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Two Hundred Years of Assam Tea Innovations, Sustainability and Rural Transformation

ABSTRACT BOOK

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About this volume

This book brings together the abstracts submitted for the national seminar on Two Hundred Years of Assam Tea: Innovations, Sustainability and Rural Transformation, hosted by the Department of Economics, Dibru College, Dibrugarh, on 8-9 October 2026. Entries are grouped by their principal theme to help delegates navigate research on Assam tea across history, markets, labour, livelihoods, sustainability and innovation.

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FROM THE ORGANISERS

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The book reflects the breadth of the submissions received, from archival and cultural questions to market structure, plantation labour, environmental change, and the future of small tea growers. We hope it serves as a useful guide to discussion during the seminar and a record of the questions researchers are asking about Assam tea today.

How to use this book

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THEME

History, institutions and indigenous knowledge

Phalap :The Traditional Singpho Smoke Tea

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The Singpho community is one of the significant hill tribes mostly found in Assam and Arunachal Pradesh. "Phalap" is a traditional smoked tea of the Singpho tribe. This tea has a unique processing method that has been passed down from generation to generation. Singpho tribe has preserved and consumed 'Phalap tea' not only for taste but also for health benefits as part of the indigenous knowledge system. This paper seeks to explore the brew process of phalap tea, associated health benefits, and how it can be preserved as an integral part of the Singpho indigenous knowledge system.

Keywords: Phalap Tea, Singpho community, Making process, Preservation, Indigenous Knowledge System (IKS)

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Contribution of Tea to Assam's Economy and Employment with Special Reference to the Singpho Community

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Tea is one of the most important agricultural and commercial industries in Assam and has played a central role in shaping the state's economy, employment structure, rural society, and cultural identity. In the history of tea, Assam occupies a significant position because the indigenous tea plant (*Camellia sinensis* var. *assamica*) was known and used by the Singpho before the development of the colonial tea plantation system. The Singpho community of Upper Assam therefore has a deep rooted and emotional connect with the tea tradition, though their contribution is historically under-recognised and unevaluated. Based on the narrated premises, this paper examines the contribution of tea to Assam's economy and employment, with particular emphasis on the Singpho community. It discusses the historical knowledge of tea among the Singphos, the story of transformation of indigenous tea practices into a commercial plantation industry, the role of tea in employment and income generation, and the opportunities for Singpho entrepreneurship through traditional, organic, and handmade tea. The study is based primarily on empirical research and secondary sources, and includes government reports, ethnographic studies, tea-industry research, and published literature. The analysis shows that tea remains a major economic sector in Assam, while the Singpho connection to tea provides an important opportunity for cultural preservation, value addition, niche marketing, and community-based economic development. At the same time, challenges relating to land, finance, market access, technology, certification and limited participation in value-added processing need to be addressed.

Keywords: Tea industry, employment, Singpho community, Phalap, indigenous knowledge, rural economy

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THEME
Tea economy and regional development

Tea Production in Assam (2015-2025): Growth, Instability and Decomposition Analysis

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The study seeks to examine the tea production trend in Assam over the decade spanning from 2015-2025 with a special focus on growth, instability and decomposition analysis to identify the driving components responsible for the change in tea production. Tea is one of the most important cash crops in Assam. Assam alone produces more than 50% of India's total tea production. However, changes in the tea production may be due to change in area under cultivation, productivity or a combination of both. So, based on secondary time-series data, the study uses data on area under tea cultivation, tea production and average productivity or yield sourced from North Eastern Development Finance Corporation Ltd (NEDFi), Statistical Handbook of Assam and other related official sources. Using log-linear regression first CAGR is estimated, while instability is measured using coefficient of variation and finally decomposition analysis to identify whether change in production is due area effect, yield effect or a combination of both. The results reveal positive growth of area followed by production, while a negative growth of yield. On the other hand, productivity records higher instability followed by production and area. Further, decomposition analysis depicts area effect is the major driving force of change in tea production. Assam's tea production is thus, driven mainly by area expansion. The declining productivity growth indicates policy interventions focussing vertical yield improvement, technology-driven cultivation practices and better access to institutional support especially to the small tea growers (STGs)

Keywords: Assam tea, Tea production, Growth, Productivity, Instability, Decomposition analysis

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Seasonality and Recent Production Dynamics of the Tea Industry in Assam: An Empirical Analysis

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Tea production occupies a prominent position in Assam's economy, with the state accounting for more than half of India's total tea output. This study examines the recent production dynamics of the Assam tea industry using monthly tea production data published by the Tea Board of India. The analysis uses monthly production data for 2023 and 2024. The study examines annual production changes, monthly production patterns, seasonal concentration and the composition of production between Big Growers (BG) and Small Growers (SG). The findings show that Assam's total tea production declined from 688.33 million kg in 2023 to 649.84 million kg in 2024, representing a decline of approximately 5.59 percent. However, Assam's share in total Indian tea production increased from 49.39 percent to 50.58 percent because all-India production declined at a faster rate. The production pattern is highly seasonal, with October recording the highest production in 2024 and April-November accounting for approximately 95.65 percent of Assam's annual production. The findings provide important insights into the seasonal dynamics and structural composition of tea production, highlighting the changing pattern of production across regions and growers.

Keywords: Tea industry, tea production, seasonality, small growers.

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The Production-Price Paradox in Assam Tea: Is Lower Output Associated with Better Price Realisation? Evidence from the Guwahati Tea Auction, 2010-2024

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Tea production in Assam has experienced considerable fluctuations, while prices realised at the Guwahati Tea Auction Centre (GTAC) have not always moved in the same direction. This paper examines whether lower tea output is associated with better auction price realisation and whether such a production-price paradox represents a recurring feature of Assam's tea market. The study uses secondary data on Assam tea production and GTAC prices for 2010-2024. Monthly GTAC quantity and price data for 2021-2024 are additionally examined to capture within-year market movements. The analysis combines trend and growth measures with correlation, regression and seasonal analysis. The findings identify specific years in which declining production coincided with rising auction prices, but the relationship is not consistent across the study period. Monthly evidence further indicates that seasonal market patterns are important in understanding price variation. The study concludes that the production-price paradox in Assam tea is episodic rather than systematic, and that aggregate output alone cannot adequately explain price realisation at GTAC.

Keywords: Assam Tea; Guwahati Tea Auction Centre; Tea Production; Price Realisation; Production-Price Paradox; Seasonality.

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The Export Competitiveness of India's Tea and Implications for Assam

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Tea is the main agricultural crop produced in Assam. It occupies a central position in India's tea economy. The province of Assam alone accounts for more than half of India's total tea production. Tea production supports a large network of plantations, workers and rural communities. This substantial production base makes Assam an important regional foundation of India's tea industry and, indirectly, of its participation in the international tea market. India is a major tea exporter, linking Assam's production capacity to global tea demand. Against this background, the present study examines the export competitiveness of Indian tea and its implications for Assam. Using the Symmetric Revealed Comparative Advantage (SRCA) index, the study estimates India's comparative advantage in global tea exports. Our estimate indicates that India has a sufficient trade advantage in the tea trade with major partners such as the USA, the UAE, the Netherlands, and Singapore. The findings are expected to provide insights into the international positioning of Indian tea and the opportunities it creates for Assam through export expansion, product diversification, value addition and stronger integration with global tea markets.

Keywords : Tea production, export, import, SRCA index, comparative advantage and disadvantage.

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Financing the Sustainable Transformation of Assam's Tea Industry: Issues, Challenges and Policy Perspectives

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Assam's tea industry is an important source of production and export earnings. It is also linked with the everyday lives of lakhs of people in the state. Tea gardens, small holdings, bought-leaf factories, transport networks and auction centres form a large rural economy. In the recent years, the industry has evolved significantly because small and medium tea growers have become a major part of Assam's tea production. This change has made finance much more important. Tea cultivation needs regular spending on labour, fertilisers, plant protection, pruning, transport and maintenance. It also needs long-term investment in replantation, irrigation, mechanisation, processing, quality improvement and climate-resilient practices. This paper studies the financial side of Assam's tea industry, with special emphasis on small tea growers, institutional credit, export performance and sustainable transformation. The study is based on secondary data collected from the Tea Board of India, Government of Assam, NABARD, the Department of Commerce and other official sources. Trend analysis is used to study Assam's tea production during 2016-2025, India's tea exports performance during the same period, and the contribution of small tea growers to Assam's tea production during 2018-2025. The paper shows that Assam continues to remain a leading tea-producing state, but its future depends on better access to finance, stronger producer organisations, value addition, risk management and sustainable technology. The tea industry of Assam will become stronger if and only if finance reaches tea growers in a timely, affordable and practical manner.

Keywords : Assam Tea Industry, Small Tea Growers, Institutional Finance, Financial Sustainability, Agricultural Credit, Financial Inclusion, Sustainable Development.

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THEME
Small tea growers and rural transformation

A Study on the Growth of Small Tea Growers in Assam

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Small Tea Growers (STGs) are important stakeholders of the tea industry of Assam and play a significant role in Assam economy. The STGs movement in Assam began in the late 1970s and early 1980s. The STGs emerged as a driving force of Assam's tea industry. During 2024-2025, the total number of STGs of Assam registered with Tea Board of India is 133502, contributing 50% of the total tea production of Assam's tea industry (Statistical Handbook of Assam). In this paper, a humble initiative has been taken to study the status of the growth of STGs of Assam and to know the challenges faced by STGs. The present study is based on secondary data and statistical tools are used to analyse the data. The finding of the study shows that number of STGs (registered), area under cultivation and production of tea of the STGs have increased gradually over time. The study also reveals that there are various challenges faced by the STGs and addressing these challenges is the need of the hour for sustainable growth of the STGs of Assam.

Keywords : Small Tea Growers, Tea industry, Growth, Assam economy.

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Small Tea Growers in Assam: Emergence, Growth and Value Chain Linkages

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Tea is one of the most consumed beverages all over the world and it supports the livelihoods of millions of smallholder farmers. The history of tea predates that of smallholder tea, smallholder tea becoming a significant production method during the twentieth century. The rise of small tea growers has led to a change in tea cultivation from large plantations to small holdings. This study looks at the emergence and development of Small Tea Growers within Assam's tea economy. It uses a descriptive and analytical research approach, the main source of data being secondary information obtained from the Tea Board of India, the Government of Assam, peer-reviewed literature, policy reports, and various institutional publications. A value-chain framework is applied to trace the journey of tea from cultivation and the production of green leaves through to processing and marketing and finally into domestic and export markets. The results show that Small Tea Growers are becoming increasingly important in tea production and that there has been a transformation in the organisation of Assam's tea sector, with green leaf production, processing and marketing being increasingly divided among different parties. The study also points out the reliance of Small Tea Growers on processing units and their vulnerability to market and price fluctuations.

Keywords : small tea growers, green leaves, vulnerability.

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THEME
Labour, migration and gender

Changing Employment Aspirations and Migratory Behaviour among Tea Workers in Assam : A Qualitative Analysis

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Assam is one of the major tea-producing regions of India. Beyond its contribution to tea production, the industry also provides enormous number of employment and serves as an important source of livelihood. The tea industry provides various statutory and welfare benefits but still tea workers continue to face socio-economic challenges. This has result the youths from tea industry look for alternative source of income. The aspirations of younger generations have increasingly raised questions about the continued attractiveness of plantation employment. This study is an attempt to understand the wage and employment structure prevailing in tea sector in Assam and the nature of employment aspirations among tea workers in Assam, focusing primarily on migration to outside Assam. The study adopts a qualitative approach based primarily on secondary data obtained from government reports, official statistical publications, research articles, books, newspapers and other authentic documents. The study uses selected case studies of tea- workers who have migrated to other states to understand the nature of alternative employment choices. The study further tries to explore the factors influencing long distance migration to other state for employment.

Keywords : Tea Workers, Employment, wage differential, migration, employment aspirations.

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Role of Tea Tribe Women in Assam Assembly Elections

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The Tea Tribe Community constitutes a significant section of Assam's population and electorate, particularly in the tea- growing places of Upper and Central Assam. Women of this tribe constitute a significant part of the workforce and social fabric of Assam. Their contribution to tea cultivation, household activities and community life has been playing an important role in sustaining tea industry and the socio-economic development of the state. Despite their substantial participation in the labour force, tea tribe women continue to face challenges related to low wages, occupational insecurity, limited access to education and healthcare, inadequate housing and sanitation and gender-based inequalities. Their responsibilities are further intensified by the burden of unpaid domestic and care work. To place their problem in front of the Government representation in electoral politics is important. But unfortunately not only the women of tea tribe all over women representation are in under question mark. Tea tribe women occupy a distinctive position within this community because their political participation is shaped simultaneously by gender, class, occupation and community identity. Although Tea Tribe voters have considerable significance yet the representation of women of this community in formal politics is very few in number. This paper is an attempt to examine the role of Tea Tribe women in Assam Assembly elections from the first Assembly election after independence to 2026 Assembly Election.

Keywords : Tea Tribe, Assembly, Election, Labour, wage.

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Self-Help Groups and Women's Entrepreneurship among Tea-Tribe Women in Assam : Socio-Economic Conditions and Constraints

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Self-Help Groups (SHGs) have become an important institutional mechanism for improving the economic participation of women, particularly among economically vulnerable rural communities. Women belonging to the tea-tribe community of Assam are increasingly becoming members of SHGs for it is offering them opportunities for savings, credit access, collective action and income-generating activities. However, sustainable entrepreneurship will necessarily thrive on group based financial support. This paper examines the socio-economic and entrepreneurial conditions of tea-tribe women associated with Self-Help Groups in selected tea estates of Sivasagar district, Assam, and identifies the major constraints affecting their income-generating activities. The study is based on primary data collected from 340 women associated with SHGs across selected tea estates under Nazira, Demow and Amguri development blocks. The study employs descriptive statistics to examine their socio-economic characteristics, income, savings, training, financial support and entrepreneurial constraints. The findings indicate that most respondents remain economically vulnerable despite their participation in SHGs. Low income, limited savings, inadequate productive assets, shortage of capital, lack of financial information, inadequate marketing experience and weak management capabilities restrict the development of their entrepreneurial activities. Enterprise-specific training, financial literacy, market linkage, product development, management support and continuous institutional mentoring are necessary to strengthen the economic outcomes of SHG participation.

Keywords : Self-Help Groups, women entrepreneurship, tea tribes, Assam, income generation, financial inclusion, marketing constraints, Sivasagar.

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Women Victims of Witch Hunting among the Tea Tribes of Assam

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A 'witch' or its Assamese vocabulary 'daini' in Assam is used to identify a female who is alleged to have magical powers that it used to bring evil to the community. "Witches" are, in most cases women who are alleged use their evil powers to harm others. In fact, however, many of those accused of witchcraft are simply vulnerable women and children, the elderly or the mentally ill, and are sometime the victims of an accuser's personal grudge. In many cases they are killed with impunity. Witch hunting is killing of a 'witch', a superstitious evil practice quite common among the Adivasi community of Assam. A witch in most of the cases is a woman who is alleged to be a practitioner of black magic and causes death to the villagers where she lives. Local Ojhas (sorcerer) 'detects' and identifies witches. In this paper an attempt has been made to understand the underlying causes of witches hunting cases among the tea tribes of Upper Assam.

Keywords : Witch Hunting, Female victims, Tea tribes.

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Voicing the Subaltern Women: A Reading of Arupa Patangia Kalita's Josnar Jhitas

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The term subaltern denotes a group of people who are socially, politically and geographically not included in the hegemonic colonial context. According to the Concise Oxford Dictionary of Current English the term subaltern refers to "an officer below the rank of captain especially a second lieutenant; of inferior rank; and particular, not universal". A subaltern is often viewed as a marginalized entity in the society who is denied of equal access to resources and productivity. In a patriarchal society women are often considered as the marginalized subaltern. The social norms and customs always relegate women to the secondary position making her an Other. Indian English Women Novelists especially from the region of North East have drawn a considerable attention from the critics and analysts in recent times. In the patriarchal and gendered disparities of the Indian society these authors have fetched new ways of writing the plight of women, their sufferings and also subverting history of marginalized representation of women. Arupa Patangia Kalita's *Josnar Jhitas* (2022) is a significant novel presenting the marginalized existence of a female tea garden labourer in Atharighat tea estate of Assam. It tries to reinterpret the marginalized representation of coolies during the colonial times in tea garden areas of Assam especially focusing on the character of Durgi Bhumij, an immigrant female tea plantation worker. She is an epitome of resilience and courage who tries to subvert the colonial oppression of women. In the present paper we make an attempt at her journey of resilience and agency so as to subvert the colonial exploitation and deception.

Keywords : Gender, Subaltern, Tea Garden, Colonial Assam, Resistance.

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Negotiating Labour, Migration and Gender: A Study of Select Poems of Sameer Tanti

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North-East India possesses a complex history shaped by diverse ethnic formations, colonial intervention, and post-colonial developments. One of the most distinctive voices to emerge in the Assamese literary firmament from the 1980s onwards - a voice that continues to resonate with undiminished zeal, rebelliousness, and love for nature - is that of Sameer Tanti. A contemporary Assamese poet belonging to the Adivasi Tea-Garden Community of Assam, Tanti descends from indigenous Adivasi peoples, who had the right to determine and define their own identity, but who were brought to Assam as bonded labourers to work in its tea gardens. Tracing his lineage to the exploited tea-garden workers of Assam, Tanti was among the few poets who heralded the emergence of a new generation of poets from diverse ethnic grounds in the 1990s, while simultaneously reflecting the processes of assimilation of different communities into a larger Assamese society. Even today, the poet's mind wanders across the green expanses of Mikirchang Tea Estate in Golaghat district, where he was born and brought up - the sun-burnt faces of hard-working labourers, the evocative rhythm of jhumur (an Adivasi dance) and madal (drum), the unhygienic "lines" where labourers were compelled to live and the sighs of hundreds who still yearn to return to the land their forefathers had left more than a century ago but cannot. All remain vivid in his consciousness. He has immortalized them in his *Kadam Phular Rati* (2001), one of the few Assamese works and an epic in its own right, rooted in life in the tea gardens. His poems are an exposition of the exclusion, apathy, suppression, pain, suffering, and deprivation of these subaltern people who, even after being freed from colonial bondage, remain subjugated to their new masters - the national bourgeoisie. Their socio-economic plight remains largely unchanged, with a majority still deprived of basic human rights. Tanti portrays the sorrow and oppression of the common man with remarkable aplomb. Through his poetry, he articulates a demand for freedom for his people against injustice. Against this backdrop, this seminar paper seeks to examine select poems of Sameer Tanti through the intersecting lenses of migration, labour, and gender.

Keywords : Migration; Labour; Gender; Tea Garden; Poetry; Freedom; Oppression; Exclusion

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Gender Roles and Wage Disparities in the Tea Industry: A Study of Women Workers in Jorhat

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Tea plantations in Assam play a significant role in sustaining the livelihoods of tea tribe communities, with women constituting a substantial proportion of the plantation workforce. Despite their contribution to tea production, women workers continue to face gender-based inequalities in wages, occupational opportunities, working conditions, and household decision-making. This study comparatively examines gender roles, wage disparities, women's autonomy, and feminine identity among women workers in Kaliapani and Majnoi Tea Estates in Jorhat district. It explores how patriarchal norms and plantation labour structures influence women's economic, social, and familial experiences. The study also examines occupational segregation, educational disparities, early marriage, restricted mobility, and health and nutritional concerns. At the same time, women demonstrate agency in negotiating workplace responsibilities, household duties, and community expectations. The comparative analysis highlights both common structural constraints and differences in women's experiences across the two estates. The study emphasizes the importance of wage equity, education, healthcare, and greater participation in decision-making to strengthen women's autonomy and advance gender equality in tea plantation communities.

Keywords : Gender Roles; Wage Disparities; Women's Autonomy; Feminine Identity; Tea Plantation Labour; Gender Inequality

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An Institutional Political Economy Perspective on the Regional Wage Differences and Gendered Labour Outcomes in Tea Plantations of Assam

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The tea plantations of Assam follow the traditional model of an enclave economy, characterized by a paternalistic management system. Females constitute more than 60 percent of the labour force in manual leaf-plucking jobs, yet they face a two-fold structural inequality: one, sanctioned by the government in the form of a disparity in daily wages between the Brahmaputra Valley (₹280) and the Barak Valley (₹258); and second, occupational segregation that confines women to strenuous, piece-rate plucking jobs, while men occupy supervisory and technical jobs. This study adopts the approach of institutional political economy to analyze the implications of these inequalities on women's welfare. It compiles data from the CAG Performance Audit Report (Report No. 5 of 2024), the Minimum Wages Advisory Board notifications, TTWD and NFHS; and, using Amartya Sen and Bina Agarwal's intra-household bargaining theories, investigates how the regionally differential macro-wage ceilings interact with internal task segregation in tea plantations in the two valleys of Assam to constrain women's welfare. The results indicate that the low floor of wages in Barak Valley is not compensated for by the low cost of living in the valley and female workers are left with no buffer against any shock to their income. As daily wages are determined based on a strict weight quota, physical exhaustion and high levels of anaemia have a direct effect in terms of wage reduction. In times of economic hardship, women make up for shortages by reducing their personal diet, thus increasing the likelihood of chronic malnutrition. We contend that these wage gaps and task segregations are not indicative of a politically neutral environment. The solution lies in having a single state-wide minimum wage tied to the index of agricultural prices, along with a reclassification of plucking as skilled work. In essence, this paper provides an institutional policy critique and strongly advocates enforcing gender-neutral hiring policies in tea plantations across Assam.

Keywords : Enclave economy, wage disparity, chronic malnutrition, gender-neutral policy

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Wage Disparities and Women's Empowerment among Tea Planters

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Wage disparities between men and women is considered as a significant barrier in achieving holistic women's empowerment. Despite women being a larger participation scale in education and employment, women continue to experience lower wages, limited access to leadership roles, and unequal division of labour; which leads to limited opportunities for career growth. This disparities are influenced by social norms, discrimination, and unequal distribution of unpaid care work, differences in access to resources and workplace practices. Wage inequality not only effects women's financial independence but also restricts their decision making ability, economic security and overall status in society. This paper examines the relationships between wage disparities and women's empowerment among tea planters and highlights the importance of economic equality in creating inclusive and sustainable societies. Encouraging fair wages and equal economic opportunities for minority women which is essential for strengthening their autonomy and hence contributes to broader social and economic development.

Keywords : Wage disparities, women's empowerment, tea planters.

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Access to Secondary Education Among Girls of Tea Garden Labourer in Assam: Problems and Prospects

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Education is an important means of improving individual well-being, social mobility and community development. However, access to education is not equal for all sections of society. Girls belonging to tea garden labourer families in Assam often face multiple barriers when they attempt to continue their education beyond the primary level. Poverty, low parental educational attainment, inadequate educational facilities, distance from secondary schools, household responsibilities, safety concerns, language-related difficulties and limited awareness of educational opportunities can affect their continuation in school. Studies on tea garden communities have repeatedly identified educational backwardness and limited access to education as important concerns. Research from Udalguri, Cachar and other parts of Assam has also indicated that educational facilities beyond the primary level are not always easily accessible to tea garden communities.

The present seminar paper examines the problems and prospects of access to secondary education among girls of tea garden labourers in Assam. The paper is based on secondary sources, including research articles, government documents, policy documents and reports. The discussion highlights the interaction between economic, social, institutional and gender-related barriers. It also examines opportunities created through scholarships, welfare programmes, inclusive education policies and improved educational infrastructure. The paper argues that improving girls' access to secondary education requires not only school availability but also a supportive social and economic environment that enables girls to remain in school and successfully complete secondary education.

Keywords : girls' education, secondary education, tea garden labourers, Tea Tribe community, Assam, educational access, gender inequality.

ঔপনিবেশিক সময়ছোৱাত চাহ বাগানত প্ৰচলিত ভাষা-বৈচিত্ৰ্য (দুৰ্গাপ্ৰসাদ মজিন্দাৰ বৰুৱাৰ ‘মহৰী’ নাটকৰ আধাৰত)

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উনবিংশ শতিকাৰ ব্ৰিটিছ ঔপনিবেশিক শাসনৰ অধীনত অসমত গঢ় লৈ উঠা চাহ শিল্পই এক সুকীয়া পৰিৱেশৰ সৃষ্টি কৰিছিল। ভাৰতৰ বিভিন্ন প্ৰান্তৰ পৰা অহা ভিন ভাষা-ভাষী শ্ৰমিক, ব্ৰিটিছ শাসক সম্প্ৰদায় আৰু স্থানীয় মধ্যবিত্ত মহৰী/বাবু শ্ৰেণীৰ সমাগমে বাগিচাসমূহক এক ভাষিক মিলনক্ষেত্ৰলৈ ৰূপান্তৰিত কৰিছিল। ঔপনিবেশিক চাহ বাগানৰ এই সামাজিক গাঁথনি, শ্ৰেণী-বিভাজন আৰু ভাষা-বৈচিত্ৰ্যক ব্যংগাত্মক তথা বাস্তৱসন্মত ৰূপত দাঙি ধৰা এখন অন্যতম নাটক হৈছে দুৰ্গাপ্ৰসাদ মজিন্দাৰ বৰুৱাৰ ‘মহৰী’ (১৮৯৬) নাটকখন। এই আলোচনা পত্ৰখনত ‘মহৰী’ নাটকৰ সংলাপ আৰু চৰিত্ৰসমূহৰ আধাৰত ঔপনিবেশিক চাহ বাগানত প্ৰচলিত ভাষিক বৈচিত্ৰ্যৰ দিশসমূহৰ বিষয়ে আলোচনা কৰা হ’ব। আলোচনা পত্ৰত বৰ্ণনাত্মক আৰু পাঠভিত্তিক বিশ্লেষণাত্মক পদ্ধতিৰ সহায় লোৱা হ’ব।

বীজ শব্দ : ঔপনিবেশিক, চাহ বাগান, ভাষা-বৈচিত্ৰ্য, ‘মহৰী’ নাটক।

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THEME

Livelihood, income and human development

Lifestyle Determinants and Health Outcomes among the Tea Garden Community of Jokai Tea Estate, Dibrugarh District

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Tea garden communities in Dibrugarh district of Upper Assam live within a plantation system in which housing, food, sanitation; work and educational opportunity are closely tied to the estate. This paper examines how lifestyle determinants are associated with health outcomes among the tea garden community of Dibrugarh. The present research work synthesizes published community surveys, a government-commissioned morbidity survey and archived doctoral research on tea garden populations, this study based on primary data collected from field investigations on tea garden community of Jokai Tea Estate in Dibrugarh District of Dibrugarh. The evidence shows a consistent pattern. Diets are dominated by staple food such as rice, edible oil and tea, while fruit, dairy and eggs are consumed daily by very few workers; pooled across the district of Dibrugarh, in which surveyed workers were underweight, and women were more affected than men. Literacy is low, particularly among women, and early marriage is common. Open defecation, katcha toilets, tube-well water and poor hand hygiene coexist with high levels of infection, anaemia, worm infestation and skin diseases. Substance use is widespread among most of the surveyed workers reported daily use of tobacco, smoking products and alcohol. According to government health reports in Dibrugarh district, there is an increase in acute ailment and chronic ailment in and cases of hospitalization in the previous year. Reported morbidity increases sharply with age, was highest among non-literate people, and differed significantly by occupation, sanitation and water source. This paper argues that health outcomes in this community are better understood as products of constrained living conditions than of individual choice, and it outlines integrated nutrition, sanitation, occupational safety and health-education measures.

Keywords : tea garden community, health, lifestyle determinants, nutrition, sanitation, morbidity.

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Women in Tea Plantations: A Scoping Review of Occupational Health Gaps in Environmental Literacy and Chemical Awareness

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Tea plantations play a pivotal role in generating employment and income in specific regions. This scoping review examines gaps in occupational health, environmental literacy, and chemical awareness among female tea garden workers, focusing on pesticide exposure, personal protective equipment (PPE) compliance, and subsequent health outcomes. By synthesising literature on chemical awareness, environmental literacy, and occupational and maternal health hazards, this review maps patterns of PPE compliance. We used targeted keywords to focus explicitly on female plantation workers and exclude irrelevant data. The study was conducted using secondary data that was relevant to the assessment. Most included literature consisted of cross-sectional studies assessing exposure to specific pesticides, namely Chlorpyrifos-methyl, carbendazim, ethion, and thiophanate-methyl, which are associated with acute and chronic adverse health outcomes among workers. The findings revealed a high prevalence of disorders, including irritative and neurological symptoms, chronic organophosphate toxicity, oxidative stress, reproductive distress, and foetal growth restriction, alongside broader morbidity patterns. Low literacy rates and insufficient training were frequently linked to poor PPE utilisation. Ultimately, these findings underscore distinct gendered occupational health vulnerabilities and highlight the critical need for policy-driven interventions to mitigate hazardous chemical exposure and safeguard the well-being of female workers.

Keywords : Occupational health, female workers, pesticide exposure, environmental literacy.

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Empowering Tea Garden Communities through Financial Literacy: Role of RBI MoneyWise CFL Interventions in Dibrugarh District

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For improving the livelihoods and economic well-being of tea garden communities, financial literacy is of utmost importance. Due to a lack of formal education and financial awareness, many plantation workers and small tea growers face financial challenges such as poor management of money, low access to banking services, trust on banks, and vulnerability to high interest debt. Without a basic understanding of the existing financial tools and rights, these communities remain excluded from the benefits of the formal economy. To address this gap, CRISIL, under the guidance of the Reserve Bank of India (RBI), is driving financial literacy through the MoneyWise Centre for Financial Literacy (CFL) project. By bringing education at the grass root level, targeted counselling of these workforce, and community-level outreach, CRISIL empowers workers with practical knowledge about saving, budgeting, safe banking practices, digital finance, and paves the way for sustainable socio-economic development. This study shows how financial literacy would protect the workers from debt traps, bridges access to government financial schemes and digital money gaps, and its role in transforming workforce livelihoods into a sustainable, empowered socio-economic legacy.

Keywords : Financial Literacy, Financial Inclusion, RBI MoneyWise CFL, Tea Plantation Workers, Sustainable Economy.

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চাহবাগিচাৰ মানুহৰ সামাজিক জীৱন : এক সমাজতাত্ত্বিক বিশ্লেষণ (‘গিৰমিট’ আৰু ‘সাত নম্বৰৰ সন্ধানত’ গল্পৰ বিশেষ উল্লিখনেৰে)

ড° মৌচুমী দত্ত

সহযোগী অধ্যাপক, ডিব্ৰু মহাবিদ্যালয়

দীপা ভাগৱতী

গৱেষক ছাত্ৰী, ডিব্ৰুগড় বিশ্ববিদ্যালয়

অসমৰ চাহ উদ্যোগ কেৱল অৰ্থনৈতিক বিকাশৰ এক গুৰুত্বপূৰ্ণ মাধ্যমেই নহয়, চাহ বাগিচাক কেন্দ্ৰ কৰি গঢ় লৈ উঠা শ্ৰম-সংস্কৃতি অসমৰ সামাজিক ইতিহাসৰো এক গুৰুত্বপূৰ্ণ অধ্যায়। চাহ বাগিচাৰ শ্ৰমিক সমাজৰ জীৱন-বাস্তৱতা সাহিত্যত বিভিন্ন সময়ত বিভিন্ন আয়তনেৰে প্ৰতিফলিত হৈ আহিছে। চুটিগল্পয়ো এই ক্ষেত্ৰত ব্যতিক্ৰম নহয়। অসমীয়া চুটিগল্পত তেওঁলোকৰ সমাজৰ দৈনন্দিন জীৱন-যাপন প্ৰণালী, শ্ৰেণীগত অৱস্থান, শ্ৰম আৰু জীৱিকা, সামাজিক অসমতা, অন্ধবিশ্বাস, শোষণ আৰু বঞ্চনা, জীৱন সংগ্ৰাম, সামাজিক বৈষম্য, আৰ্থিক অনিশ্চয়তা আদি দিশবোৰ গভীৰভাৱে প্ৰকাশ পোৱা দেখা যায়। এই গৱেষণা-পত্ৰত ‘গিৰমিট’ আৰু ‘সাত নম্বৰৰ সন্ধানত’ গল্পক আধাৰ হিচাপে লৈ চাহ বাগিচাৰ শ্ৰমিক সমাজৰ সামাজিক জীৱন সম্পৰ্কে সমাজতাত্ত্বিক বিশ্লেষণ কৰা হ’ব। গৱেষণাৰ মূল উদ্দেশ্য হৈছে ‘গিৰমিট’ আৰু ‘সাত নম্বৰৰ সন্ধানত’ গল্পত প্ৰকাশ পোৱা শ্ৰমিক সমাজৰ সামাজিক বাস্তৱতাৰ ছবিখন স্পষ্ট কৰা। এনেদৰে অধ্যয়ন কৰিবলৈ যাওঁতে বৰ্ণনাত্মক, পাঠভিত্তিক বিশ্লেষণাত্মক আৰু সমাজ-বিশ্লেষণ পদ্ধতিৰ সহায় লোৱা হ’ব। সাহিত্যৰ সমাজতাত্ত্বিক অধ্যয়নক গৱেষণাৰ তাত্ত্বিক আধাৰ হিচাপে গ্ৰহণ কৰা হ’ব।

বীজ শব্দ : চাহবাগিচা, সামাজিক জীৱন, সমাজতত্ত্ব, শ্ৰম-সংস্কৃতি, অসমীয়া চুটিগল্প।

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ব্ৰিটিছ মালিকানাধীন অসমৰ চাহ বনুৱাৰ সামাজিক প্ৰেক্ষাপটত ৰচিত 'টু লীভছ এণ্ড এ বাড' উপন্যাস : এটি বিশ্লেষণ

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গৱেষক ছাত্ৰী

ডিব্ৰুগড় বিশ্ববিদ্যালয়

মূলকৰাজ আনন্দৰ টু লীভছ এণ্ড এ বাড উপন্যাসত ব্ৰিটিছ মালিকানাধীন অসমৰ চাহ বাগিচাসমূহত কাম কৰা বনুৱাসকলৰ সমাজ জীৱনৰ ছবি প্ৰতিফলিত হৈছে। বনুৱাসকলৰ ওপৰত ইংৰাজ চাহাবসকলে চলোৱা দমন, শোষণ, আৰু নিৰ্মম অত্যাচাৰ উপন্যাসখনত বৰ্ণনা কৰা হৈছে। এফালে ইংৰাজ চাহাবসকলৰ বিলাসী জীৱন আৰু আনফালে নিপীড়িত বনুৱাসকলৰ দুৰ্দশাগ্ৰস্ত জীৱনৰ দুখন সমান্তৰাল ছবি উপন্যাসখনত প্ৰতিফলিত হৈছে। উপন্যাসখনৰ বিষয়বস্তু গঠিত হৈছে ভাগ্যৰ পৰিহাসত দুৰ্দশাগ্ৰস্ত জীৱন কটাই থকা আৰু অসমলৈ এটা সুন্দৰ জীৱনৰ সন্ধানত আহি আৰু বেছি দুৰ্দশাগ্ৰস্ত জীৱনত সোমাই পৰা চাহ বাগিচাৰ বনুৱাসকলৰ পটভূমিত। ব্ৰিটিছ চৰকাৰে অসমত নতুনকৈ পাতিবলৈ লোৱা চাহ-বাগিচাবোৰত কাম কৰিবলৈ ভাৰতৰ বিভিন্ন ঠাইৰ পৰা বনুৱাসকলক আনে। অতি কম মজুৰিৰে আৰু অতি ক্ৰুৰ দমন ৰীতিৰে ইয়াত কাম কৰিবলৈ বাধ্য কৰি ৰখা বনুৱাসকলৰ সন্মুখত দুটাই পথ— এটা কম মজুৰিৰে, ভোকে, লঘোণে, ব্ৰিটিছৰ দমন ৰীতিৰ সন্মুখত মূৰ দোঁৱাই এক অস্বাস্থ্যৰ পৰিৱেশত বসবাস কৰি চাহ-বাগিচাত কাম কৰা, আনটো ব্ৰিটিছৰ বন্দুকৰ নলী নাইবা চাবুকৰ কোবত মৃত্যু পথৰ যাত্ৰী হোৱা। এই দুই পথেৰে যাত্ৰা কৰি নিজকে আজন্ম দাস হিচাপে মানি লোৱা চাহ-বাগিচাৰ দৰিদ্ৰ অসহায় লোকসকলৰ পটভূমিতে উপন্যাসখন ৰচনা কৰা হৈছে।

বীজশব্দ : টু লীভছ এণ্ড এ বাড, অসম, চাহ বাগিচা, বনুৱা, ইংৰাজ চাহাব।

লোকগীতিতে অসমের চা-বাগানের শ্রমজীবী নারীর জীবনকথা

ড° মৌমিতা পাল

সহকারি অধ্যাপক, বাংলা বিভাগ

ডিব্ৰু কলেজ, ডিব্ৰুগড়

অসমের চা-বাগানের শ্রম-ইতিহাসে শ্রমিক সমাজের অর্থনৈতিক ও উৎপাদনমূলক ভূমিকা নিয়ে বিস্তারিত আলোচনা হ'লেও, নারী শ্রমিকের স্বতন্ত্র জীবন-অভিজ্ঞতা তথা আত্মপ্রকাশের দিকটি তুলনামূলকভাবে কম আলোচিত হয়েছে। এই গবেষণাপত্রের উদ্দেশ্য হ'ল অসমের গোয়ালপাড়া ও সংলগ্ন অঞ্চলের নির্বাচিত চা-বাগানভিত্তিক লোকগীতির আলোকে শ্রমজীবী নারীর ব্যক্তিগত অনুভূতি অনুসন্ধান করা। একজন নারী যখন শ্রমিক হিসেবে চা-বাগানে কাজ করেন, তখন তাঁর নারী হওয়ার অভিজ্ঞতা তাঁর শ্রমজীবনের সঙ্গে যুক্ত হয়ে যায়। তাঁর শরীর যেমন শ্রমের জন্য ব্যবহৃত হয়, তেমনই সেই শরীর হয়ে ওঠে স্মৃতি ও বঞ্চনার প্রকাশের মাধ্যম। সরকারি নথি বা প্রচলিত ইতিহাসে শ্রমিকদের কথা অনেক সময় অন্যের দৃষ্টিকোণ থেকে লেখা হয়েছে। কিন্তু লোকগীতিতে নারীশ্রমিক নিজের অভিজ্ঞতা নিজেই প্রকাশ করেন। ফলে তাঁর গান তাঁর জীবনের আশা-ভালোবাসা, বিচ্ছেদ-বেদনাকে বোঝার একটি গুরুত্বপূর্ণ মাধ্যম হয়ে ওঠে। শ্রমজীবী নারীর অভিজ্ঞতা যখন গান হয়ে প্রজন্মের পর প্রজন্ম পরিবেশিত হয়, তখন তা শুধু ব্যক্তিগত স্মৃতি থাকে না; তা একটি সম্প্রদায়ের স্মৃতির অংশ হয়ে ওঠে। লোকগীতিতে শ্রমের সঙ্গে যুক্ত শরীর একই সঙ্গে উৎপাদনের উপকরণ এবং শোষণের ক্ষেত্র হিসেবে উপস্থিত হয়। 'কামিন-কুলি' পরিচয় তাই কেবল একটি পেশাগত পরিচয় নয়; এটি নারী শরীরের উপর আরোপিত শ্রম, নিয়ন্ত্রণ এবং সামাজিক অবস্থানেরও সাংস্কৃতিক সংকেত। এই গবেষণাপত্র বিশ্লেষণ করবে কীভাবে নারী শ্রমিকের কর্মসংস্থান ও উন্নত জীবনের আকাঙ্ক্ষা চা-বাগানের বাস্তব শ্রমপরিবেশে শ্রমশোষণ, শারীরিক নিপীড়নের অভিজ্ঞতায় রূপান্তরিত হয় এবং সেই অভিজ্ঞতা কীভাবে লোকগীতির মাধ্যমে স্মৃতি ও আত্মপরিচয়ের অংশ হয়ে ওঠে।

মূল শব্দ (Key word) : শ্রমজীবী, লোকগীতি, নারী, আসাম, গোয়ালপাড়া।

THEME
Sustainability and environmental challenges

Distribution over Totals: Temperature Thresholds and Rainfall Variability in the Climate Vulnerability of Assam's Tea Sector

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Assam supplies more than half of India's tea, almost all of it rain-fed and much of it grown near the upper limit of the crop's thermal tolerance. This review synthesises the empirical literature on climate and tea yield in the state, drawing on garden-level panel econometrics, state-level regression, non-parametric trend testing, suitability modelling and stakeholder survey work. It argues that the apparent disagreements within this literature are largely artefacts of measurement resolution rather than substantive conflict. A panel of 82 Assam gardens establishes that returns to warming turn negative above a monthly mean temperature of 26.6 °C, with a further degree at a monthly mean of 28 °C costing roughly 3.8 per cent of yield. The same study finds no detectable effect of drought intensity on yield, but a clear negative effect of precipitation variability, and of precipitation intensity in particular. Studies that aggregate rainfall to seasonal or annual sums recover weaker signals: regression on a decade of seasonal and annual rainfall accounts for about 42.4 per cent of the variance in production variability, while a 2000-2022 multiple regression locates an optimum near 260 mm beyond which productivity falls. Ordered by resolution, these findings order by signal strength, precisely as one would expect if the yield signal resides in timing and intensity rather than in totals. Independent support arrives from projection work. IPCC AR5-based suitability modelling of Assam's four growing regions to 2050 identifies the seasonality of precipitation as the dominant driver of projected change. The observational record fits the same pattern: station analysis for South Bank across 1996-2025 shows no significant trend in annual rainfall even as the monthly distribution narrows sharply. Growers themselves report excessive precipitation within short periods among their principal concerns. The paper concludes that threshold and distribution framings should displace mean-and-total framings in impact assessment and adaptation planning, and identifies the absence of compiled sub-monthly climate data as the binding constraint on further progress in this field.

Keywords : *Camellia sinensis*; Assam; temperature threshold; precipitation intensity; climate variability; yield response; adaptation

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Impact of Climate Change on Tea Cultivation: A Study of Small Tea Growers in Chabua, Assam

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Climate change has emerged as a major challenge to tea cultivation, particularly for small tea growers who often have limited access to irrigation, climate-resilient technologies and institutional support. This study examines the impact of climate change on small tea growers in the Chabua region of Dibrugarh district, Assam, widely known as the birthplace of tea industry in India, based on primary data collected from tea growers across three panchayats. The findings reveal that a majority of the growers perceive significant changes in climatic conditions and report adverse effects on tea production. Irregular and inadequate rainfall, particularly during February and March, delays the emergence of harvestable new leaves and consequently shortens the harvesting period. This is particularly important because April and May generally provide favourable leaf quality and higher prices. Excessive rainfall, hailstorms and drought-like conditions further contribute to yield losses and damage to tea bushes. The study also finds increasing incidence of pest attacks and pest resistance associated with warmer conditions. Excessive rainfall promotes fungal infections, while fungicides become less effective during prolonged wet conditions. Hailstorms during March-May cause substantial damage to green leaves and increase the risk of fungal infestation. Limited irrigation facilities further constrain growers' ability to adapt to climatic variability. The study highlights the need for improved irrigation, climate-resilient cultivation practices, weather-based advisories and institutional support to enhance the resilience and sustainability of small tea growers in the region.

Keywords : Climate Change, Small Tea Grower

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Climate Change, Soil Regeneration and Climate-Resilient Tea Cultivation: Evidence from a Large-Scale Regenerative Agriculture Program in India

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Tea (*Camellia sinensis*), a C3 perennial crop, is highly sensitive to rising temperature, rainfall variability and soil degradation, threatening productivity and long-term sustainability. In Assam, long-term evidence indicates a decline of more than 200 mm in annual rainfall, with tea yields declining by approximately 3.8% for every 1°C rise above 26.6°C. Against this backdrop, Hindustan Unilever Limited (HUL), in partnership with the trustea Sustainable Tea Foundation (TSTF), initiated the Tea Regenerative Agriculture Program in 2024 across Assam, Tamil Nadu, Kerala and Dooars, extending to small tea growers in 2025. By 2026, the program has covered 43,000+ ha, 190+ estates and 7,000+ small growers, with an ambition of 100,000 ha by 2029. The model integrates on-farm composting, integrated nutrient management, mulching, green manuring and shade-tree management, supported by soil-health assessment and GHG estimation using the Trustea Emission Calculator (TEC). Midline evaluation in 2026 indicates approximately 5% higher SOC and 15-20% greater soil microflora in program areas versus non-program areas. Concurrently, tea productivity has showed an upward trajectory, with yields improving by up to 3%, providing early evidence that regenerative interventions can enhance soil functioning without compromising productivity under increasing climatic stress. Progressive reduction in urea use, together with improved on-farm manure management, has contributed to more than 10% reduction in GHG emissions. Collectively, these findings demonstrate an emerging systems-level pathway through which regenerative agriculture can restore soil biological and carbon functions, sustain and enhance productivity, reduce GHG emissions, and strengthen the climate resilience of India's tea sector.

Keywords: Regenerative agriculture, soil health, GHG emission, climate resilience

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Climate Change and Its Impact on Tea Productivity in Upper Assam: A Review

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Upper Assam is the heart of India's tea industry, stretching from Jorhat to Tinsukia and producing a distinct, full-bodied *Camellia assamica* variety known for its malty flavour and rich burgundy liquor. Climate change severely impacts Upper Assam's tea productivity through rising temperatures, erratic rainfall, and extreme weather events that reduce yields and alter crop quality. Climate change in Upper Assam is marked by rising maximum temperatures, declining minimum temperatures, and increasing rainfall variability, significantly altering tea productivity and stability, as shown by long-term climatic trend analyses and yield-climate correlations. Upper Assam accounts for 70% of Assam's tea and 38% of India's tea. The region comprising Sivasagar, Jorhat, Golaghat, Dibrugarh and Tinsukia is highly vulnerable to climate change and is the heartland of the world's largest concentration of tea plantations. The region produces renowned second-flush malty, brisk, and golden-tipped black teas as well as speciality luxury grades. This paper aims to correlate climatic conditions with tea productivity and quality in Upper Assam using the last 30 years of IMD data on temperature, rainfall and rainy days, Tea Board production data, and interviews conducted in 2025 with 15 small tea planters from Sivasagar, Jorhat and Dibrugarh districts.

Keywords : Upper Assam, climate change, tea productivity, temperature and rainfall variability, erratic rainfall

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Sustainable Tea Cultivation in Assam: Prospects of Organic, Regenerative and Smart Practices for Rural Transformation

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For nearly two centuries, tea has been woven into the life of Assam, shaping its economy, its culture and the daily routines of countless families. Today, small tea growers stand at the core of this story. Buyers now ask where their tea comes from, how it was grown and whether it is free of chemicals. The question before the industry is simple but critical: how do we move ahead without losing what makes Assam tea our own? This paper explores how organic, regenerative and smart cultivation practices can offer an answer. It looks at vermicomposting, integrated pest management, shade trees, soil and water conservation and renewable energy, alongside everyday digital tools such as soil testing and mobile advisories. Drawing on primary and secondary data, it examines how far growers have adopted these methods, how they affect costs and income, and what stands in their way, from limited capital to the burden of certification. The paper argues that sustainability grows out of tradition rather than replacing it. It closes with policy suggestions, including training, subsidies, cooperative support and affordable certification, for a tea industry that is resilient, inclusive and proud of its legacy.

Keywords : Sustainable cultivation, organic farming, smart practices, rural transformation

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THEME

Technology, innovation and market linkages

Digital Transformation and Market Efficiency in the Tea Sector : E-Auctions, Information Asymmetry and Price Discovery

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The tea sector is undergoing significant technological transformation as digital platforms, electronic auctions, digital traceability and data-driven systems increasingly influence tea marketing and price formation. This paper examines whether these innovations contribute to market efficiency by reducing information asymmetry, transaction costs and imperfections in price discovery. Based on Information Economics, Auction Theory and Transaction Cost Economics, the study analyses the changing role of digital technologies in tea market, particularly e-auctions, digital market information and traceability mechanisms. It also compares India with the selected global tea markets, especially Kenya and Sri Lanka, to identify similarities, differences and lessons for improving market performance. The study also uses secondary data from the official government sources, tea boards, industry reports and academic literature to examine trends in tea prices, auction performance and other market indicators. The paper also argues that digitalization can improve transparency, information access and price discovery, but its benefits depend on digital infrastructure, institutional design and inclusive access. Thus, technological innovation should be assessed not only by its adoption but by its contribution to efficient, transparent and inclusive tea markets.

Keywords : Tea Sector; Digitalisation; E-Auction; Information Asymmetry; Price Discovery; Market Efficiency.

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From E-Auction to E-Marketplace: Can Digitalisation Make Assam's Tea Market More Inclusive?

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Tea is widely produced in Assam. The digital transformation of agricultural markets has widely changed the manner in which producers access buyers, discover prices and participate in value chains. Assam's tea sector has historically relied heavily on auction centers and intermediaries, often limiting the bargaining position of small tea growers. Although studies have examined tea pricing, export, marketing constraints and the effect of e-auctions, comparatively limited attention have been paid to the role of newer digital marketplaces in promoting inclusive market participation among small tea growers in Assam. This paper examines the transition from conventional tea auctions towards digital marketplaces with special emphasis on market access, price transparency, intermediary dependence and transaction costs. Using secondary information from Tea Board of India, government reports, and existing empirical literature, the study develops a descriptive framework for assessing digital market inclusion. The analysis suggests that digitalization has considerable potential to widen buyer access, reduce physical transaction barriers and improve price transparency. However, technological access, digital literacy, institutional coordination and continued dependence on intermediaries may limit the inclusiveness of digital platforms. The paper further argues that technological transformation alone cannot ensure equitable market participation and that digital infrastructure must be accompanied by institutional reforms and producer collectivization.

Keywords: Assam tea, e-marketplace, e-auction, small tea growers, price transparency.

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Contribution of Tea Tribes in the Establishment of the Tea Industry in Assam

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Assam's tea industry has a history of nearly 200 years. It began with the discovery and development of the indigenous tea plant in the 19th century. Over the years, tea has become one of the most important economic activities and cultural symbols of Assam. In the early 19th century, the British East India Company became interested in Assam's tea resources. The first experimental tea plantations were developed during the 1830s. The establishment of the Assam Tea Company in 1839 was an important milestone in the organised development of the tea industry. During the second half of the 19th century, tea plantations expanded rapidly across Upper Assam. The growth of the tea industry depended greatly on plantation labour. A large number of workers were brought from different parts of Central and Eastern India. Over time, these communities became known as the Tea Tribes/Adivasis of Assam. They played an important role in the development and expansion of the tea industry through their hard work and contribution at different stages of tea production. This paper attempts to highlight the contribution of the Tea Tribes to the development of the tea industry during the pre-Independence and post-Independence periods and their contribution to the socio-economic development of Assam.

Keywords : Indigenous, Economic, Plantation, Resources, Tea.

SECTION
Student papers

From Indigenous Discovery to Institutional Transformation: A Historical Study of the Evolution of the Assam Tea Industry since 1823

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The emergence and expansion of the tea industry in Assam since 1823 constitutes a significant chapter in the economic and institutional history of colonial India. The discovery and subsequent commercial exploitation of indigenous tea varieties initiated a process that transformed Assam's agrarian landscape and integrated the region into wider networks of imperial capital, global commodity exchange, and plantation production. This study examines the historical evolution of the Assam tea industry through an integrated historical and institutional framework, tracing its development from the experimental phase of the early nineteenth century to the establishment of an organised plantation economy and its subsequent transformation in the post-independence period. Particular emphasis is placed on the role of colonial policies, plantation companies, land and labour institutions, capital investment, transportation infrastructure, technological innovation, and regulatory mechanisms in shaping the industry. The study further explores changing institutional relationships among the state, plantation enterprises, labour communities, and regional society. By situating the tea industry within broader processes of colonialism, commercialisation, labour mobilisation, and postcolonial economic restructuring, the study seeks to demonstrate how tea became not merely an export commodity but a historically embedded institution that profoundly influenced Assam's economy, society, demography, and regional identity.

Keywords : Assam Tea Industry; Plantation Economy; Institutional History; Colonial Capitalism; Tea Labour; Economic Transformation.

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India's Tea Export Performance and Structural Transformation in Assam : Evidence from 2014-2024

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After water, tea is one of the most consumed drinks in the world. India, known for its high-quality teas from Assam, Darjeeling and Nilgiri, is the world's second-largest producer as well as consumer of tea. Among these, *Cammellia sinensis* var. *assamica*, in short Assam tea well-known in the international market has also historically contributed to India's tea industry and export economy. Against this background, the current study examines the export performance of Indian tea and the changing structure of Assam's tea sector during the period 2014-2024. The study is based on secondary data sourced from WITS, IBEF, Tea Board of India and Assam's Statistical Handbooks. RCA, RSCA, CAGR and CV are used to measure India's tea export performance. The results indicate that India's tea exports followed a positive trend with moderate growth and comparatively stable performance, although its comparative advantage weakened during the study period. The study further examining the changes in Assam's tea production, area under tea and the structure of small and big tea growers. The findings highlight that changes in Assam's tea production structure have occurred alongside changes in the competitive position of Indian tea in the international market.

Keywords : Assam tea, Indian tea export, export competitiveness, RSCA, structural transformation.

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Small Tea Growers and Rural Transformation in Assam: Opportunities, Challenges and Sustainable Development

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Assam's tea industry has undergone an important structural change with the expansion of Small Tea Growers (STGs). This paper examines how small tea cultivation contributes to rural transformation through livelihoods, employment, entrepreneurship, value-chain participation and innovation, while also considering sustainability and policy challenges. The study uses only secondary data from Tea Board India, the Government of Assam, the Directorate of Economics and Statistics, the Directorate of Tea, government policy documents and published academic literature. The evidence shows that small tea growers have become a major component of Assam's tea economy. Government statistics for 2020-21 reported about 121,675 small tea growers, covering approximately 114 thousand hectares and producing about 389 million kg of tea leaves. Tea Board initiatives have increasingly focused on farmer organisations, mechanisation, soil testing, training and mini tea factories. However, small growers continue to face problems related to green-leaf prices, input costs, processing access, climate variability and bargaining power. The paper argues that sustainable rural transformation requires stronger collective organisations, better local processing, improved market linkages, climate-resilient cultivation and effective implementation of existing support policies.

Keywords : Assam Tea, Small Tea Growers, Rural Development, Livelihood, Sustainability, Employment.

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Green Tea Leaf Pricing in Dibrugarh District, Assam: Trends, Challenges and Policy Measures

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Small tea growers play an important role in the tea economy of Assam and provide livelihood and income to a large number of rural households. However, fluctuations in green tea leaf prices, poor leaf quality, limited bargaining power, dependence on Bought Leaf Factories (BLFs), and inadequate market information affect the price realisation of small tea growers. The present study examines the trend of green tea leaf prices, identifies the major factors associated with price fluctuations, and suggests suitable measures for improving price realisation among small tea growers in Lahowal Block of Dibrugarh district, Assam. The study is based on primary data collected from 50 randomly selected small tea growers and two purposively selected Bought Leaf Factories. Secondary information was also used from relevant reports and publications. The study finds that green tea leaf prices declined during 2025 compared with 2024 but increased considerably during 2026. The findings also show that factors such as poor plucking practices, lack of technical training, improper use of fertilisers, inadequate soil testing, long distance from BLFs, and improper pruning affect leaf quality and may lead to price deductions. Further, 96% of the sampled growers had no price agreement with BLFs, while 64% received advance payments, which may reduce their bargaining flexibility. The study suggests improving leaf quality, providing technical training, strengthening transportation and market information systems, encouraging written price agreements, promoting growers' organisations, and improving access to institutional credit. The study concludes that transparent pricing, improved cultivation practices, collective marketing and stronger institutional support are important for achieving better and more stable price realisation for small tea growers in the study area.

Keywords : Small tea growers, Green tea leaves, Price fluctuation, Bought Leaf Factories(BLFs), Price realisation

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Tea and Literature: Subalternity, Representation, and Empowerment

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Tea cultivation in Assam, which began during the British colonial period, has now completed two centuries. The term tea encompasses not merely an economic commodity but also a vast history of migration, systematic exploitation, and the gradual evolution of various ethnic and tribal communities. The history of the tea communities in Assam is intrinsically linked to tea cultivation, and a substantial body of literature has emerged around this relationship and its historical trajectory. This literature can be broadly classified into various categories, such as oral literature, creative literature, and thematic literature. The linguistic styles associated with this literature are also an important aspect of its study. The interaction of Assamese, English, Sadri, and the so-called Baganiya language has given rise to a distinctive and diverse body of tea-centred literature. It would be misleading to regard this literature merely as a form of creative expression, as it also contains valuable accounts of people's struggles and serves as an important resource for understanding social history. Therefore, this paper seeks to provide an analytical understanding of how tea-centred literature, alongside the history of tea cultivation, encompasses the marginality, representation, anti-exploitative consciousness, resistance, efforts towards coexistence, and empowerment of tea communities and other social groups. It also examines how this literature provides a strong platform for amplifying the voices of marginalised communities. Literature is often considered as a mirror of society. Therefore, an extensive study of tea-centred literature is essential for understanding tea and the society associated with it, including its challenges, aspirations, and expectations.

Keywords : Tea, Tea Communities, Literature, Marginality.

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Socio-Economic Hurdles and Health Challenges among Tea Garden Workers of Assam: A Case Study of South Jalan Nagar Tea Garden

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Assam is one of the major tea-producing regions of India, and tea gardens play an important role in the economy and daily life of many people. Tea garden workers form an important part of the tea industry, but they often face different social, economic and health-related problems. In this context, the present study examines the socio-economic hurdles and health challenges faced by tea garden workers in South Jalan Nagar Tea Garden, Dibrugarh, Assam. The study is based on fieldwork and direct observation. Primary data was collected through household surveys, field observations and interactions with tea garden workers, local residents and the garden's welfare officer. The study looks at the workers' income, occupation, housing, education, access to basic facilities and other socio-economic conditions. It also examines health problems, treatment practices, drinking water, sanitation, drainage, work-related health problems and other health concerns faced by the workers. The study shows that the socio-economic and health conditions of tea garden workers are closely connected. Low income, limited educational opportunities, financial difficulties and lack of some basic facilities can affect the overall well-being of households. The workers also face health risks related to their work, along with other health and lifestyle-related concerns. Field observations further show that changes in the surrounding urban area are affecting the traditional tea garden environment and the lives of the workers. The study highlights the need for better health services, educational opportunities, basic facilities and financial support for tea garden workers. Improving their living and working conditions can help improve their overall well-being and quality of life.

Keywords : Tea Garden Workers, Socio-Economic Conditions, Health Challenges, Tea Garden, Assam.

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Climate Change and Its Impact on Tea Productivity

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Tea *Camellia sinensis* (L.) Kuntze is an economically important perennial crop whose growth, productivity and quality are strongly influenced by climatic conditions. Climate change is increasingly altering temperature regimes, precipitation patterns, humidity and the frequency of extreme weather events, thereby creating significant challenges for sustainable tea production. Rising temperatures and irregular rainfall can affect plant water relations, photosynthetic activity, nutrient acquisition and vegetative growth, ultimately influencing the development and productivity of tea shoots. Prolonged heat and moisture stress may also alter physiological and biochemical processes associated with plant growth and tea quality. In addition, climate-driven changes in pest and disease incidence, soil moisture and ecological interactions may further increase the vulnerability of tea-growing systems. These impacts are particularly important in major tea-producing regions of Northeast India, including Assam. Understanding the responses of tea plants to changing environmental conditions is therefore essential for developing climate-resilient production systems. This paper highlights the major impacts of climate change on tea growth, productivity and quality and discusses potential adaptation strategies, including improved water management, shade management, soil conservation and the use of resilient planting materials, for promoting sustainable tea production under changing climatic conditions.

Keywords : Climate change; *Camellia sinensis*; tea productivity; heat stress; climate resilience; sustainable tea cultivation.

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Unlocking Carbon Credit Potential through Legume-Mediated Phytoremediation in Climate-Smart Tea Estates: A Focus on Assam

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Assam's tea soils have grown more acidic and lost much of their organic carbon after generations of monoculture. Planting leguminous shade trees, chiefly *Albizia* spp., among the tea is one way to tackle both problems while locking away carbon. We reviewed various published research papers on how these trees affect carbon sequestration, soil organic carbon, nutrient cycling, fertiliser needs and phytoremediation, drawing only on secondary data. Reported carbon stocks in tea agroforestry systems range from 44.8 to 56.7 Mg C ha⁻¹, and shade trees account for over 70% of that. By fixing nitrogen, breaking down litter and recycling nutrients, legume shade trees improve soil fertility, and they also protect tea bushes from heat and moisture stress. Two gaps remain. Few studies have tested metal remediation in tea estates, and even fewer have measured how much fertiliser these trees can replace. Long-term field studies are needed before their value for sustainable tea production and climate-resilient soil management in Assam can be properly judged.

Keywords : Tea agroforestry, climate-smart, *Albizia* spp., carbon sequestration, soil organic carbon, phytoremediation

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Building Drought-Resilient Tea in Assam: Evidence, Technologies and Research Gaps

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Tea (*Camellia sinensis*) is highly vulnerable to environmental fluctuations, making drought and rising temperatures major challenges for sustainable production in Assam. Findings from the reviewed articles show that drought and other abiotic stresses affect tea quality, productivity, growth, physiological processes, oxidative systems, and secondary metabolites. Recent climate trend analyses also link rising temperatures and changing precipitation patterns in Assam with declining agricultural productivity, including tea production. Tea plants tolerate drought and other abiotic stresses through mechanisms such as antioxidant activity, osmotic adjustment, hormone signal transduction, and leaf-cuticle modifications that reduce water loss. Foliar application of calcium chloride can improve tea recovery after drought by enhancing antioxidant activity, while drought-tolerant plant growth-promoting bacteria may improve osmolyte accumulation. Further analysis of the tea leaf cuticle, abiotic-stress response mechanisms, and L-theanine content and biosynthesis may help identify novel strategies for enhancing drought tolerance. However, knowledge of tea responses to drought remains insufficient. Future research should therefore focus on drought-tolerant cultivars, irrigation technologies, precision water management in tea gardens, and microbial fertilisers. This review summaries current findings on drought stress in tea plants and recommends future experimental directions to address drought-related challenges in Assam's tea industry.

Keywords : environmental fluctuations, osmolyte, abiotic-stress.

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Characterization of Soil Properties and Nutrient Status in Assam Tea Cultivation

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Tea crops produced in Assam are of major importance for the India's economy. India is the second largest producer and exporter of tea where Assam being a key producing region. The predominant tea variety produced in Assam is Assam-type *Camellia sinensis* var. *Assamica*. The tea grows in a specific climate, thus making the industry vulnerable to climatic variability and climate change and also dependent on the soil type and presence of plant available nutrients. Given the importance of the tea crop to the economy in northeast India, and as a student, understanding its sensitivity to climatic variations, soil types, nutrients, soil health and its importance. Here, we estimated soil pH, sulphur, potassium, phosphorus on Assam's tea plantation.

Keywords : Tea, climate, soil pH, nutrients.

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Assessment of Soil Nutrient Status and Adaptation of Sustainable Livelihoods of Tea in Assam

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Tea is widely consumed beverage in the world, is produced from the tender young shoots of *Camellia sinensis*. It has a significant role in Assam economy, culture and women empowerment as they contribute major portion of the workforce. Tea cultivation in Assam with passage of time is challenged by soil degradation, heavy metal contamination, and climate stressors largely driven by intensive practices. Tea typically occupies acidic, nutrient-poor soils, sustainable management is essential. As the global demand increases for high-quality tea, adopting sustainable agricultural practices and soil testing plays an important role to check the soil health condition, nutrient availability, as well as to reduce the spread of pests and diseases. A study was carried out to evaluate the chemical properties of soil and its relation to tea cultivation.

Keywords : Tea, Sustainable management, Soil testing, Climate change, Economic impact.

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Securing the Future of Assam Tea: Modernizing Cultivation to Attract and Sustain the Next Generation

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The Assam tea industry is a major economic engine for India, producing over half the nation's tea and generating billions in foreign exchange through global exports. Beyond its macroeconomic value, it sustains the livelihoods of lakhs of workers, particularly from local tribal and Adivasi communities. However, the sector faces a rising social challenge: the younger generation is increasingly migrating toward industries outside Assam rather than joining the tea sector. Securing the industry's future requires modernizing field operations to build a more lucrative ecosystem. Precise soil testing-focusing on pH (4.5-5.5), organic carbon, potassium, and sulfur-ensures targeted fertilization, while composting and vermicomposting restore natural soil fertility. Concurrently, controlling key pests like the Tea Mosquito Bug, Red Spider Mite, and Thrips through Integrated Pest Management (IPM) using bio-pesticides and minimal chemicals protects crop yields. Combining smart soil management, organic inputs, and pest control lowers operational costs and maximizes yields. Ultimately, strengthening these economic and agronomic foundations creates a sustainable, prosperous tea sector that offers higher-quality livelihoods, encouraging the next generation to build their future within Assam.

Keywords : Assam Tea Industry; Next-Generation Workforce; Precision Soil Management; Integrated Pest Management; Sustainable Tea Production; Youth Livelihoods.

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