Socio Economic Upliftment of Tribal Fishermen through Tribal Sub-Plan (TSP) at Arsha Development Block of Purulia District: An Economic Analysis

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ABSTRACT

The Tribal Sub-Plan (TSP) strategy was evolved for the rapid socio-economic development of tribal people in the 5th Five Year Plan has the objectives of socio-economic development and Protection of STs against exploitation through legal and administrative support for narrowing the gap between their levels of development to that of the general communities. In West Bengal, Purulia District is one of the poorly backward drought prone, topographically severely undulating lands with inadequate irrigation and insufficient of all agricultural inputs. The present status of tribal people is very poor as a consequence they are migrating to neighboring district and state for their source of income. For the socio economic upliftment of tribal people, Tribal Sub Plan (TSP) was formulated and adopted in different districts. Fisheries sector embraces a large population of scheduled castes and scheduled tribes. Rehabilitation of scheduled castes and scheduled tribes families through fishery activities has become a major boon for upliftment of their economic status above poverty line.

Keyword: *Tribal Sub-Plan, Tribal Fishermen, Socio Economic Upliftment, Econometrics.*

1. INTRODUCTION

In rural development which aims at developing the rural areas at par with urban regions common property management assumes greater significance owing to its specific endowment of the natural resources. For example, in exploitation of water resources, non-competitive' prices make water so cheap that this scarce resource is wasted for irrigation purposes. Where irrigation is privatized or competitively priced as in urban areas, the wastages are bound to decline. If community forestry is effectively managed by the community as a whole, deforestation will be minimum than in cases where common forestry is considered as belonging to somebody else. In fisheries, overcrowding and the nature of the commodity may force wastage deliberately. If entry is regulated and preservation techniques are sophisticated with competitive prices, it has been pointed out that only half of the present resource exploitation would be necessary to fulfil the existing basic needs.

For the process of development of the tribal people, it require management of land base, forest, fisheries, water resources, etc, where open access is there inefficient utilisation has resulted in faster depletion of these resources, less sustainment and as a result, environment degradation. It is evident that even if a ten percent higher efficient utilization is effected by and through avoidance of wastages, a substantial proportion of these resources can be sustainably conserved. Too much crowding for resource exploitation and lack of competitive prices have resulted in an uneconomical infrastructure, superfluous competitions misidentification of priorities lack of appropriate technologization, underplay of local interest and several other problems. Proper management of the commons imply more opportunities fIror the poor and better distribution of power. This is also essential to really decentra1i the overall decision making process and avoid over concentration of various interests.

The government by its different departments try to develop the situation. In this context income generation through fisheries plays a crucial role. The traditional fish farming is still being adopted by most of the farmers in the country. Though many advances have been made in aquaculture, an investment based fish farming industry could not be developed. It is obvious that we need to evolve a satisfactory, feasible, viable, adoptable and successful technology which can ensure a sustained high fish production in the ponds. The important facets of successful fish culture include selection of site, proper designing and construction of ponds, selection of

fish species, judicious stocking of fish, seed management and maintenance of water quality, nutritive food and feeding etc. Efficient fish farm management entails special preparation of ponds to receive fish seed to new environment. For the proper, designing of fish pond/farm one should have information regarding species, stage, population and life cycles of fish for which pond is to be made. Depending upon this the depth, volume, size etc. have to be decided. For operational convenience grow-our ponds, meant for raising table size fish should be rectangular, preferably having length: breadth as 3:1, if possible. Small ponds are preferable as they facilitate effective control of environment. Drying up of such water bodies in summer months help mineralization, removal of excess organic matter and automatic destruction of predators, minnows etc., that usually abound in perennial ponds. Keeping these in view a calendar of operation is proposed (subject to change in different agro climatic zones of India).

2. MATERIALS AND METHODS

The present study is based on an intensive fieldwork conducted in Arsha block of Purulia district, West Bengal during the months of February 2017 to July 2017. Before the commencement of fieldwork, a pilot study was conducted during the month of January 2017. Based on that pilot study, Arsha block of Purulia district were selected for final study. Purposive sampling method was used while selecting the study area. Purulia came into force as a district of West Bengal in 1956. Purulia is the western-most district of West Bengal with an all-India significance because of its tropical location, its shape as well as function like a funnel. It funnels not only the tropical monsoon current from the Bay to the subtropical parts of north-west India, but also acts as a gateway between the developed industrial belts of West Bengal and the hinterlands in Orissa, Jharkhand, Madhya Pradesh and Uttar Pradesh. This district is between $22^{o}42'35''$ and $23^{o}42'0''$ north latitude and $85^{o}49'25''$ and $86^{o}54'37''$ east longitude. Midnapore, Bankura and Burdwan district of West Bengal and Dhanbad, Bokaro, Hazaribagh, Ranchi, West Singbhum, East Singbhum district of Jharkhand State bound this district. The total geographical area of the district is 6259 sq. kms. Out of which the Urban and Rural areas are 79.37 sq. kms (1.27%) (Municipalities & Non-Municipalities) and 6179.63 sq. kms (98.73 %) respectively. Physiographically, Purulia, the westernmost district of West Bengal, is well known as a drought prone district and falls within the semi-arid region of the state. Cultivation of this district is predominantly mono-cropped. Out of total geographical land 52.47 % are used for agriculture. 29.69 % are under forest coverage (including social forestry) and 10.15 % are identified as Wasteland. Soil erosion is the most prominent phenomenon of the district resulting huge deposition of fertile soil in the valley region. Vast areas of land remained uncultivable wasteland. Out of the total agricultural holding about 73 % belongs to small and marginal farmers having scattered and fragmented smallholding. About 90 % of the population lives in villages and about 44 % of the rural population is below poverty line. As per 2001 census total population of the district is 2535516, out of which 89.93 % are residing in rural areas and 10.07% are in urban areas. About 51.18 % of the populations are males and 48.82% are female. The percentage of Scheduled Caste and Scheduled Tribes are 18.29% and 18.27%. Total no of BPL families in rural areas of this district are 197381 (43.65 %). Out of which SC families are 40645 (20.59 %) and ST families are 47666 (24.15 %). Total no. of BPL families in Purulia and Jhalda Municipality are 2573 (11.31 %) and 571(15.98 %) respectively (District Statistical Handbook, 2013. Bureau of Applied Economics & Statistics, Purulia, Govt. of West Bengal) 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 10 tribal fisherfolk were selected for final study.

3. RESULTS AND DISCUSSION

General Discussion

For the socio economic upliftment of tribal people, Tribal Sub Plan (TSP) was formulated and adopted in different districts. From the research work carried in the district of Purulia it clearly shows a positive impact upon the culture and subsequently to the farmers. To be more specific the following schemes are mainly emphasized viz, economic upliftment of tribal people through operation of integrated pisciculture development, socio-economic upliftment of tribal people through operation of pisciculture development scheme in tribal areas by providing dwelling house to the tribal people etc. are in operation..

The western districts Purulia with red laterite soil and primarily being rain fed have fallen behind the rate of growth in terms of productivity in this field. But this district has large number of water bodies mainly in the form of reservoirs and pond and there is immense scope of integration of fish culture with other husbandry practices. As total no of BPL families in rural areas of Purulia are 197381 (43.65 %) of which SC families are 40645 (20.59 %) and ST families are 47666 (24.15 %), there is immense scope of employment generation and economic up gradation through scientific fish farming.

Concise Analytical Discussion for Average Economics (unit 1,333.33m²) in connection with Total Output for tribal Fish Farming considering all the involved parameters over Arsha Dev. Block under Culture of Tribal Sub Plan.

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

Firstly, considering the correlation between pond preparations with other variables, there exist a significant moderate positive correlation with netting during culture, low positive correlation with transport and total output, low negative correlation with total output, moderate negative correlation with labour charge.

Secondly, considering the correlation between transports with other variables, there exist a significant high positive correlation with raw cow dung, moderate positive correlation with total input and total output, low positive correlation with Medicine/Prophylactics, labour charge and harvesting cost, moderate negative correlation with netting during culture.

Thirdly, considering the correlation between raw cow dung with other variables, there exist a significant moderate positive correlation with harvesting cost, total input and total output, low positive correlation with medicine/prophylactics and labour charge, moderate negative correlation with netting during culture.

Fourthly, considering the correlation between netting during culture with other variables, there exist a significant low positive correlation with medicine/ prophylactics, moderate negative correlation with harvesting cost, total input and total output, high negative correlation with labour charge.

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

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

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, considering the correlation between total inputs with other variables, there exist a significant moderate positive correlation with total output.

From (Table 2), the linear regression equation taking total input as dependent variable and other variables viz. Pond preparation, transport, raw cow dung, netting during culture, medicine/prophylactics, labour charge and harvesting cost as independent variables. The equation revealed as below:

Total Input = -10500.000 + pond preparation + transport + (-5.857 x raw cow dung) + netting during culture + medicine/ prophylactics + (1.305 x labour charge) + harvesting cost.

The equation clearly indicates the most important variable (average value calculated for 1 bigha area, in all the cases) is raw cow dung. It is negative impact upon Total input. All the other independent variables have positive impact upon total input. The 95% Confidence Interval i.e. the lower and the Upper boundaries are depicted as: pond preparation (-1.000, 1.000), transport (-1.000, 1.000), raw cow dung (-5.857, 5.857), netting during culture (-1.000, 1.000), medicine/prophylactics (-1.000, 1.000), labour charge (-1.305, 1.305), harvesting cost (-1.000, 1.000).

From (Table 3), The linear regression equation taking total output as dependent variable and other variables viz. Pond preparation, transport, raw cow dung, netting during culture, medicine/prophylactics, labour charge and harvesting cost as independent variables. The equation revealed as below:

Total Output = -2937.723+(-.014 x pond preparation) + (.028 x transport) + (15.801 x raw cow dung) + (-.422 x netting during culture) + (-3.391 x medicine/prophylactics) + (-.732 x labour charge) + (43.555 x harvesting cost).

The equation clearly indicates the most important variables (average value calculated for 1 bigha area, in all the cases) are raw cow dung and harvesting cost. Both of them have positive impact upon Total output. All the other independent variables viz. pond preparation, netting during culture, medicine/prophylactics and labour charge have negative impact upon total output, and transport has positive impact upon total output. The 95% Confidence Interval i.e. the lower and the Upper boundaries are depicted as: pond preparation (-4.894, 4.866), transport (-4.323, 4.379), raw cow dung (-50.512, 82.115), netting during culture (-9.680, 8.836), medicine/prophylactics (-39.557, 32.776), labour charge (-2.582, 3.285), harvesting cost (-5.520, 81.589).

4. CONCLUSION

Pisciculture is one of the main pillars of the local economy of the district and people mainly derive their livelihood by exploiting the fishery resources in the water bodies of the district. The district is bestowed with large number of water bodies which are utilized for Pisciculture activities. Fisheries represent a vital sector in the thrust programme of West Bengal Government for rural development through production of fish and other ancillary activities thereby generating rural employment and improvement of socio-economic status of the fishers who are the prime contributors of fisheries production. In general tribal peoples are mostly under BPL level. For this technological and financial help and proper training and monitoring are being required to change the livelihood condition. For improving the production scenario and simultaneous development of the fishers of those districts, the government introduces the Tribal Sub Plan to boost up the process. Accordingly training programmes, supply of feed, seed etc. at subsidised rate and the intervention of technical people are being implemented. As a result definitely a remarkable change in their income generation and affinity to the culture was made. Still Government's efforts in implementing a proper planning and management oriented marketing strategies are required for the sustainable development of the culture towards the upliftment of the employment and livelihood generation of the tribal fisher folks of this districts.

5. REFERENCES

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TABLE:

Table 1: Correlation Matrix for Average Economics (unit 1bigha) comprising all culture under Tribal Sub Plan of Arsha Block in   connection   with Tribal Fish Farming

	Pond Preparation	Transport (Seed,Feed,Manure etc.)	Raw Cow Dung	Netting during culture	Medicine /Prophylactics	Labour Charge	Harvesting cost	Total Input	Total Output
Pond Preparation	1								
Transport (Seed,Feed,Manure etc.)	.239	1							
Raw Cow Dung	.000	.910(**)	1						
Netting during culture	.530	-.491	-.640(*)	1					
Medicine/Prophylactics	.000	.138	.258	.092	1				
Labour Charge	-.733(*)	.130	.375	-.861(**)	.181	1			
Harvesting cost	.000	.375	.500	-.557	.323	.515	1		
Total input	-.318	.508	.649(*)	-.776(**)	.463	.835(**)	.679(*)	1	
Total output	.291	.657(*)	.686(*)	-.458	.162	.203	.870(**)	.487	1

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

Table 2: Coefficients Matrix for Average Economics (unit 1bigha) comprising all culture under Tribal Sub Plan of Arsha Block in connection   with Tribal Fish Farming.

	Unstandardized Coefficients	95% Confidence Interval for B	
		Lower Bound	Upper Bound
(Constant)	4342.857	-4342.857	4342.857
Pond Preparation	1.000	-1.000	1.000
Transport (Seed,Feed,Manure etc.)	1.000	-1.000	1.000
Raw Cow Dung	-5.857	-5.857	5.857
Netting during culture	1.000	-1.000	1.000
Medicine/Prophylactics	1.000	-1.000	1.000
Labour Charge	1.305	-1.305	1.305
Harvesting cost	1.000	-1.000	1.000

Dependent Variable: Total Input

Table 3: Coefficients Matrix for Average Economics (unit 1bigha) comprising all culture under Tribal Sub Plan of Arsha Block in connection with Tribal Fish Farming

	Unstandardized Coefficients	95% Confidence Interval for B	
		Lower Bound	Upper Bound
(Constant)	-2937.723	-67219.396	61343.950
Pond Preparation	-.014	-4.894	4.866
Transport (Seed,Feed,Manure etc.)	.028	-4.323	4.379
Raw Cow Dung	15.801	-50.512	82.115
Netting during culture	-.422	-9.680	8.836
Medicine/Prophylactics	-3.391	-39.557	32.776
Labour Charge	-.732	-4.542	3.078
Harvesting cost	43.555	-5.520	81.589

Dependent Variable: Total Output