

APPENDIX III

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## **SOCIO-ECONOMIC DIMENSION OF AGRIPRENEURS: A STUDY OF FISH FARMING IN MANIPUR**

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**Nongmaithem Dadina  
Nikhil Bhusan Dey\***

### **Introduction**

The socio-economic characteristics of farmers strongly influence their response to taking up farming as a well established activity and to becoming an agripreneur. Lack of authentic information on the socio-economic conditions of the targeted group is one of the serious impediments in the successful implementation of developmental programmes.

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**TABLE-1**  
**Classification of age groups of the respondents**

Age	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
20-30	1 (1)	6 (3.8)	1 (1.1)	1 (3.8)	9 (2.4)
30-40	29 (30.2)	37 (23.8)	21 (22.8)	4 (15.4)	91 (24.6)
40-50	49 (51.0)	86 (55.1)	46 (50.0)	9 (34.6)	190 (51.4)
50-60	12 (12.6)	23 (14.7)	18 (19.6)	10 (38.6)	63 (17.0)
60-70	4 (4.2)	4 (2.6)	6 (6.5)	1 (3.8)	15 (4.1)
70-80	1 (1)	0 (0)	0 (0)	1 (3.8)	2 (.5)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

Table-2 reveals gender-wise distribution of the sampled respondents. According to it, 93.5 per cent of the respondents were male and only 6.5 per cent of them were female. A patriarchal type of hierarchy exists in Manipur society: the property of the family is in the name of the father, as most of the fish farmers are male.

**TABLE-2**  
**Classification of sampled respondents according to gender**

Gender	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Male	95 (99)	135 (86.5)	90 (97.8)	26 (100)	346 (93.5)
Female	1 (1)	21 (13.5)	2 (2.2)	0 (0)	24 (6.5)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

SEDME 38.2

*Religion and caste*

Table-3 depicts classification of the respondents according to their religion. The table reveals that 88.6 per cent of the respondents were Hindu. The table also reveals that 3.5 per cent were Christian, 3.8 per cent Muslims and others which include Meitei accounted only for 4.1 per cent of the respondents. In the sample area, fish farming has been taken up mostly by Hindu community.

**TABLE-3**  
**Classification of respondents according to religion**

Religion	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Hindu	90 (93.8)	140 (89.7)	81 (88)	17 (65.4)	328 (88.6)
Christian	0 (0)	8 (5.2)	5 (5.4)	0 (0)	13 (3.5)
Islam	4 (4.2)	2 (1.3)	2 (2.2)	6 (23.1)	14 (3.8)
Other	2 (2.1)	6 (3.8)	4 (4.4)	3 (11.5)	15 (4.1 per cent)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

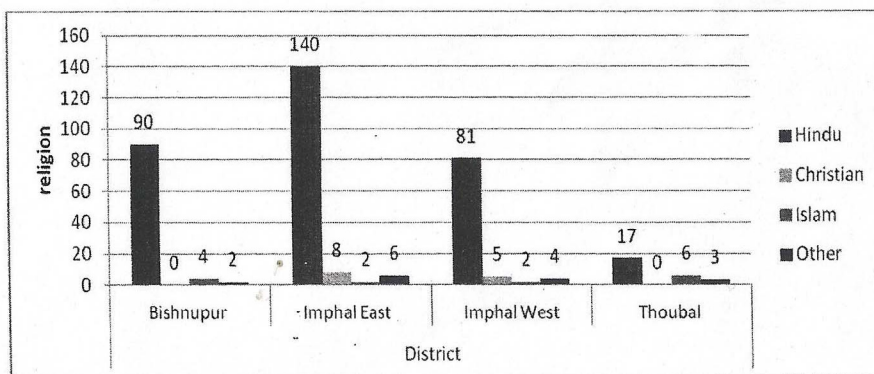


Figure 1: Classification of sampled respondents according to religion



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Table-4 shows the distribution of respondents according to social groups classified into four categories viz. (i) scheduled tribes (ST) (ii) scheduled castes (SC) (iii) other backward castes (OBC) (iv) General. The study reveals that 66.5 per cent of the respondents belonged to OBC, 32.7 per cent to General and the remaining 0.8 per cent of the respondents belonged to ST and SC. Thus, most of the respondents belonged to OBC.

TABLE-4  
Classification of respondents according to social groups

Caste	District				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
ST	0 (0)	0 (0)	1 (1.1)	0 (0)	1 (.3)
SC	0 (0)	2 (1.3)	0 (0)	0 (0)	2 (.5)
OBC	70 (72.9)	140 (89.7)	20 (21.7)	16 (61.5)	246 (66.5)
General	26 (27.1)	14 (9)	71 (77.2)	10 (38.5)	121 (32.7)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentage.

### Occupation

The standard of living and earning of fish farmers depend on their occupation. Table-5 depicts the distribution of respondents according to occupation, and shows whether fish farming has been conducted as primary or secondary occupation. The study reveals that of 370 respondents, 331 had performed fish farming as primary occupation, accounting for 89.5 per cent of the total respondents. The remaining 10.5 per cent respondents performed fish farming as their secondary occupation: fish farming activity is associated with other activities. The respondents did not perform single activities. Other activities like agriculture, business, artisans, handlooms and handicrafts, services were performed simultaneously.

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TABLE-5  
Classification of respondents according to occupation

Occupation	District				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Primary	79 (82.3)	146 (93.6)	84 (91.3)	22 (84.6)	331 (89.5)
Secondary	17 (17.7)	10 (6.4)	8 (8.7)	4 (15.4)	39 (10.5)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentage.

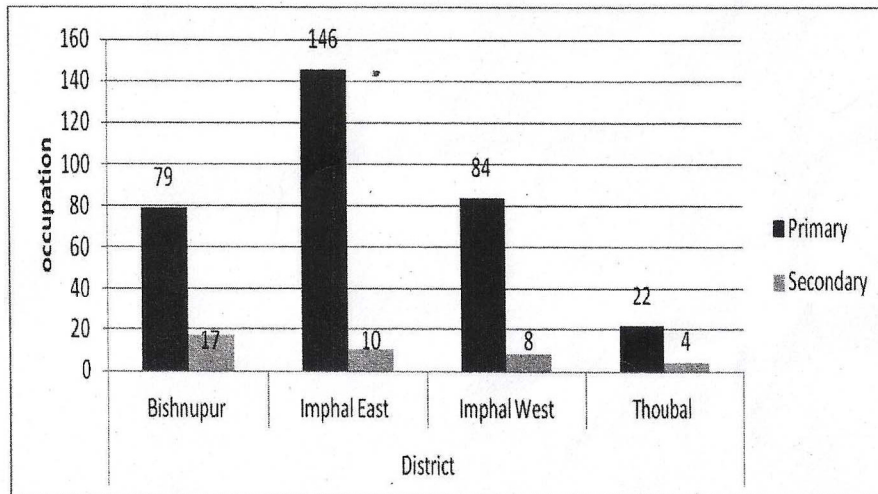


Fig. 2: Classification of sampled respondents according to occupation

The table below depicts the classification of respondents according to the type of ownership. The study reveals that 86.6 per cent of respondents had their own fish farm while 13 per cent worked in co-operative fish farms.

TABLE-6  
Classification of respondents according to ownership

Type of ownership	District				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
owned	63 (65.6)	141 (90.4)	91 (98.9)	26 (100)	321 (86.7)
leased	0 (0)	1 (0.6)	0 (0)	0 (0)	1 (.3)
co-operative	33 (34.4)	14 (9)	1 (1.1)	0 (0)	48 (13.0)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentage.

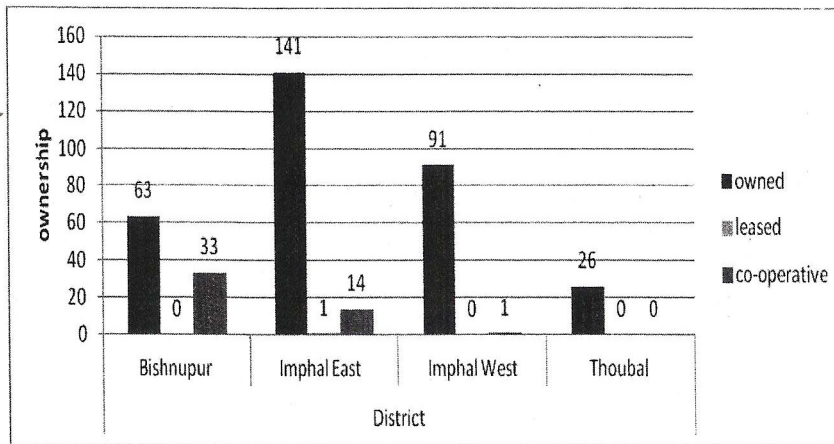
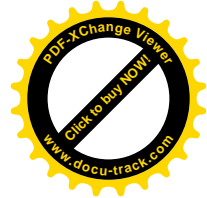


Fig. 3: Classification of respondents according to ownership

### Educational status

Table-7 reveals classification of respondents according to educational qualification. Education is said to be an important variable which influences the supply and performance of entrepreneurs. There is enough evidence to show the importance of education as a factor in economic development. The basic reason why poor countries remain poor is unquestionably because they lack knowledge, i.e., education. Business growth depends on the literacy of the entrepreneur and it affects their business decisions.





The present study reveals that fish farmers with graduation numbered the highest, forming 27.8 per cent of the total respondents. Among the sample farmers 3.5 per cent of the respondents have no education, another 3.5 per cent had education up to primary, 20.8 per cent had education up to matriculation, 15.4 per cent had education up to higher secondary and 4.6 per cent respondents had education up to post-graduation. Thus, it can be said that majority of the fish farmers were educated.

TABLE-7  
Classification of respondents according to educational qualifications

Educational qualifications	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Illiterate	3 (3.2)	4 (2.6)	4 (4.3)	2 (7.7)	13 (3.5)
Up to primary	0 (0)	10 (6.4)	3 (3.3)	0 (0)	13 (3.5)
Under matriculate	5 (5.2)	55 (35.3)	27 (29.3)	3 (11.5)	90 (24.3)
Matriculate	22 (22.9)	25 (16)	24 (26.1)	6 (23.2)	77 (20.8)
Higher secondary	19 (19.8)	22 (14.1)	9 (9.8)	7 (26.9)	57 (15.4)
Graduate	46 (47.9)	27 (17.3)	23 (25)	7 (26.9)	103 (27.8)
Post graduate	1 (1)	13 (8.3)	2 (2.2)	1 (3.8)	17 (4.6)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

*Nature and size of family*

Table-8 depicts the distribution of respondents according to the nature of family. The table reveals that 49.7 per cent of the total respondents belonged to nucleus family; while 40.6 per cent belonged to joint family and the remaining 9.7 per cent belonged to extended family.



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TABLE-8  
Classification of respondents according to nature of family

Nature of family	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Nuclear	20 (20.8)	130 (83.3)	26 (28.3)	8 (30.8)	184 (49.7)
Joint family	75 (78.2)	18 (11.5)	43 (46.7)	14 (53.8)	150 (40.6)
Extended	1 (1)	8 (5.2)	23 (25)	4 (15.4)	36 (9.7)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

The table below reveals that 53.8 per cent of the respondents had 5 to 8 family members, while 19.2 per cent had 1 to 4 members and 22.4 per cent had 9 to 12 family members. If the family were larger, then they did not have to hire labour in fish farming.

TABLE-9  
Classification of respondents according to size of the family

Family size (in number)	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
0-4	7 (7.3)	52 (33.4)	8 (8.7)	3 (11.6)	71 (19.2)
5-8	25 (26)	93 (59.6)	68 (75)	13 (50)	199 (53.8)
9-12	55 (57.3)	10 (6.4)	13 (14.1)	5 (19.2)	83 (22.4)
13-16	9 (9.4)	1 (.6)	2 (2.2)	5 (19.2)	17 (4.6)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

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**Housing, drinking water and lighting**

Housing pattern is one of the most important indicators used to assess the economic well-being of any community. The table below shows the distribution of respondents according to the type of house they had lived in. The study revealed that 19 respondents, i.e., 5.1 per cent lived in pucca houses while 47 per cent stayed in semi-pucca houses and 47.9 per cent lived in kutchha houses. Thus, fish farmers had good housing condition.

**TABLE-10**  
**Classification of respondents according to type of house they stay**

Type of house	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Pucca	2 (2.1)	9 (5.8)	3 (3.2)	5 (19.2)	19 (5.1)
Semi-pucca	91 (94.8)	32 (20.5)	34 (37)	17 (65.4)	174 (47.0)
Kutchha	3 (3.1)	115 (73.7)	55 (59.8)	4 (15.4)	177 (47.9)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

The table below shows the distribution of respondents according to the sources of drinking water. For the purpose of the study, the sources of drinking water were divided into five types: (i) own tap (ii) public tap (iii) own pond (iv) public pond (v) other. The study reveals that 121 respondents of the total 370 respondents, i.e., 32.7 per cent had their own tap as their source of drinking water, while 33.5 per cent used the public tap, and 87 respondents (23.5%) used the public pond as their source of drinking water.

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**TABLE-11**  
**Classification of respondents according to sources of drinking water**

Sources of drinking water	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Own tap	12 (12.5)	101 (64.7)	5 (5.4)	3 (11.5)	121 (32.7)
Public tap	32 (33.4)	46 (29.5)	29 (31.5)	17 (65.4)	124 (33.5)
Own pond	37 (38.5)	4 (2.6)	42 (45.7)	4 (15.4)	87 (23.5)
Public pond	14 (14.6)	3 (1.9)	16 (17.4)	2 (7.7)	35 (9.5)
Other	1 (1)	2 (1.3)	0 (0)	0 (0)	3 (.8)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

The table below depicts the distribution of respondents according to the sources of lighting. For the purpose of the study the sources of lighting were divided into four types: electricity, kerosene, both electricity and kerosene, and other sources of lighting. The study reveals that 17 respondents (only 4.6%) had electricity as medium of lighting, 2.2 per cent used only kerosene, and 344 respondents (93%) used both electricity and kerosene.

**TABLE -12**  
**Classification of respondents according to medium of lighting**

Medium of lighting	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Electricity	10 (10.4)	4 (2.6)	0 (0)	3 (11.5)	17 (4.6)
Kerosine	6 (6.3)	1 (0.6)	1 (1.1)	0 (0)	8 (2.2)
Both 1 & 2	80 (83.3)	151 (96.8)	90 (97.8)	23 (88.5)	344 (93.0)
Other	0 (0)	0 (0)	1 (1.1)	0 (0)	1 (.3)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.



**Consumption habit**

The table depicts the distribution of respondents according to their consumption habit. The study reveals that out of the total 370 respondents, only 24 (6.5%) had the habit of consuming beedi, 28 (7.6%) of cigarette, 22 (5.9%) of khaini and 269 respondents (72.7%) were not in the habit of consuming any of the above mentioned things.

TABLE-13

**Classification of sampled respondents according to consumption habit**

Consumption habit	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Beedi	3 (3.1)	0 (0)	18 (19.6)	3 (11.5)	24 (6.5)
Cigarette	5 (5.2)	3 (1.9)	16 (17.4)	4 (15.4)	28 (7.6)
Liquor	0 (0)	1 (0.6)	18 (19.6)	3 (11.5)	22 (5.9)
Khaini	0 (0)	0 (0)	16 (17.4)	4 (15.4)	20 (5.4)
Other	2 (2.1)	0 (0)	0 (0)	5 (19.5)	7 (1.9)
None	86 (89.6)	152 (97.4)	24 (26)	7 (26.9)	269 (72.7)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in the parentheses indicate percentages.

*Land area*

The table below shows the distribution of respondents according to the size of their fish farm. The size of the fish farm is measured in hectares. The study reveals that 186 respondents (i.e. 50.3%) had 0-1 hectares of fish farm, 122 respondents (33%) had 2-3 hectares, while 54 respondents (14.6%) had 2-3 hectares.

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Land area (in hectare)	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
0-1	43 (44.8)	116 (74.4)	22 (23.9)	5 (19.2)	186 (50.3)
1-2	30 (31.3)	32 (20.5)	50 (54.4)	10 (38.5)	122 (33.0)
2-3	22 (22.9)	6 (3.8)	16 (17.4)	10 (38.5)	54 (14.6)
More than three	1 (1)	2 (1.3)	4 (4.3)	1 (3.8)	8 (2.2)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in parentheses indicate percentages.

### Experience and purpose of fish farming

\* The table below shows the distribution of fish farmers according to the experience of fish farming. The study reveals that 172 respondents (46.4%) had an experience of less than 10 years, followed by 10 to 20 years by 36.8 per cent, and respondents with 20 to 30 years of experience accounted for only 14.9 per cent.

TABLE-15

### Classification of sampled respondents according to experience of fish farming

Experience	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Less than 10	0 (0)	130 (83.4)	36 (39.1)	6 (23.1)	172 (46.4)
10-20 year	56 (58.3)	25 (16)	45 (48.9)	10 (38.5)	136 (36.8)
20-30 year	38 (39.6)	0 (0)	10 (10.9)	7 (26.9)	55 (14.9)
More than 30	2 (2.1)	1 (0.6)	1 (1.1)	3 (11.5)	7 (1.9)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in the parentheses indicate percentages.

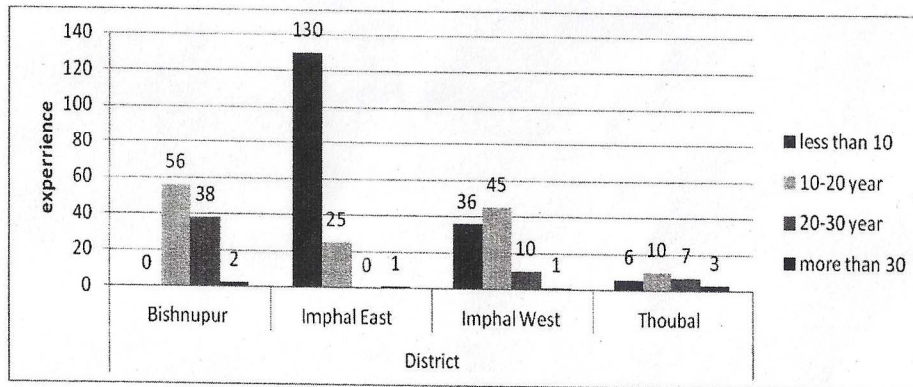


Fig. 4: Classification of sampled respondents according to experience of fish farming

The table below shows the distribution of respondents according to the purpose of fish farming. The study reveals that 58.6 per cent of the total respondents produced only table fish (fish for consumption), while 37.6 per cent produced both fish seeds and table fish, and they belonged to Imphal East district.

TABLE-16  
Classification of respondents according to purpose of fish farming

Purpose	Districts				Total
	Bishnupur	Imphal East	Imphal West	Thoubal	
Fish seed	0 (0)	2 (1.3)	7 (7.6)	1 (3.8)	10 (2.7)
Table fish	96 (100)	11 (7.1)	85 (92.4)	25 (96.2)	217 (58.6)
By-product of fishing industry	0 (0)	4 (2.6)	0 (0)	0 (0)	4 (1.1)
Both fish seed and table fish	0 (0)	139 (89)	0 (0)	0 (0)	139 (37.6)
Total	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in the parentheses indicate percentages.



The table below shows the distribution of fish farmers according to the production of fish in kg. per hectare. The table reveals that 34.1 per cent of the respondents produced 1001 - 2000 kg. of fish, while 31.4 per cent produced fish between 0 - 1000 kg. The remaining 34.6 per cent produced fish above 3000 kg per hectare.

TABLE-17  
Classification of respondents according to level of production

Production per hectare (kg.)	District			Thoubal	Total
	Bishnupur	Imphal East	Imphal West		
0-1000	9 (9.4)	26 (16.7)	68 (73.9)	13 (50)	116 (31.4)
1001-2000	36 (37.5)	64 (41.0)	19 (20.6)	7 (26.9)	126 (34.1)
2001-3000	40 (41.7)	64 (41.0)	3 (3.3)	1 (3.8)	108 (29.2)
3001-4000	5 (5.2)	0 (0)	1 (1.1)	2 (7.7)	8 (2.2)
>4000 and more	6 (6.2)	2 (1.3)	1 (1.1)	3 (11.5)	12 (3.2)
	96 (100)	156 (100)	92 (100)	26 (100)	370 (100)

Source: Field survey.

N.B. Figures in the parentheses indicate percentages.

### Relationship between socio-economic variables and productivity

The table below shows the relationship between the socio-economic variables and productivity of fish. The study reveals that age, gender, occupation and experience in fish farming among the sample fish farmers had no relationship with productivity of fish. Type of ownership, educational qualification and purpose of fish farming had a positive relationship. The productivity of fish increased when the fish farmers were members of the co-operative society. When the fish farmers were producing both fish seeds and table fish the productivity also increased. Land area and productivity of fish had negative relationship, i.e., with the increase in the area of fish farm the productivity of fish went down.



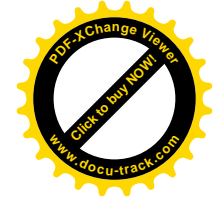


TABLE-18  
Relationship between socio-economic variables and productivity of fish

Sl. No.	Variables	"r" value
1	Age	.039 NS
2	Gender	.013 NS
3	Occupation	.093 NS
4	Type of ownership	.177**
5	Educational qualification	.117*
6	Land area	-.262**
7	Experience in fish farming	.032 NS
8	Purpose of fish farming	.177**

Note: NS: Non significant  
\*\* Significant at 1per cent level  
\* Significant at 5per cent level

### Conclusion

Under liberalisation and globalisation, agricultural entrepreneurship has opened new vistas for growth and development of the agrarian economy in Manipur. Farming is tremendously important to Manipur's economy and culture. More than 90 per cent of the people of the state are fish consumers. The country will not prosper fully without a vibrant and dynamic agriculture and allied sectors. Fish farmers play a great role in enhancing fish production in the state. Information on socio-economic aspects of fish farmers will form a benchmark for policy formulation for developing this sector. The study reveals that most of the fish farmers were male and adult, most of them educated. Housing, drinking water and lighting conditions of the fish farmers were of average level. Thus, the socio-economic condition of the fish farmers has to be improved further to increase fish production in the state by adopting modern techniques of fish farming. More entrepreneurship development programmes have to be conducted for agripreneurs.

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# ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT IN NORTH EAST INDIA

*Edited by*

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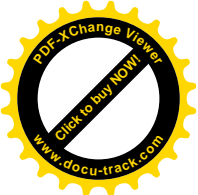
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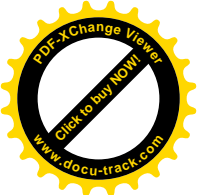
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## Production and Marketing problems of Fish Farming: A Study in some selected Districts of Manipur, India

*Nongmaithem Dadina  
Nikhil Bhusan Dey*

### INTRODUCTION:

The term fish marketing is a synthesis of two words- fish and marketing. Fish marketing concepts have changed with the increasing fish production and increasing demand for fish. Fish is treated as a cheap source of animal protein. Production of fish requires marketing. Marketing is one of the most important aspects in fish farming. Fish is a highly perishable commodity with unpredictable supply. Production and marketing of fish play a significant role in contributing to economic growth. (Kumar, 2008) Farmer friendly fish farming is an important economic activity of the rural people of India for augmenting their income, generating employment and ensuring food and nutritional security (Ranadhir, 1984). To make the fish available to consumers at reasonable prices, right time and place require an effective marketing system. Therefore, fish marketing is a vital aspect for sellers, consumers and other facilitating agencies, including the government. Hence agriculture becomes the backbone of the Indian economy. A simple definition of fish marketing is buying and selling of fish and fish product. In the olden days, when villages were self sufficient and self contained, the farmers used to barter or sell their produce in the village market. Today the agriculture markets have evolved. There are stages and interdependence in the fish marketing activities. The fish changes many hands before it reaches the ends users. (R.V.Badi & Badi, 2008).





The degree of consciousness among respondents about the environment and its impact on fish production and marketing is limited. Infrastructural facilities and information dissemination about marketing are two very important issues which need immediate attention (Roy, 2008). (Ravindranath, 2008) had identified some of the problems in fish marketing which include high perishability and bulkiness of material, high heterogeneity in size and weight among species, high cost of storage and transportation, no guarantee of quality and quantity of commodity, low demand elasticity and high price spread. (Gupta, 1984) and (Srivastava, 1985) had also studied the marketing of fish and fishery products in India, wherein they had analyzed price variations among species across states and had identified infrastructural problems in marketing of fish. An efficient fish marketing system could eliminate some of the depressed pockets of malnutrition by supplying fish at reasonable prices to people living on subsistence level (Rao, 1983). There are some studies conducted on the production and marketing of fish in India (B. Ganesh Kumar, 2008), Ali et.al (2008), Hussain (2003). The domestic fish marketing system in Manipur is neither efficient nor modern and is mainly carried out by private traders with a large number of intermediaries between producer and consumer. Manipur state lies in the north-eastern most corner of India with a central oval shaped valley surrounded by mountains on all sides. Manipur lives in village where agriculture is the main occupation. Manipur has a vast potential of inland fisheries resources of around 56461.05 ha in 2001 in the form of beels, lakes, ponds, tank, rivers, etc. and 15000 ha of water areas have been brought under fish culture operation. It is estimated that there are about 34,000 fish farmers and fishermen in the state who are wholly or partly dependent on fish farming and fishing. (Department of Fisheries, Govt. of Manipur). Since fishery is state subject, the success in fisheries performance is crucially dependent on the policies and actions initiated by the state. This is an opportune time to give serious considerations to various facets of fish farming to bring rural development. The role of fish production and marketing of fish in initiating and stimulating the process of rural development is well recognized, studies on fish farming in Manipur is somewhat rare. Further empirical studies on fish marketing and related problems will help in augmenting fish production and in bringing rural development in Manipur. An attempt has been made to study the different aspects of production and marketing of fish farming in Manipur.



### **OBJECTIVES:**

The present study has been conducted to achieve the following objectives

1. To study the various aspects of fish production in Manipur.
2. To examine pricing mechanism of different fish market in Manipur.
3. To examine the marketing channels of fish in Manipur.
4. To study marketing problems from the perspective of fish farmers in Manipur.

### **RESEARCH METHODOLOGY:**

The study was conducted in four valley districts of Manipur viz. Bishnupur, Imphal East, Imphal West and Thoubal during 2009-2010. Stratified random sampling procedure was applied. The above four districts have been classified into 14 sub-division. These fourteen sub divisions were used as strata. From each stratum, samples had been drawn by using convenience sampling. The total of 370 fish farmers is taken as sample for the present study and it is proportionately divided into each stratum. The sample was selected from the list of fish farmers provided by Department of Fisheries, Government of Manipur. A structured interview schedule was developed incorporating all the queries to accomplish the set objectives of the study. A total of 370 fish farmers were interviewed to collect the data relating to production, marketing and related problems. The producer's price of fishes is collected from different fish farmers and the wholesalers and retailers price are collected from different markets of these four districts. The data is tabulated and statistical analysis like percentage and ranking method are used.

### **RESULTS AND DISCUSSION:**

In the study area however, production of fish is mainly done to meet the local demand and the marketing activities is restricted mainly to nearby markets and mainly done at farm place. Marketing of inland fish in different states, though has some common features, differs in many ways. However, in study area there are three marketing channels.

### **PRODUCTION:**

In Manipur most of the fish farmers are marginal and small farmers. In the study area, half of respondents are marginal farmers i.e., the size of the fish farms is 0-1 hectare. And half of the fish farmers are small fish farmers i.e., they hold farm with area ranging from 1-3 hectare in which 33% respondents are having water area of 1-2 hectare and 14.6% respondents are having 2-3 hectare of fish farm.



Table 1: Distribution of respondents according to the size of fish farm

Size of fish farm (in hectare)	District				Total
	Bishnupur	Imphal east	Imphal west	Thoubal	
0-1	43 (11.6)	116 (31.4)	22 (5.9)	5 (1.4)	186 (50.3)
1-2	30 (8.1)	32 (8.6)	50 (13.5)	10 (2.7)	122 (33)
2-3	22 (5.9)	6 (1.6)	16 (4.3)	10 (2.7)	54 (14.6)
More than three	1 (.3)	2 (.5)	4 (1.1)	1 (.3)	8 (2.2)
Total	96 (25.9)	156 (42.2)	92 (24.9)	26 (7.0%)	370 (100)

Note: Figure in parentheses indicate percentage

Source: Field survey

Many of the fish farmers adopted mixed fish or composite fish farming practices in Manipur, where they cultivate different types of fish in single fish ponds. Major carps (rohu, mrigal, catla), exotic carps (common, silver, grass carps) and indigenous fish (pengba, ngaton) are cultivated in the study area. Production of major carps and exotic carps are more than the indigenous fish. The respondents also feels that grass carps is the most profitable fish that should be cultivated as it needs less caring and growth is faster than other types of fish. However, in the study area, 49.2% fish farms cultured major carps, exotic carps and minor carps while 41.3% fish farms cultured both major and exotic carps and only 9.5% fish farms cultured only major carps.

Table 2: Distribution of respondents according to the type of fish cultured

Fish cultured	District				Total
	Bishnupur	Imphal east	Imphal west	Thoubal	
Major carps	0 (0)	2 (.5)	28 (7.6)	5 (1.4)	35 (9.5)
Major, minor and exotic carps	22 (5.9)	85 (23.0)	14 (3.8)	9 (2.4)	182 (49.2)
Major and exotic carps	74 (20)	69 (18.6)	50 (13.5)	12 (3.2)	152 (41.3)
Total	96 (25.9)	156 (42.2)	92 (24.9)	26 (7.0)	370 (100)

Note: Figure in parentheses indicate percentage

Source: Field survey



The main activities of fish farms in Manipur are to produce fish seeds and table fish (fish that can be consumed). However, in the study area, 2.7% fish farms produce only fish seeds, 59.7% fish farms produce only table fish while 37.6% produce both fish seeds and table fish. This practice of producing both fish seeds and table fish is prevailing mostly in Imphal east district of Manipur.

Table 3: Distribution of respondents according to purpose of fish farming

Purpose of fish farming	District				Total
	Bishnupur	Imphal east	Imphal west	Thoubal	
Fish seed	0 (0)	2 (.5)	7 (1.9)	1 (.3)	10 (2.7)
Table fish	96 (25.9)	11 (3.0)	85 (23.0)	25 (6.8)	217 (58.6)
By-product of fishing industry	0 (0)	4 (1.1)	0 (.0)	0 (.0)	4 (1.1)
Fish seed and table fish	0 (0)	139 (37.6)	0 (.0)	0 (.0)	139 (37.6)
Total	96 (25.9)	156 (42.2)	92 (24.9)	26 (7.0)	370 (100)

Note: Figure in parentheses indicate percentage

Source: Field survey

In the study, harvesting of fish is mainly done by persons who have control on the water body. This could be owned or cooperatives. For the owned fish farm, the wholesalers and the owner of fish farms fix a date for harvesting the fish and harvested jointly by the owner and wholesalers. Both male and female members of the fish farms are engaged in harvesting of fish. There is a linkage (contract) between fish farmers and the wholesalers for selling the fish. The owners cannot sell the produce to any other persons.

Grading of fish is observed at different levels. After harvesting fish is graded based on their different varieties like rohu, mrigal, grass carps, etc. overall, grading relates to final price of fish. Grading of fish based on weight range is not practiced in the study area. This is because price of fish prevails in different ranges.

When the farmers were asked about the production cycle of fish adopted in their farm i.e. how many times they harvest the fish in a year, 91.6% of respondents harvested their fish only once in a year which means that the production cycle adopted in the study area is 10-12 months in a year. Remaining 6.2% of respondents harvested the fish two (2) times and 2.2% respondents



harvested for three (3) times in a year. But, there is a variation in harvesting the fish. The fish farmers harvested any time when the fish reach the marketable size according to their needs. The fish is harvested to meet variables inputs (seeds, feeds, etc.) of the farms and also for their personal purposes.

Table 4: Distribution of respondents according to production cycle

Size of fish farm (in hectare)	Production cycle (number of time fish has been harvested in a year)			Total
	1	2	3	
0-1	180 (48.6)	3 (.8)	3 (.8)	186 (50.2)
1-2	107 (28.9)	11 (3.0)	4 (1.1)	122 (33)
2-3	47 (12.7)	6 (1.6)	1 (.3)	54 (14.6)
More than three	5 (1.4)	3 (.8)	0	8 (2.2)
Total	339 (91.6)	23 (6.2)	8 (2.2)	370 (100)

Note: Figure in parentheses indicate percentage

Source: Field survey

#### PRICING:

Once the harvesting is done, the farmers sell the fish at a price generally fixed by mutual discussion mainly with the wholesaler. In most of the cases there is lack of appropriate storage facilities. Fish farmers made a regular visit to the local and main market located in the state to make itself aware of the prevailing price from different markets. The floor price is also applicable for retailers and consumers who would like to buy fish from farm site. But the fish farmers give some trade discount. The actual price of fish sold varies, which depends on amount of fish harvested, size of the fish and participation of middlemen in the supply chain of fish.

The price of the fish varies according to the size of fish. Both retail and wholesale prices of fish was observed to be similar for all the farms. The price range of wholesale level and retail level was observed to be Rs. 10 to Rs. 20 per kg. It depends on the distance between fish farm and the market and the availability of fish. The fish is marketed mostly at farm site to wholesalers, the producers' price of Indian Major Carps (rohu and catla) ranges from Rs. 100-110 per kg. and producers' price for mrigal is Rs. 90-100 The price of exotic carps other than silver carps ranges from Rs. 90-100 per kg. The price of Indian



Major Carps is higher than the exotic carps (grass, common, silver). The price of silver carp is observed to the lowest among the carps cultured in Manipur and it ranges from Rs 60-70 per kg. The wholesale price of Indian Major Carps (rohu and catla) is Rs. 120 per kg while the price of exotic carps and mrigal is Rs. 110 per kg and the price of silver carp is Rs. 80 per kg. Pengba, the State Fish of Manipur is the costliest fish in Manipur. The price of pengba is Rs. 400 per kg. The retail price of local fish is shown below:

Table 5: Producer, wholesale and retail price of fishes

Types of fishes	Producers' price (Rs. per kg)	Wholesale price (Rs per kg)	Retail price (Rs per kg)
Rohu	100-110	120	140-150
Catla	100-110	120	140-150
Mrigal	90-100	110	120-130
Common carp	90-100	110	120-130
Silver carp	60-70	80-90	100-110
Grass carp	90-100	110	120-130
Pengba (osteobrama belangerii)			400

Source: Field survey

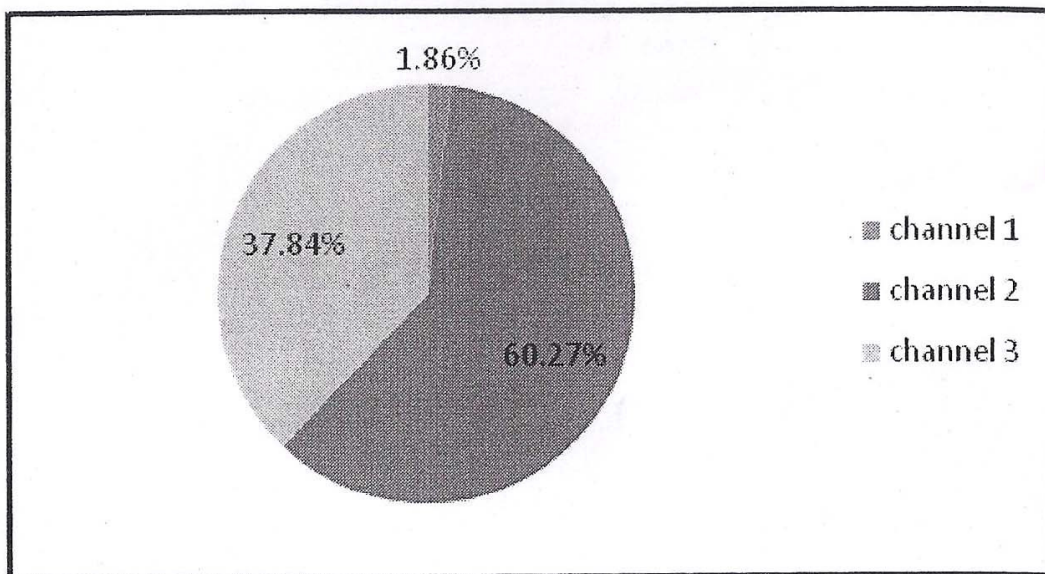
MARKET CHANNELS AND MARGINS:

Marketing channels relate to the demand and supply scenario across markets, and the consumers preference. The key marketing channel in the region includes harvesting of fish from water bodies and sell in different markets, which depends on quantity of fish harvested (Vrutti, 2008).

Marketing channels (or distribution channels) are an essential part in marketing of fish. Majority of fish farmers do not sell their product directly to consumers. They used intermediaries like agents, wholesalers and retailers to make available their product to the consumers. Decision of channels choice is very important as it decide other marketing decisions. The role of channels is not mere distribution. The intermediaries have to constantly interact with producers and customers to coordinate size, quantity and other expectation aspects of fish. As fish is seasonal in nature, it calls for constant track of up and downs of pricing.

- Channel 1: producer → consumer (farm gate)
- Channel 2: producer → wholeseller → retailer → consumer
- Channel 3: producer → retailer → consumer

Figure 1: Distribution of respondents according to marketing channel

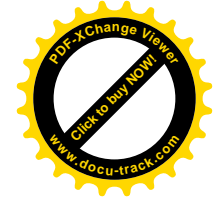


There are predominantly three channels in fish marketing in the study areas. In most of the farms, harvested fish goes to the local villages markets through wholesalers and retailers, from where it goes to main market of Manipur i.e., ima market(mother market) which is located in the hub of Imphal town. Fish marketing in study area confined to the local market only.

In channel 1, the farmers (producers) sell the fish directly to the consumer. This channel is not so common but still prevails in the study area. In this channel the consumers directly approach the farmers to sell their fish. This mainly happen when the consumers have function (party) at their resident as any function is incomplete without fish mainly for meetei (they are the inhabitant of Manipur).

Channel 2 and 3 are the most common marketing channels that prevail in the study area. In channel 2 the farmer sell fish directly to the wholesalers. The wholesales directly approach the farmer for harvesting the fish. Harvesting will be made when both the farmer and the wholesaler agreed. After the fish is harvested, the fish is carried to the local village market and to the nearby market. There is no wholesale market in the study area. Producer's share in consumer price is around 70%.

In channel 3, the farmer sells fish directly to the retailers in higher price than the wholesaler. Same as channel 2, producers' share in consumer price is around 70%. On the basis of fish selling market, there are three types of market viz. local, national and in international market. But the market in the study



area is confined only to the local market. This includes Ima market, Moirang bazaar, Ningthoukhong bazaar, Bishnupur bazaar, Thanga bazaar, Nambol bazaar, Sekmajing bazaar, Mayang Imphal bazaar, Konung lampak market and Thoubal bazaar.

In the study area, most of fish is traded on farm site. Where 64.9% of the fish farmers traded fish on farms site only and 34.3% fish farmers traded fish both at farm gate as well as market. 60.27% fish farmers sell their produce to wholesalers and 37.84% farmers sell their produce directly to the retailers. Wholesalers buy fish at pond site and carry fish in bulk to the market in local villages where it sells to the retailers. Then, the retailers either sell the fish in local market or sell it to the ima market. Fish farmers sell the fish directly to the retailers in the local village market. The farmers sometimes sell their produce in fish fairs. The fish fair is organised by the Department of Fisheries, Government of Manipur every year on the eve of Ningol Chakouba festival held in October or November. The marketing of fish in mainly done by female.

Besides this, certain quantity of fish goes for consumption at family level. At time, the farmers gifted the fish to their relatives and also sell it at a subsidized rate.

#### **MARKETING PROBLEMS:**

There exists number of obstacles in the marketing of fish. To assess the degree of marketing problems faced by the fish farmers on 7 (seven) different aspects of marketing, the following methodology is adopted.

At the first stage, the respondents are asked to indicate the level problems on three point scale with the ratings high degree of problem, medium degree of problem and low degree of problem and weights have been assign as 3,2 and 1 respectively.

The mean values has been calculated for each attributes as mention below

Mean value =  $\frac{fx}{n}$ ,

Where f= number of responses obtain for each rating,

X = the value assign and n= number of observation

At second stage, the mean value of different problems faced by fish famers is calculated as shown in the following table.





Table 6: Problems faced by fish farmers

Sl. No.	Variables	Actual score	Rank	Degree of problem
1	Transportation problem	2.76	1	***
2	Competition from other state	2.05	5	**
3	Price variation of local fish and imported fish	2.16	4	**
4	Lack or less demand of fish	1.00	7	*
5	High cost of input(fish seeds, feed)	2.71	2	***
6	Storage problem	2.58	3	***
7	Lack of refrigerated vehicle to carry fish	1.72	6	**

Source: Field survey

\*less serious problem

\*\*moderate serious problem

\*\*\*very serious problem

Transportation is the main problem faced in the study area. Food is the basic necessity to all human being and it can be reached only through transport. Transportation is an essential part of marketing activities for any type of product. Different type of transport activities are involved for B2B (Business to Business) and B2C (Business to Consumers) needs. This is because fish are not consumed totally at farm site. There is a movement of fish from farm site to the market. Fish gets spoiled due to poor transportation and it further reduces the profit of wholesalers and retailer. The study reveals that transportation problem is high in the study area. It score 2.76 and encountered high degree of problems and rank 1st among the marketing problems faced by the fish farmers.

The fisheries department of state has 1(one) refrigerated vehicle to carry fish. The distance the fish has to move is of short distance i.e. within the state only so the fish farmers do not fell the need of having this kind of refrigerated vehicle. This problem has been put in low degree of problems.

Fish farmers cannot fulfill all the demand of fish in the state. Supply is less than the demand of fish. There are many agencies who imported fish from other states. The main importers of fish are Andhra Pradesh, Assam and West Bengal. Fish farmers have to compete with imported fish for size, kind of fish and price. The problem relating to competition regarding size and various kinds of fish is 2.05 which also encountered high degree of problem and rank 5th among the marketing problems faced by the fish farmers. And the problem relating to price variation among local fish and imported fish is encountered high degree of problem with 2.16 score and ranked 4th among the marketing



problems.

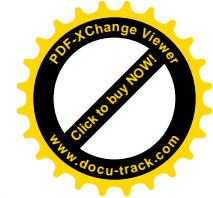
The most important function of any market is to determine the price of commodities that enter the market. Demand behavior of buyers and supply behavior of sellers are the two forces that affect price merge. In the study area demand for fish is more than the supply of fish. The fish farmers have control on the sell of fish. The farmers ranked this variable as least problems or no problems among the marketing problems.

Fish seeds, feed, medicine is the most important inputs in fish farming. High cost of these inputs hindrances the production of fish farming. Fish seed is the most essential input. The farmers has to know the different types of fish seeds available in the market and also know the required quantity of fish seeds per hectare to give maximum production. There are special fish feed available in the market (lime, muhua cake). Most of the farmers are marginal and economically poor farmers they cannot afford all the quality fish seed and fish feed available in the market. However, in the study area, most of the farmer faced different marketing problems. Farmers used locally produced fish feeds like grass, muhua cake, etc. Problem of high cost of fish inputs score 2.71 points out of 3 and it has been recorded high degree of problem. It has been ranked 2nd among the marketing problems faced by the fish farmer in the study area.

Storage is one of the essential needs in marketing of fish. As fish is a highly perishable food item, it needs great care to preserve its quality. Practice of storage is as old as humanity. Only the method, quantity and safety factors have improved in the modern age. Storage is mainly done to protect from spoilage and pilferage and to sell in better price. When the farmers sell fish to the wholesalers or retailer at farm site, it does not require any storage of fish. But when the retailer has to sell fish in market for longer time period, it needs storage to preserve the quality of fish and to get reasonable return from the sell of fish. Fish farmers store fish in the tin container with water. There is no system of storing fish in ice. The respondents feel that storage is one of the marketing problems with high degree and rank 3rd immediately after high cost of inputs.

#### CONCLUSION:

Fish production and marketing holds a huge potential, it is still highly unorganized and unregulated in the study area. It has been long neglected for



many reasons and necessary efforts have not been made on production and marketing of fish. The improvement in fish production and marketing system and distribution would not only reduce demand-supply gap of fishes across the state, but would also contribute to food and nutritional security of a vast population. The farmers in the study area are adopting traditional techniques of fish farming and harvesting only once in year. There are number of organization and policies related to promotion of fish production and marketing in the country, there is need to formulate a uniform market policy for fishes. More training should be organised in the rural areas so that modern technique of fish farming are teach to the fish farmers and to increase fish production in the state. There are certain production and marketing problems faced by the fish farmers. The problems faces by fish farmers obstruct the development process. The three main serious problems i.e. transportation, high cost of inputs and storage problem should be solved to increase the production and marketing of fish in the state. The Fisheries Department and appropriate authority can take up necessary steps to solve the problems so that fish farming can be taken up as means of livelihood and generating employment among the rural people. Manipur has a large potential of inland fisheries and should encourage people to take fish farming as a business and develop farm entrepreneur so that employment level can be increased. Production and marketing of fish should be develop with the coordination of the government and the private sector as there are large employment opportunities in this sector and improve the livelihood of the people of Manipur.

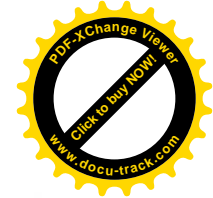
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