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NAVIGATING THE CHANGES AND ASSESSING THE IMPACT OF RUBBER PLANTATIONS ON SHIFTING CULTIVATORS COMMUNITIES IN TRIPURA

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Abstracts

The rubber plantation is a growing sector in Tripura. The shifting cultivators are generally tribals. The involvement of these shifting cultivators in this sector is increasing in the state. It has been observed that there is a significant impact of rubber plantations on the level of living of the shifting cultivators in Tripura. The Human Development Index, Physical Quality of Life Index, Gender Development Index, and Level of Living Index of the shifting and rubber cultivators show this significant impact of rubber plantation on the level of living of the shifting cultivators. There are also significant inter-district variations among the shifting cultivators and the rubber cultivators in the state. Therefore, rubber plantation can be a way out to rehabilitate the shifting cultivators. It is recommended that the government should intervene to mitigate the challenges of this sector in general and to popularise rubber cultivation in specific terms. This paper is an attempt to highlight the impact of rubber plantations on the level of living of the shifting cultivators in Tripura.

Keywords: *Jhumias, Rehabilitation, Rubber Cultivation, and Shifting Cultivation.*

INTRODUCTION

Tribals and forests are traditionally and culturally integrated with each other as majority of tribals live near or in the forests and are dependent on the forest for their livelihood. The issues of economic and social activities are linked to their livelihood and human development (Giridhara & Sureshramana, 2016). The concept of levels of living is the scale of preferences and satisfaction of wants of individual members of a household and also the collective wants of the community and the society. Shifting cultivation is subsistence farming for tribals in Tripura. The output and income from the Jhum cultivation are very low for the cultivators. Production of crops per hectare from Jhum land is less than that of the settled cultivation. The area under rubber plantations has been increasing in Tripura since 2004 (Bhowmik, 2006). Tripura is a land of diverse ethnic tribes and cultures. The life of the people is normally disturbed by the inter-community tensions between non-tribal and tribal groups and stresses between outsiders and original inhabitants (Gupta & Paul, 2017). Expansion of education, health and income opportunities is significant for changing the level of living of tribal (Datta et. al., 2014).

The government has implemented different programmes and policies at different points of time to improve the standard of living of these people. There are significant inequalities in the standard of living of the people in different regions of Tripura which can be attributed to wide variations in the poverty ratio accompanied by variations in the growth rate across the regions (George & Chandrashekar, 2014). But there has been a sharp decline in the poverty ratio and a rise in growth rate over time which can be attributed to the rising living standards of the people Although there has been a steady decline in the poverty ratio, the efforts of the government to enhance the standard of living of the people in different regions of the state would not provide desired results and regional variation in the living standards still exists where the living standards is still low and severe (Chacko, 2017).

LITERATURE REVIEWS

In her report, Gayathri (2018) explains the challenges of the plantation workers. Many of them do not have the basic things needs for any human. The livelihood of tea plantation workers is not good, and they need better sanitation, drinking water, clean environment, and electricity facilities. Rai (2019) examines the conditions of the workers. Local economy is more benefited by plantation. Quality teas are useful for earning foreign currencies. Local communities are benefitted from the plantation sector. The standard of living for tea property workers is extremely miserable. They are economically and socially deprived and far away from modern life. Rajbangshi & Nambiir (2020) found that status of workers is declining due to poor conditions in the plantation sector. There

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should be effort to improve economic situations. Majority of them have small living spaces, sanitation facilities, inadequate food and rationing. It is common in their life. Health services are more critical. Kathiravan (2021) found that various types of workers are found in the plantation sector. Plantation law support the supply equipment by more than 50 workers. Siegmann (2022) argues that Fair-trade Certified Company provides agree to management's consent after management's interests. Bheemiah et. al. (2022) found that more than half of the workers are facing multiple challenges. Coffee plant workers are experiencing multiple stress.

Sundas & Saha (2023) discovered the condition of labourers in tea plantation. Low wages, inadequate hygiene, drinking water, and low levels of education that ultimately lower their standard of living. Lepcha & Ankurura (2024) discussed the conditions of workers in Northern west Bengal. The study also seeks to take into account the neglect of socioeconomic progress in gardens through tea management. The Darjeeling area is popular for tea gardens. It grew and produced teas that are popular all over the world. The quality and smell of the tea gives it a special identity. There are many tea gardens in the Darjeeling area are in critical situations. Aruna (2024) found that the quality of life of female tea plantations workers are not good. Illness, lack of employment and low-level education are common among them. Increased wages, improved healthcare and education opportunities, enforcement of protection laws, and promoting good relationships between workers and management are essentially important to improve quality of life and maintain the export market for the tea industry. Avinash (2024) discussed about the plantation workers and management challenges. Stagnating production growth and workers discomfort the additional challenges in the sector.

Therefore, the majority of reports examined above discussed significance and living standard of workers in tea plantation and very few are discussed about the living standard of workers in rubber plantation. For that reason, such topic for critical examination and evaluation have been chosen.

OBJECTIVES

The main objectives of this paper are to study the impact of the rubber plantation on the level of living of the shifting cultivators of Tripura. The specific objectives of this study are:

(a) To study the district-wise Physical Quality of Life Index of the Jhumias in Tripura,
(b) To examine the district-wise Human Development Index of the Jhumias in Tripura,
(c) To study the district-wise Gender Development Index of the Jhumias in Tripura, and
(d) To study the District-wise Level of Living Index of the Jhumias in Tripura.

METHODOLOGY

(a) Data Collection Method

The primary data for the study have been collected from the four undivided districts viz., Dhalai, West Tripura, South Tripura, and North Tripura of Tripura. A total of 600 Jhumia households who have been engaged in rubber or shifting cultivation activity have been selected from the twenty villages of these four undivided districts of the state. The Tripura Rehabilitation Plantation Corporation has been actively involved in all these four districts. In this study, a random sampling method has been adopted for the selection of thirty sample households from each selected village of the four undivided districts of the state.

(b) Sample Size

The four undivided districts of the state selected purposively in the first stage are Dhalai., West Tripura, South Tripura, and North Tripura. In the second stage, five villages have been randomly selected from each of these districts and finally, in the third stage, the thirty sample households were randomly selected from each village in such a manner that 15 households have been engaged in shifting cultivation and the rest 15 households have been rehabilitated in rubber cultivation. So, the total sample households selected from each district were (30x5) = 150, where 75 households were rubber cultivators and 75 households were shifting cultivators. The total sample sizes from the four districts are (150x4) = 600, where 300 sample households are engaged in shifting cultivation and the rest 300 sample households are rehabilitated in rubber cultivation.

(c) Survey Area

Tripura is a state in northeast India. It is a landlocked state. The area of the state is 10,491 km^s and is the third-smallest state in the country. It extends from 22°56'N to 24°32'N, and 91°09'E to 92°20'E. It has a long international border with Bangladesh and a national border with Assam and Mizoram. The state has eight districts and 23 sub-divisions. Agartala is the capital and the largest city of the state. Tripura has 19 different tribal communities. Bengali, English and Kokborok are the state's official languages.

(d) Data Analysis

For the present study, the researchers have used the chi-square test to authenticate the hypotheses. Researchers also have used Physical Quality of Life Index, Human Development Index, Gender Development Index, and Level of Living Index for measurement of quality-of-life changes.

(e) Hypotheses of the Study

Based on the objectives, the following hypotheses have been prepared:

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Hypothesis 1: There is no significant difference in the Physical Quality of Life Index between the shifting and rubber cultivators in the state.
Hypothesis 2: There are no significant inter-district variations in the Physical Quality of Life Index among the shifting cultivators as well as the rubber cultivators in the state.
Hypothesis 3: There is no significant difference in the Human Development Index between the shifting and the rubber cultivators in the state.
Hypothesis 4: There are no significant inter-district variations in the Human Development Index among the shifting cultivators and the rubber cultivators in the state.
Hypothesis 5: There is no significant difference in the Gender Development Index between the shifting and the rubber cultivators in the state.
Hypothesis 6: There are no significant inter-district variations in the Gender Development Index among the shifting cultivators and the rubber cultivators in the state.
Hypothesis 7: There is no significant difference in the Level of Living Index between the shifting and the rubber cultivators in Tripura., and
Hypothesis 8: There are no significant inter-district variations in the Level of Living Index among the shifting cultivators and the rubber cultivators in Tripura.

RESULTS AND DISCUSSION

The physical Quality of Life Index was constructed by D. Morris in 1979. It is useful for calculating the quality of life of a country. It was an initial attempt to quantify the well-being of the people by using the non-economic social indicators. The Human Development Index is a composite statistics of life expectancy, education, and per capita income indicators, which is used to rank countries into four tiers of human development (Adikari & Sharma, 2018). Reproductive health, empowerment and labour market participation are the basic parameters of this index. The level of living index is a composite weighted index of eight different living standard indicators (Bhowmik & Viswanathan, 2015). Let's discuss the physical quality of life index of Jhumias in Tripura.

Table 1: District-wise Physical Quality of Life Index of the Jhumias in Tripura

District	PQLI of Shifting Cultivators	PQLI of Rubber Cultivators
Dhalai	0.354	0.533
North Tripura	0.422	0.645
South Tripura	0.395	0.632
West Tripura	0.453	0.674
Average	0.406	0.621
Value of Chi-Squares	0.805*	0.712*

Source: Compiled from the primary data collected by the field survey from the four undivided districts of Tripura. (Note: Critical value Chi-Squares with 3df is 0.115 at 1% & 0.325 at 5% level of significance. *Indicates 1% &** indicates 5% per cent level of significance).

Table 1 reveals that the physical quality of life index of the shifting cultivators is lower than the rubber cultivators of the state. The average value of PQLI of rubber cultivators and shifting cultivators are 0.621 and 0.406 respectively. The reasons for this difference are the better lifestyle, better education, better health status and higher income of the rubber cultivators compared to the shifting cultivators of the state. West Tripura district has the highest value of PQLI both for the shifting as well as rubber cultivators followed by North Tripura and South Tripura districts. It is the lowest in the Dhalai district of the state. So it is evident from the above analysis that the quality of life of rubber cultivators is better than the shifting cultivators in all the districts of the state. It is also evident from the above analysis that the quality of life is relatively better in the West Tripura district and it is relatively lower in the Dhalai district both for the shifting and rubber cultivators of the state. Therefore, null hypothesis 1 is rejected, it means there is a significant difference in the Physical Quality of Life Index between the shifting and rubber cultivators in the state.

To test the inter-district variations in the value of PQLI for the Jhumias, the Chi-Square values have been estimated separately for the shifting and rubber cultivators from their district-level indices and the estimates have been presented in the last row of this table. It is observed that the estimated Chi-Square values are greater than their corresponding critical values rejecting the first null hypothesis which indicates that there are significant inter-district variations in the value of PQLI across the districts for the shifting and rubber cultivators of the state. Further, to test the significant inter-cultivator variations in the value of PQLI among the rubber and shifting cultivators of the state. The calculated t-ratio value (4.63) is greater than its critical value (2.353) rejecting the second null hypothesis indicating significant inter-cultivator variations in the PQLI among the shifting and rubber cultivators of the state. Therefore, null hypothesis-2 is rejected, it means there are significant inter-district variations in the Physical Quality of Life Index among the shifting cultivators and also among the rubber cultivators of the state.

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Table 2: District-wise Human Development Index of the Jhumias in Tripura

District	HDI of Shifting Cultivators	HDI of Rubber Cultivators
Dhalai	0.456	0.634
North Tripura	0.484	0.672
South Tripura	0.453	0.626
West Tripura	0.497	0.685
Average	0.469	0.685
Value of Chi-Squares	1.205*	0.812*

Source: Compiled from the primary data collected by the field survey from the four undivided districts of Tripura. (Note: Critical value Chi-Squares with 3df is 0.115 at 1% & 0.325 at 5% level of significance. *Indicates 1% &** indicates 5% per cent level of significance).

Table 2 explains the human development index of Jhumias in Tripura. The above table illustrates the human development index of rubber cultivators remains higher than the shifting cultivators. The average values of HDI of rubber cultivators and shifting cultivators are 0.64 and 0.46 respectively. The basic reasons are the high income and health of the rubber cultivators. West Tripura district has the highest value of HDI of shifting cultivators followed by North Tripura and it is the lowest in South Tripura district preceded by Dhalai district. West Tripura district also has the highest value of HDI of rubber cultivators followed by North Tripura and it is the lowest in South Tripura district preceded by Dhalai district. So, it is clear from the above analysis that human development of rubber cultivators is higher than that of the shifting cultivators. Therefore, null hypothesis 3 is rejected, it means there is a significant difference in the Human Development Index between the shifting and rubber cultivators in the state.

To test the inter-district variations in the value of the Human Development Index (HDI) for the Jhumias, the Chi-Square values have been separately estimated for the shifting and rubber cultivators from their district-level indices and the calculated Chi-Square values have presented in the last row of the Table-2. It is observed that the estimated Chi-Square values are greater than their corresponding critical values rejecting the first null hypothesis. It indicates that there are significant inter-district variations in the level of human resource development across the districts both for the shifting and rubber cultivators of the state. Further, to test for the significant inter-cultivator variations in the level of human development between the rubber and shifting cultivators in the state, we have calculated the t-ratio. The calculated t-Ratio value (3.97) is greater than its critical value (2.353) rejecting the null hypothesis indicating the significant difference in the level of human resource development between the shifting and rubber cultivators of the state. Therefore, null hypothesis 4 is rejected, it means there are significant inter-district variations in the Human Development Index among the shifting cultivators and also among the rubber cultivators of the state.

Table 3: District-wise Gender Development Index of the Jhumias in Tripura

Districts of Tripura	GDI of Shifting Cultivators	GDI of Rubber Cultivators
Dhalai	0.435	0.489
North Tripura	0.464	0.578
South Tripura	0.452	0.548
West Tripura	0.486	0.585
Average	0.459	0.550
Value of Chi-Squares	0.405*	0.382*

Source: Compiled from the primary data collected by the field survey from the four undivided districts of Tripura. (Note: Critical value Chi-Squares with 3df is 0.115 at 1% & 0.325 at 5% level of significance*Indicates 1% &** indicates 5% per cent level of significance).

Table 3 illustrates the Gender-related development index of Jhumias in Tripura. The above table shows that the gender development index of shifting cultivators are lower than the rubber cultivators in all the districts of the state. The average value of the GDI of rubber cultivators and shifting cultivators are 0.55 and 0.459 respectively. The basic reasons for the higher GDI of rubber cultivators are their better educational attainment and income earning. West Tripura district has the highest value of GDI both for the shifting and rubber cultivators followed by North Tripura district of the state. Dhalai district has the lowest value of GDI preceded by the South Tripura district both for the shifting and rubber cultivators. So it is clear from the above analysis that the gender development of rubber cultivators is higher than that of the shifting cultivators in all the districts of the state. The disparity in the human development of males and females is relatively higher in West Tripura and North Tripura district; it is moderate in South Tripura district and lower in the Dhalai district of the state. Therefore, null

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hypothesis 5 is rejected, it means there is a significant difference in the Gender Development Index between the shifting and rubber cultivators of the state.

To test the inter-district variations in the value of the Gender development index (GDI) for the Jhumias, the Chi-Square values have been separately estimated for the shifting and rubber cultivators from their district-level indices and the calculated Chi-Square values have been presented in the last row of table-3. It is observed that the estimated values of the Chi-Square are greater than their corresponding critical values rejecting the first null hypothesis. It indicates that there are significant inter-district variations in the Gender development indices across the districts both for the shifting and the rubber cultivators of the state. Further, to test the significant difference in the gender development indices (GDI) between the rubber and shifting cultivators in the state, the t-ratio has been calculated. The calculated ratio value (3.28) is greater than its critical values which reject the null hypothesis indicating the significant difference in the GDI between the shifting and the rubber cultivators in the state. Therefore, null hypothesis 6 is rejected, it means there are significant inter-district variations in the Gender Development Index among the shifting cultivators and the rubber cultivators of the state.

There are significant inter-district as well as inter-cultivator group (shifting cultivators and rubber cultivators) variations in the level of physical quality of life, human development, the disparity in the human development of males and females and also in the living standards of the north-eastern states in particular and Tripura in general. Though both the rubber cultivators and the shifting cultivators live in the same villages, the rubber cultivators have a better standard of living and a better lifestyle compared to the shifting cultivators. Shifting cultivators are still maintaining their traditional life patterns and are living in more or less in remote or isolated places of the state.

Table 4: District-wise Level of Living Index (LLI) of the Jhumias in Tripura

Districts of Tripura	Health Index of Shifting Cultivators	Health Index of Rubber Cultivators
Dhalai	0.422	0.543
North Tripura	0.498	0.614
South Tripura	0.484	0.597
West Tripura	0.563	0.652
Average	0.492	0.602
Value of Chi-Squares	0.805*	0.412*

Source: Compiled from the primary data collected by the field survey from the four undivided districts of Tripura. (Note: Critical value Chi-Squares with 3df is 0.115 at 1% & 0.325 at 5% level of significance. *Indicates 1% &** indicates 5% per cent level of significance).

Table 4 provides the value of the level of living index of the Jhumias in the districts of Tripura. The above table shows that the value of the level of living index of shifting cultivators are lower than that of the rubber cultivators in all the districts of the state. The average value of the level of living index of rubber cultivators and the shifting cultivators are 0.602 and 0.492 respectively in the state. West Tripura district has the highest value of the level of living index at 0.563 and 0.652 both for the shifting and the rubber cultivators respectively followed by North Tripura district of the state. Its value is the lowest at 0.422 and 0.543 for the shifting and rubber cultivators respectively in the Dhalai district preceded by the South Tripura district. So this indicates that the living standard of both the shifting and rubber cultivators are relatively better in West Tripura and North Tripura districts, it is moderate in South Tripura district and lower in the Dhalai district of the state. Therefore, the null hypothesis 7 is rejected which means there is a significant difference in the Level of Living Index between the shifting and the rubber cultivators in Tripura.

To test the inter-district variations in the value of the level of living index (LLI), the researcher have estimated the Chi-Square values separately for the shifting and the rubber cultivators from their district-level indices and the calculated Chi-Square values have been presented in the last row of this table. It has been observed that the estimated Chi-Square values are greater than their corresponding critical values and this reject the first null hypothesis. It indicates that there are significant inter-district variations in the level of living indices across the districts separately for the shifting and the rubber cultivators of the state. Further, to test the significant inter-cultivator variations in the level of living index between the rubber and the shifting cultivators in the state, the researcher have estimated the t-ratio. The calculated t-ratio value (6.32) is greater than its critical value (2.353) which reject the null hypothesis indicating the significant difference in the level of living index between the shifting and the rubber cultivators across the districts of the state. Therefore, the null hypothesis 8 is rejected, it means there are significant inter-district variations in the Level of Living Index among the shifting cultivators and the rubber cultivators in Tripura.

The above indices of development clearly show that there is a significant development in the level of living of rubber cultivators compared to the shifting cultivators. Although both the rubber cultivators and the shifting cultivators live in the same villages, the rubber cultivators have a better standard of living or lifestyle compared to the shifting cultivators who live their traditional lives and are living in more remote or isolated places.

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CONCLUSION

There is a significant difference in the Physical Quality of Life Index, Human Development Index, Gender Development Index, and Level of Living Index between the shifting and the rubber cultivators in the state. The probable reasons for this difference are the better lifestyle, better education, better health status and higher income of the rubber cultivators as compared to the shifting cultivators of the state. There are also significant inter-district variations in the Physical Quality of Life Index, Human Development Index, Gender Development Index, and Level of Living Index among the shifting cultivators and the rubber cultivators of the state. Therefore, rubber plantations have positively affected the level of living of shifting cultivators. The rubber cultivators have a better standard of living or lifestyle. The shifting cultivators are still living their traditional lives and are living in more remote and isolated places.

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