

Study on Fishing Crafts in Chalan Beel Area, Bangladesh

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ABSTRACT: The present study on fishing crafts in the Chalanbeel was conducted during the period July-2011 to June-2014. Crafts are very important for fishing. In chalanbeel area six types of fishing crafts are found. These types are based on shape, size, construction pattern, carrying capacity and also gear used. Benefit-cost ratio of studied fishing crafts was also calculated.

Keywords: Crafts, Fishing, Chalanbeel gear ichthyofaunal diversity, cost-income management.

I. INTRODUCTION

Chalanbeel in Bangladesh lies between 24.23° North latitude and 89.05 to 89.180 East longitude. The beel in at distance of about 50 km, towards south east from Rajshahi city and is connected by RajshahiBogra national highway.

Like chalanbeel others fresh water resources such as pond, lakes, tunnels, ditches and ox-bow lakes-different types of locally hand made crafts are used for fishing. The shape, size and construction pattern are different in different places of Bangladesh. But their common character is they are very thin and can easily float above the water surface. The fishing crafts of Bangladesh are not made scientific way. The man who made crafts make it about his own thinking. For this why the classification of crafts are impossible. The crafts are not used throughout the whole year. It only used in the rainy season for fishing.

The fishing crafts are also used for carrying goods. Qureshi (1952) described some traditional crafts for fishing in general way. In Bangladesh, fishes of inland water are caught by using traditional gears and crafts. The fresh water fishing gears and crafts of traditional types are using from long time without any modification (Parween, 1982).

II. METHODOLOGY

Study Area and Duration: The present study has been carried out study in Chalan Beel- the largest wetland of Bangladesh situated in the northwest region (Figure 1). This research was conducted between July 2011 and June 2014.



Figure 1: Map of the Chalan Beel, the study area

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Sampling framework: Extensive field surveys were made for the collection of primary data. Information regarding the craft structure, gear use, fishing technique, carrying capacity were collected through personal interview and detailed discussion with local fishermen as well as direct observation. Interviews were carried out using a prepared questionnaire which was pre-tested in field situation and updated before final use. Amount of catch was measured in kilogram (kg) and weight was determined using a pan balance. Benefit-cost ratio (BCR) of net was calculated using the following formula: $BCR=B/K$ (FAO 1991); where B is the net benefit and K is the sum of cost. Standard market price of fishes was considered during this calculation.

Data analysis: Collected data were accumulated, grouped and interpreted according to the objective. Data were subjected to simple descriptive analysis using computer software Microsoft Excel 2007.

III. RESULTS AND DISCUSSION

(Ahmed 1954) stated that the classification of crafts is impossible because some are employed for more than one types of net used. (Ahmed 1977) interpreted about the inland fishing crafts which are absolutely man operated. (Hossain 1977) describe that the utilization of the traditional crafts is quite limited because they can not be used throughout the whole year. (Dutta 1983) found a number of different kinds of boats used to carry fishermen, nets and their catch. These include the country boats called Kari-dingi, Konai-dingi, Jaila-dingi etc. Craft made of tree trunks (danga) and rafts made from various fibrous plants including parts of banana trees. According to (Dutta 1980) 13 types of crafts are found in different fishery resource of Bangladesh.

In the Chalanbeel, fishing is done by different type of nets and traps, some crafts are also essential to assure a good and effective fishing. For fishing usually used some smaller country boats and others craft, which are suitable to move in the Chalanbeel. In Chalanbeel area there are 6 types of crafts are generally used. All this crafts with the relevant things have local and common Bengali names and show the size variations. Each of the crafts have special characters in respect of use, shape, construction pattern, size, carrying capacity and also gear used.

The crafts that are used in the study area are as follows:

1. Jailanauka
2. Vedinauka
3. Bhotnauka
4. Koshanauka
5. Donga
6. Vela

When inundation takes place across the chalanbeel and the people largely marooned by water, the local people make different types of rafts with chief rate being disabled to buy bhotnauka. This raft may be of banana tree or trunk of tree. But raft of banana tree is commonly used for its availability. This raft is called vela.

1. Jailanauka



Plate: Jailanauka

This is larger size. It has fronted, moderately broad, half-ova in shape with a convex round and smooth outer bottom. The margin of the boat is raised from the deck. Woods used for this boat are 'Koroi', 'Shal', 'Jigni' etc. The iron materials are also needed to make this boat. Baitha and Nogi are used to operate this boat. The length, breadth and highest are 25-30,' 3-5' and 2-3' with average 27.96 ± 1.98 , 3.92 ± 0.87 and 2.48 ± 0.43 in feet respectively.

5-8 persons are needed to operate this boat. This boat is used for gears like 'MoiJal', 'BeshalJal', and Traps. Carrying capacity of this boat is about 22-50 mod.

2. Vedinauka:



Vedinauka

It is larger than others. It is big in width. The bottom of 'Vedinauka' is not flat. It has also high fronted moderately broad, half-oval in shape with a convex round and smooth outer bottom. The boat is constructed by the wood of 'Koroi', 'Shal', 'Babla', mainly in the study area. The iron materials needed to make this boat. Baitha and Nogi are needed to operate this boat.

The length, breadth and highest show 30-40', 4-6' and 2-5-4' with average 35.92 ± 3.75 , 506 ± 0.85 and 3.22 ± 0.61 in feet respectively.

6-12 persons are needed to operate this boat. This boat is used for gears like 'Berjal, BadaiJal and TanaJal etc. Vedinauka carry 25-90 Mons.

3. Bhotnauka



Bhotnauka

The boat is like as 'koshanauka' and it is contained by the wood like 'Koroi', 'Babla', Sisso' etc. 'Baitha' and 'Nogi' are used to operate this boat.

The length, breadth and highest show 15-18', 3-4' and 1.5-2' with the average as 16.38 ± 1.38 , 3.48 ± 0.46 and 1.78 ± 0.21 in feet respectively.

1 to 2 persons are needed to operate this boat. The boat is used for gears like Gill nets, Castnet, BhesalJal and traps. Fuel is used in boat nauka. This fuel create a layer above the water surface. It is very harmful for fishes and fisheries items. Because they can not get sufficient O_2 for this oily layer.

Carrying capacity of 'Bhotnauka' is as 4-9 Mons.

4. Koshanauka:



Koshanauka

The 'koshanauka' is contained flat bottom and blunt anterior and posterior apex 'koroï' and 'poa' woods, iron materials are needed to make 'koshanauka'. Baitha, Nogi, Senti are also present to operate the nauka. The length, breadth and highest show 22-34', 5-7' and 3-4' respectively with average 29.13 ± 5.27 , 6 ± 0.82 and 3.58 ± 0.43 in feet respectively. 2 to 5 persons operate the nauka. The nauka is used for gears like gill net, cast net and traps. Koshanauka carry 20-30 Mons.

5. Donga:



Plate: Donga

Donga is straight with a round body and horizontal cavity. The anterior portion round head and the posterior portion is blunt. Donga made by tree like 'Palm' (Talgach). The length, breadth and highest show 9-13', 2-4' and 1-2' with the average as 10.84 ± 2.01 , 3.1 ± 0.89 and 1.48 ± 0.39 in feet respectively. Only one persons needed to operate this craft. Gears like gill nets 'Putijal', 'Koi jal', Traps are used. The carrying capacity of Donga is an 2-5 Mons.

6. Vella:



Plate: Vella

Vella is rectangular in shape made by the trunk of 'Banana tree' 4-5 trunks are needed to construct this 'vella'. Trunks are fastened by strong ropes to the bamboo sticks. Actually it has no identifying anterior and posterior portion. The length, breadth and height of 'Vella' are 10-15', 2-3' and 1-1.5' with the average as 12.67 ± 2.52 , 2.57 ± 0.51 and 1.23 ± 0.25 in feet respectively. One person operates the vella by using Nogi. Gears as 'Kheplajal', 'Dhormajal', etc. are used. The carrying capacity of 'Vella' shows 2-4 mds.

Table 1: Characteristics and some related information of different crafts in chalanbeel.

Name of crafts	Length (ft)	Breadth (ft)	Height (ft)	No of personal for operation	Used gear	Carrying cada
Jailanauka	27.96 ± 1.98	3.92 ± 0.87	2.48 ± 0.43	5 to 8	Mojjal (Dagnet) Khorajal (Lift net) traps	22-50
Vedinauka	35.92 ± 3.75	5.6 ± 0.85	3.22 ± 0.61	6 to 12	Berjal, Badhajjal (Seine net), Tanajal (Drag net)	25-90
Bhotnauka	16.38 ± 1.38	3.48 ± 0.46	1.78 ± 0.21	1 to 2	Putijal, Koi jal, Chapillajal (Gill net), Kheplajal (Castnet) Trap Khorajal (Lift net)	4-9
Koshanauka	29.13 ± 5.27	6 ± 0.82	3.58 ± 0.43	2 to 5	Putijal, Koi jal, Chapillajal (Gill net), Kheplajal (Castnet) and Trap	20-30
Donga	10.84 ± 2.01	3.1 ± 0.89	1.48 ± 0.39	1	Putija, Koi jal (Gill net) and Traps	2-5
Vela	12.67 ± 2.52	2.57 ± 0.51	1.23 ± 0.25	1	Kheplajal (Cast net) Dhormajal (Lift net)	2.4

Economics of Crafts: The monthly expenditure and income status regarding studied net are shown in Table 2. The benefit-cost ratio (BCR) was found higher (3.66) for the craft vella than that of others. Major expenditure issues were net making and management, laborer wages, bribe to the local influential people and transportation cost. On the other hand, income came only from selling of harvested fishes.

Table-2: Monthly economics of crafts in the study area.

Type of crafts	Cost	Income	BCR
Jailanauka	33,100.00	36,000.00	0.08
Vela nauka	38,400.00	40,000.00	0.04
Bhotnauka	16,000.00	18,400.00	0.15
Koshanauka	39,000.00	42,500.00	0.09
Donga nauka	4,500.00	10,000.00	1.22
Vela	1,500.00	7,000.00	3.66

No previous was found to be conducted where BCR of any fishing craft was calculated and thus it was not possible to compare the present finding with previous one. In Bangladesh, cost and benefit issues are calculated mostly for production oriented researchers, for example carp production status (Mohsin *et al.* 2012).

IV. CONCLUSION

Except boat nauka all of the naukas are eco-friendly. Boat nauka are harmful because fuel is used in this type of nauka. This fuel creates an oily layer above the water surface and damages the aquatic lives.

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REFERENCES

- [1]. Ahmed N 1954. Fishing Crafts of East Pakistan. Directorate of fisheries. East Pakistan Govt. Press: Dacca.
- [2]. Ahmed 1977. An analysis of the Fisheries of Pabna with a few Aspects of the Fisheries of Bangladesh. A project submitted to the Faculty of Commerce, Dacca University (Unpublished). pp. 1-109.
- [3]. Dutta SK, 1980. Some Aspects of Prawn and Prawn fisheries of Rajshahi (A Available species and sexual maturity, processing and marketing). M.Sc. Thesis (Unpublished), University of Rajshahi. pp. 1-179.
- [4]. Dutta, S.K. 1983. Studies on some aspects of prawn fisheries of Rajshahi and Pabna districts. [Crafts and gears, preservation and transportation and socio-economic condition of prawn fisheries associates], M.Phil (Unpublished), Dept. of Zoology, RU. pp. 203.
- [5]. Parween, S. 1982. Studies on same aspects of fisheries of fresh water prawn *Macrobrachium dayanum* of Rajshahi district. M.Phil. Thesis Dept. of Zoology, Rajshahi University.

- [6]. Qureshi, M.R. 1952. Fishing Boats of Pakistan. I.P.F. C/C52 TECH. 13.
[7]. Hussain, M. 1977. Design of two standard steel body fishing crafts for all seasons operation in the Bay of Bengal. National Marine Fisheries Seminar. Edited by A.L. Bhuiyan, and A.K. Chowdhury.

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- [8]. Nahid Sultana, Ph.D Research Fellow, Collection of primary data, statistical analysis and drafts manuscript writing.
[9]. M. Nazrul Islam: Professor and Research supervisor. Collection of secondary data and literature, statistical analysis and finalization of the manuscript.