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# Socio-Economic Status of Fish Farmers in Selected Regions of Uttar Pradesh

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## ABSTRACT

Present investigation was carried out in the four regions of Uttar Pradesh to assess the socio-economic status of fish farmers. Following stratified random sampling method, a district was selected from each region and 159 farmers were randomly selected for age, education, caste, household amenities, social participation, employment, income levels from fish farming and other farm and nonfarm activities of Uttar Pradesh. A novel tool called as socio-economic status (SES) index that measures social and economic aspects was developed and utilized. The study revealed that majority of the fish farmers (79.2%) were falling under medium SES of whom nearly two-third had the score above 6. Majority of fish farmers were in middle age group, education up to middle level, bigger family size, with income level varied between 1 to 2 lakh, having smaller land holding with an average pond size of 0.55 ha. Total household income of respondents was not significantly varying across the 4 districts. Majority of the respondents had better housing facilities, had a medium level of social participation and interestingly farmers having higher degree of social participation were more accessible to the public services. However, it was also observed that about 30 per cent of population did not have proper sanitation facility which was not hygienic for a densely populated state. In spite of increased supply of LPG, nearly 70 per cent of population still using firewood for cooking purpose.

**Key Words:** FFDA, Fish Farmer, Socio-Economic Status Index, Uttar Pradesh.

## INTRODUCTION

Farmer's socio-economic status plays crucial role in the development and adoption of new technologies. Today's farmers are dissimilar from the past, as they adopt diversified and intensive cultivation practices for obtaining maximum returns thus, depend upon different agencies for inputs including information and knowledge. The capacity of purchasing inputs depends upon financial condition of the farmers. The willingness to pay is influenced by many factors; one of the significant aspects is socio-economic condition pertaining to demography, means of production and investment, income and expenditure of people living in a particular location strongly influence their responses to technical transformation and involvement in development schemes. Lack of authentic information on the socio-economic

circumstances of the target community is one of the serious impediments in the successful execution of developmental programs.

In the fisheries sector, several micro and macro level socio-economic surveys had been conducted by a variety of agencies and research workers in different areas of our country to study one or the other problem of the fishermen community (Goswami *et al*, 2002; Balajiet *al*, 2018). However, attempts have not been made to carry out similar studies among inland fish culturists, particularly in Uttar Pradesh. Uttar Pradesh is situated in the northern region of the country, stands 3<sup>rd</sup> in total fish production among the inland states of the India and has rich inland fisheries resources in the form of riverine, oxbow lakes and derelict water bodies, ponds and tanks, reservoirs, water logged areas etc. forms a total inland resource area of 12.4 lakh ha.

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Composite fish culture in the region is increasingly becoming popular among fish farmers; however, the recommended packages of practice were not followed by existing farmers. Keeping in view of all these reasons, the objective of present study was to examine the socio-economic status of fish farmers from selected regions of Uttar Pradesh.

## MATERIALS AND METHODS

The present study was conducted in four regions of Uttar Pradesh namely eastern, western, central and Bundelkhand regions of U.P. One district each from these four regions *viz.*, Faizabad, Aligarh, Lucknow and Jhansi were selected purposely based upon the maximum water area under ponds and tanks and maximum fish production activities. A total 159 fish farmer was selected. The information on the socio-economic status was obtained from farmers through structured and pre-tested interview schedule which included statements and questions relevant for studying the socio-economic status. The selected farmers were interviewed personally at their farms.

### Measurement of socio-economic status of selected respondents

Socio-economic status index of the respondent was found out through a socio-economic status index developed by considering following social variables namely age, education, caste categories, family size, social participation and economic variables namely household amenities, agricultural area, aqua cultural area, household income and access to public services. These two dimensions were separately measured by formulating two respective indices namely, Social Status Index and Economic Status Index. All these variables were measured on a 5-point scale and then weightage was given for each of them. Each variable was categorized and measured on a 5-point Likert scale. For example, education level of respondents was categorized into 5 level from illiterate to collegiate, accordingly higher the education higher will be the score was given from 1 to 5. Similarly, frequency

of participation in social events as weekly, monthly, once in a year, occasionally and never. Accordingly, higher score was assigned for frequent participation (i.e. weekly and monthly) and lower score for low level of participation (i.e. occasionally and never). In case of economic index, status of assets, amenities, income and access to public services for each household was studied. Based on the position, accessibility and availability of a particular amenities and assets in the house, score was assigned from higher to lower (1 to 5). For example, ownership/area of aquaculture land was categorized as: no land or <0.5 to >2 ha area. Accordingly, the score was assigned from 1 (respondent having no land or <0.5 ha) to 5 (respondent having area >2 ha). Similar exercise was adopted for house ownership and type of house, sanitation facility, water accessibility, electricity and type of fuel used for cooking purpose. One third weightage was assigned to social variables and two third weightage was assigned to the economic variables. More weightage to economic variables was given because, generally in majority of the households, economic factors have a significant influence on the overall standard of living of an individual and it is a better indication of welfare compare to social factors. Among the economic variables, income variable was assigned more weightage (35%) as income is an indicator of one's living status and also plays a very important and determining factor in many of the social and economic variable as well. After finding out the socio-economic status index value, the respondents were classified into three categories as having low socio-economic status, (0-0.33), medium socio-economic status (0.34- 0.67) and high socio-economic status (>0.68) based on index values.

Socio-economic status index = Social status index (weighted) + Economic status index (weighted)

Percentage analysis was used to make simple comparison; tests of significance were utilized to test significant differences in the data collected;

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simple Pearson's correlation has been used wherever necessary. All the data were analyzed using SPSS version 16.0 statistical software.

### RESULTS AND DISCUSSION

In fisheries sector, socio-economic status of fisher folk/fish farmers plays an important role in productive activities. Socio-economic parameters such as age structure, education, caste structure, family size and type, occupation pattern, income, social participation, household amenities, size and nature of possession of pond influence their response to adopt new technologies and their participation in development schemes sponsored by a variety of agencies.

#### Age

Age is a subject, which cannot be approached through cultural preconceptions about what the roles and need of specific age groups might be. The average age of the respondent farmers was 42 yr (Table 1) as majority (55.3%) of the respondents belonged to the middle age group of 31-45 yr. Therefore, it could be inferred that fish farming as an occupation has not attracted the young people. Fisheries being a strenuous activity involve lot of manual labour and hence may not interest the youngsters who are increasingly into formal education and look for white collar jobs. It has been found that there was no significant difference in the age of the respondents among the four districts.

#### Education

Education is a significant socio-economic aspect, which has bearing with understanding and adopting the fish farming technologies by fish farmers. With regard to the educational level of the respondents, it could be observed that only 9.4 per cent of people were illiterate. Among the literates nearly 70 per cent has schooling up to secondary and higher secondary while 9.4 per cent have studied up to collegiate. Average number of formal education was up to 9. It indicates that farmers with moderate level of education are getting involved in fish farming. Education levels of respondents

were not found to vary significantly across the four districts.

#### Caste categories

It was observed that majority (47.8%) of the farmers were belonging to the fishing castes namely Machhuwa, Kewat, Lodhi, Mallah, Dhimar, Kashyap, Raikwar, Manjhi, Godia (Kahar) which is mainly included under other backward class categories in U.P. Farmers belonging to the Scheduled castes were 28.3 per cent followed by other backward caste (10.7%), Muslims (7.5%) and general category farmers (5.7%). It has been observed no farmers were from scheduled tribes category. That non-fishing castes constituted almost equal percentage in total caste composition indicates diversification in farmers' caste profile in fish farming occupation.

#### Family type and Family size

Most (67.9%) of the farmers had joint family and 32.1 per cent were reported to have nuclear family system. It has been revealed that more than half of the respondents (69.8%) have large family consisting of more than five members with an average member of 7 numbers followed by respondents having small family (30.2%) of less than five members. Overall average member of family was 6 in numbers (Table 1).

#### Occupation pattern

Primary and secondary occupation of households were studied (Table 2). The respondents had fish farming as either primary (69.2%) or secondary occupation (56.1%). Only 10 per cent had daily wage labour or business as primary occupation while for the rest crop farming was primary occupation.

#### Income Pattern

In every economic behavior the level of income constitutes an important indicator of standard of living of the community. Nearly 46.6 per cent of them had their primary income between 1 lakh to 2 lakh with an average income of Rs.1,47,918/- Secondary income of almost half of the farmers (51.2%) was in the income group of less than 1

**Table 1. Demographic profile characteristics of respondents (N=159).**

Category	Frequency	Percentage
Age (years)		
<15	0	0
16 – 30	19	11.9
31 – 45	88	55.3
46 – 60	51	32.1
>60	1	0.6
<b>Average age</b>		42 years
<b>Education</b>		
Illiterate	15	9.4
Primary	33	20.8
Secondary	58	36.5
Higher secondary	38	23.9
Collegiate	15	9.4
<b>Average education</b>		9th class
<b>Caste</b>		
Fishing caste	76	47.8
SC	45	28.3
Muslims	12	7.5
OBC	17	10.7
General	9	5.7
Non-fishing castes	83	52.1
<b>Family type</b>		
Nuclear	51	32.1
Joint	108	67.9
Family size		
Small family	48	30.2
Large family	111	69.8
<b>Average family size</b>		6 persons

lakh with an average income of 33511/-. In total household income, contribution of primary income and secondary income was 67 and 26 per cent, respectively which indicates that fish farming as primary occupation had a significant influence on economic condition of respondents. Kruskal Wallis test has revealed that there is no significant

difference in the income pattern of respondents among the four districts. It could be inferred from the above discussion that income pattern of the majority of respondents earning from different sources were falling between income group of less than 1 lakh to 2 lakh. Poverty line status for the total house hold income has been calculated and

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**Table 2. Occupation pattern of respondents.**

Occupation	Primary occupation (n=159)		Secondary occupation (n=82)	
	Frequency	Percent	Frequency	Percent
Aquaculture	110	69.2	46	56.1
Agriculture	35	22.0	25	30.5
Self-business	13	8.2	7	8.5
Daily wage labour	1	0.6	4	4.9

**Table 3. Income pattern of respondents.**

Response	Primary income (n=159)		Secondary income (n=82)		Other members income (n=76)		Total household income (n=159)	
	Percent	Average income	Percent	Average income	Percent	Average income	Percent	Average income
50000-1lakh	37.1	42711	51.2	33511	100	24448	3.1	89220
1- 2lakh	46.6	147918	35.3	146758	0	0	64.8	160538
2 to 3lakh	9.4	234700	12.8	226000	0	0	23.3	238824
>3 lakh	6.9	467045	0.6	315000	0	0	8.8	457321
Average income		139144		51814		11686		202645
Poverty line	-	-	-	-	-	-	-	-
<121860	-	-	-	-	-	-	12	102591
>121860	-	-	-	-	-	-	92.4	210812

was only 12 per cent of the farmers were falling below poverty line which indicate that fish farming as primary or secondary occupation has positive impact on the livelihood status of fish farmers. As per the Kruskal Wallis test (Table 4) respondents among the four districts did not much vary in terms of their total house hold income.

**Table 4. Kruskal Wallis test among four districts for total house hold income.**

Variables	Districts	N	Mean Rank	significance level
Household income	Aligarh	39	93.01	0.192
	Lucknow	50	72.06	
	Jhansi	31	79.85	
	Faizabad	39	77.28	

### Land area and land ownership pattern

Land is the main resource base of the agricultural production process. The economic and social progress of farm house holds largely depends on the size of the operational holding. It has been observed that 71 per cent of farmers owned agriculture land area with an average of 0.65 ha while 28.9 percent farmers are landless. In aquaculture land holding, majority (88.1%) of the farmers have leased pond while the average aquaculture farm area was 0.67 ha, the average pond size was only 0.55 ha which is generally considered as uneconomical. This perhaps mirrors the reality of fragmented and small land holdings in U.P. as well as FFDA's focus on small and marginal farmers. It could be inferred that size of land holdings was very small for all type of land. It has been found that there was variation in the leasing rent of Gram Panchayat ponds. There

was no fixed amount for the leasing rent and the rent was decided by the Revenue Department, FFDA has no role to play. Leasing rent of the sample farmers was found to be varying between Rs.500-1000/ha with an average leasing rent of Rs. 597.56/ha/year.

**Table 5. Land area and ownership pattern of respondents.**

Land ownership	Agriculture Area (%)	Aquaculture area (%)	Average pond size (%)
Land less	28.9	-	-
Own	71.1	10.1	-
Leased	-	88.1	-
Own & leased	-	1.8	-
Area categories			
<0.5	79.2	47.8	61.6
0.5 – 1	12.6	47.2	35.8
1 – 1.5	-	2.5	1.9
1.5 - 2	5	1.3	-
>2	3.1	1.3	.6
<b>Average area</b>	<b>0.65 ha</b>	<b>0.67 ha</b>	<b>0.55 ha</b>

#### Kruskal Wallis-test values aquaculture area and fish productivity among districts

The Kruskal Wallis test (Table 6) was done at 95% significance with 3 degree of freedom for

each district. It was found that fish productivity varied across the four districts significantly, wherein Lucknow fish productivity was higher than other three districts. Aligarh farmers have highest resource area although productivity wise it was found to be less. Higher productivity in Lucknow may be due to other greater access to FFDA's and public services (being located in capital district) as well as natural ponds which was also highlighted in the significance test of access to public services to the fish farmers of these four Districts (Table 10).

#### Social Participation

Two third of respondents participated in one or other type of organization (Table 7) though only a handful of them participating actively, who actually hold leadership positions. However, those participate said to derive one or other type of benefit from it.

#### Household amenities

The data (Table 7) also show the household status of respondents indicating that nearly 70 per cent of the population possesses better housing facilities. However, it also highlights that about 30 per cent of population still do not have proper sanitation facility which is not hygienic for the densely populated state. In spite of increased supply of LPG, nearly 70 per cent of population still using fire wood for cooking purpose.

**Table 6. Kruskal Wallis-test values aquaculture area and fish productivity.**

Variable	Districts	N	Mean Rank	significance level
Aquaculture area	Aligarh	39	95.17	0.01
	Lucknow	50	62.39	
	Jhansi	31	84.39	
	Faizabad	39	83.92	
Fish productivity	Aligarh	39	92.5	0.00
	Lucknow	50	105.85	
	Jhansi	31	52.53	
	Faizabad	39	56.19	

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**Table 7. Social participation and household amenities of respondents.**

Membership in local bodies	Frequency	%		Frequency	%
No where	50	31.4	<b>House area &amp; type</b>		
Co-operative societies	78	49	Kachha<501 sq. ft	1	0.6
Mandals	2	1.3	Kachha>501 sq. ft	35	22
Gram Panchayat	19	11.9	Semi-pucca <501sq. ft	2	1.3
Political party	10	6.3	Semi-pucca >501 sq. ft	70	44
<b>Degree of participation</b>			Pucca>501 sq. ft	51	32.1
Daily	0	0	<b>Availability of sanitation facilities</b>		
Weekly	1	0.6	Available in house	106	66.7
Monthly	12	7.5	Public toilet	19	11.9
Once in a year	84	52.8	Open defecation	34	21.4
Occasionally	11	6.9	<b>Source of drinking water</b>		
Never	50	31.4	Tube /bore well	140	88.1
<b>Benefits from participation</b>			Tap water	10	6.3
No benefit	50	31.4	Treated water	9	5.7
Social benefit	31	19.5	<b>Source of light</b>		
Economic & Social	35	22	Electricity	136	85.5
Social & Political	34	21.4	Kerosene	23	14.5
Economic,Social& Political	9	5.7	<b>Type of fuel used for cooking</b>		
<b>Holding leadership position</b>			LPG	50	31.4
No	141	88.7	Fire wood	109	68.6
Yes	18	11.3			

### Socio-Economic Status (SES)

Socio-economic index of the sample respondents was found out in order to see the overall status of social and economic life of the respondents. The combined score ranged from 2 to 10. From table 8 it could be seen that majority of the farmers (79.2%) were falling under medium SES of whom nearly two-third had the score above 6. The fact that very few had low SES (5%) indicates that even small-scale fish farmers could afford moderate standard of living. This has also proven that fish farming is both socially and economically viable occupation.

### Correlation among socio-economic variables

The data (Table 9) shows that household income, social participation and household amenities were directly related with the education, indicating farmers having a greater number of schooling are economically better off. The aquaculture area was significantly related to household income and also with household amenities indicating that aquaculture land holdings have positive impact on respondent's socio-economic condition. Access to public services was positively related with social participation means that farmers having higher



**Table 8. Socio-economic status index (N=159).**

Response	Frequency	Percent	Average score
Low socio-economic status (2 - 4.7)	8	5	4.17
Medium socio-economic status (4.71 - 7.4)	126	79.2	6.1
Lower medium socio-economic status (4.71 - 6.06)	41	32.5	
Higher medium socio-economic status (6.06 - 7.4)	85	67.5	
High socio-economic status (>7.4)	25	15.7	7.8
Total average score			6.27

degree of social participation were more accessible to the public services. It was quite interesting that household income was not affected by the caste categories due to fact that farmers belonging to lower caste categories were more involved in fishing occupation and have better fish productivity than higher caste category farmers.

**Table 9. Correlation results among socio-economic variables.**

	Household income	Household amenities	Access to public services
Age	NS	NS	NS
Education	.198*	.247**	NS
Family size	NS	NS	-1.86*
Caste categories	NS	.182*	-.235*
Social participation	.279**	.334**	.229**
Agriculture area	.220*	NS	NS
Aquaculture area	.938**	.470**	NS

\*\*Correlation is significant at the 1% significance level (2-tailed)

\*Correlation is significant at the 5% significance level (2-tailed)

NS- not significant

### Kruskal Wallis test

Significant level of difference was found in the mean rank value of the fish farmers of four districts. Two districts were different as per the level of exposure to public services are concern. The mean rank showed that Lucknow fish farmers were found to have greater level of exposure to the Government services compared to fish farmers of other three district.

**Table 10. Kruskal Wallis test values for access to public services among four Districts**

Variables	Districts	N	Mean Rank	significance level
Access to public Services	Aligarh	39	62.15	0.01**
	Lucknow	50	91.38	
	Jhansi	31	83.61	
	Faizabad	39	80.38	

\*\*Significant at 5 % level

### CONCLUSION

Socio-economic status of respondents revealed that majority of the farmers were falling under medium socio-economic status. The fact that very few had low level of SES (5%) indicates that even small-scale fish farmers could manage to have a moderate standard of living. This has also proven that fish farming is both socially and economically viable occupation. A positive association of household income, social participation and household amenities with the education, indicating that the farmers having a greater number of schooling is economically better off. Further, the household income and access to public services had greater positive impact on the socio-economic well-being of the fish farmers. The majority of fish farmers

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having smaller land holding with an average pond size of only 0.55 ha which is generally considered as uneconomical. Farmers who are participating and socializing more to their fellow farmers were found to have better access to public services. It was quite interesting that farmers belonging to lower caste categories were more involved in fishing occupation and have better fish productivity than higher caste category thus found to have more economically sound. However, poor sanitation facility in majority of the household and use of fire wood for cooking purpose only indicate that the government schemes and development programs were not channelized properly to these places. These socio-economic characteristics of fish farmers must be taken into account for formulation, designing and successful implementation of developmental programs.

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