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Socio-Economic Dynamics and Income Profiles of Rubber Cultivators in Zawlnuam Village

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ABSTRACT

This study examines the socio-economic characteristics and income profiles of rubber cultivators in Zawlnuam village, Mizoram. Rubber cultivation is gaining traction in northeastern India, offering potential economic benefits for rural communities. The study employs a descriptive research design, using quantitative methods to analyze data from 30 rubber farmers, focusing on demographics, income distribution, educational levels, housing quality, and primary income sources. Key indicators, such as average income, landholdings, and family classifications under the National Food Security Act, were assessed to create a comprehensive socio-economic profile. The findings reveal a predominantly male, middle-aged group with moderate income levels, limited advanced education, and varied family sizes. Housing conditions and income diversity suggest economic stratification within the community, where agriculture remains a primary income source, supplemented by self-employment and government roles. The study highlights the need for targeted interventions to enhance economic resilience, productivity, and

inclusivity in rubber cultivation. These insights provide a foundation for developing policies aimed at promoting sustainable livelihoods for rubber cultivators in Mizoram.

Introduction

Agriculture remains a foundational sector for rural economies worldwide, sustaining livelihoods and supporting socio-economic stability. In Mizoram, India, rubber cultivation has gradually gained significance as a viable agricultural activity, largely due to its potential for long-term economic benefits and adaptability to the region's unique geographical and climatic conditions. This study aims to investigate the socio-economic profile and income dynamics of rubber cultivators in Mizoram, analyzing various characteristics such as household demographics, education levels, income distribution, and the impact of primary income sources on their overall livelihoods.

Rubber cultivation in India has historically been concentrated in the southern states, particularly Kerala, where climatic conditions favor the growth of Hevea brasiliensis (the rubber plant). However, in recent years, Mizoram and other northeastern states have promoted rubber cultivation to boost rural incomes and diversify agricultural portfolios (John, 2017). Studies have shown that, when supported with adequate training and resources, rubber farming can provide a steady income, contributing positively to household financial security (Sasidharan & Pillai, 2019).

An important aspect of this study involves understanding the demographic composition and socio-economic status of rubber growers, which often play crucial roles in determining productivity and financial resilience. Research by Agarwal (2020) on rural households in northeast India highlights that demographic factors such as age and education significantly influence agricultural practices and income levels. Additionally, Rao and Thomas (2018) demonstrate that educational attainment among farmers is often linked with better adoption of modern farming techniques, which can lead to increased productivity and income.

Income diversification, which includes agricultural and non-agricultural activities, is another vital factor affecting rural households. Research suggests that households with diverse income sources are more resilient to economic shocks, especially in agricultural sectors vulnerable to market volatility and climatic risks (Kumar et al., 2021). In Mizoram, where rubber cultivation is relatively new,

understanding how it fits into the broader spectrum of income sources for households can provide insight into its sustainability and potential for income stability.

By analyzing the socio-economic profiles and income dynamics of rubber cultivators in Mizoram, this study contributes to the growing body of literature on rural livelihoods and agricultural development in the northeastern region of India. Findings from this research will be instrumental in formulating policies and interventions aimed at enhancing the productivity and economic stability of rubber cultivators, thereby supporting the broader goal of rural development.

Review of Literature

The socio-economic impact of rubber cultivation has been explored in various contexts, particularly in regions where agriculture forms the backbone of rural livelihoods. Rubber cultivation has traditionally been concentrated in India's southern states, with Kerala as a focal point due to its conducive climate (John, 2017). However, more recent policies have promoted rubber farming in northeastern states, like Mizoram, to diversify rural economies and provide income stability to local households (Sasidharan & Pillai, 2019). This shift reflects a broader trend in agricultural policy aimed at income diversification and poverty alleviation in vulnerable rural communities.

Demographic factors, including age and educational attainment, play a crucial role in influencing the productivity and economic outcomes of agricultural practices (Agarwal, 2020). Studies indicate that higher education levels among farmers often correlate with improved adoption of modern farming techniques, which can enhance productivity and income (Rao & Thomas, 2018). These findings suggest that educational interventions could benefit rubber cultivators, allowing them to adopt more efficient agricultural methods and technologies.

Income diversification is a significant factor in rural economic resilience. Kumar et al. (2021) emphasize that rural households with multiple income sources are more equipped to handle economic uncertainties, including those arising from agricultural market fluctuations and environmental risks. In the context of rubber cultivation in Mizoram, this diversification not only supports household income but also mitigates the volatility associated with agricultural incomes. The potential for rubber farming to support long-term income stability is promising, though it requires adequate training and resource support to reach its full potential (Sasidharan & Pillai, 2019).

Finally, housing stability and household size also contribute to economic resilience among rural populations. Households with larger family sizes may benefit from an increased labor force, though they also encounter higher dependency ratios, which can impact financial stability. The presence of different types of dwellings (e.g., pucca and kucha) reflects economic stratification within the community, with housing quality serving as an indicator of economic security and stability (Kumar et al., 2021). These factors collectively shape the socio-economic landscape of rubber cultivators in Mizoram, underscoring the need for tailored policies that address both economic and social determinants of agricultural success.

Objectives of the Study

This study is based on the following objectives:

1. To examine the demographic characteristics of rubber cultivators—such as age, gender, educational level, and household size and evaluate how these factors influence agricultural practices and economic outcomes within the community.
2. To assess income distribution and primary sources of income among rubber cultivators, identifying the role of rubber cultivation in promoting household income stability and economic resilience.
3. To explore the impact of housing quality and family classifications (e.g., PHH and NFSA status) on the financial well-being of rubber farming households.

Methodology

This study employs a descriptive research design to systematically examine the socio-economic characteristics of rubber cultivators in Mizoram, with a particular focus on Zawlnuam village. The research utilizes quantitative data collection techniques to analyze key demographic and economic attributes pertinent to rubber cultivation in the region. A purposive sample of 30 rubber cultivators was selected to represent the community of rubber farmers in Zawlnuam. Data were gathered through structured interviews and questionnaires, encompassing variables such as demographic profiles, income levels, educational attainment, family composition, housing conditions, and principal income sources.

The analysis of collected data was analysed using descriptive statistical methods, including frequency distributions, percentages, and mean calculations. Key socio-economic indicators such as average annual income, education levels, and landholding sizes were assessed to construct a

comprehensive profile of the rubber cultivators. This methodology provides valuable insights into the socio-economic landscape influencing rubber cultivation practices within this community.

Results and Discussions

The general profile of the respondents consists of Sex Compositions, Age Group of the Farmers, Educational Qualification, Household Type, Size of the Family, Status of the Family, Main Source of Income and Annual Income of the Farmers. They are presented in the following table:

Table:1 Socio-economics Characteristics of Respondents

Sex Distribution		
Classification	**No. of Respondents**	**Percentage Value**
Male	27	90
Female	3	10
Total	30	100
Age Classification		
30-40	2	6.7
41-50	8	26.7
51-60	15	50
60 & above	5	16.7
Total	30	100
Mean Age: 52		
Educational Attainment		
Primary	4	13.3
Middle	5	16.7

HSLC	9	30
HSSLC	9	30
Graduate & above	3	10
Type of Dwelling		
Kucha	13	43.3
Pucca	17	56.7
Size of Family		
02-04	11	36.7
05-07	16	53.3
08-10	3	10

Source: Primary Data, 2024

The data reveals a notable gender imbalance among rubber cultivators, with 90% of respondents being male and only 10% female. This disparity suggests that rubber cultivation in the region is predominantly male-oriented, likely due to socio-cultural norms assigning men as the primary labor force in agriculture, alongside the physical demands traditionally associated with farming. Such a trend also points to a potential gap in female participation, highlighting an opportunity to foster more inclusive economic involvement for women.

In terms of age distribution, half of the respondents (50%) are aged 51-60, with another 26.7% between 41-50 years, and a smaller portion in the youngest group, 30-40 years (6.7%). Those aged 60 and above represent 16.7% of respondents, with a mean age of 52. This age profile suggests that rubber cultivation is predominantly carried out by middle-aged and older individuals, while younger people appear less engaged in this form of agriculture. The limited participation among younger individuals may be attributed to economic considerations or the availability of alternative employment opportunities. The aging workforce underscores a potential need for policy initiatives aimed at attracting younger farmers, which is critical to the long-term sustainability of rubber cultivation in the region.

Educational attainment among respondents reflects a relatively low level of advanced education. While 30% of respondents have completed high school (HSLC) and another 30% have completed higher secondary (HSSLC), 16.7% have reached middle school, 13.3% primary education, and only 10% have attained graduation or higher qualifications. This distribution indicates basic literacy levels but limited access to tertiary education among cultivators, which may impact their ability to adopt advanced agricultural practices, innovative techniques, and technology in farming. Bridging this gap through targeted extension services and training programs could enhance productivity and economic resilience within the community.

Housing conditions show that 56.7% of respondents reside in permanent, "Pucca" houses, while 43.3% live in "Kucha" or semi-permanent structures. The prevalence of more stable housing suggests a moderate level of economic stability; however, the substantial proportion of "Kucha" dwellings reflects economic challenges faced by a segment of the community. This variation in housing types indicates disparities in wealth and stability within the population, with improved housing development potentially enhancing living standards and fostering social progress.

Family size is another significant factor, with 53.3% of respondents living in medium-sized families (5-7 members), 36.7% in smaller families (2-4 members), and 10% in larger families (8-10 members). The size of the household may impact the available labor force for rubber cultivation, where larger families could have an advantage in terms of labor availability, though they may also face higher household expenses. Family size therefore influences income dynamics, resource distribution, and dependency ratios. Larger families may benefit from family-based labor contributions but also contend with the associated economic demands, potentially affecting net income and savings.

In summary, this profile delineates a community of predominantly middle-aged male rubber cultivators, generally with limited higher education, moderate economic stability, and varied family sizes. The data suggests several areas for potential intervention: promoting female and youth engagement in rubber cultivation, enhancing educational resources, and addressing economic disparities in housing and living standards. Through targeted policies and support programs in training, access to resources, and housing development, the community can achieve more sustainable and equitable economic outcomes.

Table 2: Classification Respondent based on Family Status

Category	No. of Respondents	Percentage Value
PHH	9	30
NFSA	21	70
Total	30	100

Source: Primary Data, 2024

Among the respondents, 70% fall under the NFSA (National Food Security Act) category, while 30% are classified as PHH (Priority Households). This distinction between NFSA and PHH provides a meaningful perspective on the economic standing of rubber cultivators in the context of government welfare schemes. NFSA households typically do not experience severe financial constraints and therefore do not require prioritized assistance. In contrast, PHH households are those identified as needing more direct support due to limited resources or a higher vulnerability to food insecurity.

The majority presence of NFSA households (70%) suggests that most rubber cultivators in this study enjoy a relatively stable economic position, needing only general welfare support rather than intensive assistance. This finding implies that a significant portion of this community has managed to avoid extreme financial hardship. However, the presence of 30% PHH households indicates that a substantial subset of respondents still struggles with financial vulnerability and requires targeted support to meet basic needs and ensure food security. This variation highlights the economic diversity within the rubber cultivator community, underscoring the need for tailored support measures that address the specific challenges faced by PHH households while reinforcing economic resilience across the sector.

Table 3: Main Source of Income of the Respondents.

Occupation	No. of Respondents	Percentage Value
Agriculturalist	13	43.3
Government Servant	6	20
Self Employed	11	36.7

Total	30	100

Source: Primary Data, 2024

A substantial proportion of respondents (43.3%) identifies agriculture, including rubber cultivation, as their primary source of income. This reliance underscores the community's dependence on agriculture as both a traditional and essential livelihood. For many, this sector likely provides a reliable income, particularly given the potential for growth in rubber cultivation within the region. Additionally, a notable 36.7% of respondents are self-employed, reflecting a level of entrepreneurial activity and economic diversification within the community. These self-employment opportunities potentially encompassing small businesses, trades, or other non-agricultural ventures serve as a complementary or alternative source of income. Such diversification bolsters economic resilience, allowing households to navigate agricultural risks like market fluctuations or environmental challenges more effectively.

Although the smallest group (20%), those employed in government roles benefit from a stable income and associated benefits, enhancing financial security for these households. Government positions are often associated with consistent pay and access to benefits, which can significantly support household economic stability.

In summary, this income distribution reveals a community where agriculture remains the cornerstone of economic life, yet a significant portion of households seeks income stability through self-employment and government roles. This diversity in income sources strengthens the community's overall economic resilience, suggesting that while agriculture is fundamental, alternative employment avenues play an increasingly vital role in sustaining household incomes. Supporting both agricultural and non-agricultural income-generating activities could further reinforce economic security and resilience for the community as a whole.

Table 4: Annual Income of the Respondents from all Sources.

Amount (in lakh ₹)	No. of Respondents	Percentage Value
< 2.0	8	26.7
2.1 - 3.0	4	13.3

3.1 - 4.0	11	36.7
>4.1	7	23.3
Total	30	100
Average Annual Income = ₹ 281,666.9		

Source: Primary Data, 2024

It could be observed from the table that 26.7% of respondents in the low-income group (earning below ₹200,000 annually) indicate that a significant portion of households may face financial constraints. These households are likely vulnerable to economic hardship and may benefit from targeted support or interventions to enhance income stability, especially given the variability in agricultural income.

The middle-income groups, comprising 13.3% of households earning between ₹200,001–300,000 and 36.7% earning ₹300,001–400,000, collectively represent half of the respondents (50%). Families in this income range generally have sufficient means to meet essential needs, although they may still be impacted by economic challenges, particularly during years of low agricultural yields or market price fluctuations.

Notably, 23.3% of respondents earn ₹400,001 or more annually, suggesting that nearly a quarter of the community achieves a level of income that provides economic stability and allows for potential savings or reinvestment. Households in this higher-income group may be better positioned to invest in areas such as improved agricultural practices, education, or other avenues that could support long-term economic advancement.

The average annual income, at ₹281,666.9, places the community in the moderate-income range overall, reflecting a broad distribution of income levels. This variation suggests differing degrees of economic resilience among households. The findings underscore the potential benefits of targeted financial support or training programs for low-income households, while encouraging investment in productivity and resilience-building strategies for middle- and higher-income groups. Such targeted assistance could help foster a more balanced and sustainable economic foundation within the community.

Table 5: Annual Income of the Respondents from all Sources.

Area (in Acre)	No. of Respondents	Percentage Value
01-02	11	36.7
2.1-03	14	46.7
3.1-04	4	13.3
4.1-05	1	3.3
Total	30	100
Average Size of Land Holdings=2.33		

Source: Primary Data, 2024

As indicated in the table, a high proportion of respondents (83.4%) cultivating on small plots between 1 and 3 acres suggests that rubber farming in this region is largely a small-scale enterprise. These limited land sizes may restrict total output, which in turn impacts the profitability of rubber cultivation for each household. However, small-scale plots can be more manageable and better suited to families with constrained labor or resources. Smallholders, though, may face barriers to scaling production or adopting advanced farming techniques, which often require larger areas. While 16.6% of respondents cultivate on plots over 3 acres, providing these households with opportunities for greater production and potentially higher income, as rubber cultivation benefits from economies of scale. Larger landholders may also be better positioned to implement advanced agricultural practices, such as intercropping or mechanization, which can enhance both productivity and profitability.

With an average landholding size of 2.33 acres, the community's farming approach reflects a smallholder structure. To maximize the productivity of these modest plots, targeted support such as improved planting techniques, access to quality seedlings, and efficient irrigation methods could be essential in helping cultivators optimize yields and income potential.

Thus, the predominance of small landholdings highlights the importance of initiatives that cater specifically to smallholder farmers, including training in efficient cultivation methods and the

development of cooperative models that enable access to shared resources. These measures could significantly improve the economic resilience of small-scale rubber cultivators while promoting sustainable agricultural practices within the community.

Table 6: Annual Income from Rubber Cultivation.

Amount (in ₹)	No. of Respondents	Percentage Value
10000-100000	9	30
100001-200000	6	20
200001-300000	8	26.7
300001-400000	4	13.3
400001 & above	3	10
Total	30	100
Average Annual Income from Rubber = ₹199,666.77		

Source: Primary Data, 2024

With 30% of respondents in the lower income group (₹10,000–100,000), a significant portion of households earns only a modest income from rubber cultivation. For these families, rubber farming may serve more as a supplementary income source than a primary livelihood, likely due to factors such as limited landholdings, lower crop yields, or constraints in production resources.

In contrast, 46.7% of respondents fall within the ₹100,001–300,000 range, reflecting households with a more stable and adequate income from rubber cultivation. These households likely depend on rubber farming as a primary source of income, although they may still experience economic fluctuations linked to market prices or variable crop yields.

A smaller segment (23.3%) earns over ₹300,001 annually from rubber cultivation, including 10% earning above ₹400,001. These households typically have larger landholdings or higher productivity levels, enabling them to achieve greater income from rubber cultivation. This income

bracket provides better financial security and may allow these families to reinvest in their farming operations or explore additional income-generating opportunities.

The average income of ₹199,666.77 indicates that, while rubber cultivation offers a valuable contribution to household income, there is considerable variation in income levels across households. This disparity suggests that targeted support initiatives—such as providing high-quality seedlings, technical training, and improved market access—could significantly enhance productivity and profitability for lower- and middle-income cultivators, ultimately fostering a more equitable and sustainable income base within the community.

Conclusion

This study provides a detailed socio-economic profile of rubber cultivators in Zawlnuam village, Mizoram, offering insights into the demographic, educational, and economic attributes that shape the livelihoods of these farmers. Findings reveal a largely middle-aged, male-dominated group with varying levels of education, moderate income, and small landholdings, emphasizing the need for policies that support income stability and agricultural resilience. Although rubber cultivation contributes significantly to household income, many cultivators face challenges linked to limited land size, lower educational attainment, and economic vulnerability, as indicated by the diversity in housing quality and NFSA classifications. By addressing these factors through targeted interventions such as educational programs, financial support for small-scale farmers, and infrastructure improvements the economic resilience and sustainability of rubber cultivation in Mizoram can be enhanced. The study's findings underscore the potential for rubber cultivation to play a transformative role in rural development, provided adequate support is offered to overcome structural challenges and boost productivity among smallholders.

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