

Review Paper on Hierarchical Structures and Workforce Discipline for Sustainable Tea Cultivation in Assam

Gulshan Borah

Department of Social Work, Martin Luther Christian University, Shillong, India

ABSTRACT: Tea is a major cash crop that is important to the economy of India, as the country is the second largest producer of tea in the world after China. Tea production contributes substantially to the nation's economy. The current Plantations Labour Act and Rule is applicable to this labour-intensive industry. Yet there is little documentation that provides comprehensive spatial insights into the organizational structure, function and associated discipline that drive the day-to-day field operations. This review paper strives to synthesize scattered evidences, outlines the hierarchical structure and its role in guiding the large workforce towards sustainable tea cultivation practices. Utilizing a non-experimental approach, it combines scoping and formative research methodologies to provide a comprehensive understanding of this critical issue. The paper offers valuable insights for tea industry stakeholders, helping to strengthen organizational frameworks and promote a culture of sustainability. Findings reveal (i) tier based formal hierarchy with distinct supervisory spans, (ii) informal social strata that mediate compliance, and (iii) multiple leverage points—especially at the assistant manager and field supervisor levels—for embedding environmental, social, and governance (ESG) practices. Recommendations include targeted capacity-building, the codification of green standard operating procedures (SOPs) and the introduction of participatory feedback loops to strengthen organizational resilience. Recommendations include targeted capacity building, the institutionalizing of green standard operating procedures (SOPs) and the incorporation of participatory feedback mechanisms in a bid to enhance the resilience capacity of an organization. By leveraging the power of the hierarchical system, businesses can unlock the full potential of their workforce and pave the way for a more environmentally responsible and economically viable tea industry.

KEYWORDS: Assam tea, hierarchical structure, organizational design, sustainable, workforce;

1. INTRODUCTION

Tea is the second most consumed manufactured drink in the world, second only to water and the most popular beverage in the world after water. India contributes approximately 22 % of global tea output, of which Assam alone accounts for about 52 % (Tea Board India, 2023), providing some of the world's finest black tea (FAO, 2016). With a base of an estimated 800,000 permanent workers and 1.2 million dependents the industry is both a livelihood generating and a socio-ecological pressure point- the biggest reservoir of labour at the lowest scale of wages by any private capitalist enterprise in the history of colonial India.

The Assam tea industry is an integral part of the local economy, and continues to be a major source of employment for the state's rural population. It is described as heterogeneous in terms of organization and labor discipline and a type of labor market that is relatively hierarchical and has developed over time in response to the global market. The discipline among the workforce too constitutes a vital component of success for this industry because it ultimately has a bearing on the productivity and profitability. Yet, for all its size, the Assam tea industry is running into a number of challenges – with a blend of stagnant markets, increasing cost of production, tight labour, and the rise of ESG norms. The complex nature of organizational structure and labor discipline in the Assam tea industry is crucial for policy and research, as well as the mighty tea industry. We can gain an understanding of the problems and prospects that tea plantations in Assam faced by looking at the historical evolution of these aspects in the industry. The intention of this review paper is to explore the relationship among organizational structure and workforce discipline with explaining regards the functioning and competitive dynamics in Assam tea industry, sustainable culture which can influence different disciplines and challenges in maintaining both organizational and workforce structure.

2. LITERATURE REVIEW

Governance and Labour Regulation The Plantations Labour Act (1951) mandates standards for housing, health, and welfare. Later amendments (2010, 2018) introduce gender equity and grievance redressal provisions.

Comparative analyses (Plantations Labour Act, 1951, n.d.)(Chaudhury & Ghosh, 2022) show partial enforcement in Assam owing to oversight deficits.

Review paper on hierarchical structures and workforce discipline for sustainable tea cultivation in Assam

Organizational theory in Agriculture

Mintzberg's structural configurations (Mintzberg, H, 2009) and (Michael A. Gunderson, 2014) discussed the various facets of the agribusiness sector. (Benn, 1974) explored the theory of plantation economy and society. Hierarchical rigidity often correlates with high task programmability-suitable for monoculture-but may limit adaptive capacity (Vladislav Valentinov, 2005).

Organization structure

(Rana P. Behal, n.d.) capture largely about the power dynamics of the tea industry of Assam but highlights mostly the colonial legacy and about Indian Tea Association that enforce estate discipline. (Partha Pratim Saikia, 2025) offered an operational and organizational overview, delineating the roles from estate managers to supervisors but only linking them to supply chain stages.

Sustainability in Tea Plantations

The sector's environmental footprint is considerable, with reduced biodiversity as the result of habitat conversion, high energy consumption (Sanne van der Wal, 2008). (Bera, R, 2024) highlighted the impact of climate change and sustainable regenerative practice which is important for plantation sector. Implementation barriers include financial constraints and skill gaps among field staff (Mozumdar et al., 2023).

Research Gap

While agronomic and socio-economic issues are well documented, the meso-level "organizational architecture" that translates policy into field action remains under-studied. This paper addresses that lacuna.

3.RESEARCH OBJECTIVES

- 1.Map the formal, tier-based hierarchical structure that regulates field operations in Assam's tea estates.
2. Locate leverage points within the hierarchy, where one can best embed environmental, social and governance (ESG) practices
3. Generate practice-oriented recommendations-capacity building and participatory feedback loops to strengthen organisational resilience for sustainable tea production.

3.1. Background of the Assam Tea Industry

The Assam tea industry, renowned for producing robust and flavour some tea varieties, has a diverse historical background shaped by colonial influences and indigenous cultivation practices. Dating back to 1823, when British East India Company officials first discovered the tea plants growing in the upper Brahmaputra Valley of Assam. Recognizing the potential of this discovery, the Government of Assam initiated tea cultivation in the Lakhimpur district in 1833. Notably, in 1838, tea of fine quality was successfully produced from this garden, garnering attention from the commercial circles of London. Later the Assam Tea Company was established in 1839 to assume the titles to the plantations and trading settlements that the East India Company had established as experimental holdings in Assam. This company was the pioneer in India to have initiate commercial cultivation of tea (Borah, 2019).

The tea industry is a labour-intensive industry, with over 1.16 million permanent workers and an equal number associated indirectly to maintain the landscape (*A Critical Review of the Tea Boards Tea Research Management in India.Pdf*, n.d.). From the delicate plucking of the leaves to the meticulous processing, the production of tea is a highly manual endeavour that relies on the skill and patience of countless workers.

These workers were initially brought to Assam by the East India Company as indentured labourers between 1830's to 1920's, preliminary hailing from the Santhal Parganas district of Bihar (now in Jharkhand state). The descendants of these labourers are now called tea tribes (Dikshit, 2014) which form the backbone of the Assam's tea industry. Fig 1. shows the author's representation of the historical timeline of the tea industry.

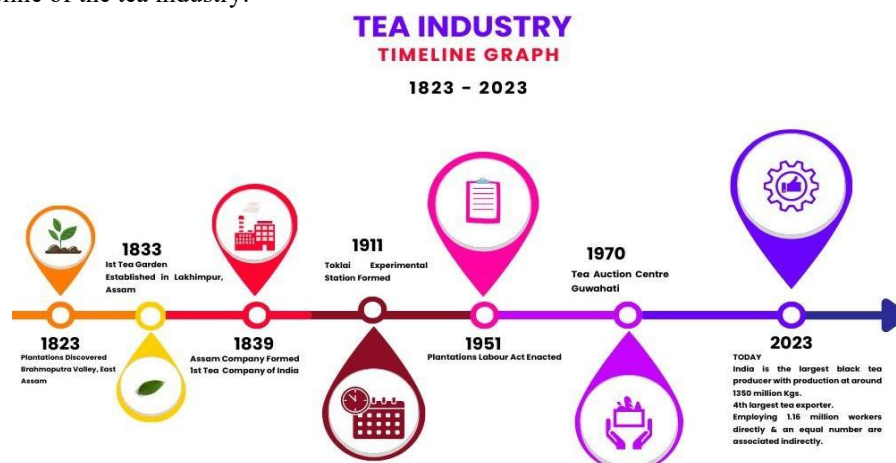


Figure 1. historical timeline of the tea industry

3.2. Hierarchical structure

The organizational structure and hierarchy in the tea industry is well-established, with a clear chain of command from the owner or manager down to the workers. At the top level of the tea companies, with their headquarters mostly in the United Kingdom and the managing agents in Calcutta instituted a centralised authority in the form of an apex body, the Indian Tea Association. This apex body, manned by senior executives of tea companies and retired officials of the Indian Civil Services, functioned as a lobby for the industry in the corridors of power, on the one hand, and as planners and executors of the latter's strategies of production organization and labor policies on tea plantations, on the other (Rana P. Behal, 2006). This structure is often more pronounced in big estates, with larger layers of management and supervision. With a smaller estate, however, there is more likely to be a shorter chain of command, less middle management and greater openness between staff and managers. The structure allows for smooth operations, coordination, and optimal use of resources capitalizing on productivity and profitability. Top-down structures have the benefit of established authority, quick decision-making processes, and strong control over operations. Yet, such an organisation can also entail an inability to communicate with the exempt workers, inflexibility, and little autonomous work. Additionally, insights from (Chaudhury. R., 2022), which emphasizes the importance of cross-occupational communication in the optics and photonics industry, implies that effective communication practices are likely to be a cornerstone in fostering cohesion within the heterogeneous workforce that resides in Assam tea gardens. Thus, understanding these contextual dimensions is crucial for exploring how organizational structure and discipline manifest within the complex ecology defining Assam tea industry, to shed light over its working ethos and sustainability too. Fig 2. shows the organizational structure of a typical tea estate in Assam.

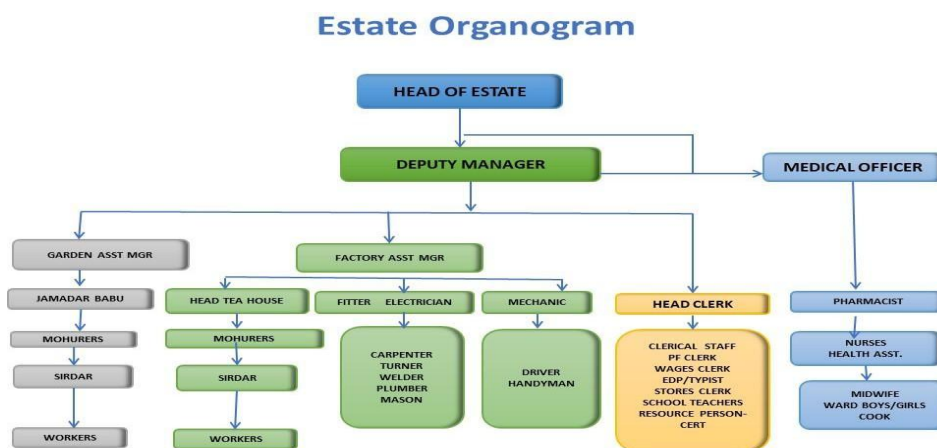


Figure 2. organizational structure of a typical tea estate in Assam

Large tea estates typically have a well-defined, formal multi-layered organizational structure.

Table 1. shows the levels and responsibilities.

el	Typical Title/Role	Main Responsibilities
Chairman	Head/Owner	Borad member, lead decision maker
Head of Estate	Director	Leadership, strategic oversight, financial management, stakeholder relations, risk management
Estate Management	Main Manager ("Saheb")	Day-to-day operational coordination, quality control, labor relations, community engagement, factory management
Medical Officer	CMO/Medical Officer	All decision related to health, prescribing medicine, health facility
Middle Management	Assistant Managers	Supervise field/factory operations, implement directives from main manager, report on progress
Supervisory	Babus	Oversee sardars, ensure smooth workflow, manage documentation and logistics, disbursement of wages, quality control, harvest management, environmental stewardship
Field Supervisors	Sardars	Directly supervise field workers, manage teams, provide training, logistic coordination, conflict resolution, safety compliance
Workers	Pluckers, Field Workers	Execute fieldwork (plucking, pruning, maintenance), factory workers, follow instructions from sardars

Review paper on hierarchical structures and workforce discipline for sustainable tea cultivation in Assam

Apart from the formal hierarchy, there are two more informal hierarchies:

- **Trade Unions and Committees:** Workers are usually supported by trade union (e.g Assam Chah Mazdoor Sangha), worker's committee, mothers club, youth club and cured TB advocate. Some of these associations lobby for rights, welfare and better work conditions, and sometimes pressure management for influence (Gurung & Thanga, n.d.)
- **Community Leaders and Peer Influencers:** Informal leaders are found amongst workers (senior plucker, elders), inherent out of these might be obvious leaders (union reps, respected elders) can influence support for new practices and act as a bridge between labour and management (Fair Trade, 2017).

3.3. Enablers and Hinders

- Organized information flow: Hierarchical structure facilitate efficient dissemination of new rules and procedures and training on sustainability oriented practices from senior management down to workers at the base of hierarchy (Partha Pratim Saikia, 2025)
- Accountability: Clear role definition supports the monitoring and evaluation of sustainability initiatives, thus making the assigning of accountability more straightforward
- Union and Committee Support: Worker committees and unions can support sustainability efforts, ensure the new practices are implemented fairly, and fight for resources or training to make it possible for the practices to be adopted.
- Top-down decision making: Hierarchies (and a fear to challenge them) are the enemy of quick feedback (from the people doing the work back to management) which allows practical challenges in the adoption of new patterns to be identified and resolved as they emerge
- Resistance to change: It can be difficult for middle management or supervisors to disrupt the status-quo, especially if the new sustainability practices are perceived as a time-consuming effort, or necessitate contextually inappropriate new job skills
- Limited participation: If informal leaders or unions are not involved from the beginning, the workforce may be wary or resistant towards the uptake of sustainable practices
- Knowledge gaps: Lower-level managers may not have an understanding about the advantages of sustainable practices if training is not filtered down through each level of the hierarchy.

4. METHODOLOGY

The study is descriptive and data gathered from a variety of appropriate sources, including both primary and secondary sources. Secondary data sourced for the study included- tea company websites, annual reports and official statements of tea companies, annual reports of the Indian Tea Association and Tea Board of India, government documents, and publications. To capture multiple viewpoints from stakeholders in the Indian tea sector, primary data were obtained using various sampling methods utilising pre-tested questionnaires and Personal Interviews.

Design Overview

A non-experimental approach was chosen to map existing realities rather than test causal hypotheses. Hence, two complementary methods were combined:

– Scoping Review: Systematic identification of peer-reviewed and grey literature (2000 – 2025) using PRISMA-ScR guidelines (PRISMA ScR, 2018).

Formative field inquiry: Respondents across five purposively selected estates in Dibrugarh, Sibsagar and Sonitpur (Sessa, Tiphook, Amgoorie, Parry Agro and Pertabghur) to validate organisational charts, observe workflows and conduct key informant interviews (KIIs).

Data Collection

– 147 documents screened; 52 retained.

– 26 KIIs: 6 senior managers, 5 Medical Officers, 5 assistant managers, 5 field supervisors (sardars), 5 worker representatives.

Field observations of 15 field days (over a period of 4 months), focusing on daily muster, plucking rounds and fertilizer application.

Data Analysis

Content was coded thematically (Likert/Pivot). Triangulation ensured consistency between documentary evidence and field insights.

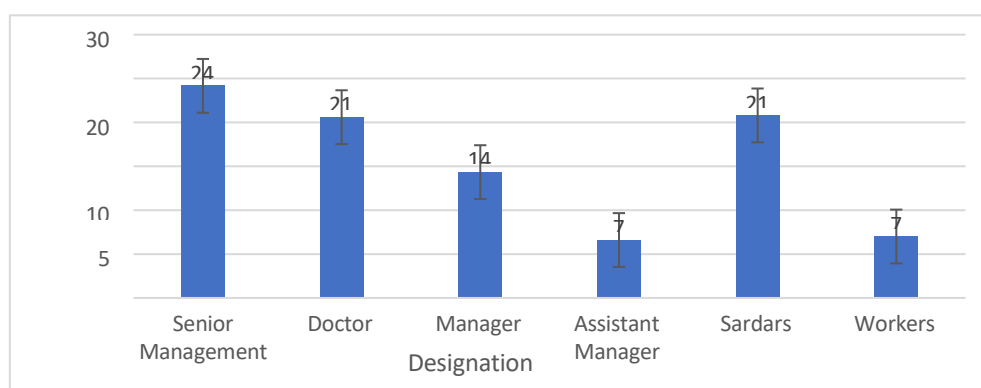


Table 2. shows the cumulative years of experience in the hierarchy ladder

Ethical Considerations

Informed consent was obtained, identities anonymized.

5. RESULTS AND DISCUSSION

- Generally, differentiated on 5 levels the model guarantees the lines of formal communications, but also frequently extends a response journey from the field to the head office in a large tea estate.
- Informal social hierarchies (tribal identity, gender norms, union loyalty) overlay the hierarchy, shaping rule compliance more than writing of official memos during peak-season pressure (Lahiri- Dutt, 2021) .
- Supervisors and sardars play a crucial role in the day-to-day functioning of an estate and environmental protection-e. g., requiring buffer strips along drainage lines) but have no codified green SOPs (Alliance, 2022).
- Current worker suggestion boxes are rarely looked at; participatory feedback loops are largely ornamental (S. Das, Keertika. Singh., 2021).
- Tea estates can use their managerial structure to integrate ESG efficiently. Strengthening and augmenting these organizational resources serves sustainability objectives while also contributing to business resilience and to improving labor conditions, so that the tea industry is able to remain environmentally sound and economically robust.
- Promote gender-balanced promotion pipelines: women are < 5 % of sardars even though there are >45% women pluckers.

The tier system provides operational efficacy -daily targets of plucking get achieved with precision through clockwork (Tea Board India, 2023). But the same rigidity can hinder adaptive learning about soil-moisture monitoring or how to safely dispose pesticide which takes 3-4 days to filter down, a delay that can miss key moments during active monsoon showers (FAO, 2016)

Apart from these, focus should be on existing organizational sustainability frameworks rather than compliance, to actively integrate sustainability in business strategy, operations and supply chain in order to build a stronger foundation for ESG (Environmental, Social, and Governance) performance. Moving forward, the following actionable interventions- illustrated by industry examples- can drive meaningful ESG progress

- Transparency of ESG architecture and governance
- Adopting regenerative agriculture, to improve soil health, storage and regeneration of water, and the protection and renewal of biodiversity
- Circular resource management and waste minimization
- Ethical sourcing and fairtrade certification
- Small scale production with minorities and women- led groups.
- Promote landscape-based, collaborative climate adaptation and mitigation efforts
- Participation and capacity building of stakeholders and local people

6. CONCLUSION

Since the 1990s, organizational culture has begun to perform a crucial role in organizational sustainability research. It has been argued that organization has to travel an extraordinary cultural shift or change (Howard-Grenville, 2006), (Lok, 1999) to effectively respond to social and environmental issues due to the culture of the past concentrating on just making profits. In achieving a successful transformation, business enterprises should strive toward establishing the organizational culture of sustainability as well as organizational sustainability. The Assam tea industry's hierarchical architecture, ignoring its potentials to drive sustainability. By providing clarity on roles, reducing supervisory spans and embedding ESG objectives at every level, estates can make structural inertia into a catalyst for change. Future research should deploy mixed- methods impact evaluations to quantify environmental and social returns on these organizational interventions.

REFERENCES

Reports

- 1) Tea Board India. (2023). Annual Report 2023-2024.
- 2) https://www.teaboard.gov.in/pdf/Tea_Board_Annual_Report_2023_24_pdf4310.pdf
- 3) FAO. (2016). Report of the Working Group on Climate Change of the FAO Intergovernmental Group on Tea. <https://openknowledge.fao.org/server/api/core/bitstreams/2d9eb071-2943-4a98-b711-17e5604e1330/content>
- 4) Plantations Labour Act, 1951. (n.d.). The Plantation Labour Act, 1951. Ministry of Labour & Employment. <https://labour.gov.in/sites/default/files/The-Plantation-Labour-Act-1951.pdf>
- 5) [15] A Critical Review of the Tea Boards Tea Research Management in India.pdf. (n.d.). Fair Trade. (2017). Improving conditions in tea plantations in Assam Market Systems Action Research
- 6) PRISMA ScR. (2018). Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist.
- 7) Alliance, R. (2022). Certification Audit Report: Assam Tea Estates. Amsterdam: RA.

Journals

- 1) Chaudhury. R., & G. (2022). Compliance Dynamics of the Plantations Labour Act in Northeast India. *Indian Journal of Labour Economic*, 65(4), 789-808.
- 2) Mintzberg. H. (2009). *Structure in Fives: Designing Effective Organizations*. Pearson Custom Publishing.
- 3) Partnership, E. T. (2021). *Carbon Footprint Reduction Pathways in Global Tea*. London ETP.
- 4) Michael A. Gunderson. (2014). *Agribusiness Organization and Management*. <https://doi.org/DOI:10.1016/B978-0-444-52512-3.00117-0>
- 5) Benn, D. (1974). *The Theory of Plantation Economy and Society: A Methodological Critique*.
- 6) *Journal of Commonwealth and Comparative Politics*, 12, pp. 249-60.
- 7) Vladislav Valentinov. (2005). *The Organizational Nature of Agricultural Cooperatives: A Perspective from the Farm Problem Theory*.
- 8) Rana P. Behal. (2006). *Power Structure, Discipline, and Labour in Assam Tea Plantations under Colonial Rule*. <https://www.jstor.org/stable/26405454>
- 9) Partha Pratim Saikia. (2025). *Tea Gardens in Assam: Understanding Their Categories, Supply Chain, Operational Mechanisms, and Worker's Structure*.
- 10) Sanne van der Wal. (2008). *Sustainability Issues in the Tea Sector: A Comparative Analysis of Six Leading Producing Countries*.
- 11) Bera. R.. (2024). *Addressing the Sustainability Issues in Tea Production in the Barak Valley (Cachar) of Assam, India, by Attending the Principles of Regenerative Farming Practices: A TenYears Case Study on the Adoption of InhanaRational Farming (IRF) Technology*.
- 12) Mozumdar, T. H., Deb, M., Rroy, A. D., Baruah, R., & Bhattacharjee, R. (2023). *Social Sustainability of Tea Industries: Measuring Through Subjective Happiness of Tea Garden Workers of Dibrugarh District, Assam*. 19(2023).
- 13) Borah, P. (2019). *Colonial State, Hegemony, History And The Identity Of Tea Tribes In Assam*. 8(12).
- 14) Dikshit, K. &. (2014). *North-east India: Land, people*. Netherlands: Springer: Dordrecht.
- 15) Gurung, M., & Thanga, J. L. T. (n.d.). *Trade Unions and Worker's Struggle for Decent Wages in the Tea Industry of West Bengal*.
- 16) Lahiri-Dutt, K. (2021). *Beyond the plantation: Field, factory, and gendered labour*. *Journal of Peasant Studies*, 48(6), 1234-1256.
- 17) S. Das, Keertika. Singh.. (2021). *LABOURERS IN TEA PLANTATION INDUSTRY: AN ANALYSIS (WITH SPECIAL REFERENCE TO STATE OF ASSAM)*.
- 18) Howard-Grenville, J. A. (2006). *Inside the "Black Box": How Organizational Culture and Subcultures Inform Interpretations and Actions on Environmental Issues*. Research Gate.
- 19) Lok, P. C. (1999). *The relationship between commitment and organizational culture, subculture, leadership style and job satisfaction in organizational change and development*. *Leadersh. Org. Dev. J.*, 20, 365-373.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.