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IMPACT OF TRADITIONAL FISHING PRACTICE ON HOUSEHOLD INCOME AMONG TRIBAL FISHERMEN: A STUDY AT BAGMUNDI DEVELOPMENT BLOCK PURULIA DISTRICT

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Abstract- *The present study indicates that there is ample scope to increase the income of fishermen society and intern the income of fisher folk provided they adopt improved fishing and fish culture practices on scientific basis. The social and educational status of the fisher folk could also be improved by educating them in various aspects. The study was carried out for a period of 5 months with the objectives to know the socio-economic condition of involved fishermen and find out some possible suggestions to uplift the livelihood status of local fishermen. The collection of data was done by survey method using well structured questionnaires, PRA and interviewing with fishermen. Socio-economic condition of tribal fishermen communities were presented in terms of, age group, religion, marital status, family type, condition of house, educational status of the fishermen, number of members in their family, school going children, school dropout children, household assets, use of electricity, occupation, sanitation, agricultural land, yearly income and expenditure per month, ownership of the domestic animals, source of drinking water, medical treatment, and loan etc. The fishery department can improve the pisciculture position with proper utilization of Governmental scheme meant for development of fishery sector through proper appraisal, which seems to be the priority programme with the Government.*

Key Words: *Tribal Fishermen, Traditional Fishing, Household Income, Livelihood Status, Econometrics,*

I. INTRODUCTION

Economically, the fishes constitute a very important group of animals. About 5.38 million people are dependent on fishing in India, of which about 3.28 million people live along the coast line with the rest on lakeside or river banks or near backwaters (2nd citizen's report, 1984-1986). Besides being used as a food it provides by-products of various kinds such as fish liver is an important source of oil and has medicinal values which are used for the treatment of different diseases. Fishes also provide fish fertilizer fish manure and several other products. Fishes have a great nutritive value and due to this, fishes are consumed in abundance not only in India but all over. In most part of the World, fish production is mainly from the wild. As the world population grows, fish resources are being depleted at an increasing rate as a result of environmental degradation, over harvesting and pollution, thus fish production could no longer meet the demand of the growing population. This had led an increase in the involvement of stakeholders in aquaculture. This method has also been plagued by the problems of overcrowding, poor environmental conditions and pollution which often result in reduced immunity of fish and higher susceptibility to parasites and diseases.

Fishermen contribute a lot in our economy. So improvement of their social life and economic condition is very important in context our national economic development. And for that proper management of capture fisheries should be done properly. Fishermen villages are mostly located in inaccessible areas, where there is little communication and developmental or social impact. There is no denying the fact that fishermen and fishing community as a whole the poorest and most disadvantaged group of Purulia. They have no other income generating activities except fishing, which cannot be carried out throughout the year and in idle periods, they lack alternative employment opportunities. Their socio-economic development is negligible. Hence it is essential to know the livelihood status of fishermen. For the overall planning, and development and implementation in fisheries sector, it is necessary to have the sound knowledge about the livelihood pattern of the related people. Relatively in any practical field, socio-economic condition illustrates the present status, standard of living and economic condition of the people. In fact income earning activities as an outcome of socio-economic pattern which are affected by the community environment, is one of the most obvious issue that had not been conducted in the area. So in this respect, this study is very much important. Therefore proper fishery management policies, effective input supply, technical and social support may improve the livelihood of the fishers which will ultimately increase the overall fisheries productivity of Purulia district as well as West Bengal.

II. MATERIALS AND METHODS

Baghmundi (Community) Development Block, under Jhalda Subdivision of the Purulia District is one of the remotest administrative divisions in the state of West Bengal. The present administrative territory consists of 8 nos. of Gram

Panchayats (viz. Ajodhya, Baghmundi, Birgram, Burda-Kalimati, Serengdi, Sindri, Matha and Tunturi-Suisa) and 1 no. of Police Station (Baghmundi Police Station). Baghmundi Development Block has an area of 445.05 sq. km. (171.8 mile2). In area it is the largest block of Purulia district having 142 nos. of Mouzas and 199 nos. of Villages.

Baghmundi Block had a total population of 1,12,448 as per census 2001 with a decadal growth rate of 13.64% less than that of the State (17.84%). One fourth of the total population was Scheduled Tribe and Scheduled Caste people formed one tenth of the total population. Projected population for Census 2011 is about 1,35,000. Santhal, Munda, Oraon, Birhor, Bhumij etc are the main sub-caste of the Scheduled Tribe people lives at Baghmundi Block area, of which peoples of Birhor tribe are most primitive and very poor in nos., live at Bhupatipalli village. Whereas Dhoba, Muchi, Shuri, Ghasi etc are the main sub-caste of Scheduled Caste people live in this block. Some peoples of Muslim community live here. Other than that like other parts of Purulia Kurmi and Kumar are the main sub-caste live at.

The predominant and primary means of livelihood of the people is Cultivation. More than half of the total cultivated land is upland. Most of the agricultural land belongs to small and marginal farmers. Due to weather condition and undiluted landscape cultivation of this Block area is primarily mono cropped. Paddy is the main crop. Tribal people lives mainly in the hilly area earns minimum need of livelihood by collecting and selling forest products like fuel-wood, honey, flowers, medicinal plants, etc. Hunting is also a common means of livelihood among primitive tribal groups like Birhors. Other way of earnings for the inhabitants of this area includes Ranching of cattle, ship, chicken etc, pisciculture, smale scale and house hold industry.

Researchers rarely survey the entire population because the cost of a census is too high. The three main advantages of sampling are that the cost is lower, data collection is faster, and since the data set is smaller it is possible to ensure homogeneity and to improve the accuracy and quality of the data. Sampling is concerned with the selection of a subset of individuals from within a population to estimate characteristics of the whole population which is homogeneous in nature. Sampling is the process of selecting units likes people, organizations from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen. Using random sampling method around 50 tribal fishermen was selected for final study.

III. RESULT AND DISCUSSION:

Concise Analytical Discussion for Average Economics (unit 1,333.33m^2) in connection with Total Output for tribal Fish Farming considering all the involved parameters over Bagmundi Dev. Block under Traditional fish Culture able 4: Correlation Matrix for Average Economics (unit 1bigha) comprising all traditional culture of Bagmundi Block in connection with Tribal Fish Farming.

	Stocking	Transport (Seed,Feed,Manure etc.)	Raw Cow Dung	Liming	Feeding	Labour Charge	Harvesting cost	Total Input	Total Output
Stocking	1								
Transport (Seed,Feed,Manure etc.)	.904(**)	1							
Raw Cow Dung	-.300	-.640	1						
Liming	-.269	-.307	.530	1					
Feeding	-.627	-.688	.261	-.164	1				
Labour Charge	.141	-.024	.449	-.041	.016	1			
Harvesting cost	.780(*)	.629	.101	.003	-.456	.672	1		
Total Input	.440	.283	.032	-.536	-.033	.532	.475	1	
Total Output	.289	.201	.315	.259	-.134	.845(*)	.815(*)	.237	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

From (Table 4) it depicted the bivariate inter-correlation among all the variables (average value calculated for 1 bigha area, in all the cases) viz. stocking, transport, raw cow dung, liming, feeding, labour charge, harvesting cost, total input and total output under consideration.

Firstly, considering the correlation between stocking with other variables, there exist a significant high positive correlation with transport, moderate positive correlation with harvesting cost and total input, low positive correlation with labour charge and total output, moderate negative correlation with feeding, low negative correlation with raw cow dung and liming.

Secondly, considering the correlation between transport with other variables, there exist a significant moderate positive correlation with harvesting cost, low positive correlation with total input and total output, moderate negative correlation with raw cow dung and feeding, low negative correlation with liming and labour charge.

Thirdly, considering the correlation between raw cow dung with other variables, there exist a significant moderate positive correlation with liming and labour charge, low positive correlation with feeding, harvesting cost, total input and total output.
Fourthly, considering the correlation between liming with other variables, there exist a significant low positive correlation with harvesting cost and total output, moderate negative correlation with total input, low negative correlation with feeding and labour charge.

Fifthly, considering the correlation between feeding with other variables, there exist a significant low positive correlation with labour charge, moderate negative correlation with harvesting cost, low negative correlation with total input and total output.

Sixthly, considering the correlation between labour charge with other variables, there exist a significant high positive correlation with total output, moderate positive correlation with harvesting cost and total input.

Seventhly, considering the correlation between harvesting cost with other variables, there exist a significant high positive correlation with total output, moderate positive correlation with total input.
Finally, the correlation between total input with other variables, there exist a significant low positive correlation with total output.

Table 5: Coefficients Matrix for Average Economics (unit 1bigha) comprising all traditional culture of Bagmundi Block in connection with Tribal Fish Farming

	Unstandardized Coefficients	95% Confidence Interval for B	
		Lower Bound	Upper Bound
(Constant)	-71392.59	-71392.59	71392.59
Stocking	299.81	-299.81	299.81
Raw cow dung	-60.97	-60.97	60.97
Liming	153.11	-153.11	153.11
Feeding	8.80	-8.80	8.80
Labour charge	59.97	-59.97	59.97
Harvesting cost	-1996.19	-1996.19	1996.19

Dependent Variable: Total Input

From (Table 5), The linear regression equation taking total input as dependent variable and other variables viz. stocking, raw cow dung, liming, feeding, labour charge and harvesting cost as independent variables. The equation revealed as below:
Total Input = -71392.59 + (299.81 x Stocking) + (-60.97 x Raw Cow Dung) + (153.11 x Liming) + (8.80 x Feeding) + (59.97 x Labour charge) + (-1996.19 x Harvesting cost).

The equation clearly indicates the most important variables (average value calculated for 1 bigha area, in all the cases) are stocking and harvesting cost, where stocking has positive impact upon total input and harvesting cost has negative impact upon total input. All the other independent variables viz. liming, feeding and labour charge have positive impact upon total input and raw cow dung has positive impact upon total input. The 95% Confidence Interval i.e. the lower and the Upper boundaries are depicted as: stocking (-299.81, 299.81), raw cow dung (-60.97, 60.97), liming (-153.11, 153.11), feeding (-8.80, 8.80), labour charge (-59.97, 59.97), harvesting cost (-1996.19, 1996.19).

Table 6: Coefficients Matrix for Average Economics (unit 1bigha) comprising all traditional culture of Bagmundi Block in connection with Tribal Fish Farming

	Unstandardized Coefficients	95% Confidence Interval for B	
		Lower Bound	Upper Bound
(Constant)	9724.046	9724.046	9724.046
Stocking	-12.726	-12.726	12.726
Raw cow dung	.041	-.041	.041
Liming	-2.835	-2.835	2.835
Feeding	-.119	-.119	.119
Labour charge	-1.331	-1.331	1.331
Harvesting cost	105.147	-105.147	105.147

Dependent Variable: Total Output

From (Table 6), The linear regression equation taking total output as dependent variable and other variables viz. stocking, raw cow dung, liming, feeding, labour charge and harvesting cost as independent variables. The equation revealed as below:
Total Output = 9724.046 + (-12.726 x Stocking) + (.041 x Raw Cow Dung) + (-2.835 x Liming) + (-.119 x feeding) + (-1.331 x Labour Charge) + (105.147 x harvesting cost.

The equation clearly indicates the most important variables (average value calculated for 1 bigha area, in all the cases) are stocking and harvesting cost, where harvesting cost is positive impact upon Total output and stocking is negative impact upon Total output. All the other independent variables viz. liming, feeding and labour charge have negative impact upon total output and raw cow dung has positive impact upon total output. The 95% Confidence Interval i.e. the lower and the Upper boundaries are depicted as: stocking (-12.726, 12.726), raw cow dung (-.041, .041), liming (-2.835, 2.835), feeding (-.119, .119), labour charge (-1.331, 1.331), harvesting cost (-105.147, 105.147).

IV. CONCLUSION:

The traditional tribal livelihood system was based on customary rights of ethnic communities over environmental resources. The common pool of resources supported the traditional livelihood system of tribal and prevented the intensification of production, in the interest of conserving and sustaining the long-term productivity of livelihood resources. But the customary rights of tribal people over natural resources increasingly came into conflict with the forces of modernization, which was defined by the developmental state and by outsiders of community. All this threatened to undermine the viability and sustainability of tribal people's livelihood base as their access to productive resources started narrowing down. The sustainability of tribal livelihoods is firmly rooted in a system of equal rights of whole community on resources and their equal say in decision making irrespective of men and women. Due to increasing demand of fish for the growing population of Purulia, fish farming becoming popular to the farmers of rural Purulia. Considering economic profitability of fish farming compared to cultivating rice or any other crops, farmers are converting their rice fields into pond.The study provides enough evidence that fish farming in Purulia is very productive and brings increased income among the fish farmers. Results of the study revealed that respondent farmers are earning a significant income from fish farming. It was also observed by the researchers that due to having better communication facilities in the study area ,fish farmers can easily send their harvested fish to the capital city, thus the respondent fish farmers are enjoying a better income security. The earning from fish farming is also contributing significantly to their household income which is ultimately improving the lives of the poor farmers. Thus, the farmers in the study area are increasingly adopting fish farming as a better choice for their livelihoods. The findings of the study also identified the significant factors (i.e., age, pond size, training on fish farming and access to information on fish farming) can influence the income from fish farming significantly. The present study explored the factors that can influence income from fish farming. These factors need to be addressed properly to make fish farming more profitable that may only encourage more farmers on fish farming.

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