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Fish Cultivation: An Empirical Analysis of Poverty Eradication of Jhumias in Gomati District of Tripura, India

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ABSTRACT

The study makes an attempt to assess the poverty alleviation of Jhumias through the fish cultivation in Gomati district of Tripura. It is based on the primary data, which has been randomly collected from 150 fish cultivating households (who were previously involved in shifting cultivation) through a well-structured questionnaire. Samples were selected from the three subdivisions of the Gomati district. The result indicates that poverty among the Jhumias got reduced after their rehabilitation through fish cultivation. The Multidimensional Poverty Index and the Human Poverty Index showed that during shifting cultivation 87 per cent and 89.3 per cent of Jhumias respectively were below the poverty line in Gomati district. It means poverty was very high during the shifting cultivation. The Multidimensional Poverty Index, and the Human Poverty Index, showed that after their rehabilitation of through fish cultivation 0.28 per cent and 4.06 per cent of Jhumias respectively were below the poverty line. It means poverty among the Jhumias was effectively reduced when they adopted fish cultivation. Thus, the paper suggests that fish cultivation is a useful strategy for rehabilitation of Jhumias and their poverty alleviation.

Key words : *Fish cultivation, Income opportunity, Jhumia, Poverty, and Shifting cultivation.*

Introduction

Fish is an important favoured food commodity that provides a great source of nutrition, income and livelihood to people. Presently, Tripura is nearly self-sufficient in fish production, but at times, due to excess demand for fish, import of fish is essential. It is the main food for Bengali people who constitute a majority population of the state (Gurumayum and Choudhury, 2009). Although there is more potentiality for fish cultivation in the state, its cultivation is not popular among the local people. Demand for fish in the local market are increasing due to growing population, rising incomes, etc. (Bunchong, 2008).

Freshwater aquaculture contributes significantly to aquaculture production. Aquatic resource systems for aquaculture are ponds, disused mining pools, paddy fields, reservoirs, streams and rivers, lakes, and land-based tanks (Choo and Williams, 2014). Fish culture in ponds is the most popular activity of freshwater aquaculture. Aquaculture technology can contribute significantly to fish supply to meet the increasing demand Fishery sector plays an

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important role for providing income, employment and food security to the people (Pant *et al.*, 2018). Thus, the Department of Fishery, Government of Tripura has given much importance for reducing the shortage of fish and to continue the supply of fish in local market (Saha and Nath, 2013). The objective of this paper is to study the role of fish cultivation on poverty alleviation of Jhumias of Gomati district of Tripura.

Methods and Materials

The present study is based on primary data collected randomly through a well-structured questionnaire from 150 fish cultivating households (previously involved in Jhum cultivation) selected from the three subdivisions, i.e Udaipur, Amarpur and Karbook of the Gomati district of Tripura. Stratified random sampling method has been used and from each sub-division five villages have been selected where Jhumias are rehabilitated by fish cultivation. From each village 10 farmers have been randomly selected as samples who are rehabilitated from Jhumia to fish cultivator. Therefore, the total sample households from each sub-division is 50 (10 x 5 = 50) and the total sample sizes is 50 x 3 = 150. To measure the impact of fish cultivation on poverty of Jhumias, index methods, i.e. Human Poverty Index and Multidimensional Poverty Index have been used.

Results and Discussion

To measure the impact of fish cultivation on poverty of Jhumias, Multidimensional Poverty Index, and Human Poverty Index were used. The sample size of the study was 150 families who were settled by fish cultivation but previously were involved in shifting or Jhum cultivation. For measurement of income of the family, current income from fish cultivation and the income of shifting cultivation of the last year prior to fish farming have been collected and compared. Income from shifting cultivation in rupees has been converted in to USD of that year and then converted in to USD of 2021.

Multidimensional Poverty Index

Multidimensional Poverty Index (MPI) is the measurement of severe poverty. The MPI is bases on two types of evidence, firstly the proportion of people who experience the multiple deprivations, and secondly, the intensity of their deprivation. Formally, the first component is called the multidimensional headcount ratio (H): H = q/n; Here q is the number of people who are multidimensional poor and n is the total population.

(A) Multidimensional Poverty Index of Jhumias

The result of subdivision-wise Multidimensional Poverty Index of Jhumias after calculation is showed in the following Table:

The above table shows that during the shifting cultivation, 100 per cent of Jhumias were multidimensional poverty index poor. It means that they were in severe poverty. The poor were underprivileged in 87 per cent of the weighted indicators in Gomati district, so the intensity was 87 per cent. The Multidimensional Poverty Index shows the population who are multidimensionally poor and indicates the intensity of the deprivation. Society deprived them 87 percent of the total potential derivations which could experience overall.

(B) Multidimensional Poverty Index of Fish Cultivator

Results of subdivision-wise Multidimensional Poverty Index of rehabilitated Jhumias through fish cultivation are shown in the table below.

The above table shows that after rehabilitation of Jhumias through fish cultivation in the Gomati district, 0.28 per cent of people were considered as Multidimensional Poverty Index poor. The poor were underprivileged in 54 per cent of the prejudiced displays, so the intensity was 54 per cent. The society deprived them in 0.28 per cent of the total potential. During the shifting cultivation cent per cent of the Jhumias were below the poverty line, but after rehabilitation only 0.28 per cent people were below it. So poverty ratio decreased after the rehabilitation.

Human Poverty Index

The Human Poverty Index (HPI) is an indication of the standard of living of the people of a country, developed by the United Nations. The indicators are used to measure the deprivations are already normalized between 0 and 100. Human Poverty Index measures the deprivations in three basic dimensions of human development captured in the HDI: a long and healthy life, knowledge, and a decent standard of living.

Table 1. Multidimensional Poverty Index of Jhumias

Area	Poverty in Udaipur Sub-Division	Poverty in Amarpur Sub-Division	Poverty in Karbook Sub-Division	Poverty in Gomati District
Multidimensional Headcount Ratio (H)	1	1	1	1
Intensity of Poverty (A)	0.89	0.90	0.84	0.87
Multidimensional Poverty Index (MPI)	0.89	0.90	0.84	0.87

Source: Field Survey (2020)

Table 2. Multidimensional Poverty Index of Fish Cultivator

Area	Poverty in Udaipur Sub-Division	Poverty in Amarpur Sub-Division	Poverty in Karbook Sub-Division	Poverty in Gomati District
Multidimensional Headcount Ratio (H)	0.008	0.005	0.004	0.005
Intensity of Poverty (A)	0.36	0.70	0.58	0.54
Multidimensional Poverty Index (MPI)	0.0028	0.0035	0.0023	0.0028

Source: Field Survey

Table 3. Human Poverty Index of Jhumias

Survey Area	Poverty in Udaipur Sub-Division	Poverty in Amarpur Sub-Division	Poverty in Karbook Sub-Division	Poverty in Gomati District
Value	87.4	91.0	89.5	89.3
Percentage	87.4	91.0	89.5	89.3

Source: Field Survey

Table 6. Human Poverty Index of Fish Farmers

Survey Area	Poverty in Udaipur Sub-Division	Poverty in Amarpur Sub-Division	Poverty in Karbook Sub-Division	Poverty in Gomati District
Value	3.2	5.2	3.8	4.06
Percentage	3.2	5.2	3.8	4.06

Source: Field Survey

(A) Human Poverty Index of Jhumias

The results of the subdivision-wise Human Poverty Index of Jhumias after calculation is shown in the following Table:

The above table shows that percentage of poverty was very high among the Jhumias in all subdivisions. Poverty ratio was less in Udaipur sub-division compared to the other districts. HPI in percentage of Udaipur, Amarpur and Karbook valley subdivisions were 87.4, 91.0, and 89.5 respectively. Human Poverty Index of Jhumias in Gomati district was 89.3, it means 89.3 per cent Jhumias were below the poverty line.

(B) Human Poverty Index of Fish Cultivator

The results of subdivision-wise Human Poverty Index of rehabilitated Jhumias through fish farming are shown in the table.

The above table shown that Human Poverty Index has improved after rehabilitation of Jhumias through fish cultivation. After rehabilitation, the HPI in percentage of fish cultivators is 4.06. It means during that period only 4.06 per cent of fish cultivators were below the poverty line after rehabilitation through fish cultivation. During that time, the HPI in percentage of Udaipur, Amarpur and Karbook subdivisions of Gomati district are 3.2, 5.2 and 3.8

respectively. This demonstrates that poverty among the Jhumias has been reduced after they started the fish cultivation.

Conclusion

Income of Jhumias has increased when they have been rehabilitated by fish cultivation. The Human Poverty Index shows that during the shifting cultivation 89.3 per cent Jhumias were below the poverty line, but after rehabilitation only 4.06 per cent of them were below it. The Multidimensional Poverty Index showed that during the shifting cultivation 87 per cent Jhumias were below the poverty line, but after rehabilitation only 0.28 per cent people were below the poverty line. From the above analysis, it has been concluded that fish cultivation has reduced poverty among the Jhumia families in the district. So fish cultivation will be a useful way for rehabilitation of Jhumia families and a source of alternative livelihood for them.

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