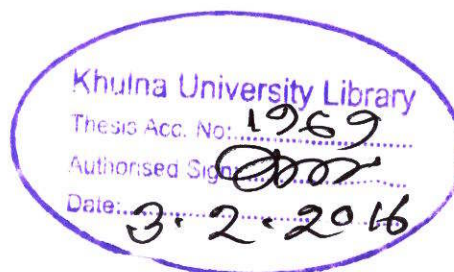


Impact of Management Technique on Baor Fisheries: A case of Benipur Baor, Chuadanga.



**A Thesis
By
A.Q.M. Shafiq-uz-zaman
Roll No.: MS 010609
Session: 2001-2002**

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Impact of Management Technique on Baor Fisheries: A case of Benipur Baor, Chuadanga.

Approved as to style and content

By



Professor Dr.Khandaker Anisul Huq

Head

Fisheries and Marine Resource Technology Discipline

Khulna University

Khulna, Bangladesh



Dedicated to

My Beloved Parents

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The Author

ABSTRACT

Baor fisheries are an important component in fisheries development of Bangladesh. Different management strategies had been implied in Baor management for last three decades. Banipur baor of Chuadanga was taken under consideration for the present study to compare past and present management system in terms of culture technique, livelihood and institutional aspects with the goal to identify a suitable management strategy.

Discarding grass carp (10%) in species composition, increasing stocking density from 3000 pcs/ha to 5000 pcs/ha, continuous instead of single stocking – harvesting and applying urea (50 kg/ha) increases the average production from 731 kg/ha to 1302 kg/ha. Cost- benefit ratio also increases from 1:2.74 to 1: 3.26.

There were no major differences observed in supporting occupation of fisheries but income from major occupation changed their livelihood. Presently hundred percent fishers can sign, 30% can read and write and most are trained about family planning. Considering the wealth status of 94 fishermen, extreme poor become 22 to 5 person, poor 43 to 38 person, lower middle class 19 to 24 person and middle class 5 to 10 person.

DOF based co-management showed better institutional performance than DOF-NGO based co-management. However, lease extension system, VAT imposed by land ministry, influence of outsiders and political pressure need to focus further for improving the present management systems

CONTENTS

Title	Page No.
Acknowledgement	I
Abstract	II
Contents	III
List of Tables	V
List of Figures	VI
 Chapter 1. Introduction	 1
Chapter 2. Materials and Methods	5
2.1. Study area	5
2.2. Design of the experiment	5
2.2.1. Culture technique	5
2.2.2. Estimation of production cost and economic returns	6
2.2.3. Institutional aspects	7
2.2.4. Change of livelihood	7
Chapter 3. Results and Discussion	8
3.1 Culture technique of Benipur Baor	8
3.1.1 Comparative production between past and present management phase of the study	 8
3.1.2. Effect of species composition on production	12
3.1.3 Effect of stocking strategy on production	14
3.1.3.1 Stocking density	14
3.1.4 Stocking period	15
3.1.5 Fry source	15
3.1.6 Effect of chemical fertilizer on production	16
3.1.7 Harvesting strategy in two management phase	17
3.1.8 Marketing channel of the baor fisheries	18
3.1.9 Cost benefit analysis	18
3.2. Livelihood of benipur fishermen community	20
3.2.1. Major occupation	20
3.2.2. Supporting occupation	20

3.2.3. Family size	21
3.2.4. Physical	21
3.3 Institutional analysis	23
3.3.1. Past management system	23
3.3.1.1. Lake management group (LMG) in Past management system	24
3.3.1.2. Organization and institutions involve during project period	24
3.3.2. Present management phase	28
3.3.3.1. SWOT analysis	31
Chapter 4. Conclusion	34
Chapter 5. References	36
Chapter 6. Annexers	39

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page No.</u>
Table 1.	Steps taken to study the production biology of the experiment	6
Table 2.	Wealth status ranking and marking system chart	7
Table 3.	Monthly Production (kg) of three most effective years of past management phase in the Baor.	9
Table 4.	Monthly Production (kg) of three most effective years of present management phase in the Baor.	9
Table 5.	List of non-stocked fish in Benipur Baor in present management phases.	13
Table 6.	Year wise stocking (pcs/ha) and production rate (kg/ha) of the Baor for past and present management phase.	14
Table 7.	Comparative cost benefits analysis of the two management phases.	19

LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>	<u>Page No.</u>
Fig. 1.	Year wise Production in baor (Kg) of the study area at different management phases	10
Fig. 2.	Monthly production (kg) of most three effective years for past management phase.	10
Fig. 3	Monthly production (kg) of most three effective years for present management phase.	11
Fig.4.	Average monthly production rate (kg/ha) in the Baor comparing past management and present management phases.	11
Fig.5.	Relation between stocking density (pcs/ha) and production (kg/ha) of the both management phase.	15
Fig. 6.	Off fishing income activities of fishermen.	21
Fig.7.	Wealth status ranking of fishermen at different management phase.	22
Fig. 8.	Organizations and their involvement in past management system	28
Fig.9.	Organization and institutions involved in present management system	30

Chapter One

Introduction

INTRODUCTION

In Bangladesh Fisheries resources are playing a vital role in the socio - economic development of the country. These sector contributes about 63% of national animal protein intake, nearly 4.92 % to the GDP and 5.71 % of foreign export earnings of the country (Ahmed, 2005). There are about 12 million people are directly and indirectly depend on fisheries sector (Anon, 2003). The sector provides about 7% of the population employment to (Haque, 1996). This figure has been increasing approximately by 3.5 % annually (Ahmed, 2005).

Bangladesh are unique for inland fisheries The inland fisheries resources comprise of rivers, tributaries, estuaries, beels, boars, man made ponds etc. These comprise an area of about 5433900 hectors (Annon , 2004). At present there are about 3.05 lakh ha ponds and ditches (Anon, 2003). 6 thousands ha baor, 5.7 lakh ha canel, boropith, hill crack and others seasonal reservoir which are suitable for fish culture (Annon, 2004). The inland fishery of Bangladesh is the most productive in the world. In terms of overall production, Bangladesh ranks third in inland fish production among the countries of the world (Mazid, 1996). The inland fishery contributes about 78.34% of the total fish catch of the country whereas 93% of inland fishery comes from capture fisheries and 7% comes from culture fisheries (Ahmed, 2005).

Though Bangladesh has vast water resources, but the people of Bangladesh are suffering from malnutrition as the demand of fish is increasing with the increasing of population. But fish production is not increasing according to our need. Nutritionist says that, adult man needs 40 gm fish as the source of animal protein to his / her daily food item (Sarder *et al.*, 1994). But recent years it is not full fill half of our demand (Sarder *et al.*, 1994) while in 1990-91 the per capita consumption was 33.96 gm (Ahmed, 2003). The present per capita consumption is only about 21 gm (Ahmed, 2003,). The principal causes for this low per capita consumption are the rapid growth of population. But our fish production is not increasing as our need. To fulfill the consumption level, the country requires about 2.43 million mt. of fisheries product for the present population (Annon, 2004). To increase fish production Government has to increase fish production in inland culture fisheries.

The total area of oxbow lakes in the country is about 5500 ha, that may meet up the local fish demand of the south- west region. There was no separate statistics of baor (oxbow lakes) fish production at present, however a baseline survey was conducted by Apu *et al.*, (1999a) reported fish production to be 150 kg/ha/yr.

A baor is an old cut-off river bend, usually in the shape of a horse-shoe or ox-bow. The baors receive surface water run-off from monsoon flooding. A high water level water flows outward into a network of old river channels linking the baor to the surrounding flood plain. There are approximately 600 baors situated at the south west region especially greater Jessore, Kushtia and Faridpur district. The approximate area of which are about 5500 hectare.

These baors were remained as open water without any culture practice up to the year 1900. During rainy season fish of various species entered from surrounding areas to the ox-bow lakes and remained there during the winter.

After 1900 A.D. it was taken over by the Government and on behalf of Government, the Ministry of Land used to lease out these lakes among the individuals, societies and to some organizations. Then Fisheries Department of Pakistan Government took the 'Extended collateral right project' for the period 1961-1967. It was taken experimental basis. Some District Fisheries Officer and Thana Fisheries Officer were engaged in fish culture. They stocked limited fingerlings for culture purpose. Fishermen of surrounding baor were responsible for fishing and watching. But Fisheries officer hold no sufficient man power so the project were failed.

In the year 1968 under the Development and Management Scheme (DMS) the baors of Jessore, Kushtia and Faridpur were taken for fish culture. The fishermen of the surrounding baor took 40% share for harvesting. Though fish culture was depend under this project but for insufficient Government funding, lack of proper communication and making system this project could not improve significant socio-economic condition of the fishermen.

Directorate of Fisheries took 6 baors from the Ministry of Land (MOL). The baors are Boluhar, Joydia, Fatepur, Katgora, Bergobindapur and Morjad. They are under the Districts

of Jenaidah and Jessore. With these baors the DOF constituted a development project named as Oxbow Lake Project (OPL-I) with the financial help from the World Bank. During the first phase of the project (1979-86) some development works like de-weeding, construction of fish landing centers and the connecting roads were developed. Now this project is being continued with revenue budget.

Based on the previous experience (OLP-I), 2nd phase (OLP-II) of the project was formulated after the loan agreement between International Fund for Agriculture Development (IFAD) and Government of Bangladesh (GOB). Another 23 baors were transferred to the Ministry of Fisheries and Livestock (MOFL) for ten years under the project OLP-II (1986 to June 1996). OLP-II however has placed all operating costs and management of 23 lakes with the fishers. They share equitably in 100% of the inputs and the catch. OLP-II has demonstrated for the first time in Bangladesh that the poor fishers are capable of 100% user group management of the resources and development of a culture based fishery with resultant enhancement in production. This co-management strategy that encourages full participation of the fishers has merits to be replicated elsewhere in Bangladesh.

There are several development initiatives for improving the baor fisheries management that addressed in different project report. But after reports indicate the reality Such as production performance livelihood and institutional systems. For this reason an initiatives has been taken to address specific performance of a baor management comparing with the previous management systems.

Specific performance addresses the specific objectives.

- a) To address the better culture technique for the baor.
- b) To asses livelihood of the baor stakeholders.
- c) To assess the institutional aspect of the baor.

It is expected that, the outcome of the study will address better technical aspects of culture practice for improving production in Baor fisheries. Livelihood study may help to address the socio-economic condition of the fishermen. The study will provides a direction to improve the livelihood of baor stallholders in terms of primary health care, family planning,

primary literacy knowledge, children schooling, using sanitary latrine, drinking tube-well water. In terms of institutional analysis, it is expected that the present study will help the organizations to overcome the existing conflicts among them.



Chapter two

Materials and Methods

MATERIALS AND METHODS

2.1. Study area and duration

Benipur baor was in Jibannagar Upazilla under the district of Chuadanga, South-west part of Bangladesh. It was connected with an Ichamoti River, which flows between Bangladesh and India. The area of the baor is 46.70 hectare. Duration of the study was from February, 2003 to February, 2004.

2.2. Design of the experiments

The study of the Benipur Baor was followed with 3 sections such as culture technique, institutional aspects and livelihood of the fishermen surrounding the Baor. The study considered two set of data. One set of data was collected from the 1st project phase (1989-1997) report considered as past management phase and second set of data was collected during the study period treated as present management phase under DOF management (2000 to continuing). The study mainly compares the present management phase with previous management phase.

2.2.1 Culture Technique

The study was considered the following previous and present management techniques indifferent aspects stated on the Table-1.

Table 1: Steps taken to study the production biology of the experiment.

Subject		Present Criteria	Past Criteria
Species composition	Silver carp (%)	40	30
	Catla / Bighead (%)	10	10
	Mrigel (%)	25	15
	Common carp (%)	15	15
	Rohu (%)	10	20
	Grass carp (%)	--	10
Fingerling	Stocking density (fingerling/ ha)	5000	3000
	Size (cm)	5-6"	5-6"
	Fingerling weight (g)	40-50 g	40-50 g
	Fry source	Hatchery	Hatchery
Major stocking (times/ year).		2	1
Fertilizer	Inorganic	Urea 50 kg/ha	Not used
	Organic	Not used.	Not used
Sampling		Continuous	Once/year
Harvesting		Continuous	Once/year

2.2.2. Estimation of production cost and economic return

Production cost (per hectare) was estimated considering the fry cost, fertilizer cost, value of crop and finally calculation has been made to estimate the economic return by deducting the production costs per hectare from the value of the fish production per hectare. Cost benefit ratio was calculated by the following formula.

Total cost (Tk.) = Fertilizer (Tk.) + Fry (Tk.) + Miscellaneous

Miscellaneous (Tk.) = Labor + Maintenance cost

Total yield (kg/ha) = Gross production

Total income (Tk.) = Commodity selling price per unit X total yield.

Total net income (Tk.) = Total income (Tk.) - Total cost (Tk.)

$$\text{Rate of return (\%)} = \frac{\text{Total income}}{\text{Total cost}} \times 100$$

Chapter Three

Results and Discussions

Culture Technique of the Benipur Baor

3.1. Comparative production between past and present management phase of the study

The area of Benipur Baor is 46.70 hector. It is connected with Ichamoti River, which flows between Bangladesh and India. A canal connects the Baor. During rainy season water exchange starts. In the month of September to October when the river full to the brim then the river water comes to the Baor area. Baor and surrounding areas are inundated with river water in every year. The agricultural lands are washed with rainwater and nutrients are deposited in Baor waters.

In the past management phase it was observed that the production was 772, 833 and 589 kg/ha for 1994-95; 1996-97 and 1998-99 economic year respectively (Table 3). But in the present management phase it was found about 1116, 1457 and 1334 kg/ha for 2002, 2003 and 2004 calendar year (Table 4) respectively. From the Table 3 it was found that the production of present management phase was nearly double comparing of past management phase. In present management phase some point of culture technique such as species composition, using fertilizer and harvesting strategy was changed to increase production. It was found that in the present management phase the highest production was 68051 kg (Table 4) and the highest monthly production was 14343 kg (Table 4) in July (2003-04). The minimum production was found only 27047 kg in 1998-99 (Table 3) and monthly minimum production was 212 kg in February, 2002 (Table 4). In past management phase production 36090, 38907 and 27047 kg for the year of 1994-95, 1996-97 and 1998-99 respectively. And it was about to same (Table-3). Though the culture strategy was same but in 1998-99 the production (27047 kg) was very low (Table 3) comparing the other two years. The main cause of decreases of production was management problem.

Table3: Monthly Production (kg) of three most effective years of past management phase in the Baor.

	Production in past Management phase (1988-89 to 1998-99)		
Month	Wt. of harvested fish (kg) in 1994-95	Wt. of harvested fish (kg) in 1996-97	Wt. of harvested fish (kg) in 1998-99
July	2010	2212	1879
August	1727	1925	1465
Sept	278	316	298
October	1690	1814	1287
Nov	11990	12515	8376
Dec	2227	2895	1321
January	2159	2298	1952
February	812	714	459
March	1532	1639	1398
April	1980	1803	1413
May	1705	1966	1545
June	7980	8810	5654
Total	36090	38907	27047
Production (Kg/ha)	772	833	589

Table 4: Monthly Production rate (kg) of three most effective years of present management phase in the Baor.

	Production in present management phase (2000 to Continuing)		
Month	Wt. of harvested fish (kg) in 2002	Wt. of harvested fish (kg) in 2003	Wt. of harvested fish (kg) in 2004
January	432	644	546
February	212	451	398
March	3698	4665	4787
April	2313	2188	1798
May	8900	11811	10766
June	7654	7625	5992
July	8432	14343	13432
August	7891	13042	12789
Sept	5578	4555	4123
October	3459	4650	4210
Nov	2229	2432	1981
Dec	1322	1645	1462
Total	52120	68051	62284
Production(Kg/ha)	1116	1457	1334

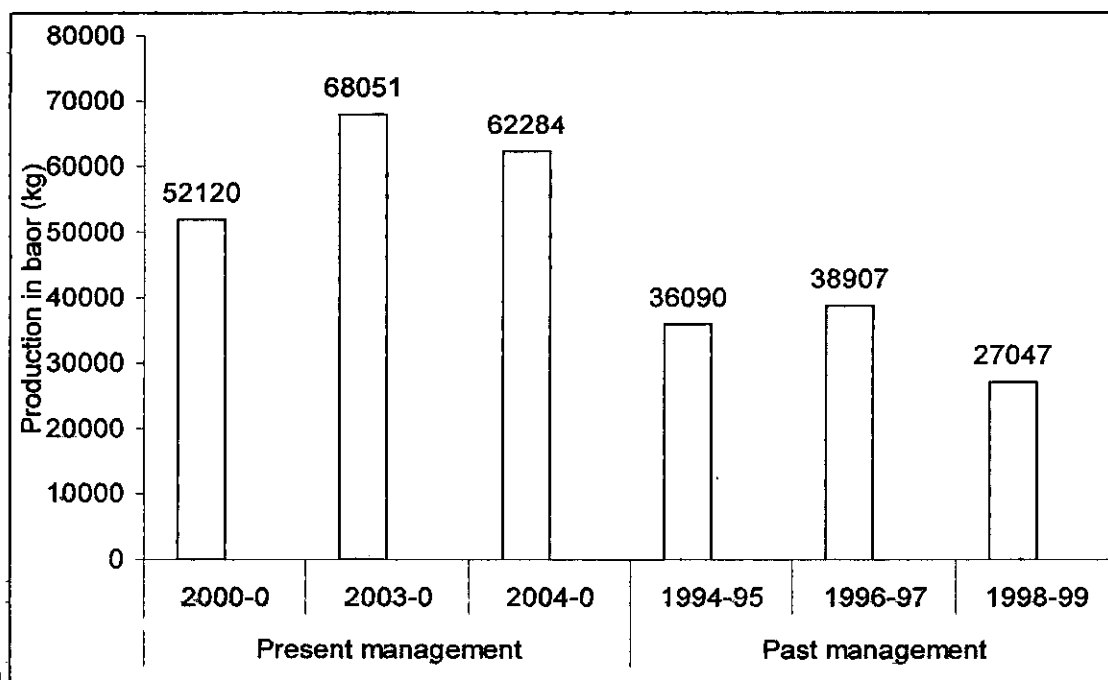


Fig1: Year wise Production in baor (Kg) of the study area at different management phases.

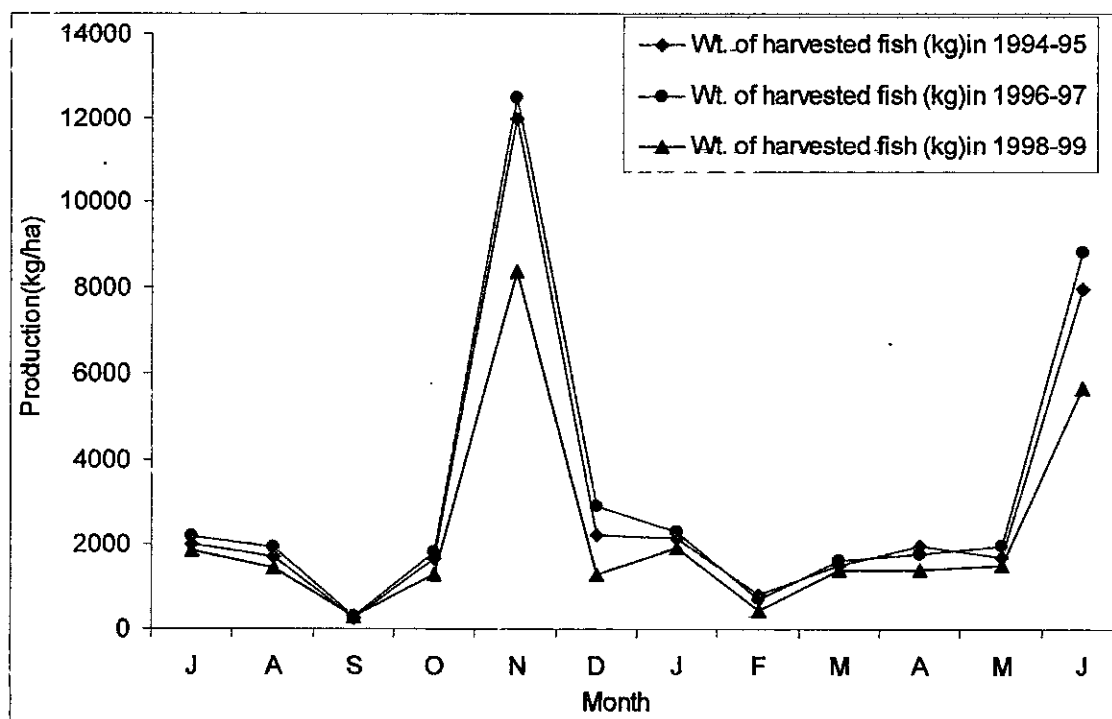


Fig2: Monthly production (kg) of most three effective years for past management phase.

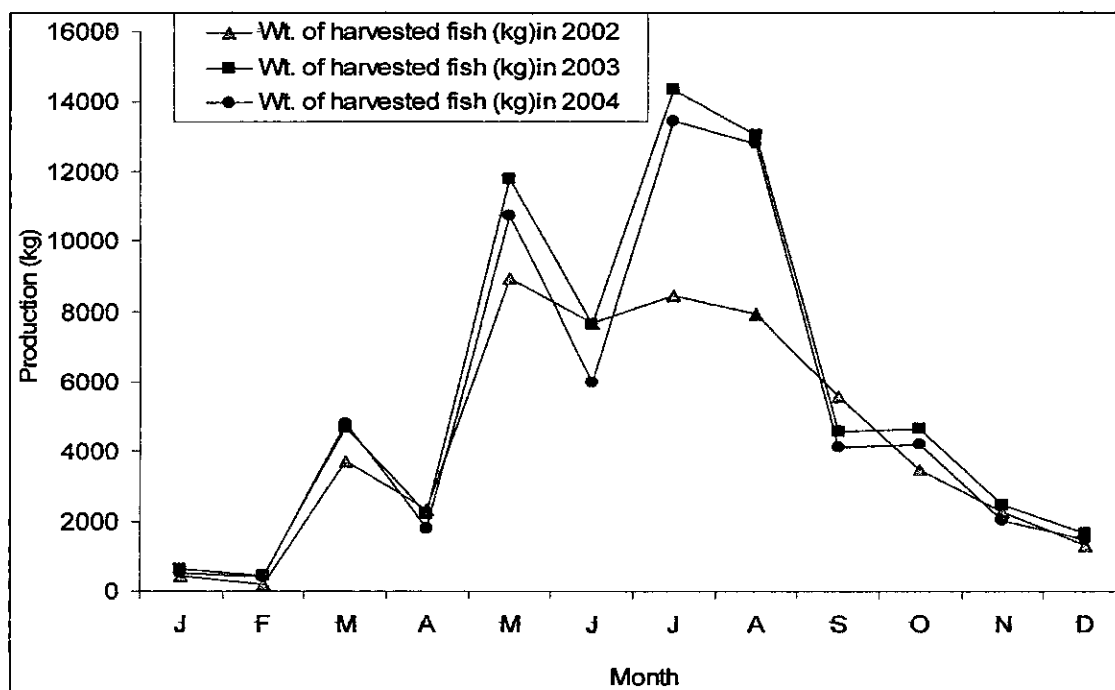


Fig 3: Monthly production (kg) of most three effective years for present management phase.

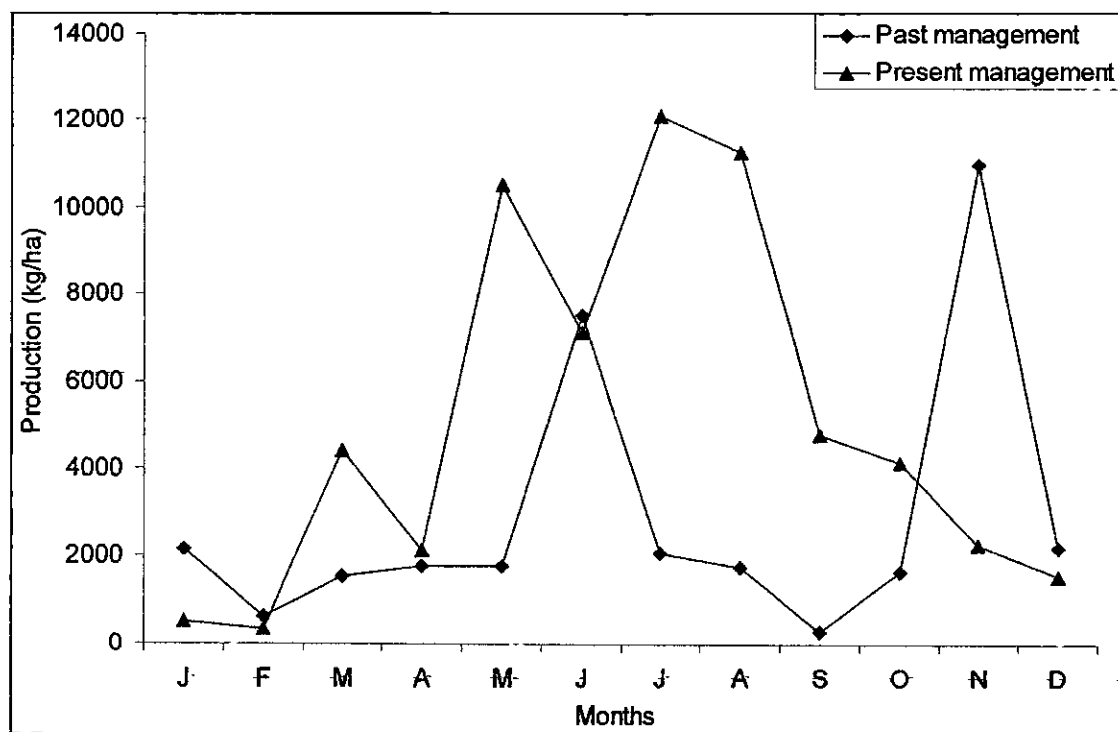


Fig 4: Average monthly production (kg/ha) in the Baor comparing past management and present management phases.

Table 5: List of non-stocked fish in Benipur Baor in present management phases.

Sl No.	Local name	Scientific name
1.	Chapila	<i>Gudusia chapila</i>
2.	Mola	<i>Amblypharyngodon mola</i>
3.	Tengra	<i>Mystus tengra</i>
4.	Aor	<i>Mystus aor</i>
5.	Shol	<i>Channa striatus</i>
6.	Taki	<i>Channa punctata</i>
7.	Foli	<i>Notopterus notopterus</i>
8.	Chanda	<i>Chanda nama</i>
9.	Tit puti	<i>Puntius ticto</i>
10.	Khalisha	<i>Colisha foscatus</i>
11.	Gajar	<i>Channa marulius</i>
12.	Bheda	<i>Nandus nandus</i>
13.	Bata	<i>Labeo bata</i>
14.	Koi	<i>Anabas testudineus</i>
15.	Boal	<i>Wallago attu</i>
16.	Shing	<i>Heteropneustes fossilis</i>
17.	Magur	<i>Clarias batrachus</i>
18.	Baim	<i>Hatacembelus pancalus</i>
19.	Tara baim	<i>Mastacembelus armatus</i>
20.	Ghutum	<i>Lepidcephalus guntea</i>
21.	Bele	<i>Glossobus giurus</i>
22.	Kakila	<i>Xenentodon cancela</i>
23.	Kholisha	<i>Colisa fociatus</i>
24.	Darka	<i>Esomus danricus</i>
25.	Dhela	<i>Rohtee cotio</i>
26.	Small chingri	<i>Palaemon spp.</i>
27.	Golda	<i>Macrobrachium rosenbergii</i>
28.	Gulsa	<i>Mystus cavasius</i>
29.	Chala	<i>Salmostoma bacaila</i>

During rainy season P.L of *macrobrachium roesnergii*, *Labeo bata*, *cirrhhina reba* etc comes from connected Ichamoti River. Every production year about 1000 kg of *M. roesnbergii* are caught. Weed-fish plays a prominent role in Baor production. About 20 % of the total sales come from this. Among the weed fishes the most important species are *Gudusia Chapra*, *Ablypharyngodon mola*, *Mustus cavasius*, *Mystus aor*, *Channa striatus*, *Glossogobius guiris*, *Matacemelus species*, *Notoprus notopterus* etc (Table 5). Haque *et al.* (1997) also highlighted the issue (i.e. 20 % yields from non stocked fish incorporate) and prescribed to in the general management approach.

Changing the species composition from past management phase to present management phase its production was increased remarkably (Table 4). Now in Benipur Baor

most of the production was come from Silver carp, Mrigel and Common carp. Other species are also stocked like Catla, Bighead carp and Rohu.

3.1.3. Effect of stocking strategy on production

3.1.3.1. Stocking density

During the past project period at primary stage the baor was stocked 3500 pcs/ ha according to project's decision. After some years, the stocking rate was increased gradually that "more the stocking rate more the production". It was found that with increasing the stocking density production was increased (Table 6). Hasan *et al.*, (1997) also found the same result. But at a certain level i.e., more than 5000 pcs/ha production was decreased with increasing stocking density. From these experiences a new culture strategy was adopted to get highest out put from the Baor. And at the last the stocking rate was fixed at 5000 pcs/ ha.

Table 6: Year wise stocking (pcs/ha) and production rate (kg/ha) of the Baor for management phase one and two.

Management phase	Year	Stocking density (pcs/ha)	Production rate (kg /ha)
Past Management phase	1994-95	3500	772
	1996-97	4000	833
	1998-99	3000	589
Present Management phase	2002	5500	1116
	2003	5000	1457
	2004	5000	1334

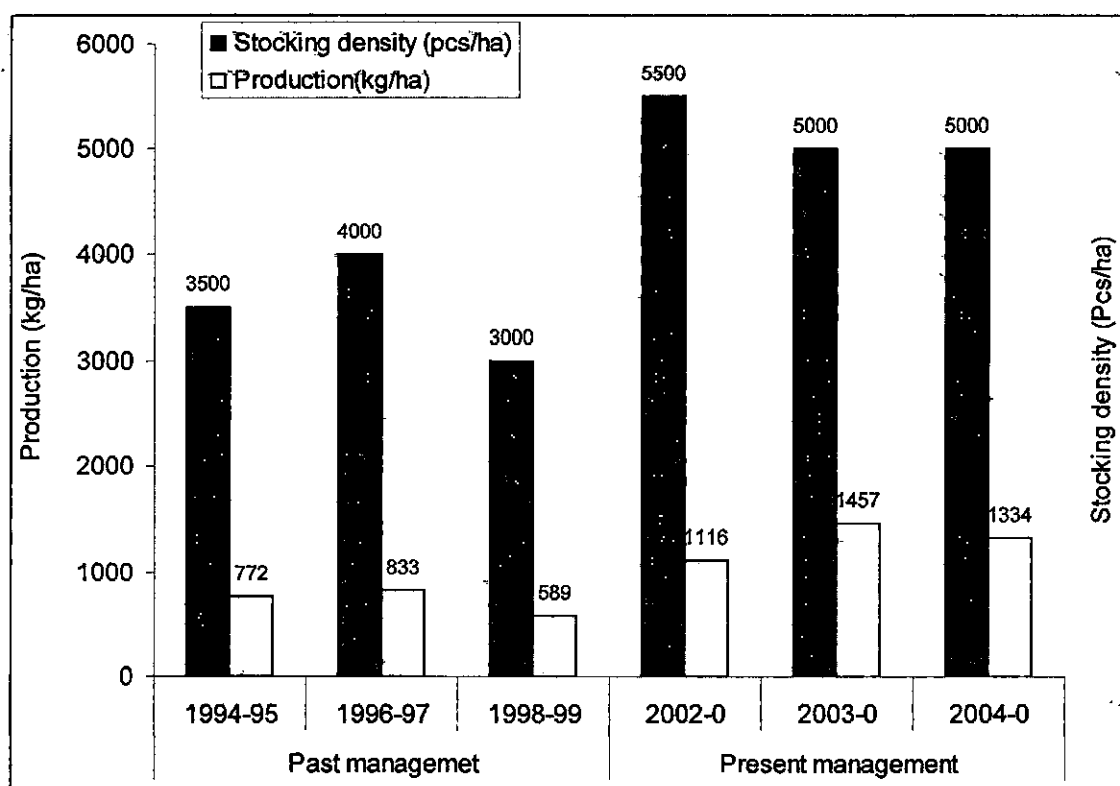


Fig 5: Relation between stocking density (pcs/ha) and production (kg/ha) of the both management phase.

3.1.4. Stocking period

Now fishing and stocking is going through out the year. According to past management phase the Baor was stocked once in a year. It was mainly done after complete harvesting at the month of January to February. But in the present management system the strategy is modified and practice continuous stocking throughout the year where capture and replacement are correlated.

3.1.5. Fry source

The production of *labeo rohita*, decreased remarkably in some previous production years. This species did not grow more than 300 g in that production years. The beneficiaries search this degradation case. They changed supplier several time but did not able to overcome this problem. Then they took fry produced from Jessore fish hatchery and central hatchery Complex, Kortchandpur and got good result. This problem occurred only in case of *Labeo rohita*. It was assumed that brood management such as brood weight, habitat, environment, feeding etc. need to consider purchasing rohu fingerling. Hussain and Mazid

(1997) also emphasized about the known sources for collecting quality and improved fish seeds for improving brood stock management.

3.1.6. Effect of chemical fertilizers on production

At the past management phase no fertilizer was used. But in present management phase organic fertilizer was used. As a result production was increased rapidly. For the first time in the year 2002 the Baor was fertilized with inorganic fertilizer urea at the rate of 50 kg/hect. It brings good result. Especially the production of Silver carp, Mrigel and Common carp increase remarkably. Now urea treatment is going on at the same rate in every year.

After using urea aquatic vegetation *Najas*, *Najas*, *Vallisneria* etc. disappeared completely. For this reason Grass carps are not stocked. Use of urea multiplies zooplankton, phytoplankton and benthic organisms that indirectly influences on the production.

Additionally disappearance of aquatic vegetation does not hamper the bio-diversity of the Baor environment. The Baor is enriched with phosphate (PO_4) compounds. So PO_4 fertilizer is not used for Baor fish production.

Urea loses the roots of aquatic vegetation and rots the leaves of plant thus the plants are detached from soil base and die. The aquatic vegetation draw most of nutrients from the soil and hamper zooplankton and phytoplankton population. Benthic organisms also are hampered for them. Urea is put generally from May to June. After this jute are placed in the form of bundles for rotting. Urea accelerates putrefaction activities of fiber. Thus large amount of nutrients are released in Baor water and Baor productivity increase. Phytoplankton and zooplankton as well as benthic populations increase. The Baor is surrounded by agricultural lands. During rainy season agricultural run off washed out with rainfall. Rain water with nutrients as well as organic and inorganic fertilizers fall in Baor water. That's way during rainy season the productivity at the Baor is highest. The Baor is connected by a canal to the Ichamoti river which flows between Bangladesh and India border. Large amounts of nutrients come from river water during rainy season. Again small fishes and prawn *Macrobrachium rosenbergii* are admitted to enter the Baor water. Every year from September to October the Baor is flushed with connected river water.

3.1.7. Harvesting strategy in two management phase

Harvesting was done only one time in a year at the 1st phase of the Baor management. But now stocking and harvesting are going on through the whole year. Previously (7-8 years ago) fishes were admitted to grow around 1 kg or more that took one-year time. At the time fishing were done twice in a production year. Then the poor fishermen were suffering for money. They would have to wait for fishing period. Baor development works were also stopped for money. But now a day's money is rolling through out the year as harvesting every month. Most of the stocked fish are caught for sale when attain the wt around 350 – 600g. For this reason every fisherman earns money in monthly basis. For this culture strategy the production of the Baor is doubled and the fisherman earns two times money in comparison to their previous earning. Each group harvest once in a week. Remaining six days perform their own activity. Also each group guard once night in a week.

In Benipur Baor only kochal fishing is done for harvesting purposes. Big kochal net which consists of large mesh size used for harvesting the stocked fish where small fish and fingerlings can escape through the net.

Out of 12 members in a group they divided into two and each sub group consists of 6 members in a boat. The two-sub groups from two fishing boats cover a certain area by the kochal net quickly by boating. Then they encircle the area placing the boats side by side and gradually close the kochal net and collect fish in the boats. After desired fishing they come to the landing complex and unload the boats.

The fishermen use smaller mesh size kochal net for nonstocked *macrobrachium rosenbergii*, *gudusia chapra*, and other small fishes. Small mesh kochal fishing has done mainly in rainy season and in winter. Also it is done through out production year. Fishing response is high in the month of June to August. Then both stocked fish and non-stocked fish are harvested in maximum quantity. During project period from 1998-2000 the beneficiaries are admitted to harvest small non-stocked fish individually. Each fisherman then drew full benefit from harvesting. Then they used gill net to harvest small non-stocked indigenous fish. They harvested small non stocked fish which were not recorded in baor production and management committee did not get any money for this purpose. Poor fisherman when placed their gill net with small mesh size then new recruited fry was harvested in these nets. But they do not pay attention to their great loss.

In 2001 Baor committee banded this gill net. They purchased small meshed kochal net for harvesting non stocked small fishes especially *Gudusia chapila* & *macrobrachium rosenbergii*.

3.1.8. Marketing channel of the Baor fisheries

Few years ago harvested fishes were carried to the local landing center (arots) and small quantity was sold at Baor based landing complex. But due to corruption of responsible fishermen and arots owners they did not get actual wt. or price in the past management phase. At that time it harvested fish were sold without write down in record book (*ghat khata*). So the committee did not write down the actual wt and price and corruption was happened. As a why per head income was very negligible at that time. SUFO along with the committee decided to sell fishes at the landing complex. Buyer from distant places comes here to purchase fish by an auction. Thus the marketing system has been developed. The committee now gets actual wt. and price. Buyer purchase fishes by cash where credit is not admitted. After conducting auction the committee writes down the total wt and price of fish species wise in the ghat katha of the group leader under whose supervision fishing is done and carried to the landing complex. This system has been developed from the year 2001. Rahaman *et al.* (1997) also emphasized the record keeping system to transparency of accounts in participatory fishes management

3.1.9. Costs benefit analysis

It was seen that among the two management phases there was a differences in cost benefit ratio (Table 2). In past management phases the highest production was only 833 kg/ha (Table 3) whereas in present management (phase 2) it was 1457 kg/ha (Table 4). Per head net income about double in present management phase comparing with past management phase (Table 7). Cost benefit ratio was increased remarkably in present management phase comparing with past management phase.

Table 7: Comparative cost benefits analysis of the two management phases.

Management phase	Past			Present		
Years	1994-95	1996-96	1998-99	2002	2003	2004
Input cost (Tk.)						
Revenue of land Ministry	34841	38325	42158	61725	67879	68900
V.A.T	---	---	---	9259	10185	10335
For rent VAT and IT	---	---	---	1852	2037	2067
Fingerling purchase:	237523	253768	226908	343052	447873	410063
Urea purchase	---	---	---	13890	14570	15675
Other expenditure	145323	156478	139786	164790	175631	187532
Total input cost	417687	448571	408852	594568	718175	694572
Total return	1197463	1289963	1021822	1879756	2431485	2263412
Net profit	779776	841392	612970	1199823	1635200	1491941
Beneficiary No	94	94	94	94	94	94
Amountof share distribution	779776	841392	612970	1199823	1635200	1491941
Per head net income	8295	8950	6521	12764	17395.7	15872
Cost benefit ratio	1:2.86	1:2.87	1:2.49	1:3.16	1:3.38	1:3.25
Average	1:2.74			1:3.26		

Source: Modified from Zaman (1997) and Zaman (2004).

3.2. Livelihood of Benipur Baor Fishermen Community

During past management phase the fishermen were selected on the basis of some criteria. One of prominent selecting criteria was poor fishermen or rural poor people whose land is less than fifty decimal and whose annual income is not more than 10,000 taka. So from very beginning of the project the socio-economic condition of the fishermen of these different villages were more or less same. But after completion of the first ten years some variation were observed. Some fishermen developed their socio-economic condition remarkably. But all of them adopted sustainable livelihood. Some of them increase land property, some engage in small scale fish business, some performing small shop business and some involve in agriculture farming.

3.2.1. Major Occupation

There are eight fishing group in Benipur Baor. Every group harvest maximum one times in a week and maintain security one day in a week. Under the present management phase harvesting is going on throughout the year. Remaining five days they are free from baor duties. Only the Chairman, Secretary and Cashier work full time basis.

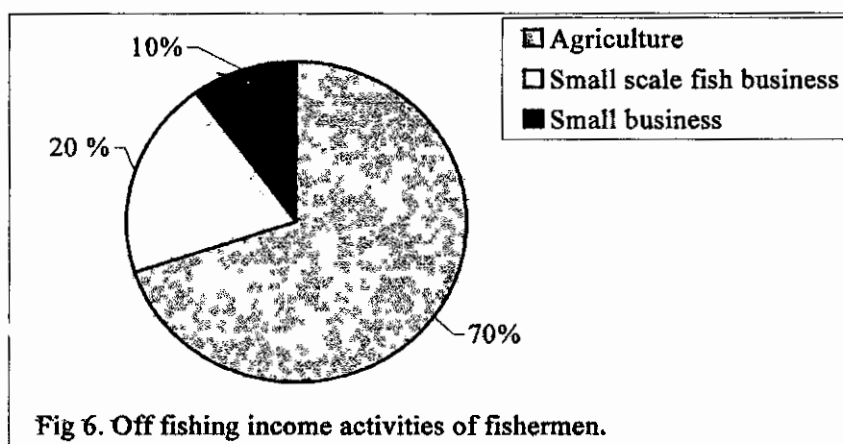
3.2.2. Supporting Occupation

There were no major differences in terms of supporting occupation of stakeholders in past and present management phase. After completion of first ten years some fishermen have developed their socio-economic conditions. They increase their agricultural lands. Every member of the Benipur baor got at list 10-15 decimal land from the baor area. Apu *et al.* (1997b) also found the similar results in studying the Bahadurpur baor, a similar project of the present study, and mentioned that social status has improved even more than their economic condition. Before project period some dishonest *Tohosilder* of land Ministry introduced duplicate carbon record (DCR) system. They illegally leased this baor area to some middlemen.

Initiation of DOF with the co-operation of local administration this illegal leased land handover from the middleman and distributed among the fishermen. Now every fisherman cultivates these baor associated lands. Most of the fishermen are involved with agriculture



during off fishing period. Some members are engaged in small scale fish business. Some are engaged in small business.



3.2.3. Family size and Educational Qualification:

Average family size is around 5. During project period the fishermen were trained about family planning. About 90% are independent family and only 10% are joint family. In joint family old parents or a widow sister are the additional members' only. Hundred percent fishermen can sign. Thirty percent (30%) of them can read and write. Their children almost are primary school going, 30% of their children can read and write. Most of the fisherman's wife in Chuadanga area can sign. Under adult education program "Alokitochuadanga" a non-formal education program.

3.2.4. Physical

There are 94 household in Benipur fishermen community. Most of the fishermen are poor but a portion of them were lower middle class. Few members are extreme poor. Electricity is present in the surrounding five fishermen villages. On the basis of scale wealth status of fishermen and their corresponding economic class their positions have been found.

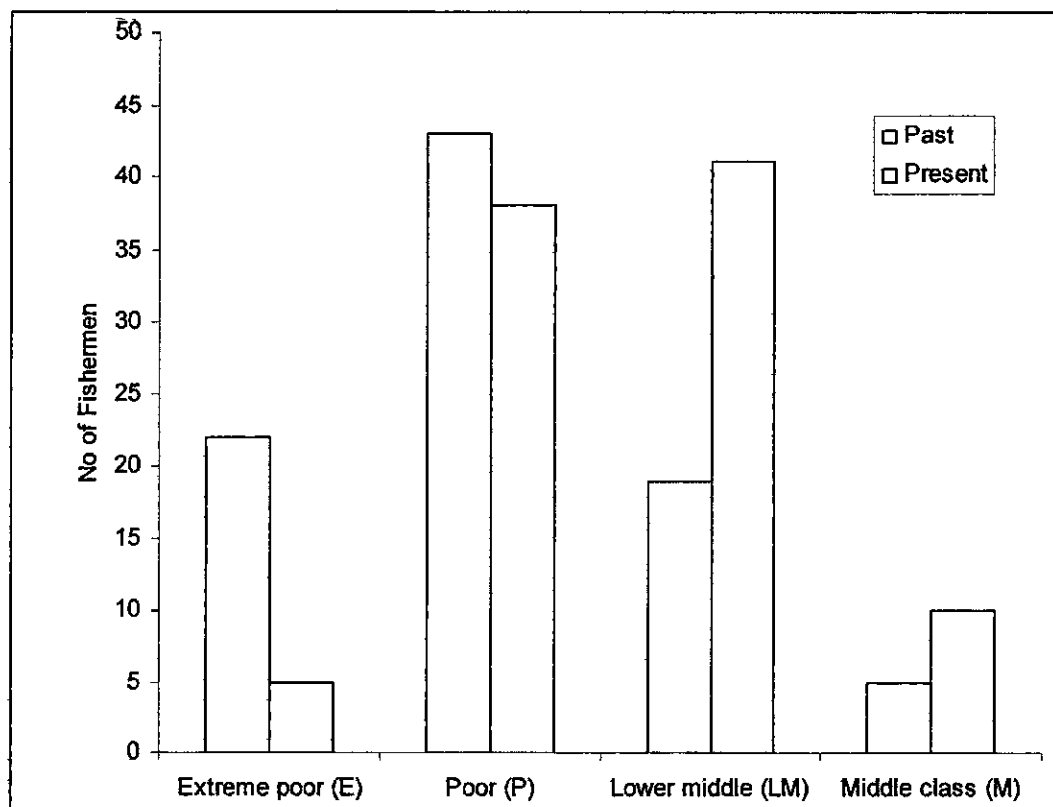


Fig7: Wealth status ranking of fishermen at different management phase.

3.3. INSTITUTIONAL ANALYSIS OF BENIPUR BAOR

3.3.1. Past management system

Benipur baor was taken under oxbow lake small-scale fishermen project (OLP-II) in the year 1990 on 17th May for 10 years. After the loan agreement between IFAD and GOB for Oxbow Lake Small scale fishermen project provides that the fishermen shall enjoy indefinite security of tenure.

Ministry of Land (MOL) transferred 23 boars under this project to the Ministry of Fisheries and Livestock (MOFL) for ten years and since the lease document provided that this transfer may be extended by mutual agreement between the Ministry of Land (MOL) and Ministry of Fisheries and Live stock (MOFL) (Khan and Amin1996). Since the IFAD - GOB loan agreement as well as the Bangladesh Krishi Bank (BKB), Bangladesh Rural Advancement Committee (BRAC) subsidiary loan agreement remains in force for fifteen years. So the activities in implementation of these loan agreements will continue even after the project period. After the completion of the first 10 years period for which the baors were leased to Department of Fisheries (DOF). The period of lease of the boars to DOF will be extended as per rules for a further 10 years at a time, so that the Lake management group could continue to enjoy security of tenure in the pursuit of their development project by way of renewable yearly licensees to be issued to them by the DOF.

By the end of the ninth year District fisheries Officer, Chuadanga submitted a request for extension of the lease of Benipur Baor to the deputy commissioner of Chuadanga. The District committee (DJMS) after checking and evaluating the development plans and activities of the DoF and the LMGs in the Boar was extended the period of leases to the district Fisheries Officer (DFO) for next ten years. At the end of each year term, the lease may continue to be extended for next ten years at a time and the total period of lease shall not exceed 50 years which in the contractual agreement between GOB and IFAD. The first ten years period was started from 1990 to 2000 A.D. Then for next ten year the deed of agreement was signed for 2000 to 2009 A.D. The OLP period was over in June 1997, during first ten years period. The OLP can be considered in two periods namely development project implemented by Project Implementation Unit (P.I.U) from 1989 to June 1996 and rest period i.e., July 1996 on wards completed project implemented by DoF and BRAC.

Objectives of the OLP-II project were as follows

- (a) The 23 project Baors, Beels and associated resources effectively managed by poor users of these water resources.
- (b) Developed institutional capabilities within DOF and BRAC to transfer carp polyculture and related technologies and management skills to poor users of baors and beels.
- (c) Increasing Fish production and improving marketing for project water bodies as well as related upstream and downstream production establishment.

3.3.1.1. Lake Management Group (LMG) in past management system.

During project period the baor was management by a elected Lake Fishermen Team (LFT) committee (Anon, 1996). The committee was considering of one chairman, one sectary, one cashier and one member for each fishing group and the duration of the committee was one year. In Benipur baor there was No. Female fishing Group (F.F.G) from beginning. U.F.O; BRAC area Manager and Extension Officer of the Project (PIU) solely guided the committee. Moreover one project assistant (PA) from BRAC and a Baor monitor from Danida Technical Assistance (DTA) were posted in the baor for the full time to record baor production and monitoring the system.

Duties and responsibilities

A) Chairman:

- Overall supervision of the development works. Conduct and preside monthly meeting.
- Conduct harvested fish sales auction fingerlings purchase tender seeking and finalize the job.
- Take necessary action to meet up the rent, VAT and IT of the baor.
- To supervise the equals share distribution among the stakeholders and ensure them.
- Refund the loan money to time.

B) Secretary:

- To keep records of fingerlings purchase, fish production and sales information.
- To write down the resolution of the monthly meeting.
- To take the attendance of the guard the baors property and observe the system.

C) Cashier:

- To keep the information of all accounts.
- After the decision of the monthly meeting with the approval of the chairman and secretary conduct money from sanction.
- Prepare all expenditures vouchers.

D) Group leader

- To ensure the presence of all members of the group during fishing, monthly meeting and different developments works.
- To ensure all the members within group about income and expenditure.

Qualification of the beneficiary

- a) Poor fisherman or poor rural man whose land is less than .50 acres and whose Annual income is not more than 10,000 taka.
- b) Will be licensed from department of Fisheries.
- c) Each member should present at least 80% period during harvesting and directly involve in fishing.
- d) Each member should equally share both in income and expenditure (Anon, 2002).

3.3.1.2. Organization and institutions involve during project period:

The following headed organizations were involved during the project period. Their activities are mentioned in bellow.

IFAD

The boar Agreement between IFAD and GOB for Oxbow Lakes small scale Fishermen project IFAD provides that the fishermen shall enjoy indefinite security of tenure. The loan agreement remains in force or 50 years.

MOFL & MOL

Ministry of Land (MOL) transferred 23 baors under this project to the Ministry of Fisheries and Livestock (MOLF) for 10 years under New Fisheries Management Policy and since the lease document provides that this transfer may be extended by mutual agreement.

DOF

After the completion of the first 10 years period for which the baors were leased to Department of Fisheries (DOF) the period of lease of the baors to DOF will be extended as per rules for a further ten years at a time so that the Lake management Groups could continue to enjoy security of tenure in the pursuit of the development project by way of renewable yearly licenses to be issued to them by the DOF.

Danida Technical Assistance (DTA)

To re-allocate the training and Extension Advisor (expatriate) funds for a training and extension unit (TEU) and a monitoring and evaluation unit under a Danida Technical Assistance Team (DTA). The TEU constitute Training and Extension Coordinator (TEC) and 2 Assistant Training and Extension Officer. The MEU consists of 1 Fisheries Biologist (FB) 1 Fisheries economist, 2 Assistant monitoring officers and 15 Boar monitors. The DTA assisted PIU and BRAC.

BRAC

Project credit will be made available only to project specified fish production related target groups at 15% interest rate. BRAC will utilize its own fund to fulfill the credit needs of the beneficiary household around the baors for activities other than the fish production. Under BRAC – RDP community development will be encouraged around the baor. Institutional capabilities developed within DOF and BRAC to transfer Carp polyculture and related technologies and management skills to poor users of the baor.

LGED

To assure the quality control of all works executed by LGED under this project and to provide UNDP-OPS the necessary test reports and completion certification with all claims for reimbursement. To provide from own resources the necessary on going maintenance inputs to all roads built by LGED under the OLP project..

PIU

The PD is overall responsible for the project particularly biotechnological development and institutional building. The PD will call monthly project management coordination (PMC = PIU, DOF, BRAC and DTA) meeting to coordinate between all agencies. The ZM will be

responsible to call meeting to coordinate between BRAC staff and PIU/ DTA and to monitor credit. There will be an exchange of minutes.

At field level the project Director (PD) and the BRAC Zonal Manager (ZM) will make up the central project Management (CPM) with authority to represent DOF and BRAC respectively. The chief Technical Advisor (CTA) was assist CPM in an advisory capacity, especially in areas concerning bio- technology development and institution building. The CPM will be the focal point for coordination of inputs of all implementing agencies. CPM will protect the interests of the target group at field level.

The following diagram shows the agency and group involved in co-management practices in the Oxbow lakes small-scale fishermen Project in past management system.

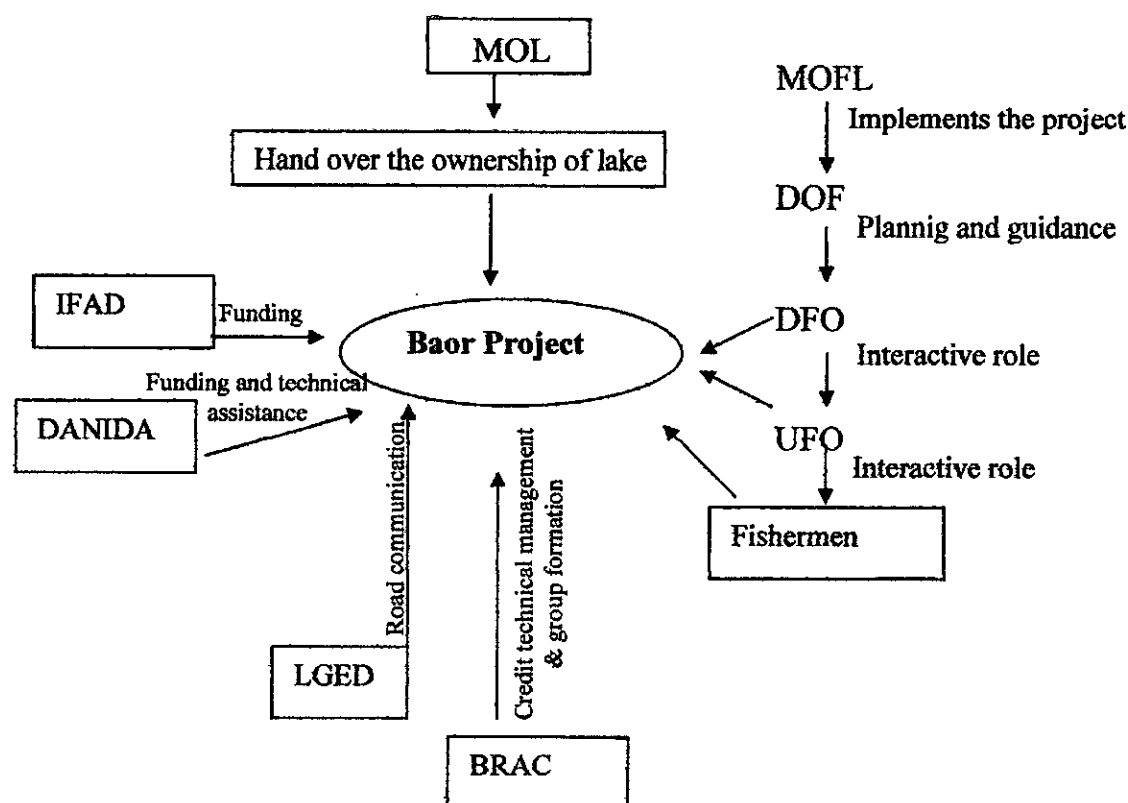


Fig8: Organizations and their involvement in past management system

Source: Rahaman, 2002

3.3.2. Present Management system

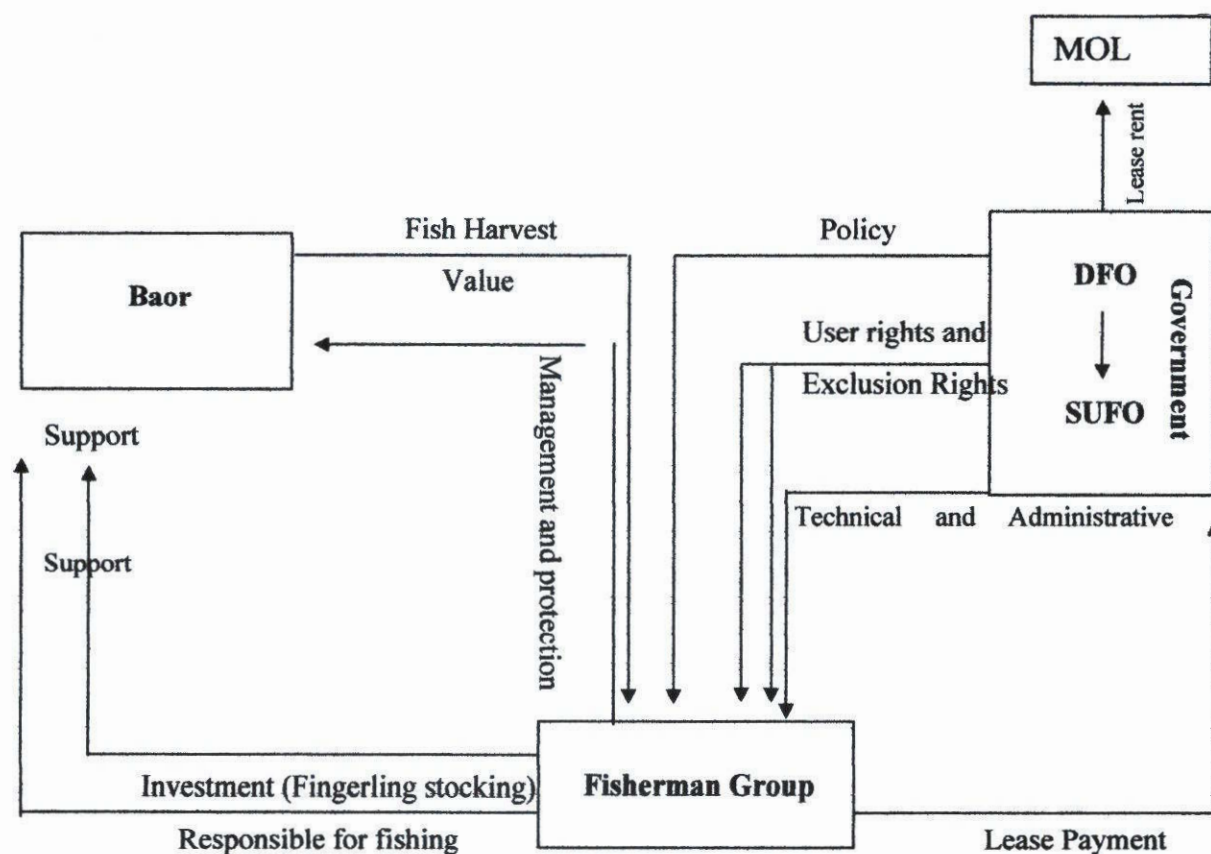
After the completion of the project period in June 1997, BRAC did not continued their activities and completely retract themselves. However Sattar (1997) recommended NGO (BRAC) for ensuring credit targeting of genuine poor fishers. By the end of the first ten-year lease, DOF submitted a request for the extension of the lease to the deputy commissioner. The District Jal Mahal Management Committee (DJMC) after checking and evaluating the development plans and activities of the DOF and LMG in the baor were recommended to the deputy commissioner (DC) for extension and the DC extended the period of lease to the District Fisheries Officer (DFO) for next 10 years. However Imam (1997) emphasized the

period of transfer of the lakes to DOF by MOL (i.e.50 years) should be automatically extended to the fishers, enabling long term planning for sustainable development.

This process was observed after the letter of exchange between Ministry of Land and Ministry of Fishery and Livestock.

Now the total management system is DOF oriented and confined within district level. During project period carp polyculture and related technologies and Management skills transferred to poor users to the baor. Now an elected committee manages the baor. According to Apu *et al.* (1997c) the duration of the committee is one year. Then newly elected committee will replace the committee. The committee is like the project period committee. Now SUFO is overall responsible for technical development and institution building. DFO guides SUFO for his activities. DFO also face various problems arise from collectorate with the help of SUFO.

The following diagram shows the agency and group involved in co-management practices in the Oxbow lakes small-scale fishermen Project in present management system



Source: Modified from Jahan *et al.*, 1997

Fig 9: Organization and institutions involved in present management system

3.3.3.1. SWOT ANALYSIS

Strengths

DOF and Fishers - Experienced DOF officials and well trained fishers become a great strength for the institution. During project period carp polyculture and related technologies and management skills transferred to poor users. After completion of the project these technologies and management skill, gradually increases and make them professionally sound.

Area - Well demarcated 47 hectare water area is the prominent strength. It is connected with Ichamoti River from where nutrients along with seeds of small fishes enter into the Baor. During rainy season agricultural fertilizer are washed out with rainfall. Embankment and landing centre are the additional strength for the baor.

Weakness - The weakest element in the arrangement is the lease extension system 'at the end of each of the 10 years lease periods. It is stipulated in the latter of exchange between MOL and MOFL that at the end of the ninth year of the current lease the DFO shall submit a request for extension of the leases to the Deputy Commissioner. The DJMC after checking and evaluating the fisheries activities of the DOF and the LMG in the respective lakes may recommend to the DC and extension of the lease to the DFO for another 10 years.

However the listed fishers of the LMG are not represented on the DJMC where there are many outside members, so the fishers always depends on the goodwill of the DFO and DC for sustaining their livelihood.

The legal vulnerability of the LMGs is another point of concern. LMGs are not registered with any government department. Moreover the fishing licenses are issued to individual fishers and not to LMGs. So an LMG is helpless to enforce the right of its members as a group. As a why individual fishers do not have the capacity to establish their rights.

VAT & IT- Land ministry imposes VAT and IT to the poor fishers. But according to VAT and IT rule these are not applicable to these poor users. Though VAT and IT are collected from big leasers from other water bodies so land ministry illegally imposes VAT and IT to the fishers.

Opportunities

Well communication: During project period the baors were communicated through construction on herring bond roads. Now Benipur Baor is well communicated. Harvested fish can be carried distant arots of different districts. Fishers enjoy various facilities from well communication.

Electrification: The fishers are totally electrified by rural electrification board. Now fishers are enjoying the merits of electrification.

Threats

During the project period the lake has been almost completely free of water hyacinth and lotus and fish yields have gone up considerably each year through better stocking and harvesting practices. As a result, former lease holders and other influential persons are again interested in privately leasing the lakes for their benefit. In all on nearly all of the lakes presently under these management system, registration of a non functioning fisher's co operative is being maintained, presumable to retake the leases when the opportunity arrives. The Department of cooperatives and a second fisheries cooperative may not be registered on the same water body. Therefore a change back to a system of short leases of the oxbow lakes through auction is likely to cause the lake to pass out of the lands of the fishing groups.

Political pressure: Sometimes political leaders try to create pressure to introduce their people into the Baor for membership. Sometimes they are interested in privately leasing the lakes for their personal benefit.

Land ministry: From very beginning land ministry was against this policy though they handed over the lake after the loan agreement between IFAD and GOB. Various times they create problems and try to keep out the Baor from this management system and to introduce their traditional leasing system.

Chapter Four

Conclusion

CONCLUSION

For continuous culturing system the baor productivity gradually decreases. So for better baor production the culture strategy should be improved according to baor biology. Studying the baor biology for last production years sustainable production plan should be introduced.

The livelihood of the Benipur baor member should to be improved gradually in accordance with their increasing income. All of them should be primary literacy knowledge. Their children should go to school. They should adopt primary health care, family planning and could have to use sanitary latrine. They should drink tube-well water. They would be deposit minded. These are the considerations of livelihood.

Though the owner of the baor is MOL so their problems comes from land ministry and local political leaders. Some times it becomes so pronounced that the existence of the baor management distressed.

Again several problems arise from the baor members for the existence of the baor. So baor Institutional strengthening is the most prominent for the existence as well as production of the baor.

Chapter Five

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Chapter Six

Annexures

ANNEXURE-1

Table1: Key informant interview chart

Sl. No	Basic information
1	What was the production strategy of Benipur Baor during project period OLP-II?
2	After the completion of project period how much project target has been achieved?
3	After completion of the project is the Baor managed after the guideline of the project?
4	What are the changes taken in Baor production strategy after the completion of the project and what's its result?
5	What was the present socio-economic condition of the Fishers after completion of the project?
6	What are the institutional changes taken in Baor management after completion of the project?
7	What are the remarkable changes between the project period and after the completion of the project period, regarding production, institutional and socio economic conditions of the Fishers?
8	What are the suggestions on the basis of project period experience and after project period experiences to run baor production and management successfully?

ANNEXURE-3

WEALTH STATUS OF BENIPUR BAOR FISHERMEN COMMUNITY (Past management phase)

Sl. No.	Name	House	Land property	Animal Husbandry				Tree	Bicycle	TV	Radio	Sanitary Latrine	Tube-well	Total	Remarks
				Cow	Goat	Poultry	Duck								
1.	Md. Abdur Rob	15	15	10	5	1	1	5	5	-	2	3	3	60	LM
2.	Md. Nozir Ahmed	15	15	10	-	1	-	5	5	-	-	-	3	54	LM
3.	Md. Altaf Hossain	15	30	10	5	1	1	5	5	-	-	3	3	78	M
4.	Tozu Gosry	10	10	-	-	1	-	5	-	-	3	3	3	34	P
5.	DulalChandra Biwash	10	15	10	-	1	-	5	-	-	-	3	3	47	P
6.	Md. Farez Ali	15	20	10	5	1	1	-	5	-	2	3	3	65	LM
7.	Md. Sirasul Islam	15	25	10	5	1	1	5	-	-	2	3	3	70	LM
8.	Md. Mazibur Rahman	15	20	10	-	1	1	-	5	10	-	3	3	68	LM
9.	Md. Bazlur Rahman	10	-	10	-	1	1	-	-	-	-	3	-	25	E
10.	Md.Monowar Hossain	10	-	10	-	1	1	5	-	-	-	3	-	30	E
11.	Md. Islam	10	10	-	-	1	1	-	-	-	-	-	3	25	E
12.	Md. Shahidul Islam	15	10	-	5	1	1	-	-	-	2	-	3	37	P
13.	Abdul Hamid	10	10	10	-	1	1	5	5	-	-	3	3	48	P
14.	Abdul Mazid	15	-	10	-	1	1	-	5	-	-	3	3	38	P
15.	Delwar Hossain	15	15	10	-	1	1	5	5	-	2	-	-	54	LM
16.	Md. Bokaulah	10	10	10	5	1	-	-	5	-	-	3	3	47	P
17.	Abdul Aziz	15	25	10	5	1	1	-	-	-	-	3	3	63	LM
18.	Md. Shahjahan	15	10	-	5	1	1	5	5	-	2	3	3	50	P
19.	Md. Edu Mia	15	25	10	5	1	1	5	5	-	2	-	3	72	M
20.	Md. Nowsher Ali	15	25	10	-	1	1	5	5	-	2	3	3	70	LM
21.	Md. Khoda Buksha	15	-	10	-	1	1	-	-	-	-	-	-	27	E
22.	Sukur Ali	10	10	-	-	1	1	-	-	-	-	-	-	22	E
23.	Nepal Mondal	10	10	5	-	1	1	-	-	-	-	-	-	27	E
24.	Gopal Mondal	15	25	10	5	1	1	-	-	10	-	-	-	67	LM
25.	Md. Akbar Ali	10	10	10	-	1	1	-	-	-	-	-	-	32	P
26.	Ad. Abdul Mazid	15	20	-	-	1	-	5	-	10	-	3	3	57	LM
27.	Lal Mohammad	10	10	-	-	1	-	-	-	-	2	3	-	26	E
28.	Zahir Uddin	15	10	-	5	1	1	-	-	-	2	3	3	40	P
29.	Md. Mizan	10	-	-	5	1	1	-	-	-	-	3	-	20	E
30.	Abdur Razzaq	10	10	-	-	1	1	-	-	-	-	3	3	28	E
31.	Md. Shahidul Islam	15	10	-	-	1	-	-	-	-	2	-	-	28	E
32.	Md. Muazzem Hossain	15	10	10	5	1	1	-	5	10	12	3	3	65	LM
33.	Md. Momin	10	15	-	5	1	1	5	5	-	-	3	3	48	P
34.	Md. Ismail	15	30	-	5	1	1	-	5	-	-	3	3	65	LM
35.	Punna Haldar	15	-	-	5	1	1	-	-	-	-	3	3	28	E

36.	Abdul Kazem	15	15	5	-	5	1	-	-	-	2	-	3	46	P
37.	Tamser Ali	10	15	5	-	1	1	5	-	-	2	-	-	39	P
38.	Haider Ali	10	-	10	-	1	1	5	-	-	-	-	-	27	E
39.	Abdul Gafur Mondal	15	30	10	5	1	1	5	5	-	2	3	3	80	M
40.	Aiub Ali	15	10	10	5	-	-	-	5	-	-	-	-	45	P
41.	Bazlur Rahman	15	10	-	-	-	-	-	-	-	2	3	-	30	E
42.	Md. Mintu	15	30	-	5	1	1	5	5	10	2	3	3	80	M
43.	Ratan	15	15	-	5	1	1	5	-	-	2	3	3	50	P
44.	Din Hohammad	10	10	5	-	1	1	-	-	-	-	-	-	27	E
45.	Mozehar Ali	15	265	-	5	1	1	-	-	-	-	3	-	50	P
46.	Md. robil	10	10	10	-	1	1	-	-	-	-	-	-	32	P
47.	Anwar Hossain	15	10	-	-	1	1	-	-	-	-	3	3	33	P
48.	Md. Nazrul islam	10	10	-	-	-	-	-	-	-	-	3	3	26	E
49.	Din Mohammad	15	25	-	-	1	1	5	5	-	2	3	3	60	LM
50.	Khukon	10	15	10	-	-	-	-	-	-	-	-	-	35	P
51.	Abdur Rouf	15	10	-	-	1	1	5	-	-	-	-	-	32	P
52.	Md. Alauddin	10	10	-	-	1	-	5	1	-	-	-	3	30	P
53.	Md. Robiul	15	10	-	5	1	-	-	-	-	2	-	3	36	P
54.	Md. Tota	10	10	10	5	1	1	5	5	-	-	-	3	50	P
55.	Jasin Uddin	10	10	5	-	1	-	-	-	-	-	3	3	32	P
56.	Md. Habibur Rahman	15	10	10	5	1	1	5	5	-	2	3	3	60	LM
57.	Mizanur Rahman	15	30	-	5	1	-	5	5	-	2	3	3	69	LM
58.	Md. Abdul Momin	10	10	10	5	1	-	-	-	-	2	3	3	44	P
59.	Ram Prasad -----	15	10	-	5	1	-	-	-	-	-	-	3	34	P
60.	Mollin Satra	15	10	-	5	1	1	-	-	-	-	-	3	35	P
61.	Sunil Biswas	15	10	-	5	1	-	-	-	-	-	-	3	34	P
62.	Gopal Biswas	10	5	5	-	-	-	-	-	-	-	3	-	23	E
63.	Proladh Biswas	15	10	-	-	-	-	-	-	-	-	-	3	28	E
64.	Abdur Sattar	10	10	5	-	-	-	-	-	-	2	2	-	29	E
65.	Kabil Hossain	15	15	-	-	1	1	-	-	-	-	3	3	38	P
66.	Kesto Satra	15	15	10	-	1	-	-	5	-	2	-	3	51	P
67.	Asit Haldar	10	10	10	5	-	-	5	-	-	-	-	-	40	P
68.	Md. Shahjamal	15	15	-	5	-	1	-	-	-	2	3	3	44	P
69.	Mintazul	10	10	-	-	-	-	5	5	-	-	-	3	33	P
70.	Zamat Ali	15	10	-	-	1	1	-	-	-	-	3	3	33	P
71.	Bablu	15	10	-	5	1	1	-	-	-	-	3	3	38	P
72.	Salam	15	10	-	-	-	-	-	-	-	-	-	-	25	E
73.	Md. Jalil	10	10	10	5	1	-	-	-	-	-	3	-	39	P
74.	Rahmat Ullah	10	15	10	5	-	-	-	-	10	-	-	3	53	M
75.	Shariful	15	10	10	5	1	1	-	-	-	-	3	3	48	P
76.	Quddus	15	10	-	5	1	1	5	5	10	2	-	3	57	LM
77.	Samsul Haque	15	10	-	-	1	1	-	-	-	-	-	3	30	E
78.	Md. Haidar Ali	15	10	-	-	1	1	5	-	-	-	3	3	38	P
79.	Fazlur Rahman	15	10	-	-	-	-	-	-	-	2	2	3	32	P
80.	Md. Ramzan Ali	15	30	10	-	1	1	5	-	10	2	3	3	80	M
81.	Khudu Bari	15	20	10	-	1	1	-	5	-	2	-	3	57	LM
82.	Hatem Ali	15	25	-	5	1	1	-	-	-	2	-	-	49	P

83.	Salim Uddin	15	30	-	-	1	-	-	-	-	-	-	2	48	LM
84.	Wazed	15	15	-	5	1	1	-	5	10	2	-	3	57	LM
85.	Samsul	15	30	10	-	1	-	5	-	-	2	-	3	66	LM
86.	Rahman	15	10	10	-	1	-	5	-	-	2	-	3	46	P
87.	Md. Ali Hossain	15	20	-	5	1	1	5	5	-	2	3	3	60	LM
88.	Md. Nasir Uddin	15	15	-	5	1	1	5	5	-	2	-	3	52	LM
89.	Md. Osman	10	10	10	5	1	1	-	5	-	2	-	3	47	P
90.	Md. Daud Hossain	15	30	-	5	1	-	5	-	10	-	-	3	68	LM
91.	Md. Nizam Uddin	10	10	10	5	1	-	5	-	-	-	2	3	46	P
92.	Anarul Haque	15	30	10	-	1	1	-	-	-	-	-	3	60	LM
93.	Tofazzal Hossain	15	10	-	-	1	1	5	5	-	-	3	3	43	P
94.	Saiful Islam	15	10	-	-	1	-	-	-	-	-	-	-	26	E

Sl. No.	House	Land Property	Animal Husbandry				Tree	Bicycle	T.V.	Radio	Sanitary Latrine	Tube-well
			Cow	Goat	Poultry	Duck						
1.	Tin-15 Kancha-10	1-5 decimal = 10 6-10 decimal = 15 11-20 decimal = 20 21-50 decimal = 25 50 decimal >30	1-5 = 10	1-5 = 5	1-10 = 1	1-10 = 1	1-15 = 5	5	10	2	3	3

Table: Wealth status ranking of the fishermen of past and present management phase.

Sl.No	Management	Extreme poor (E)	Poor (P)	Lower middle (LM)	Middle class (M)	Total No.
1	Past	22	43	24	5	94
2	Present	5	38	41	10	94

N.B

Ranking methods:

1-30= Extreme poor=E

31-50 = Poor = P

51- 70 = Lower middle class =LM

71-100 =Middle class =M

ANNEXURE -2

WEALTH STATUS OF BENIPUR BAOR FISHERMEN COMMUNITY (Present management phase)

Sl. No.	Name	House	Land property	Animal Husbandry				Tree	Bicycle	TV	Radio	Sanitary Latrine	Tube-well	Total	Remarks
				Cow	Goat	Poultry	Duck								
1.	Md. Abdur Rob	15	30	10	5	1	1	5	5	-	2	3	3	82	M
2.	Md. Nozir Ahmed	15	15	10	-	1	-	5	5	-	-	-	3	54	LM
3.	Md. Altaf Hossain	15	30	10	5	1	1	5	5	-	-	3	3	78	M
4.	Tozu Gosry	10	15	10	-	1	-	5	-	-	3	3	3	49	P
5.	DulalChandra Biwash	15	15	10	-	1	-	5	-	-	-	3	3	52	LM
6.	Md. Farez Ali	15	20	10	5	1	1	-	5	-	2	3	3	65	LM
7.	Md. Sirasul Islam	15	25	10	5	1	1	5	-	-	2	3	3	70	LM
8.	Md. Mazibur Rahman	15	20	10	-	1	1	-	5	10	-	3	3	68	LM
9.	Md. Bazlur Rahman	15	10	10	5	1	1	-	-	-	-	3	-	45	P
10.	Md.Monowar Hossain	15	10	10	5	1	1	5	-	-	-	3	-	50	P
11.	Md. Islam	15	20	10	-	1	1	-	-	-	-	-	3	50	P
12.	Md. Shahidul Islam	15	10	-	5	1	1	-	-	-	2	-	3	37	P
13.	Abdul Hamid	15	20	10	5	1	1	5	5	-	-	3	3	68	LM
14.	Abdul Mazid	15	20	10	-	1	1	-	5	-	-	3	3	58	LM
15.	Delwar Hossain	15	15	10	-	1	1	5	5	-	2	-	-	54	LM
16.	Md. Bokauallah	15	10	10	5	1	-	-	5	-	-	3	3	52	LM
17.	Abdul Aziz	15	25	10	5	1	1	-	-	-	-	3	3	63	LM
18.	Md. Shahjahan	15	20	-	5	1	1	5	5	-	2	3	3	60	LM
19.	Md. Edu Mia	15	25	10	5	1	1	5	5	-	2	-	3	72	M
20.	Md. Nowsher Ali	15	25	10	-	1	1	5	5	-	2	3	3	70	LM
21.	Md. Khoda Buksha	15	15	10	-	1	1	-	-	-	-	-	3	45	P
22.	Sukur Ali	15	10	-	-	1	1	-	5	-	-	-	-	32	P
23.	Nepal Mondal	15	10	10	-	1	1	-	-	-	-	-	-	37	P
24.	Gopal Mondal	15	25	10	5	1	1	-	-	10	-	-	-	67	LM
25.	Md. Akbar Ali	15	15	10	5	1	1	-	-	-	-	3	3	53	LM
26.	Ad. Abdul Mazid	15	20	-	-	1	-	5	-	10	-	3	3	57	LM
27.	Lal Mohammad	15	20	-	-	1	-	5	5	-	2	3	-	51	LM
28.	Zahir Uddin	15	10	-	5	1	1	-	-	-	2	3	3	40	P
29.	Md. Mizan	15	15	-	5	1	1	-	-	-	-	3	-	40	P
30.	Abdur Razzaq	10	10	10	5	1	1	-	-	-	-	3	3	43	P
31.	Md. Shahidul Islam	15	10	-	-	1	-	-	-	-	2	-	-	28	E
32.	Md. Muazzem Hossain	15	10	10	5	1	1	-	5	10	12	3	3	65	LM
33.	Md. Momin	15	15	10	5	1	1	5	5	-	-	3	3	63	LM
34.	Md. Ismail	15	30	-	5	1	1	-	5	-	-	3	3	65	LM
35.	Punna Halidar	15	15	-	5	1	1	-	-	-	-	3	3	43	P
36.	Abdul Kazem	15	25	10		5	1	-	-	-	2	-	3	61	LM
37.	Tamser Ali	15	15	10	-	1	1	5	5	-	2	3	-	57	LM

38.	Haider Ali	15	30	10	-	1	1	5	5	-	-	3	3	73	M
39.	Abdul Gafur Mondal	15	30	10	5	1	1	5	5	-	2	3	3	80	M
40.	Aiub Ali	15	30	10	5	1	1	5	5	10	2	3	3	90	M
41.	Bazlur Rahman	15	20	-	5	1	1	-	-	-	2	3	3	50	P
42.	Md. Mintu	15	30	-	5	1	1	5	5	10	2	3	3	80	M
43.	Ratan	15	15	-	5	1	1	5	-	-	2	3	3	50	P
44.	Din Hohammad	15	10	10	-	1	-	-	-	-	-	3	3	42	P
45.	Mozehar Ali	15	265	-	5	1	1	-	-	-	-	3	-	50	P
46.	Md. robil	10	15	10	5	1	1	5	-	-	-	3	3	53	LM
47.	Anwar Hossain	15	10	-	-	1	1	-	-	-	-	3	3	33	P
48.	Md. Nazrul islam	15	10	-	-	1	-	-	-	-	2	3	3	34	P
49.	Din Mohammad	15	25	-	-	1	1	5	5	-	2	3	3	60	LM
50.	Khukon	15	25	10	-	-	-	-	5	-	2	-	3	60	LM
51.	Abdur Rouf	15	10	-	-	1	1	5	-	-	-	-	-	32	P
52.	Md. Alauddin	15	20	-	-	1	-	5	-	-	-	-	3	43	P
53.	Md. Robiul	15	10	-	5	1	-	-	-	-	2	-	3	36	P
54.	Md. Tota	10	10	10	5	1	1	5	5	-	-	-	3	50	P
55.	Jasin Uddin	15	10	10	-	1	-	-	-	-	-	3	3	42	P
56.	Md. Habibur Rahman	15	10	10	5	1	1	5	5	-	2	3	3	60	LM
57.	Mizanur Rahman	15	30	-	5	1	-	5	5	-	2	3	3	69	LM
58.	Md. Abdul Momin	15	10	10	5	1	-	5	5	-	2	3	3	59	LM
59.	Ram Prasad -----	15	10	-	5	1	-	-	-	-	-	-	3	34	P
60.	Mollin Satra	15	10	-	5	1	1	-	-	-	-	-	3	35	P
61.	Sunil Biswas	15	10	-	5	1	-	-	-	-	-	-	3	34	P
62.	Gopal Biswas														E
63.	Proladh Biswas	15	10	-	-	-	-	-	-	-	-	-	3	28	E
64.	Abdur Sattar	15	15	-	-	1	-	5	5	-	-	-	3	44	P
65.	Kabil Hossain	15	15	-	-	1	1	-	-	-	-	3	3	38	P
66.	Kesto Satra	15	15	10	-	1	-	-	5	-	2	-	3	51	P
67.	Asit Halder	15	10	10	5	1	1	5	5	-	-	-	3	55	LM
68.	Md. Shahjamal	15	15	-	5	-	1	-	-	-	2	3	3	44	P
69.	Mintazul	15	10	-	-	-	-	5	5	-	-	-	3	38	P
70.	Zamat Ali	15	10	-	-	1	1	-	-	-	-	3	3	33	P
71.	Bablu	15	10	-	5	1	1	-	-	-	-	3	3	38	P
72.	Salam	15	10	-	5	-	-	-	-	-	2	-	-	32	P
73.	Md. Jalil	10	10	10	5	1	-	-	-	-	-	3	-	39	P
74.	Rahmat Ullah	15	25	10	5	1	-	5	-	10	2	3	3	79	M
75.	Shariful	15	10	10	5	1	1	-	-	-	-	3	3	48	P
76.	Quddus	15	30	10	5	1	1	5	5	10	2	-	3	87	M
77.	Samsul Haque	15	10	-	-	1	1	-	-	-	-	-	3	30	E
78.	Md. Haidar Ali	15	10	-	-	1	1	5	-	-	-	3	3	38	P
79.	Fazlur Rahman	15	15	-	-	1	1	-	-	-	2	3	3	40	P
80.	Md. Ramzan Ali	15	30	10	-	1	1	5	-	10	2	3	3	80	M
81.	Khudu Bari	15	20	10	-	1	1	-	5	-	2	-	3	57	LM
82.	Hatem Ali	15	25	-	5	1	1	-	-	-	2	-	-	49	P
83.	Salim Uddin	15	30	-	-	1	-	-	5	10	-	-	3	63	LM
84.	Wazed	15	15	-	5	1	1	-	5	10	2	-	3	57	LM
85.	Samsul	15	30	10	-	1	-	5	-	-	2	-	3	66	LM
86.	Rahman	15	30	10	-	1	-	5	-	-	2	-	3	66	LM