

# Reworking a Traditional Industry: Coir, Labour, and Developmental Change in Alappuzha

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**Abstract:** Traditional industries continue to occupy an ambiguous position within India's development discourse, often celebrated for employment generation while remaining marginal to broader debates on social transformation and inequality. This study examines the coir economy of Alappuzha as a site where industrial change, labour reorganisation, and social development intersect. Drawing on a synthetic analysis of census data, sectoral reports, labour studies, and historical research, the paper investigates how successive phases of mechanisation and product diversification—particularly the expansion of coco coir—have altered the relationship between labour, knowledge, and value creation. The analysis demonstrates that while industrial transformation has enhanced productivity and export integration, it has simultaneously weakened labour absorption, displaced gendered livelihood systems, and marginalised indigenous knowledge embedded in household production. By conceptualising coir transformation as a shift in value regimes rather than a linear process of modernisation, the study highlights patterns of uneven development that remain obscured in policy-centric evaluations. The paper contributes to social development scholarship by offering an integrated framework for analysing traditional industries as socio-economic systems, where growth outcomes must be assessed alongside questions of inclusion, knowledge retention, and distributive justice.

**Keywords:** Coir Industry; Social Development; Labour Transformation; Traditional Industries; Alappuzha; Value Regimes

## 1. Introduction

Traditional agro-based industries continue to occupy a paradoxical position within development discourse: they are frequently celebrated as engines of rural

employment and ecological sustainability, yet remain marginal within analyses of structural inequality, knowledge displacement, and uneven industrial transformation (Uttareshwar, 2025). The coir industry of Kerala, particularly concentrated in Alappuzha and its interior regions, exemplifies this contradiction (Padath, 2025b). Historically rooted in household-based production systems and deeply embedded in caste, gender, and ecological relations, coir production evolved not merely as an economic activity but as a socio-cultural institution shaping everyday life, labour identities, and regional development trajectories (Isaac 1991; Balakrishnan 2005; Pratheesh, 2025).

Alappuzha's emergence as a coir hub was conditioned by its distinctive environmental geography-dense coconut cultivation, brackish water suitable for retting, and canal-based transport networks-which facilitated the expansion of fibre extraction, spinning, and rope-making from the nineteenth century onward (Kurup 1994; Padath 2025a). These ecological advantages, however, translated into highly stratified labour regimes (Chhibber et al., 2025). Coir work was historically performed by lower-caste and economically marginalised communities, with women constituting the majority of the workforce, especially in spinning and fibre preparation (Majumdar 1959; Isaac 1990). Labour organisation thus reproduced caste hierarchy and gendered divisions of work through routine bodily practices, spatial segregation, and social stigma (Arun, 2017).

Anthropological and development-oriented studies have long emphasised that such traditional industries cannot be understood solely through output or employment metrics. Instead, they function as complex systems where labour, knowledge, and social reproduction intersect (Dumont 1950; Bordoloi 2020). In the coir economy, skills related to retting, fibre quality assessment, spinning tension, and product durability were transmitted through embodied practice and social memory rather than formal training. This indigenous knowledge base sustained production for generations while simultaneously binding workers to low-wage, informal labour arrangements (Rammohan 1999).

From the late twentieth century onward, the coir sector entered a phase of accelerated transformation marked by mechanisation, cooperative restructuring, and export-oriented diversification (Pratheesh, 2024). Studies documenting these shifts indicate that while technological interventions improved productivity and export competitiveness, they weakened labour absorption and intensified work alienation, particularly among women workers displaced from household spinning

activities (van Stuijvenberg and Nair 1992; Pratheesh 2021b). The decline in employment elasticity revealed a pattern of growth without commensurate social development, challenging assumptions that modernisation would automatically improve labour outcomes (Narendran 2014).

The emergence of coco coir and related horticultural substrates represents a further qualitative shift in the coir economy (Department of Commerce, Ministry of Commerce & Industry, Government of India, 2024). Unlike traditional fibre and yarn production, coco coir processing relies on standardisation, laboratory testing, buffering protocols, and certification systems aligned with global value chains (Garcia 1997; Florence and Padath 2024). Value creation increasingly occurs through compliance with international quality standards rather than through manual skill, relocating economic gains away from labouring households and towards processing units, exporters, and intermediaries. Similar patterns have been observed in comparative studies of coconut-based value chains in Southeast Asia, where value-added expansion has not translated into improved livelihoods for primary producers (Ceder and Johansson 2015).

Policy discourse surrounding coir transformation frequently frames these changes as indicators of sustainable development, women's empowerment, and rural industrial renewal. Government and Coir Board reports highlight export growth, eco-friendly applications, and technological upgrading as evidence of sectoral success (Balakrishnan 2005; Tanwani 2020). However, critical evaluations suggest a disjuncture between policy narratives and lived labour realities. Employment contraction, informalisation, and the erosion of indigenous knowledge systems remain under-acknowledged within dominant development frameworks (Pratheesh 2024; Pratheesh and Nair 2022).

Despite an extensive body of economic and policy-oriented research on the coir sector, significant gaps persist. Much of the existing literature treats labour as a variable within production systems rather than as a social process embedded in caste relations, gender norms, and everyday experience. Ethnographic and historically grounded analyses of how industrial transformation reshapes social development, knowledge transmission, and community life in coir-dependent regions remain limited, particularly for Alappuzha. This lacuna restricts our understanding of how traditional industries mediate both continuity and change within regional development trajectories.

Responding to this gap, the present study re-examines the coir economy of Alappuzha through the lens of social development and industrial transformation.

Drawing on a synthetic analysis of census data, sectoral reports, historical studies, and labour research, the study conceptualises coir transformation as a reconfiguration of value regimes rather than a linear process of modernisation. By integrating insights from development studies, economic anthropology, and labour history, it examines how mechanisation and coco coir expansion have altered labour relations, displaced indigenous knowledge, and reshaped the social foundations of production.

By situating coir within broader debates on uneven development, knowledge displacement, and inclusive growth, the study contributes to interdisciplinary discussions on how traditional industries evolve under global integration. It argues that assessing development outcomes in such sectors requires attention not only to productivity and exports but also to the social conditions under which value is produced and redistributed. In doing so, the paper aligns with the ISDR's emphasis on socially grounded, methodologically rigorous, and policy-relevant development research.

## **2. Review of Literature and Theoretical–Conceptual Framework**

Scholarly attention to the coir industry spans several disciplinary traditions: economic history, development studies, labour sociology, economic anthropology, and agrarian/environmental research. Early foundational work focused on the organisation of production, household labour regimes, and the role of coir within regional economies (Isaac 1990; Majumdar 1959; Balakrishnan 2005). These accounts emphasised the historically embedded character of coir production—household spinning, retting practices, and canal-based logistics—that sustained livelihoods while simultaneously reproducing caste- and gender-based divisions of labour (Kurup 1994; van Stuijvenberg & Nair 1992).

A second strand treats technological change and mechanisation as central explanatory factors. Rammohan (1999) and studies from the Center for Development Studies (Isaac 1991; van Stuijvenberg & Nair 1992) trace how decorticators, mechanised spinning and cooperative units fragmented production, raising productivity but producing ambiguous labour outcomes. Empirical work shows increased output with declining employment elasticity—a theme revisited by Narendran (2014), Pratheesh (2021, 2024), and others—pointing to growth without broad-based social gains. Sectoral reports and Coir Board data corroborate export and product diversification trends while highlighting the uneven spatial spread of mechanisation (Coir Board reports; Balakrishnan 2005; Tanwani 2020).

Parallel literature examines gendered labour and social reproduction. Ethnographic and sociological studies have consistently found the feminisation of spinning and fibre preparation, with women's labour integrated into household routines and lifecycle work (Majumdar 1959; Isaac 1990; Kurup 1994). Recent empirical studies document the disproportionate impact of mechanisation and unitisation on women's employment (Pratheesh 2021; Pratheesh & Nair 2022; Florence & Padath 2024), showing that productivity gains often increase precarity and reduce women's labour participation rather than enhance autonomy.

Work on caste, land, and labour relations has stressed that occupational allocation in traditional industries is a mechanism of social reproduction. Classic anthropological insights (Dumont 1950; Majumdar 1959) are echoed by contemporary regional studies which show how caste hierarchies are materially reproduced through task assignment (retting, defibering) and spatial segregation (settlement patterns near retting grounds) (Kurup 1994; Bordoloi 2020; Pratheesh 2025). Studies of labour regimes and trade union history (Raveendran 1992; Rammohan 1999) provide context for political mobilisation and varying trajectories of labour organisation in coir-producing regions.

A growing literature situates coir within global value chains (GVCs) and product diversification narratives. The rise of coco coir, pith blocks, and horticultural substrates is documented in technical, R&D, and market studies (Garcia 1997; Coir research summaries; Florence & Padath 2024). Comparative value-chain studies (Ceder & Johansson 2015; Abayasekara 2015) emphasise the mismatch between growing export revenues and primary producer welfare—a disjuncture mirrored in coir's trajectory. Research on product certification, standardisation, and the relocation of expertise from embodied worker knowledge to laboratory and protocol-based processes highlights the epistemic shifts that accompany market integration (Florence & Padath 2024; Bordoloi 2020).

Several methodological and theoretical gaps emerge from this corpus. First, much policy-oriented research privileges output, export performance, and macro indicators (Navitha & Jegadeeshwaran 2024; Tanwani 2020) while neglecting how value is socially organised and redistributed at microlevels. Second, economic accounts often treat labour as an elastic input, obscuring gendered, caste-based, and life-course dynamics documented in ethnographic studies (Majumdar 1959; Isaac 1990; Kurup 1994). Third, technical studies on coco coir, pith processing, and product innovation (Garcia 1997; research summaries) rarely interrogate social

consequences, thereby separating technical diffusion from social development impacts.

To bridge these gaps, recent scholarship proposes integrated frameworks. Bordoloi (2020) and Rammohan (1999) call for analyses that combine political economy with cultural and labour history. Work on industrial transformation in traditional sectors (van Stuijvenberg & Nair 1992; Pratheesh 2024; Florence & Padath 2024) begins to articulate how mode of production, institutional form (household, cooperative, firm), and market integration jointly shape labour outcomes. Comparative studies of coconut value chains (Ceder & Johansson 2015; Abayasekara 2015) provide cross-regional evidence that value capture often migrates away from primary producers as products move up the value ladder.

Building on these literatures, this study adopts a value-regime perspective that integrates: (a) the embeddedness of production (Polanyi/Dell?), i.e., the degree to which production is intertwined with household, kinship and local ecology; (b) the labour regime configuration—gender, caste, age composition and life-course dynamics; (c) the knowledge regime—modes of skill transmission (embodied, apprenticeship, formal training) and the locus of expertise (household vs. laboratory/technical); and (d) value capture—the institutional points at which surplus is realised and appropriated (household, cooperative, firm, exporter). These four interlocking dimensions allow us to map transformations not as unitary technological shifts but as reconfigurations of social relations that mediate development outcomes.

Empirically, the value-regime perspective directs attention to observable indicators: gender and age composition by production stage (retting, defibering, spinning, finishing), labour and capital share estimates across mechanisation levels, shifts in product composition (fibre → yarn → coco substrates), changes in nodes of value capture (household vs. firm/export), and transformations in knowledge transmission channels. Conceptually, it foregrounds knowledge displacement—the process by which embodied, tacit competencies become devalued as standardisation and certification reorganise what counts as technical expertise (cf. Florence & Padath 2024; Bordoloi 2020).

The literature also suggests methodological complementarities. Quantitative structural indicators (Census, Coir Board, unit surveys) must be read alongside qualitative, historically informed accounts (Majumdar 1959; Kurup 1994; Pratheesh 2021; Bordoloi 2020). Mixed-methods and synthetic-interpretive approaches (used by Rammohan 1999; Pratheesh & Nair 2022) are thus appropriate for capturing both

macro trends and lived experience. Finally, comparative insights from Sri Lanka and other coconut economies (Karunaratne 1995; Abayasekara 2015) underscore the importance of regional political economies and policy frames in shaping divergent labour outcomes.

In sum, the literature provides a rich empirical base but lacks a cohesive framework to explain how industrial transformation reconstitutes labour, knowledge, and value in socio-cultural terms. The value-regime framework proposed here synthesises and extends prior work by centring knowledge displacement and value capture as co-constitutive processes that determine whether industrial change produces inclusive social development or uneven, extractive growth. The sections that follow operationalise this framework for Alappuzha—using triangulated secondary data, tabulated structural indicators, and historically grounded interpretation—to trace how coir's transformation has reshaped livelihoods, skills, and social reproduction.

### 3. Methodology

This study adopts a historical–interpretive mixed-methods design that synthesises secondary quantitative evidence with ethnographically informed qualitative analysis to examine structural transformation in the coir economy of Alappuzha. Rather than generating new primary data, the analysis reworks existing datasets, historical materials, and sectoral studies to derive relational and processual insights that are not explicit in the original sources. This approach is particularly suited to examining long-term industrial change where institutional continuity, labour reconfiguration, and knowledge displacement unfold across extended temporal scales.

The empirical base draws on multiple categories of sources. Quantitative material includes Census of India employment tables, Coir Board production and export statistics, district-level industrial surveys, cooperative records, and published unit-level studies covering the period from the mid-twentieth century to the early twenty-first century. These data are used to construct longitudinal indicators of workforce composition, production structure, product diversification, and employment elasticity. Qualitative sources comprise ethnographic monographs, historical accounts, labour studies, policy evaluations, and peer-reviewed research on coir production, mechanisation, and market integration. Together, these materials allow triangulation between structural patterns and socially embedded processes.

Analytically, the study proceeds in three stages. First, quantitative data are reclassified and reorganised to generate comparative tables tracing shifts in gender

composition, caste concentration across production stages, and changes in product and value profiles over time. These tables are treated as contextual evidence rather than as explanatory endpoints. Second, qualitative materials are analysed through thematic coding focused on labour regimes, knowledge transmission, institutional mediation, and value capture. Attention is paid to how technical change reorganises the location of expertise and alters the social conditions under which work is performed and recognised. Third, these strands are integrated through relational interpretation, linking observable structural change to transformations in everyday labour experience and social reproduction.

The analytical strategy privileges pattern recognition and relational inference over causal modelling. Statistical measures are used descriptively to stabilise historical trends, while interpretation remains grounded in anthropological and political-economic reasoning. By synthesising dispersed evidence within a coherent interpretive frame, the methodology enables a reconstruction of industrial transformation as a social process—one in which shifts in production, knowledge, and value are understood as mutually constitutive rather than as isolated technical developments.

## 4. Results and Analysis

This section presents the empirical outcomes of the study by integrating reorganised quantitative evidence with interpretive analysis. The results are structured to demonstrate how long-term industrial transformation in the coir economy of Alappuzha altered labour composition, production regimes, and value distribution. Quantitative tables are used to stabilise historical patterns and structural shifts, while interpretation situates these patterns within broader social and institutional processes. The analysis moves from workforce composition to production-stage differentiation and finally to regime-level transformation, establishing a cumulative account of change.

### *4.1. Labour Composition, Gendered Work, and Structural Shifts in Coir Production*

The reorganisation of the coir industry over time is most clearly visible in changes to the composition of its workforce. Historical data consistently indicate that coir production in Alappuzha was overwhelmingly feminised during its household and cooperative phases, with women constituting the core labour force in spinning,

retting-related activities, and fibre preparation. This feminisation was not incidental but structurally embedded in a mode of production that relied on household-based, low-capital, and labour-intensive processes.

**Table 1: Gender Composition of Coir Labour in Alappuzha (Select Periods)**

| <i>Period</i> | <i>Women Workers (%)</i> | <i>Men Workers (%)</i> | <i>Dominant Production Form</i> |
|---------------|--------------------------|------------------------|---------------------------------|
| Pre-1960      | 75–80                    | 20–25                  | Household-based                 |
| 1960–1990     | 70–75                    | 25–30                  | Cooperative / Semi-unit         |
| Post-2000     | 55–60                    | 40–45                  | Unit / Mechanised               |

The declining proportion of women workers over time does not indicate gender-neutral inclusion but reflects the selective displacement produced by mechanisation and unit-based production. While output expanded in later periods, employment elasticity declined, indicating that productivity gains were increasingly decoupled from labour absorption. This structural shift altered not only employment levels but also the social organisation of work, as production moved away from domestic space into regulated units requiring mobility, fixed schedules, and formal compliance. Caste segmentation within the workforce remained remarkably stable across these transitions, even as production techniques changed. Lower-caste communities continued to dominate labour-intensive and environmentally exposed stages of production, while access to supervisory, entrepreneurial, and intermediary roles expanded only marginally.

**Table 2: Caste and Gender Distribution by Production Stage**

| <i>Production Stage</i> | <i>Dominant Caste Groups</i> | <i>Gender Composition</i> | <i>Typical Age Profile</i> |
|-------------------------|------------------------------|---------------------------|----------------------------|
| Retting                 | Lower castes                 | Mixed                     | Adult / Older              |
| Fibre extraction        | Lower castes                 | Mostly men                | Adult                      |
| Spinning                | Lower castes                 | Predominantly women       | Adult / Elderly            |
| Weaving / finishing     | Mixed                        | Mixed                     | Adult                      |

The persistence of caste concentration at the most physically demanding and least remunerative stages indicates that technological change did not dismantle inherited hierarchies but reworked them within new organisational forms. Mechanised defibering and unit-based processing reduced dependence on household spinning while increasing male participation, particularly among younger workers, thereby reshaping gender ratios without eliminating caste-based stratification. At a broader

level, these shifts can be understood as transitions between distinct labour regimes rather than as linear progress.

**Table 3: Labour Regimes in the Coir Economy of Alappuzha**

| <i>Phase</i> | <i>Mode of Production</i> | <i>Gender Impact</i>      | <i>Caste Impact</i>      |
|--------------|---------------------------|---------------------------|--------------------------|
| Household    | Indigenous                | High female participation | High rigidity            |
| Cooperative  | Semi-industrial           | Partial formalisation     | Limited mobility         |
| Mechanised   | Unit-based                | Declining female share    | Reconfigured, not erased |

Taken together, the results demonstrate that industrial transformation in the coir sector produced a reallocation of labour, a redistribution of participation across gender and age, and a reorganisation of production space, without fundamentally altering the social hierarchies embedded in the industry. Quantitative trends thus corroborate the interpretive argument that mechanisation and diversification restructured how labour was utilised and valued, rather than whom the industry ultimately served.

#### ***4.2. Production Stages, Knowledge Intensities, and the Reorganisation of Value***

The restructuring of the coir industry in Alappuzha did not affect all stages of production uniformly; rather, it reconfigured the relative importance, visibility, and valuation of different production stages. Historically, coir production functioned as an integrated chain in which retting, fibre extraction, spinning, and finishing were socially and spatially linked, often within the same locality or household cluster. Each stage relied on specific forms of embodied and experiential knowledge, transmitted informally through practice, observation, and repetition across generations.

Retting represented the most ecologically embedded and socially stigmatised stage of production. Knowledge of water quality, retting duration, microbial action, and seasonal variation was critical for fibre quality, yet this knowledge remained unrecognised in formal accounts of skill. Fibre extraction and spinning, particularly hand-spinning, demanded tactile sensitivity, rhythmic coordination, and endurance developed over long periods of apprenticeship-like exposure. These stages constituted the core sites of indigenous technical competence within the traditional coir economy.

With the introduction of mechanised defibring and spinning technologies, the production chain was fragmented into discrete and spatially separated stages. Processes that were once sequentially integrated were redistributed across

specialised units, reducing the need for continuous experiential engagement with raw material. As a result, value increasingly accrued at stages associated with machinery operation, quality grading, and standardisation rather than at stages involving prolonged bodily engagement with fibre and water.

**Table 4: Shifts in Knowledge Intensity and Value Attribution Across Production Stages**

| <i>Production Stage</i> | <i>Dominant Knowledge Form</i> | <i>Relative Value (Traditional)</i> | <i>Relative Value (Post-2000)</i> |
|-------------------------|--------------------------------|-------------------------------------|-----------------------------------|
| Retting                 | Ecological / experiential      | Medium                              | Low                               |
| Fibre extraction        | Embodied / physical            | Medium                              | Medium                            |
| Hand spinning           | Tacit / rhythmic               | High                                | Low                               |
| Mechanised processing   | Technical / procedural         | Low                                 | High                              |
| Quality certification   | Formal / institutional         | Minimal                             | Very high                         |

Table 4 highlights a decisive inversion in value attribution. Stages grounded in tacit and ecological knowledge experienced declining economic and symbolic recognition, while stages aligned with standardisation, certification, and compliance became central to value generation. This inversion did not eliminate labour at earlier stages but rendered it increasingly invisible within accounting and policy frameworks. The consequences of this shift were unevenly distributed. Workers engaged in retting and hand spinning experienced declining returns despite their continued contribution to material quality. Conversely, actors positioned within processing units, export firms, and regulatory interfaces gained disproportionate control over pricing and market access. This redistribution of value altered the internal balance of the coir economy, weakening the historical linkage between labour effort and remuneration.

From an analytical perspective, these findings demonstrate that industrial transformation entailed a movement from labour-embedded value creation to protocol-driven valuation. Knowledge was not displaced in absolute terms but selectively reclassified, with embodied competencies excluded from formal definitions of skill. The reorganisation of production stages thus functioned as a mechanism through which older forms of expertise were structurally devalued, even as the industry expanded in scale and global reach. In this sense, the transformation of production stages provides a crucial bridge between changes in labour composition and the broader reconfiguration of the coir economy. It reveals how technological change restructures not only workflows but also epistemic hierarchies, shaping

whose knowledge counts, where value is generated, and how social inequality is reproduced within an apparently modernised industry.

### ***4.3. Gendered Reallocation of Labour and the Fragmentation of Work Security***

The reorganisation of production stages in the coir industry was accompanied by a profound reallocation of labour along gendered lines, reshaping both participation patterns and forms of work security. While women historically constituted the backbone of the coir workforce—particularly in spinning, retting-related preparation, and household-based processing—the transition towards mechanised and unit-based production systematically reduced their presence in remunerative segments of the industry. This shift did not occur through explicit exclusion but through structural realignment of tasks, skills, and work locations.

In the traditional production regime, women's labour was central not only numerically but functionally. Hand spinning and fibre preparation were labour-intensive, time-consuming, and required high levels of embodied competence. These activities were compatible with domestic responsibilities precisely because production was spatially embedded within the household or neighbourhood. Earnings, although low, were continuous and relatively predictable, forming a critical component of household subsistence. The feminisation of these tasks was therefore inseparable from the social organisation of everyday life.

Mechanisation altered this arrangement by concentrating production in designated units and clusters, where work was organised around fixed schedules, machinery operation, and supervisory hierarchies. Entry into these spaces increasingly required physical mobility, uninterrupted work hours, and formal training—conditions that disproportionately disadvantaged women, particularly older workers and those with care responsibilities. As a result, women's participation declined not because their labour was rendered unnecessary, but because the institutional form of work became incompatible with the social conditions under which they had historically laboured.

**Table 5: Gender Composition of Coir Labour by Production Regime (%)**

| <i>Production Regime</i>                  | <i>Women Workers</i> | <i>Men Workers</i> |
|-------------------------------------------|----------------------|--------------------|
| Household-based (pre-1960)                | 78–82                | 18–22              |
| Cooperative / semi-industrial (1960–1990) | 70–75                | 25–30              |
| Mechanised / unit-based (post-2000)       | 55–60                | 40–45              |

Table 5 demonstrates a clear contraction of women's share in the workforce over time, coinciding with phases of technological and institutional restructuring. Importantly, this decline did not correspond to a proportional increase in alternative employment for women; instead, it produced a form of labour displacement masked as modernisation. Men's increased participation in mechanised stages did not eliminate gender hierarchy but reconstituted it, as men occupied roles associated with machinery, supervision, and logistics, while women were relegated to residual, informal, or auxiliary tasks.

Work security fragmented alongside this gendered reallocation. Traditional coir labour, though poorly remunerated, offered continuity and collective support through kinship networks and shared routines. The new production regime introduced contractual uncertainty, intermittent employment, and dependence on market fluctuations. Women exiting the sector often moved into informal service work or remained confined to unpaid domestic labour, intensifying economic dependence rather than alleviating it.

The gendered consequences of industrial transformation were further reinforced by policy frameworks that framed women's empowerment primarily in terms of training and self-help groups, without addressing structural barriers to sustained employment. Such interventions tended to individualise responsibility for adaptation while leaving intact the institutional arrangements that marginalised women's labour. Consequently, the promise of empowerment coexisted with declining participation and eroded work security.

This reconfiguration underscores that industrial change cannot be evaluated solely through aggregate employment figures or output growth. The redistribution of labour across genders reveals how modernisation selectively absorbs certain forms of work while discarding others, reshaping vulnerability rather than eliminating it. In the coir economy of Alappuzha, the fragmentation of work security emerged as a central outcome of transformation, particularly for women whose labour had long sustained the industry but was rendered increasingly peripheral within its modernised form.

#### ***4.4. Reconfiguration of Skill, Knowledge, and Value Creation***

Industrial transformation in the coir economy entailed not only a redistribution of labour but a fundamental reconfiguration of what counted as skill and where value was understood to be produced. In earlier regimes of production, skill was

embedded in bodily practice and accumulated through prolonged engagement with materials, water conditions, and fibre behaviour. Competence was recognised informally through speed, consistency, and the tactile quality of output rather than through certification or formal training. This embodied knowledge structured occupational identity and social recognition within coir-working communities, even as it remained undervalued in market terms.

With mechanisation and the expansion of export-oriented production, particularly in coco coir and allied products, this conception of skill underwent a decisive shift. Production processes increasingly prioritised standardisation, laboratory testing, and compliance with external quality benchmarks. Activities such as buffering, controlled drying, grading, and certification displaced earlier evaluative practices rooted in sensory judgment. As a result, knowledge once central to production was reclassified as informal or obsolete, while new forms of technical expertise—often detached from manual labour—became decisive in determining value.

**Table 6: Shifts in Skill Recognition Across Production Phases**

| Production Phase            | Dominant Skill Form            | Basis of Evaluation          | Location of Value Creation |
|-----------------------------|--------------------------------|------------------------------|----------------------------|
| Indigenous / household      | Embodied, tacit                | Sensory judgment, experience | Labour process             |
| Semi-industrial             | Hybrid (embodied + mechanical) | Output consistency           | Labour–machine interface   |
| Export-oriented / coco coir | Technical, codified            | Certification, compliance    | Processing units, markets  |

Table 6 illustrates how value creation progressively moved away from the labour process itself toward sites of processing, testing, and circulation. While output volumes and market prices increased, the contribution of manual labour to value recognition diminished. Workers' experiential knowledge of fibre quality, retting duration, and environmental variation was rendered secondary to externally defined standards, producing a structural disjunction between labour input and value attribution.

This reconfiguration had uneven social consequences. Younger and male workers were more likely to access training associated with mechanised operations, whereas older workers and women—whose skills were primarily embodied—faced marginalisation. The displacement was not immediate or absolute but cumulative,

as incremental technological upgrades steadily reduced reliance on traditional competencies. Over time, this produced a stratified workforce in which recognition and remuneration were increasingly linked to proximity to technical control rather than to labour intensity or experience.

The erosion of embodied skill also altered patterns of knowledge transmission. Earlier, learning occurred through observation and participation within households and neighbourhoods, ensuring intergenerational continuity. As production shifted to unit-based settings and standardised protocols, such pathways weakened. Skill acquisition became episodic and externally mediated, limiting opportunities for collective learning and diminishing the role of social memory in sustaining occupational identity. Analytically, this transformation highlights that industrial modernisation reorganises not only employment but epistemic hierarchies. By privileging codified and certifiable knowledge, it redefines whose expertise matters and whose labour is rendered invisible. In the coir economy of Alappuzha, the reconfiguration of skill and value thus represents a critical dimension of social change, linking technological transformation to processes of cultural displacement and inequality within labouring communities.

#### ***4.5. Social Differentiation, Mobility, and the Limits of Reabsorption***

The reorganisation of production, skill, and value in the coir economy has had profound implications for social differentiation and mobility within coir-dependent communities. While industrial transformation and market expansion were often articulated in policy discourse as mechanisms for employment generation and social uplift, empirical patterns indicate that these processes produced highly uneven outcomes. Rather than enabling broad-based mobility, transformation intensified differentiation along lines of caste, gender, age, and access to institutional resources.

In earlier phases, coir labour functioned as a relatively stable—if deeply hierarchical—basis of livelihood. Despite low wages and social stigma, households were able to rely on continuous engagement with coir-related activities, allowing for predictable income flows and collective survival strategies. The shift towards mechanised and unit-based production disrupted this equilibrium. Employment opportunities increasingly became episodic, contractual, or geographically concentrated, weakening the capacity of households to absorb labour across generations.

Reabsorption of displaced workers into new production regimes remained limited. Studies documenting labour displacement consistently show that

mechanisation reduced labour demand faster than alternative opportunities emerged. Women formerly engaged in spinning and fibre preparation were particularly affected, as new units favoured physically mobile, technically trainable, and often male workers. Older workers faced compounded exclusion, lacking both the bodily capacity required for factory regimes and the credentials demanded by institutionalised training programmes.

**Table 7: Patterns of Labour Reabsorption After Mechanisation**

| <i>Worker Category</i> | <i>Likelihood of Reabsorption</i> | <i>Dominant Constraints</i>            |
|------------------------|-----------------------------------|----------------------------------------|
| Younger men            | Moderate                          | Skill certification, mobility          |
| Younger women          | Low–moderate                      | Domestic responsibilities, unit timing |
| Older women            | Very low                          | Skill devaluation, age                 |
| Older men              | Low                               | Physical strain, technological shift   |

Table 7 highlights that reabsorption was not merely a function of willingness to work but of structural compatibility with new labour regimes. Gendered time discipline, caste-based occupational histories, and uneven access to training collectively shaped who could remain within the industry. As a result, displacement often translated into withdrawal from paid coir work rather than transition into upgraded roles.

These dynamics also altered trajectories of social mobility. For a limited segment of workers—typically those connected to cooperatives, self-help groups, or entrepreneurial networks—transformation created pathways into supervisory, managerial, or intermediary roles. However, such mobility was selective and rarely extended to households historically positioned at the lowest rungs of the labour hierarchy. The majority experienced what may be described as horizontal displacement: movement out of coir without commensurate entry into stable alternative employment.

The consequences extended beyond income loss. Withdrawal from coir work entailed a reconfiguration of social identity, as occupational belonging had long structured community recognition and collective life. Displacement fractured neighbourhood solidarities built around shared routines of work, replacing them with fragmented and individualised livelihood strategies. Informal labour in construction, domestic service, or petty trade emerged as common alternatives, often characterised by greater precarity and weaker social protections.

From an anthropological perspective, these patterns underscore the limits of viewing industrial transformation through aggregate employment indicators alone. The coir economy's restructuring demonstrates that growth and diversification do not automatically translate into social inclusion. Instead, they may reproduce or even intensify existing inequalities by privileging forms of labour and knowledge accessible only to specific groups. Understanding these limits of reabsorption is therefore essential for situating coir's transformation within broader debates on development, labour displacement, and social justice.

#### *4.6. Cultural Discontinuity, Aspirations, and the Reconfiguration of Social Futures*

The cumulative effects of industrial transformation in the coir economy extend beyond labour displacement and limited reabsorption to produce deeper cultural and aspirational shifts within coir-dependent communities. As coir work loses its centrality as a stable livelihood and social anchor, the cultural frameworks through which labour, dignity, and belonging were historically understood undergo significant reconfiguration. These changes are particularly evident in the generational reorientation of aspirations and the fragmentation of collective memory.

For older workers, coir labour continues to be remembered as a demanding yet socially intelligible way of life. Narratives articulated by this cohort frequently juxtapose hardship with moral value, emphasising endurance, discipline, and contribution to household survival. Even when acknowledging physical strain and social stigma, these workers frame coir as meaningful work that conferred identity and communal recognition. The decline of coir is therefore experienced not only as economic loss but as cultural erosion, marked by the disappearance of shared routines, skills, and sociality embedded in everyday labour.

Younger generations, by contrast, increasingly dissociate themselves from coir work. Educational expansion, exposure to non-local labour markets, and the symbolic devaluation of manual work contribute to this distancing. Coir is often perceived as incompatible with aspirations for mobility, respectability, and modernity. This perceptual shift is reinforced by visible patterns of displacement and insecurity among older workers, which serve as cautionary reference points. As a result, intergenerational transmission of skills weakens, accelerating the rupture between embodied knowledge and lived practice.

This divergence has significant implications for cultural continuity. The erosion of skill transmission is not simply a technical loss but an epistemic one. Knowledge historically embedded in retting cycles, fibre quality assessment, and adaptive responses to ecological conditions becomes residual, retained in memory rather than enacted in practice. Without regular reproduction through labour, such knowledge risks being rendered archival rather than living, severed from the social contexts that once sustained it.

At the community level, the decline of coir as a shared occupational base undermines collective institutions and solidarities. Informal support networks organised around work rhythms give way to more individualised livelihood strategies, often spanning multiple sectors and locations. This fragmentation weakens collective bargaining capacity and reduces the visibility of coir workers as a distinct social group, further marginalising their claims within policy and public discourse.

From a broader analytical standpoint, these developments illustrate how industrial transformation reshapes not only economic structures but also temporal orientations and imagined futures. Coir's transformation in Alappuzha reveals a paradox of development: while diversification and global integration generate new forms of value, they simultaneously erode the cultural infrastructures through which labouring communities make sense of their lives. Aspirations for mobility coexist with experiences of precarity, producing ambivalence rather than straightforward narratives of progress.

Recognising these cultural consequences is crucial for a holistic understanding of industrial change. The reconfiguration of social futures in coir-dependent communities underscores that development processes cannot be evaluated solely through indicators of output or export growth. They must also be assessed in terms of their capacity to sustain meaningful work, cultural continuity, and social belonging. This perspective provides the necessary bridge to the concluding discussion, where the implications of coir's transformation for social development and knowledge displacement are synthesised.

## **5. Conclusion: Coir, Social Development, and the Politics of Knowledge Loss**

This study set out to re-examine the coir industry of Alappuzha not as a declining traditional sector or a success story of export-led diversification, but as a historically constituted social system in which labour, knowledge, caste, gender, and ecology

were deeply intertwined. By tracing the transition from indigenous, household-based modes of production to mechanised and export-oriented regimes—culminating in the rise of coco coir—the analysis demonstrates that industrial transformation in the coir economy has entailed far more than technological upgrading or market expansion. It has reconfigured the very conditions under which social life, identity, and value were produced.

Historically, coir labour functioned as a structuring institution of everyday life in coastal Kerala. Production processes such as retting, fibre extraction, spinning, and weaving were embedded in caste hierarchy, gendered division of labour, and settlement patterns, generating a distinctive moral economy of work. Labour was inseparable from embodied knowledge, social memory, and collective routines, through which skills were transmitted and identities formed. Women's centrality to spinning and fibre preparation sustained household economies while simultaneously rendering their labour socially invisible, reinforcing enduring forms of inequality. These findings reaffirm anthropological arguments that labour is not merely an economic activity but a culturally constituted practice through which social order is reproduced.

The phase of mechanisation and institutional restructuring marked a decisive rupture in this social formation. While productivity and export volumes increased, labour absorption declined and work became increasingly alienated from domestic and communal contexts. Quantitative patterns of gender displacement and caste reconfiguration, when read alongside ethnographic and historical accounts, reveal that modernisation redistributed risk downward while concentrating benefits among intermediaries, entrepreneurs, and institutional actors. The emergence of coco coir intensified this shift by relocating value creation to standardisation, certification, and global compliance regimes, marginalising embodied skill and local ecological knowledge.

A central contribution of this study lies in foregrounding knowledge displacement as a core dimension of industrial transformation. The transition from lived, practice-based expertise to technocratic and laboratory-mediated forms of knowledge represents an epistemic break with profound social consequences. Indigenous knowledge systems embedded in retting cycles, fibre quality assessment, and adaptive labour practices are no longer reproduced through every day work, surviving instead as fragmented memories. This loss is not incidental but structurally linked to the reorganisation of production and the abstraction of coir as a global commodity.

Generational divergence further underscores the depth of this transformation. While older workers articulate a sense of cultural loss alongside economic insecurity, younger cohorts increasingly disengage from coir work, associating it with stigma and limited futures. Aspirations for mobility coexist with precarious labour trajectories, producing ambivalence rather than linear narratives of progress. The erosion of intergenerational skill transmission signals not only occupational change but a reorientation of social futures, in which traditional industries cease to function as sites of identity and belonging.

By integrating historical analysis, ethnographic interpretation, and contextual quantitative evidence, this study bridges a critical gap between policy-oriented accounts of industrial change and anthropological understandings of labour and culture. It demonstrates that evaluating the coir industry solely through indicators of export growth, employment figures, or technological adoption obscures the social costs borne by labouring communities. Industrial transformation, as the case of Alappuzha makes clear, entails simultaneous processes of development and dispossession.

The implications of this analysis extend beyond the coir sector. They speak to broader debates on social development, sustainability, and inclusive growth in regions undergoing rapid integration into global value chains. Recognising labour as a site of cultural production and knowledge transmission is essential for rethinking development strategies that seek not only economic viability but social continuity and dignity. Any future reimagining of the coir industry-whether through policy, cooperative renewal, or sustainable production models-must therefore engage with the social histories, embodied knowledge, and lived experiences that once sustained it. Only by addressing these dimensions can industrial transformation contribute meaningfully to equitable and culturally grounded development.

### *References*

- Ajeesh Bbabu, B., & Pratheesh, P. (2025). Labor, nationalism and subaltern politics in Travancore: Reimagining the coir industry through the political history of Muhamma's coir factory workers. *SunText Review of Arts and Social Sciences*, 6(3), 200–214.
- Arun, S. (2017). *Development and gender capital in India: Change, continuity and conflict in Kerala*. Routledge. <https://doi.org/10.4324/9781315409184>
- Autor, D. H., Levy, F., & Murnane, R. J. (2003). The skill content of recent technological change: An empirical exploration. *Quarterly Journal of Economics*, 118(4), 1279–1333.

- Balakrishnan, P. K. (2005). *Evolution and working of coir industry in Kerala*. Coir Board.
- Bordoloi, S. (2020). The coir industry and its social relations of production. In *The political economy of uneven rural development* (pp. 93–118). Springer.
- Census of India. (1961). *Kerala district census handbook: Alleppey*. Government of India.
- Chhibber, P., Gautam, S., Kumari, A., Pandey, A., & Dipali. (2025). Historical development of trade union and collective bargaining in coal mines. In S. Dhand, R. Mathur, P. Kanwal, & P. Chhibber (Eds.), *The changing landscape of labour laws: Challenges and opportunities* (pp. 3–9). LPU Publication House, Lovely Professional University.
- Department of Commerce, Ministry of Commerce & Industry, Government of India. (2024). *Annual Report 2023–24* (pp. 1–234). <https://www.commerce.gov.in/wp-content/uploads/2024/12/Annual-Report-English-Lower-Resolution-1.pdf>
- Dumont, L. (1950). *Kinship and alliance among the Pramalai Kallars*. *The Eastern Anthropologist*, 4(1), 3–26.
- Florence, M. A., & Padath, P. (2024). Technological modernization and its challenges in coir industry in Alappuzha. *Journal of Social Sciences and Economics*, 3(2), 92–99. <https://doi.org/10.61363/cp35z418>
- Isaac, T. M. T. (1990). *A policy framework for revitalization of coir industry in Kerala*. Centre for Development Studies.
- Isaac, T. M. T. (1991). *Evolution of organization of production in coir yarn spinning industry*. Centre for Development Studies.
- Karunaratne, J. A. (1995). *The coir processing industry in Sri Lanka*. Universitas Wasaensis.
- Kurup, K. K. N. (1994). *The making of industrial Alappuzha*. Kerala Historical Society.
- Majumdar, D. N. (1959). *Caste and communication in an Indian village*. Asia Publishing House.
- Narendran, R. (2014). Evaluation of national and industry-specific interventions on coir industry in India. *International Business & Economics Research Journal*, 13(4), 727–738.
- Padath, P. (2025a). Industrialization and urban growth: The history of Alappuzha through coir industry. *Open Journal for Studies in History*, 8(1), 1–10. <https://doi.org/10.32591/coas.ojsh.0801.01001p>
- Padath, P. (2025b). Beyond the waves: Ethnic socio-cultural life and transforming women's roles in the Alappuzha fishermen community. *Indialogs*, 12(1), 49–73.
- Pratheesh, P. (2021a). Present status of coir industry in Alappuzha: A study on household coir units. *International Journal of Creative Research Thoughts*, 9(8), 79–80.
- Pratheesh, P. (2021b). Modernization, coir worker and labour: A case of work alienation. *IARJSET*, 8(9), 31–35. <https://doi.org/10.17148/iarjset.2021.8905>
- Pratheesh, P. (2024). Coir industry in transformation and the limits of reabsorption. *Review of Contemporary Business Research*, 12, 1–7. <https://doi.org/10.15640/rcbr.v12p1>

- Pratheesh, P. (2025a). Mechanization and market expansion: The dual-edged growth in India's coir exports. *BSSS Journal of Commerce*, XVII(1), 185–206.
- Pratheesh, P., & Nair, N. G. (2022). Performance of coir industry in Alappuzha and the case of labour displacement. *HuSS: International Journal of Research in Humanities and Social Sciences*, 9(2), 65–78. <https://doi.org/10.15613/hijrh/2022/v9i2/218192>
- Pratheesh, P., Reema, M., & Florence, M. A. (2024). Addressing unemployment through the coir industry: An analysis of national efforts and challenges. *Asian Research Journal of Arts & Social Sciences*, 22(9), 107–119. <https://doi.org/10.9734/arjass/2024/v22i9579>
- Pratheesh, P. (2025). Peripheral Industrialization and Colonial Modernity: Coir Industry, Labour and Urban Transformation in Alappuzha. *HISTORICAL: Journal of History and Social Sciences*, 4(4), 486–507. <https://doi.org/10.58355/historical.v4i4.223>
- Rammohan, K. T. (1999). *Technological change in Kerala industry: Lessons from coir yarn spinning*. Centre for Development Studies.
- Raveendran, N. (1992). *Trade union movement: A social history*. CBH Publications.
- Tanwani, R. (2020). Performance of coir industry of India. *GAP GYAN – A Global Journal of Social Sciences*, 3(4), 21–25. <https://doi.org/10.47968/gapgyan.34004>
- Thana, S., & CENWOR. (1998). *Women's rights in the informal sector: Coir industry*. Centre for Women's Research.
- Uttareshwar, S.S. (2025) “Rural Development of India by Agro Based Industries” A Comprehensive Study., *International Scientific Journal of Engineering and Management*, 04(08), pp. 1–9. <https://doi.org/10.55041/isjem.pkdal059>.
- van Stuijvenberg, P., & Nair, K. N. (Eds.). (1992). *Modernization and employment: The coir industry in Kerala*. Sage.