases. In 1987, it was decided that all water bodies with area of 3 acres should be open to public access and hence not to be leased out^[7]. The declaration was been practiced in Itna.

BCAS^[8] studies on some selected NFMP fisheries, indicate that NFMP is a break through in ensuring equity and benefits to genuine fishermen. Economic returns to capital and labour, catch value, net and pure profit and daily wage rates were all significantly higher for Department of Fisheries (DoF)/NFMP fisheries compared to Ministry of Land (MoL) leased fisheries. NFMP has been well appreciated by fishermen because exploitation by middlemen is largely eliminated. The NFMP in Ujan Shimul was suffering from i) inclusion of non-fishermen in the fishermen list, ii) selection of non-fishermen as the fishermen representative, iii) lack of strong homogenous group, iv) illegal interference of public representative and political leaders and v) Subleasing problem. A great portion of Ujan Shimul jalmohal was subleased by a fishermen representative in collaboration with a fishermen group as a result Government declaration of jal jar jala tar was not implemented.

Integrated fisheries development project of DoF established 4 fish sanctuaries in the South-East region, after declaring fish sanctuaries, no additional protection or management practices were taken up by Department of Fisheries^[5]. Illegal fishing was going on in the sanctuaries. After establishing the Ujan Shimul sanctuary in 2001, no additional management practices were taken up by DoF, moreover poching of bamboo poles was a great threat to sanctuary. Most of the fishermen and local people were not aware of the sanctuary.

Fishing by dewatering of many seasonal beels and shallow khals during dry season were observed in Itna. Even NFMP managed Borchapra part of Ujan Shimul Gour Nodir Took was dried up in December to catch the whole fish. There observed a large scale reclamation of beels, Khals and river Periphery in Itna for extension of Crop land.

The organo-chlorine pesticides are highly toxic to fish and other aquatic organisms. Most species of fin fish can not survive to insecticides in concentration of greater than 1-10 ppb^[9]. In sub-lethal doses, organo-chlorine pesticides alter the reproductive physiology of fish. Both organo-chlorine and organo-phosphorus pesticides in sub-lethal dose can harm fish by damaging or killing the organisms in the food chain of fish. With the introduction of High Yielding Variety Boro rice, the use of pesticides and fertilizers has increased in Itna. There was 1,26,345 ha of Boro crop land in Itna where Diazinone 60 EC, Melathion, Sumithion, respectively at the rate of 1.7 , 1 and 1 L ha⁻¹ and Urea, TSP, MP, Gypsum and ZnO₄, respectively at the rate of 220 , 100 , 100 , 60 and 10 kg ha⁻¹ have been used. This indiscriminate use of excess toxic chemicals has to be stopped and farmer should be trained and encouraged for IPM to safeguard the fisheries resources of Itna as well as other open water bodies.

It has been suggested that government ensuring for sustainability and optimization of open water fisheries resources, control of over fishing, installation of fish sanctuary, implementation of community based management, fish habitat conservation and rehabilitation, control of water abstraction and pollution, installation of fish passes, fingerling rancing, formation of haor development committee and afforestation can ensure the sustainable haor fisheries development.

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