



Comparative Economics of Various Management Regimes of *Chaur* Fisheries in Koshi- Gandak River Basin of Bihar

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Abstract

The state of Bihar has about 35,000 hectares of *chours* (floodplains) which have immense potential for development of culture-based fisheries. However, the resource is either unutilized or underutilized and hence its productivity level is low. The low yield is mainly due to poor management of the resources for fisheries development. In this study, an attempt was made to analyse the prevalent management regimes of *chaur* fisheries to suggest suitable institutional options for its better utilization. For the purpose, a sample survey was conducted in Koshi-Gandak river basin in Bihar. The data was collected from 180 land owners, 58 fishers, 26 members of co-operative societies and 8 officials of Directorate of Fisheries, Government of Bihar. Estimate of yield, income and employment generation clearly demonstrated better management of *chours* by an entrepreneur and informal group than unmanaged fisheries or those managed by fishers/farmers' co-operatives. This is mainly due to better management of resource by the entrepreneur and the informal groups. Therefore, there is a need to encourage fishers to form their own groups or develop entrepreneurship in themselves for managing the fishery resource for its better utilization. However, as per '*Bihar Jalkar Adhiniyam, 2006*', government water bodies must be leased out to only fishers' co-operative of the respective blocks and hence there is a need to amend the act accordingly to facilitate the leasing of water bodies to informal groups of fishers or entrepreneurs.

Keywords: *Chaur* fishery, floodplain, management regime, fishermen co-operatives, common property resources and co-management

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Introduction

Chours are natural depression in land which gets filled up with water during monsoon season either through flood water of rivers or excessive rains which do not have drainage (Jha & Chandra, 1997). The depressed landmass between river Gandak and Koshi has a number of *chours* which are highly productive; but with low productivity due to poor management (Govt. of Bihar, 2008). In general, *chours* comprises large number of small pieces of land owned by individuals and state government, which remain submerged in water for 7 to 10 months. The seasonal nature of *chaur*, makes the property regime unique. The land is under individual ownership, whereas the submergence of the land makes the fishery management practices dependent upon collective effort of the land owners (Government of Bihar, 2008). The government of Bihar has about 35,000 hectare of area under *chours* which have immense potential for development of culture-based fisheries. The government land in *chours* are leased out to registered fishermen co-operative society of respective block for fisheries activities. Majority of *chours* are ill managed and anyone can catch fishes from the resource. However, some *chours* are leased out to private entrepreneurs or an informal group of fishers for fisheries purposes by individual land owners. Usually, the *chours* are either unutilized or underutilized and hence the productivity of fish is very poor; less than 50 kg/ha/year. Underutilization or un-utilization of such resources, in states like Bihar where about 52 percent of population is still multi-dimensionally poor (NITI Aayog, 2021), is a matter of concern. Efficient utilization of the resource will create livelihood opportunity to a large number of poor in the state that will help them to move out of poverty by providing income generating opportunity.

Fisheries activities in *chours* are managed by various regimes and hence productivity also varies across the *chours*. In the present study, an attempt is made

to identify various management regimes of *chaur* fisheries in Bihar to understand institutional arrangement for its management through an economic analysis.

Materials and Methods

The study is based on primary data collected from selected sample respondents by personal interview method using a pre-tested questionnaire. *Chaur*s are mostly concentrated in Koshi-Gandak river basin. A total of 6 *chaur*s from the basin were purposively selected in consultation with officials of Department of Fisheries Government of Bihar for the study based on its distinct and varied management regimes. The selected *chaur*s were Dumardah, Sonmar, Manika-Manikpur-Mauhadinagar, Malpur-Matihani, Basai-Mahnai and Mahisar.

For understanding institutional arrangement of *chaur* fisheries, data was collected from sample households by personal interview method with the help of pre-tested questionnaire specially designed for the study. The sample farmers/fishers for the study were selected following the multistage stratified random sampling technique. The study was conducted at three levels; producer level, marketing level and management level of the *chaur*s. For the study at producer level, a total of six *chaur*s from Samastipur district were purposively selected based on varied development stages, and management. After selection of *chaur*s, a list of farmers having land in each of the selected *chaur*s and fishers that fish in *chaur*s was prepared. Farmers were then stratified based on their land holdings, into three groups namely, small (<2 ha land holding), medium

(2-5 ha land holding) and large (>5 ha land holding). From each of the selected *chaur*s, 30 farmers proportionate to the population in each of the group were selected randomly in such a way that at least 4 farmers belonging to each group were selected. Group leaders of fishers and 10 fishers engaged in fishing operation were also selected from each *chaur* for the study. For the purpose of understanding the process of development and functioning of institutions for managing the affairs of *chaur* fisheries, discussion with District Fisheries Development Officer, Fisheries Extension Officer, local leaders, officials of fishers’ co-operative society and group leaders of informal groups in the villages were conducted. A total of 272 respondents were selected, out of which 180 were farmers, 58 fishers, 26 members of co-operative societies (fishermen co-operative-20 and farmers’ co-operative-06) and 8 fisheries departmental officials (Table 1).

The area under *chaur*, *jheel* (central most part of the *chaur*) and land owned by Government of Bihar have been described in the Table 2.

Costs, return and farm efficiency measures in *chaur* fisheries were estimated for each of the identified management regime, following the method described by Salim & Biradar (2001) which is described below:

Fixed cost: A cost that doesn’t change with an increase or decrease in the level of production. Fixed costs are expenses that have to be paid by a farm, independent of any business activity. The depreciation was calculated on the basis of expected life ie., ratio of the purchase cost of an item divided by the

Table 1. Selection of sample households

Respondents	Co-operatives managed <i>chaur</i> s		Informal group managed <i>chaur</i> s	Private Entrepreneur managed <i>chaur</i> s	Unmanaged <i>chaur</i> s	Total
	Fishers Cooperative managed <i>chaur</i> s	Farmers Cooperative managed <i>chaur</i> s				
Farmers	70	30	20	30	30	180
Fishers	26	10	06	02	14	58
Members of						
Co-operative Society	16	6	-	-	4	26
Government officials						8
Total number of respondents						272

Table 2. Hydrology of the selected *chaurs*

<i>Chaur</i> s	Total Area (in ha)	Jheel Area (in ha)	Government owned Area (in ha)	River with which the <i>chaur</i> is connected
Dumardah	809.72	202.43	4.45	Baya river
Manika-Manikpur- Mauhadinagar	2275.30	174.42	40.08	Nun river
Mahisar	607.29	0.00	3.04	Kareh river
Sonmar	40.15	5.11	0.00	No connection
Malpur-Matihani	404.86	101.21	58.26	No connection
Basai-Mahnai	161.94	60.73	34.03	No connection

expected life of an item. Fixed cost includes the following items: depreciation on fixed assets, cost of repairing/maintenance of fixed assets, rental value of land and interest on fixed capital salary of permanent labour was also included under fixed cost.

Variable cost: The variable cost changes with the change in output level. The recurrent expenses incurred is usually included under operating cost or variable cost. It includes the following items: seed cost, feed cost, manure and fertilizer cost, cost of liming, hired labour cost, miscellaneous cost, transportation cost, interest on working capital and imputed value of family labour.

Gross Income was worked out by multiplying the quantities of the produce with their respective prices.

$$\text{Gross income} = Q_i \times P_i$$

Where, Q_i is quantity of fish produced and P_i is selling price of the respective fish, where i is the type of fish.

Net Income is the return left after taking into account all expenditure such as fixed cost and variable cost. It is in fact gross income minus total cost.

$$\text{Net income} = \text{GI} - \text{TC}$$

Where, GI is Gross income and

$$\text{TC} = \text{Total Cost} = \text{TFC} + \text{TVC}$$

Where, TFC is total fixed cost and TVC is total variable cost.

To evaluate the economic viability of the management regimes, benefit-cost ratio was computed as per Gittinger (1982). B:C ratio was used to ascertain the viability of the project. It estimates the ratio of benefit and cost incurred in the project. Mathematically, it can be expressed as:

$$\text{B:C Ratio} = \frac{\text{Gross income}}{\text{Total cost}}$$

Fishery activities were carried out on contract basis which has been converted to man days by dividing the contract labour charges by the minimum wage rate declared by government of Bihar.

Results and Discussion

The Government of Bihar has a policy for leasing of water bodies in Bihar according to which the *chaurs* owned by government are leased out to the '*Matsyajivi Sahayog Samiti*' (Fishermen co-operative society) of the concerned block for fisheries purposes in a limited bid in which only fishermen co-operatives can participate as per *Bihar Jalkar Management (Amendment) Act, 2007*. It is mandatory on the part of society to transfer fishing right to the member fishers residing in vicinity of the *chaur*. Fishers of the nearby villages can pay the lease amount collectively to the society in 2 to 3 instalments. The lease amount charged by the co-operative society from fishers comprises of three components (a) charges for the water bodies (b) share in profit and (c) donation for the co-operative society. The objective of this leasing policy is to alleviate the socio-economic condition of poor fishers who directly depend on the resource for their subsistence. A similar kind of leasing policy (*Jalmohal* leasing system) was practiced in Bangladesh

which led to overexploitation of the resources in the absence of control and surveillance (Craig et al., 2004).

The selected *chaurs* are used to produce both fish and crops which provide income and employment to farmers, fishers and daily wage earners and hence play an important role in socio-economic development of the people dependent on the *chaurs*. Management regime influence the production, productivity and income from any resource and hence prevalent management regime in the *chaur* fisheries were analyzed to identify the best of the existing management practices and suggest improvement over it. Based on existing management practices, *chaur* fisheries in sample *chaurs* can be grouped into following 4 regimes:

- i. *Chaur* fisheries managed by co-operative society,
- ii. *Chaur* fisheries managed by an informal group,
- iii. *Chaur* fisheries managed by private entrepreneur and
- iv. Unmanaged *chaur* fisheries.

The management intervention in fisheries activities of all the sample *chaurs* have been described in brief in Table 3. Out of the 6 sample *chaurs* under the study, 4 were being managed by fishermen co-operative society (Dumardah, Malpur-Matihani, Basai-Mahnai and a portion (40.08 ha) of Manika-Manikpur-Mauhadinagar *chaur*). Sonmar and a part of Manika-Manikpur-Mauhadinagar *chaur* are managed by private entrepreneur and an informal group, respectively. Mahisar *chaur* is managed by farmers' co-operative which manages the rearing of fishes in natural environment of *chaur* but allows fishing by local fishers in the *chaur* before auctioning for harvest. About 114.10 ha of Manika-Manikpur-Mauhadinagar *chaur* is under unmanaged capture fishing.

Chaur fisheries managed by registered co-operative society: All the *chaurs* except Sonmar and Mahisar have government land generally in its central region and were leased out to the registered fishermen co-operative for fisheries activities. Mahisar *chaur* is managed by registered co-operative society of farmers. Every fisher's village that got fishing rights from the co-operative forms an informal group of fishers to manage fishing activities in the *chaur*. One member from each of fisher household of the village who actively participates in fishing is a member of

the general body of the informal organization. General body of the informal organization select a group leader to collect the money and takes the decisions on management of the *chaur* fishery. The group leader is generally a respected and reliable person of the society and is selected through consensus. The group leader takes decisions by consensus in the presence of all the members of the group. He along with 2 to 3 experienced persons and 4 to 5 young fishers lead the activities. Generally, 4 to 5 need-based general body meetings are organized in a year. The usual domain of discussion pertains to collecting money for payment of lease amount, purchasing of fish seed and deciding harvesting time, to mention a few.

Harvesting of fishes takes place only for a period of 10 to 15 days during February-March depending upon water level in the *chaur*. Harvested fishes are sold and revenue realised. After deducting all expenses, is distributed equally among all the fishermen who had contributed in paying the lease amount. These kinds of informal groups were managing *chaur* fisheries in Malpur-Matihani and Basai- Mahnai *chaurs*.

In case of Dumardah *chaur*, fishers collect money among themselves and pay the settlement charges to the society. After getting fishing rights from the society, fishing was practiced round the year. This leads to overexploitation of the resource and hence lowers productivity and income from the resource.

As per the Bihar Jalkar Adhiniyam 2006, co-operative societies need to develop the *chaurs* within two years after getting the lease of the water bodies and help the fishers in procurement of inputs and provide them essential financial help (Government of Bihar, 2006). However, no such development was observed in any of the *chaur* and fishers were managing the fisheries activities on their own. In practice, secretary of the fishermen co-operative society is the sole administrator and manager of all the affairs of society. However, society suffers from other operational issues as well, which renders the fishers in vulnerable position. Similar observations were made by Baruah et al. (2000) where it is mentioned that *beels* in Assam were mostly leased out to the rich middlemen who exploit the resource as well as fishermen. Though the condition is different in Bihar, the government *chaurs* are leased out only to the fishermen co-operatives but fishers are being exploited.

Table 3. Prevalent management practices under various management regimes in selected *chaur*s

Management Regime	<i>Chaur</i>	Area under management (ha)	Management intervention
Fishermen co-operative	Dumardah	202.43	Only capture fisheries
	Manika-Manikpur-	40.08	Culture-based fisheries
	Mauhadinagar		* Informal group formation
	Malpur-Matihani	101.21	* Seed stocking in July-Aug.
Basai-Mahnai	60.73	* Harvesting depends on drawdown level of water for 10 to 15 days (Generally in February-March)	
Farmers' co-operative	Mahisar	607.29	* Distribution of income among the members
			Capture fisheries
Informal Group	Manika-Manikpur-Mauhadinagar	20.24	* Decision regarding intake of river water into <i>chaur</i> and its discharge back into river
			* Harvesting of fishes by pre-harvest contractor only during draining out the <i>chaur</i> in October for 20 to 25 days.
			* Fishers of nearby villages are allowed to fish in the <i>chaur</i> area before auction in the month of August without any payments
			Culture-based fisheries
Private Entrepreneur	Sonmar	5.11	* Informal group formation
			* Leasing in the <i>chaur</i> by negotiation with individual farmers
			* Seed stocking in <i>chaur</i> during July-August
			* Harvesting and marketing depends on drawdown of water of water level for 10 to 15 days (Generally in February-March)
Unmanaged	Manika-Manikpur-Mauhadinagar	114.10	* Income distribution among all the members
			Culture-based fisheries
Unmanaged	Manika-Manikpur-Mauhadinagar	114.10	* Leasing in the <i>chaur</i> by negotiation with farmers.
			* Seed stocking in July-August
			* Harvesting depends on drawdown of water of water level for 5 to 6 days (Generally in February-Mar)
Unmanaged	Manika-Manikpur-Mauhadinagar	114.10	Only capture fisheries
			* Natural seed stocking is the basis
			* No seed stocking by fishers
Unmanaged	Manika-Manikpur-Mauhadinagar	114.10	* Harvesting throughout the year

In case of farmers' co-operative, *chaur* is auctioned to pre-harvest contractor for fishing/ harvesting of fishes grown in natural condition which enter into *chaur* from river through the installed sluice gate. The income generated from the *chaur* fisheries was used for social welfare activities in the village. However, the society does not take up activities for culture-based fisheries in the *chaur* except regulating the water level in *chaur* from river through sluice gate installed by the society.

Chaur fisheries managed by an informal group: Some of the *chaur*s are managed by an informal group of fishers who leased in *chaur*s through personal negotiation with individual farmers. Such kind of arrangements is present only in private *chaur*s in which government has no land. The informal group of fishers in the village, through its group leaders and few other respected persons of fisher's community, negotiate with land owning farmers of the village to get the fishing rights in such

*chaur*s at some price. Upon negotiation, they collect money as per requirement from fishers to pay to land owning farmers and then manage the *chaur* for culture-based fisheries. Here fishing takes place 10 to 15 days in a year.

Chaur fisheries managed by private entrepreneur: Some of the *chaur*s (like a portion of Sonmar *chaur*) are managed by private entrepreneurs who take the *chaur* on lease after negotiating the lease value of land with individual land owners whose lands get submerged with water for maximum period of time, to practice culture-based fisheries. After payment of negotiated lease charges to land owning farmers, the entrepreneur manage all the fisheries activities in the *chaur* during the period when land masses remain submerged. As soon as water recedes from land, the entrepreneurs losses its fishing rights on that particular portion of land and the farmers resume agricultural activities.

Unmanaged *chaur* fisheries: There are no formal or informal organizations in many of the *chaur*s (like

a portion of Manika-Manikpur-Mauhadinagar *chaur* of 114.1 ha) to manage fisheries activities. However, such *chaur*s are getting exploited and fishers are practicing fishing in these *chaur*s unrestricted. Community participated enhanced fisheries (stocking the *chaur*s with advanced fingerling) and its management can help in improving the productivity and utilization. It is clearly visible that most of the privately owned *chaur*s are not being managed properly for fish production during the period of their submergence. This may be due to unawareness of land owning farmers about the potential of fisheries in generating income and employment. Therefore, there is a need to spread awareness about the potential of fisheries and motivate the farmers to organize themselves into some formal or informal groups like self-help group (SHGs) for culture-based fisheries. Since these farmers lack technical capacity to utilize these resources for fisheries activities, they need training in utilizing the resource and financial supports for taking up the risky enterprise. Basurto & Coleman (2010) reported that timely adoption of stronger institutions leads

Table 4. Economics of *chaur* fisheries under various management regimes

(INR/ha/yr)

Particulars	Co-operative		Informal Group	Private Entrepreneur	Unmanaged
	Fishers	Farmers			
Variable Cost					
Seed	888	0.00	1235	1566	0.00
Labour cost	7298	2897	10574	16560	12689
Miscellaneous	776	2087	1099	1566	282
Interest on working capital	278	333	1153	1213	142
Total variable cost	9240	5316	14061	20905	13114
Fixed cost					
Depreciation	3522	1453	3027	807	1041
Interest on fixed capital	3218	1179	2982	680	976
Repair & maintenance	1001	6093	723	0.00	322
Land rent	1119	812	1852	13503	0.00
Total fixed cost	8860	9537	8585	14991	2339
Total cost	18100	14854	22646	35895	15453
Yield (kg/ha)	342	244	654	792	194
Selling price (INR/kg)	99	90	107	128	83
Gross revenue (INR/ha)	33780	21872	70224	101383	16193
Net income (INR/ha)	15680	7018	47579	65488	740
B:C Ratio	1.87	1.47	3.10	2.82	1.05

to sustainable and better harvest of fishes from such resources in Mexico. Co-management played an important role in fisheries development and conflict management in North Atlantic (Noble, 2000). Nielsen et al. (2004) reported that more co-operation and lesser conflict among the fishermen who managed the water bodies with co-management in South East Asia and South Africa. It was observed during the study that most of the informal groups lack effective leadership. Such groups are plagued by trust deficit. Therefore, there is a need to upscale the skill of stakeholders in co-management of such resources for better yield and prosperity of the region.

Costs and return from *chaur* fisheries across management regime were estimated for all the sampled *chaurs* and are presented in Table 4. Variable cost is the major cost component in *chaur* fisheries managed by private entrepreneurs, informal groups and unmanaged fisheries, constituting for 58, 62 and 51 per cent of total cost respectively. Jha (2009) also estimated higher percentage of variable cost (55 %) in the total cost of fish cultivation in flood prone area of Bihar. However, fixed cost (64.21 %) was the major contributor in fisheries managed by farmers' co-operatives. The major components of fixed cost land rent, depreciation on boat and gear. Labour cost is the major component of variable cost that accounted for 40.32, 19.50, 46.69, 46.13 and 81.12 per cent of total variable cost for fisher's co-operative, farmers' co-operative, informal group, private entrepreneur and unmanaged fisheries, respectively.

The net return of INR 65,488/ha/yr was the highest in *chaur* managed by entrepreneurs followed by informal groups (INR 47,579/ha/yr). The profitability was the least in the unmanaged *chaur* (INR 740/ha/yr) followed by *chaurs* managed by farmers' co-operative (INR 7,018/ha/yr). Hossain et al. (2010)

also found positive impact of leasing out water bodies to a private entrepreneur in generating more income and employment in Bangladesh. This may be due to the fact that culture-based fisheries is under practice in *chaurs* managed by entrepreneurs and informal groups whereas co-operative managed *chaurs* are mostly not stocked with fish seeds. Profitability of farmers' co-operatives is lower than the fishermen co-operative as growth for fish period is shorter due to lesser period of water retention (only for 3 months) in the *chaur*. The B-C ratio is highest in case of *chaurs* managed by informal group (3.1). The group was paying charges to only a few farmers and many times uses larger area than the leased in. The low B-C ratio (1.05) of unmanaged *chaurs* can be attributed mainly to the dominance of capture fisheries in the area.

Employment generation from fisheries managed by an entrepreneur (110 man days/ha/yr) is the highest among all, followed by unmanaged fisheries (85 man days/ha/yr) (Table 5). Employment generated from the *chaurs* managed by private entrepreneur is mainly for hired labour (95.8 %) whereas unmanaged fisheries are entirely dependent on family labour. Hossain et al. (2010) also found higher employment generation by private entrepreneurs. Employment generated from fishermen co-operative is higher than farmers' co-operative. The employment generated from farmers' co-operatives is 18.27 man days/ha/yr out of which 48.2 per cent is for hired labour.

It is clear from the above table that unmanaged fishery generated the least income with relatively high employment. This particular situation is characterized by race-to-fish, where a limited stock is chased by a number of competing fishers similar to open access resources (Hilborn et al., 2005). Therefore, adoption of culture-based fisheries in place of simple capture fishery may improve the overall income and employment generated from

Table 5. Employment generation from *chaur* fisheries under various management regimes

Management Regime		(man days/ha/yr)		
		Family Labour	Hired Labour	Total Labour
Co-operative	Fisher's	28.02	20.63	48.65
	Farmer's	9.43	8.85	18.27
Informal Group		14.82	55.67	70.49
Private Entrepreneur		4.60	105.80	110.40
Unmanaged		84.59	0.00	84.59

chaur area. This is to be supplemented by better institution to manage.

Economic superiority of *chaur* fisheries managed by private entrepreneur and informal groups over others is evident as it generated higher income and employment over co-operative managed and unmanaged fisheries. Management should lead to optimum utilization of these resources, hence allocation of these resources should be in the interest of various stakeholders like fishers and farmers. Leasing out the water bodies to a private entrepreneur has contributed positively in generating more yield and employment. Co-management and community-based management by the involvement of all the user group will lead to improvement in the yield, income and employment generation from the resources. Management strategies like reduction in fishing effort, fishing ban during flood season, mesh size regulation, fish habitat restoration and culture-based fisheries could be options to improve the productivity of the resources. This could ultimately improve income and employment opportunity leading to improvement in livelihood (Hoggarth & Krikwood, 1996; Christy, 2000). Fishermen co-operatives should be strengthened or the policy to lease out these water bodies only to fishermen co-operatives should be amended to accommodate informal groups of fishers and private entrepreneurs too. Open auction of such water bodies may bring competitiveness among the resource users and improve its productivity and profitability.

Conclusion

Keeping in the view the importance and potential of the *chaurs* in generating income and employment through fisheries activities, it is imperative to harness its potential for the economic development of the underdeveloped region of India. *Chaurs* management by private entrepreneurs and informal groups need to be promoted for managing fisheries in private *chaurs*. This is mainly due to better management of resource by them. Therefore, there is a need to encourage fishers to form their own group or develop entrepreneurship in themselves for managing the resource for its better utilization. However, as per 'Bihar Jalkar Adhiniyam, 2006', government water bodies must be leased out to fishers' co-operative of the respective blocks. Hence there is a need to amend the act accordingly to facilitate the leasing of water bodies to informal

groups of fishers or entrepreneurs too (Government of Bihar, 2006). The right of fishermen will remain protected as fishing right will be given to informal group of fishers or entrepreneur from fisher's community who in turn will hire more fishers for fishing activity by practicing enhanced fisheries rather than only capture fishing being practiced in *chaurs* leased out to fisher's cooperatives. The income and employment generated will improve the socio-economic condition of poor farmers and fishers of the region.

Majority of *chaurs* are unmanaged due to the fact that these are owned by large number of unorganized small farmers who lack capacity to organize themselves. Further they lack skillset to manage the fisheries activities, and are not in a position to take up fisheries activities on their own. Therefore, farmers of *chaur* area should be motivated and organized to form groups and trained in taking up culture-based fisheries in *chaurs*. Co-management and community-based fisheries management for taking up culture-based fisheries may be successful model to harness the potential of such resources. Capacity building of the farmers will go a long way in promoting fisheries activity in *chaur* area. For this purpose, fishery extension system in the state requires strengthening for efficient transfer of technologies.

The fisher's co-operative society which has the right to manage fisheries in government owned water bodies were found to be inefficient in managing fisheries activities. Hence, there is need to strengthen the co-operative societies and its governance for improving the pace of fisheries development in *chaurs*. There is also a need for strict implementation of the Act for development of the leased water bodies. Due to their poor economic conditions, fishers do not stock *chaurs* with adequate quantity of fish seed. Therefore, provision to access short term loan from banks on the basis of the fishing right receipt issued by the District Fisheries Officers concerned need to be facilitated.

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