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Labour Displacement, Occupational Transformation and the Moral Crisis of Development in Kerala's Coir Industry

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Abstract: The coir industry of Kerala occupies a distinctive place in India's industrial and labour history. Emerging as an export-oriented enterprise in the nineteenth century, it evolved into a widespread household-based production system that provided livelihood, social mobility, and occupational identity to thousands of rural families, particularly women. Conventional modernization theories assume that technological progress, industrial efficiency, and productivity growth generate broad-based social development. The experience of Kerala's coir industry presents a different reality. This article examines the relationship between modernization and labour welfare by analysing the transformation of the coir sector from the expansion of household production after Independence to large-scale mechanization from the late twentieth century onward. Drawing on modernization theory, Marx's concept of alienation, Durkheim's theory of anomie, and moral economy perspectives, the study explores how technological change reshaped the economic, social, and moral foundations of a traditional occupational community. The study employs a qualitative historical-sociological methodology based on archival records, government reports, policy documents, industry surveys, labour studies, and contemporary research on the coir sector. The findings show that delayed technological adaptation during the 1970s and 1980s weakened Kerala's competitive position and encouraged the relocation of production activities to neighbouring states. Mechanization later improved productivity, product diversification, and export performance, helping the industry remain competitive. However, labour displacement proceeded faster than labour reabsorption. Traditional household units declined sharply, employment contracted, women workers experienced disproportionate exclusion from emerging mechanized

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sectors, and long-standing systems of occupational knowledge transmission weakened. The erosion of occupational identity, community-based production networks, and small-scale entrepreneurship generated conditions of alienation, social dislocation, and economic insecurity. The study argues that modernization succeeded as a strategy of industrial survival but failed to ensure proportionate human development. It proposes a human-centred interpretation of modernization that places employment security, social inclusion, and occupational dignity alongside economic growth as essential measures of development.

Keywords: Coir Industry; Modernization and Mechanization; Labour Displacement; Occupational Transformation; Alienation and Anomie; Human Development

1. INTRODUCTION

The coir industry occupies a distinctive position in Kerala's economic and social history (Padath, 2025). Since the establishment of export-oriented coir manufacturing in Alappuzha during the nineteenth century, the industry has evolved from a colonial enterprise into one of India's most important traditional industrial sectors (Pratheesh & Nair, 2022). For more than a century, coir production generated employment, sustained household economies, supported local entrepreneurship, and shaped the social life of coastal Kerala (Pratheesh, 2025). The industry became particularly significant in Alappuzha, where coir work extended beyond the factory and entered households, neighbourhood production networks, cooperative institutions, and community life (Pratheesh, 2021). By the mid-twentieth century, thousands of families depended directly or indirectly on coir production, while women constituted the backbone of the workforce in spinning, fibre preparation, and related occupations.

The post-Independence period witnessed a remarkable expansion of household-based and small-scale production. Former workers, small entrepreneurs, and cooperative societies established production units across coir-producing regions, particularly in Alappuzha and Cherthala (Padath et al., 2026). Ownership of a coir unit or loom increasingly became associated with economic security, social respectability, and occupational mobility. Coir work provided regular income to large sections of the rural population and contributed significantly to local economies. By the 1970s, the industry supported several lakh workers, nearly four-fifths of whom were women. Occupational knowledge, production skills, and workplace identities were transmitted across generations, creating a distinctive occupational community rooted in labour, family, and locality (Pratheesh, 2026).

From the 1970s onward, however, the industry entered a period of structural crisis. Rising labour costs, labour disputes, technological stagnation, competition from synthetic substitutes, and the emergence of mechanized production centres outside Kerala weakened the competitive position of traditional coir production (Pratheesh, 2026a). While neighbouring states, particularly Tamil Nadu, adopted mechanized technologies and expanded production, large sections of Kerala's coir sector remained dependent upon labour-intensive methods (Pratheesh & Florence, 2024). Fears of labour displacement contributed to resistance against mechanization, resulting in a delayed technological transition. By the time large-scale modernization gained momentum during the 1990s and early twenty-first century, Kerala had already lost a substantial share of production activities to competing regions Madhesh & Parvathi, 2025).

But modernization did not lead to the collapse of the industry. On the contrary, mechanization, product diversification, and technological upgrading contributed to increased productivity, export growth, and industrial survival. India remains the world's leading producer and exporter of coir products, and Kerala continues to occupy a prominent position within the sector (Pratheesh, 2025a). However, these achievements conceal a profound contradiction. While industrial performance improved, the employment-generating capacity of the industry declined significantly. Traditional spinning activities, fibre extraction, household production units, and several labour-intensive occupations experienced sharp contraction. Available studies estimate that more than one lakh traditional workers were displaced following mechanization and industrial restructuring, while household and small-scale production units declined dramatically. Women, who historically constituted the majority of the workforce, were disproportionately affected by this transformation.

Existing scholarship on the coir industry has largely focused on industrial development, labour organization, technological change, productivity, export performance, and policy interventions. These studies have generated valuable insights into the economic dimensions of industrial transformation. However, relatively little attention has been paid to the broader social consequences of modernization. The relationship between technological change, labour displacement, occupational identity, social integration, and human development remains insufficiently explored. The experience of the coir industry raises important questions regarding the social outcomes of modernization. Can productivity growth alone be treated

as development? What happens when technological advancement weakens the occupational communities upon which an industry was historically built? Why did modernization improve industrial competitiveness while simultaneously generating labour displacement, occupational decline, and social insecurity?

This article examines these questions through an interdisciplinary framework that brings together modernization theory, Marx's concept of alienation, Durkheim's theory of anomie, and moral economy perspectives. It argues that the history of Kerala's coir industry illustrates a paradox of modernization. Mechanization succeeded in improving productivity, competitiveness, and industrial survival, but its benefits were distributed unevenly across social groups. Labour displacement proceeded faster than labour reabsorption, traditional occupational knowledge lost value, small producers struggled to adapt, and long-standing forms of social solidarity weakened. Modernization therefore functioned as both an economic success and a social disruption. By locating technological change within the wider contexts of labour, community, and human development, the study seeks to contribute to contemporary debates on industrial transformation and the social limits of modernization in labour-intensive traditional industries.

2. THEORETICAL AND CONCEPTUAL FRAMEWORK

Modernization theory has long associated technological progress, industrial specialization, productivity growth, and market expansion with social development (Kraidy, 2012; Rostow, 1990; Parsons, 1964). The transition from traditional production to mechanized industry is generally viewed as a necessary stage in economic advancement. Within this framework, labour displaced by technological change is expected to be reabsorbed into new sectors created by industrial growth. Development is therefore assumed to accompany modernization. The experience of Kerala's coir industry provides an opportunity to critically examine these assumptions. Although mechanization improved productivity, product diversification, and export competitiveness, its social consequences reveal outcomes that are not adequately explained by modernization theory alone.

2.1. Alienation and Occupational Transformation

Marx's concept of alienation offers a framework for understanding how technological restructuring transforms the labour process (Marx, 1978; 1867/1976). Alienation

emerges when workers become separated from the products they create, the labour process they perform, fellow workers, and their own creative capacities (Shantz et al., 2012). In the coir industry, mechanization fragmented production, reduced the significance of traditional skills, weakened occupational knowledge, and transformed workers from knowledgeable producers into specialized labourers (Pratheesh et al., 2024). Alienation therefore helps explain the erosion of occupational identity accompanying industrial modernization.

2.2. Anomie and Social Dislocation

Durkheim's concept of anomie directs attention to the social consequences of rapid structural change (Durkheim, 1893/1984; 1897/1951). Traditional coir production was embedded within occupational communities sustained by family labour, neighbourhood networks, cooperative institutions, and trade unions (Ajeesh & Pratheesh, 2025). The decline of these structures weakened established forms of social integration and collective identity (Pratheesh & Reema, 2024). Anomie therefore provides a framework for understanding how labour displacement and occupational decline contributed to social dislocation and insecurity within coir-producing communities.

2.3. Moral Economy and Human Development

The concept of moral economy extends the analysis beyond employment and production. Polanyi (1944) argued that economic activities are embedded within social relationships rather than operating independently of them. Thompson (1971) similarly emphasized that economic life is shaped by shared expectations, obligations, and norms. Coir production historically functioned through household enterprises, women's labour networks, reciprocal work relations, and community-based production systems (Padath, 2025). The decline of these arrangements demonstrates that the consequences of modernization cannot be evaluated solely through productivity or export growth (Pratheesh. 2026b). Questions of dignity, social inclusion, occupational security, and community stability are equally important. This study integrates these perspectives into a single analytical framework. Modernization theory explains the expansion of mechanization and productivity. Alienation explains the transformation of the labour process and occupational identity. Anomie explains the weakening of social integration and

occupational solidarity. Moral economy highlights the erosion of embedded social relationships and the limits of development measured solely through economic indicators. Together, these perspectives allow modernization to be examined not only as a process of technological change but also as a transformation of labour, community, and human well-being.

3. SOURCES, METHOD AND ANALYTICAL PATH

This study examines the transformation of Kerala's coir industry from the expansion of household-based production during the post-Independence period to the consolidation of mechanized production in the early twenty-first century. The analysis is situated within the wider historical trajectory of the industry, beginning with the emergence of export-oriented coir manufacturing in Alappuzha during the nineteenth century and extending to contemporary developments up to 2025. The study focuses particularly on the relationship between technological modernization, labour displacement, occupational change, and human development. The research adopts a qualitative historical-sociological approach based on the triangulation of archival, documentary, statistical, and secondary sources. Primary materials include Coir Board reports, Government of Kerala publications, Economic Reviews, Labour Department records, Planning Board documents, census materials, cooperative sector reports, and industry surveys. These are supplemented by doctoral theses, scholarly studies on labour and industrial change, research reports of the Kerala Institute of Labour and Employment (KILE), and published works on the history of the coir industry, labour relations, and technological modernization in Kerala. Particular attention is given to workforce statistics, employment trends, mechanization patterns, production structures, export performance, and the changing position of women workers within the industry.

The available evidence indicates a significant restructuring of the industry during the last five decades. Studies estimate that the coir sector once supported between three and four lakh workers, nearly eighty percent of whom were women, while household production and small-scale units constituted the dominant mode of organization. Recent assessments indicate substantial labour displacement, the contraction of traditional occupations, and the decline of household-based production systems, even as exports, mechanization, and product diversification

expanded. The coexistence of industrial growth and labour decline forms the central empirical problem addressed in this study.

The article employs theoretical triangulation to interpret these developments. Modernization theory provides the first analytical lens. Classical theorists such as Lerner (1958), Rostow (1960), and Parsons (1964) associated technological progress, industrialization, and specialization with economic development and social advancement. The coir industry offers an opportunity to examine these assumptions in a labour-intensive traditional sector undergoing delayed modernization. However, modernization theory alone is insufficient for explaining the social consequences of industrial transformation. To analyse changes within the labour process, the study draws on Marx's concept of alienation (Marx, 1978; 1867/1976). The transition from household production to machine-centred production altered workers' relationships with the products they created, the labour process they performed, fellow workers engaged in collective production, and the occupational knowledge that historically defined their work. Alienation therefore provides an important framework for understanding the erosion of occupational identity accompanying mechanization.

The broader social implications of these transformations are examined through Durkheim's concept of anomie (Durkheim, 1893/1984; 1897/1951). The coir industry historically functioned as an occupational community sustained by family labour, neighbourhood production networks, cooperative institutions, and trade unions. The weakening of these structures raises important questions regarding social integration, collective identity, and community stability in the context of industrial restructuring. The study further employs moral economy perspectives associated with Polanyi (1944) and Thompson (1971). Coir production was embedded within social relationships extending beyond market exchange. Household enterprises, women's labour networks, reciprocal work arrangements, and community-based production systems linked economic activity with social life. The decline of these institutions suggests that the consequences of modernization cannot be measured solely through productivity, output, or export performance.

By combining these perspectives, the study moves beyond conventional economic assessments of modernization. It investigates not only how mechanization transformed production but also how it reshaped livelihoods, occupational identities, social relationships, and the broader conditions of human development. The central argument is that modernization strengthened the productive capacity

and competitiveness of Kerala's coir industry, yet its benefits were distributed unevenly across social groups. The resulting tensions between industrial growth and labour welfare provide the basis for examining labour displacement, occupational transformation, and the moral crisis of development in Kerala's coir industry.

4. HISTORICAL CONTEXT: COIR INDUSTRY AND THE MAKING OF AN OCCUPATIONAL COMMUNITY

The emergence of the coir industry transformed Alappuzha from a coastal trading settlement into one of the most important industrial centres in South India. Although coir production existed in Kerala long before industrialization, it remained largely a domestic and localized activity associated with coconut-growing regions. The establishment of export-oriented coir manufacturing during the nineteenth century altered both the scale and organization of production. The founding of the Darragh Smail factory in Alappuzha in 1859 marked a turning point in the commercial history of the industry. European firms integrated local coir production into global markets, creating a sustained demand for fibre, yarn, mats, and matting. By the late nineteenth century, Alappuzha had emerged as the principal centre of coir exports and acquired an international reputation as a major coir-producing region (Rammohan, 1999; George, 1975).

Industrial expansion generated a large demand for labour. Unlike plantation industries that relied on migrant workers, the coir industry drew its workforce primarily from local communities residing in coastal regions of Alappuzha and neighbouring areas. Fibre extraction, spinning, weaving, bleaching, dyeing, and mat production gradually evolved into specialized occupations. The growth of production stimulated the emergence of an occupational community whose economic life was closely linked to coir work. Employment was not confined to factories. Production increasingly extended into households, village-level workshops, and neighbourhood-based production systems, creating extensive linkages between industrial activity and everyday social life.

The social composition of the workforce reflected the historical structure of Kerala society. Large sections of the labour force originated from communities traditionally associated with coconut cultivation, fibre processing, and manual occupations. Coir work offered one of the few avenues of wage employment available to economically marginalized groups during the late nineteenth and early

twentieth centuries. Industrial expansion therefore generated new opportunities for income generation while simultaneously reinforcing the concentration of particular communities within coir-related occupations. Over time, occupational identity became deeply intertwined with local social structures and patterns of community life.

Women occupied a central position within this emerging industrial order. From the early stages of industrial development, spinning and fibre-related activities depended overwhelmingly upon female labour. Coir spinning required skill, patience, and experience rather than substantial capital investment, allowing women to participate in production from both factory and household settings. As the industry expanded, women became the dominant segment of the workforce. Their earnings contributed significantly to household survival, while coir work provided one of the few forms of regular employment available to rural women in coastal Kerala. The industry's growth therefore depended not merely on labour availability but specifically on the extensive participation of women workers.

The expansion of coir production during the first half of the twentieth century strengthened the integration of work and community. Occupational skills were transmitted within families and local neighbourhoods. Knowledge relating to fibre preparation, spinning techniques, yarn quality, weaving practices, and production management was acquired through participation rather than formal training. Children entered production environments at an early age, while occupational knowledge circulated through everyday interaction. The industry thus functioned not only as an economic institution but also as a mechanism for the reproduction of skills, identities, and social relationships across generations.

The post-Independence period witnessed a significant restructuring of the industry. The departure of European firms and changes in ownership patterns created opportunities for local entrepreneurs, cooperative organizations, and small producers. Household-based production expanded rapidly, particularly in Alappuzha and Cherthala. Thousands of small units emerged, often operating with a limited number of looms and relying upon family labour. Ownership of a coir unit increasingly became associated with economic independence and local status. Access to institutional credit, cooperative support, and established markets enabled many families to participate directly in production. By the 1960s and 1970s, coir production had become one of the most important sources of employment in the region.

The growth of household and small-scale production contributed to the formation of a distinct occupational culture. Coir work structured daily routines, shaped social interactions, and influenced local patterns of consumption and mobility. Occupational identity extended beyond the workplace and became embedded within family and community life. In many coir-producing regions, employment in the industry provided not only income but also social recognition. Ownership of looms, participation in production, and association with the coir trade were frequently regarded as indicators of economic stability. The industry therefore played an important role in shaping aspirations, family strategies, and local perceptions of social status.

Trade unions emerged as another significant component of this occupational world. From the early twentieth century, labour mobilization became a defining feature of the coir industry. Workers organized around issues of wages, working conditions, employment security, and labour rights. The growth of trade unionism contributed to the development of collective identities that extended beyond individual workplaces. Labour struggles helped secure improvements in wages and welfare while strengthening solidarity among workers. Coir-producing regions consequently became important centres of labour politics and working-class organization in Kerala. The industry played a significant role in the formation of the state's broader labour movement and political culture.

By the 1970s, the coir industry had reached its peak as a labour-intensive production system. Estimates suggest that the sector supported between three and four lakh workers, nearly eighty percent of whom were women. Production was organized through an extensive network of factories, cooperatives, household units, and small enterprises. The industry generated employment on a scale unmatched by most traditional sectors in Kerala. Coir work sustained household economies, supported local markets, and provided livelihoods to entire communities. The occupational community that emerged around coir production represented one of the most extensive labour formations in the state's industrial history.

Yet the very characteristics that enabled the industry's expansion also created vulnerabilities. Dependence on labour-intensive methods, the predominance of traditional technologies, increasing production costs, and growing competition from mechanized centres elsewhere gradually exposed structural weaknesses within the sector. By the late twentieth century, pressures for technological modernization

began to intensify. The occupational community that had developed around labour-intensive production now faced the prospect of industrial transformation. The significance of this transition extended beyond questions of productivity and competitiveness. It threatened forms of employment, systems of knowledge, and social relationships that had evolved over more than a century of industrial development.

The history of the coir industry therefore cannot be understood solely through production statistics or export performance. It was also the history of an occupational community shaped by labour, family, gender, skill, and collective organization. The formation of this community created the social foundations upon which the industry operated. Understanding its emergence is essential for explaining the consequences that followed when mechanization and industrial restructuring began to alter the established relationship between work, livelihood, and community in Kerala's coir-producing regions.

5. MECHANIZATION AND THE TRANSFORMATION OF LABOUR

By the 1970s, the coir industry had become one of Kerala's largest labour-intensive industries, supporting between three and four lakh workers through a vast network of factories, cooperatives, household units, and small-scale enterprises. The industry was built upon manual spinning, labour-intensive fibre extraction, traditional looms, and household production systems. While this structure generated extensive employment, it increasingly struggled to respond to changing market conditions. Rising wage costs, labour shortages, raw material constraints, competition from synthetic substitutes, and growing demand for standardized products exposed the limitations of traditional production methods. Mechanization emerged not as a strategy of expansion but as a response to an accumulating structural crisis within the industry (Thomas Isaac, 1986; Rammohan, 1999).

The debate over mechanization quickly became one of the most contentious issues in the history of Kerala's coir industry. From the early 1970s onward, labour unions, cooperative societies, and large sections of the workforce opposed technological change on the grounds that it would reduce employment and undermine traditional livelihoods. Labour resistance shifted from demands relating to wages, bonuses, pensions, and work orders to the protection of traditional occupations and household production systems. Official strike records indicate that mechanization became a

central cause of industrial disputes after 1970 and remained so for several decades. Between 1980 and 1990 alone, more than 30 percent of total strike days in the industry were associated with issues linked to mechanization, labour displacement, and industrial restructuring. Similar disputes continued throughout the 1990s and 2000s as modernization expanded into new segments of production.

The conflict over mechanization extended far beyond workplace negotiations. Legal disputes, political interventions, government commissions, and prolonged consultations delayed technological adaptation for nearly two decades. Court proceedings relating to mechanization began in 1971 and reached a final settlement only in 1989 after successive commissions examined its implications for employment and industrial development. During these years, modernization remained stalled despite increasing evidence that traditional production methods could no longer sustain the industry's competitiveness. The delay proved historically significant because competing coir-producing regions were simultaneously investing in mechanized production systems and expanding their market presence.

While Kerala debated mechanization, neighbouring states rapidly adopted it. Tamil Nadu, particularly the Pollachi region, mechanized fibre extraction and yarn spinning without facing comparable levels of labour resistance. Mechanized production dramatically increased productivity and reduced production costs. Studies of the sector indicate that mechanized spinning generated several times the output achieved through traditional methods while requiring substantially fewer workers. Exporters increasingly sourced fibre and spun yarn from mechanized units outside Kerala, and many producers gradually shifted sections of their operations to neighbouring states. Production networks that had historically centred on Alappuzha became increasingly dispersed across southern India. What began as a technological lag gradually evolved into a structural loss of industrial advantage.

The acceptance of modernization after the economic reforms of the 1990s altered the trajectory of the industry. Liberalization policies, mechanization programmes, technological subsidies, modernization schemes, and investment incentives accelerated the adoption of machine-based production. Mechanized defibering units replaced traditional fibre extraction, motorized spinning reduced dependence on hand-spun yarn, and automated technologies expanded into weaving, curling, matting, and value-added production. By the 2020s, approximately 41.7 percent of the industry had become fully mechanized, while only 19 percent remained

entirely traditional. The remainder functioned through mixed production systems combining manual and mechanized operations. Modernization strengthened productivity, improved product quality, supported diversification, and enabled the industry to retain its position within domestic and international markets.

The gains from modernization, however, were unevenly distributed. Occupations that historically absorbed large numbers of workers experienced severe contraction. Employment in dehusking declined from approximately 25,000 workers in 1970 to fewer than 200 by 2025. Fibre extraction employment fell from nearly 40,000 workers to fewer than 1,000 during the same period. Household spinning units and small-scale production centres recorded declines exceeding ninety percent. The total coir workforce in Alappuzha fell from 164,650 workers in 1990 to around 31,180 workers by 2020, while the number of operating units declined from 8,148 to about 260. Labour displacement therefore occurred on a scale unprecedented in the history of the industry.

The central problem was not simply job loss but the limited capacity of the industry to absorb displaced workers into emerging production systems. Classical modernization theory assumes that workers displaced by technological change eventually find employment within new sectors created by industrial growth. The coir industry provides little evidence for such a transition. Machine-centred production required technical competence, capital investment, and specialized operational skills that many traditional workers did not possess. Older workers found adaptation difficult, while younger generations increasingly viewed coir work as insecure and economically unattractive. As a result, labour displacement proceeded far more rapidly than labour reabsorption.

The consequences extended beyond employment statistics. Traditional production had linked labour, skill, family participation, and community life within a relatively integrated occupational structure. Mechanization reorganized production around machines, capital, technical specialization, and market efficiency. Household production declined, inherited occupational knowledge lost economic value, and long-established pathways of skill transmission weakened. The industry survived and even expanded its productive capacity, yet the occupational community upon which that industry had historically depended began to fragment.

The history of mechanization in Kerala's coir industry therefore presents a fundamental paradox. Technological modernization succeeded in preserving

industrial competitiveness and sustaining export growth, but it simultaneously reduced the industry's capacity to function as a source of mass employment. Industrial survival and labour welfare followed different trajectories. Productivity increased, yet employment contracted. Output expanded, yet occupational continuity weakened. Modernization solved the crisis of production but generated a crisis of labour. The consequences of this transformation become clearer when attention shifts from employment loss to the changing relationship between workers, work, and occupational identity.

6. ALIENATION AND THE EROSION OF OCCUPATIONAL IDENTITY

The transformation of Kerala's coir industry altered not only employment patterns but also the relationship between workers and their labour. Traditional coir production was organized around a relatively integrated production system in which workers participated in multiple stages of manufacture. Fibre extraction, retting, spinning, weaving, mat production, finishing, and marketing were interconnected activities often performed within the same occupational environment. Workers acquired practical knowledge through participation and experience rather than formal training. Most workers possessed at least a basic understanding of the complete production cycle and could identify their contribution within the finished product. Labour therefore functioned not merely as a source of income but also as a repository of skill, experience, and occupational identity (Isaac, 1986; Rammohan, 1999).

Mechanization fundamentally altered this relationship. The introduction of defibering machines, automatic spinning units, mechanized looms, and automated production systems reorganized work around technical specialization and machine-centred production. Activities that had previously formed part of a continuous occupational process became separated into distinct functions performed by different workers and often at different locations. Production was increasingly organized through specialized units dealing exclusively with fibre extraction, yarn production, weaving, processing, or export-oriented manufacturing. The worker no longer participated in the complete production cycle but became responsible for a limited segment of an increasingly fragmented system.

This transformation represents the first dimension of alienation identified by Marx: alienation from the product of labour. Under traditional production

arrangements, workers could directly associate their labour with the finished commodity. A spinner could see yarn transformed into mats, matting, ropes, or other coir products. Household producers and small entrepreneurs often controlled several stages of production and maintained a visible connection with the final output. Mechanized production weakened this relationship. Workers increasingly contributed only a single operation within a larger industrial chain. The finished commodity entered distant markets through exporters, corporations, and distribution networks over which workers exercised no control. The product appeared increasingly as the outcome of machines, capital, and industrial organization rather than human labour.

The second form of alienation emerged through changes in the labour process itself. Traditional coir production involved skill, judgement, and occupational autonomy. Fibre quality, spinning techniques, weaving patterns, and production decisions depended largely upon worker experience. Mechanization shifted control over production from workers to machines, technical systems, and managerial supervision. The pace of work, quality standards, and production targets became increasingly determined by technological requirements. Labour was reduced to operating, feeding, monitoring, or servicing machines. What had previously been a skill-oriented activity became a task-oriented process governed by external controls. The worker's role gradually shifted from producer to machine operator. Marx described this condition as alienation from the labour process, where workers lose meaningful control over the activity through which they earn their livelihood (Marx, 1844/1978).

A more significant consequence was the destruction of holistic occupational knowledge. In the traditional industry, workers possessed a comprehensive understanding of coir production from husk retting to the manufacture of value-added products. Skills were transmitted across generations through family participation, neighbourhood interaction, and workplace learning. Modern division of labour gradually fragmented this knowledge structure. Specialized machine operators required competence in a specific task rather than familiarity with the entire production process. Indigenous technical knowledge accumulated over generations ceased to possess the economic value it once held. Younger workers increasingly entered production without learning the wider occupational culture that had historically defined coir work. The decline of holistic knowledge

transformed workers from skilled producers into specialized functionaries within a mechanized production system. This process lies at the centre of labour alienation in the contemporary coir industry.

The third dimension of alienation involved the weakening of relationships among workers themselves. Traditional production was embedded within neighbourhood networks, family enterprises, cooperative work arrangements, and shared occupational communities. Workers interacted continuously through common production activities and collective labour processes. Mechanization reorganized production around specialized functions, technical hierarchies, and differentiated skill categories. Fibre producers, machine operators, technicians, loom workers, exporters, and supervisors increasingly occupied separate positions within the production structure. Occupational experiences became fragmented and common forms of labour gradually weakened. The worker's relationship with fellow workers became increasingly mediated by technical specialization and organizational requirements rather than collective occupational life.

The fourth and deepest form of alienation concerned what Marx described as alienation from species-being or human potential. Work historically provided coir workers with opportunities for creativity, skill development, self-respect, and social recognition. Ownership of a loom, operation of a household unit, mastery of spinning techniques, or participation in production carried social value within coir-producing communities. During the expansion of the industry between the late nineteenth century and the 1970s, coir work was widely recognized as a respectable occupation capable of supporting families and enabling upward mobility. Mechanization weakened many of these foundations. Traditional skills lost value, occupational autonomy declined, and opportunities for independent production contracted. Workers increasingly became dependent upon technical systems they neither owned nor controlled. Their capacity to shape work according to experience and judgement diminished substantially.

The erosion of occupational identity followed directly from these transformations. For generations, coir work represented more than employment. It provided social recognition, collective belonging, economic security, and a sense of continuity across generations. The decline of household production, abandonment of small-scale units, disappearance of traditional skills, and fragmentation of labour gradually undermined these foundations. Younger generations increasingly

abandoned the occupation, while older workers found their accumulated knowledge losing relevance within mechanized production systems. Occupational continuity weakened as employment ceased to function as a stable source of identity and social esteem.

The consequences of modernization therefore extended beyond labour displacement. Mechanization transformed the character of work itself and altered how workers understood their relationship with production, community, and themselves. The erosion of occupational identity weakened the social bonds through which workers understood themselves as members of a shared occupational community. As traditional forms of collective work declined, the social foundations of occupational solidarity also weakened, creating conditions that extended beyond alienation and increasingly resembled what Durkheim described as anomie. The transition from a labour-intensive occupational community to a mechanized production system therefore produced not only economic restructuring but also a profound transformation in the moral and social world of coir workers.

7. LABOUR DISPLACEMENT AND THE LIMITS OF REABSORPTION

The erosion of occupational identity described in the previous section was accompanied by a more visible transformation: the gradual displacement of labour from the production process. While alienation altered the worker's relationship with labour, mechanization simultaneously altered the industry's demand for labour itself. The two developments were interconnected. As production became increasingly machine-centred, the requirement for large numbers of workers engaged in traditional activities steadily declined. Labour displacement therefore emerged not as an accidental consequence of modernization but as one of its structural outcomes.

The displacement process unfolded unevenly across different segments of the industry. The earliest and most severe effects were experienced in husk retting and fibre extraction. For generations these activities had provided employment to thousands of workers in the backwater regions of Alappuzha. The spread of mechanized defibering technologies reduced dependence on labour-intensive retting methods and sharply curtailed employment in these sectors. Similar changes followed in spinning and weaving. Traditional hand-spinning, which had constituted one of the largest sources of female employment in coastal Kerala, gradually lost its central

position as motorized and automatic spinning systems expanded. Mechanized looms further reduced the labour requirements of mat and matting production. The cumulative result was a steady contraction of employment opportunities in activities that had historically sustained the occupational community.

Labour displacement was intensified by the decline of household and small-scale production units. For much of the twentieth century, the coir economy operated through an extensive network of domestic producers, small workshops, cooperative units, and family enterprises. These units absorbed large numbers of workers because production remained labour intensive and relatively decentralized. Mechanization altered this balance. Productivity increasingly depended on capital investment, access to technology, and economies of scale. Many small producers lacked the financial resources necessary to modernize their operations and gradually disappeared from the production structure. The closure of these units eliminated an important source of employment and accelerated the concentration of production within larger mechanized establishments.

The displacement of labour was also shaped by changes in the geography of production. The delayed adoption of mechanization in Kerala enabled neighbouring states, particularly Tamil Nadu, to capture important segments of the coir economy. Fibre extraction and yarn production increasingly shifted away from Alappuzha, while many Kerala-based manufacturers became dependent upon raw materials produced elsewhere. This geographical relocation of production generated a second layer of displacement because employment opportunities disappeared not only through mechanization but also through the physical transfer of productive activities outside the traditional coir regions.

Conventional modernization theory interprets such developments as transitional disruptions rather than permanent problems. According to this perspective, technological change initially displaces workers but subsequently generates new forms of employment through industrial expansion, diversification, and economic growth. Labour released from traditional sectors is expected to be absorbed by emerging sectors of the economy. Rising productivity, increasing investment, and expanding markets are presumed to create alternative employment opportunities capable of compensating for the losses generated by mechanization. The experience of the coir industry only partially conforms to this expectation. Modernization undoubtedly achieved several of its stated objectives. Productivity increased.

Product diversification expanded. Export earnings reached unprecedented levels. New technologies improved production efficiency and enabled the industry to remain competitive within international markets. From the perspective of industrial performance, modernization can therefore be regarded as a relative success. Yet the employment consequences reveal a more complicated reality.

The assumption that displaced labour would be automatically reabsorbed proved considerably weaker in practice. Modernized production required a different labour profile from that of the traditional industry. The new production environment demanded technical skills, machine-handling capabilities, formal training, and adaptation to specialized work processes. Many displaced workers possessed extensive occupational experience but lacked the specific skills required by mechanized units. Their knowledge had been developed within a labour-intensive production system and could not always be transferred into the new technological environment. As a result, the movement from traditional employment to modern employment was neither automatic nor universal.

Gender further complicated this transition. Women constituted the overwhelming majority of workers in spinning and several household-based production activities. These were precisely the sectors most vulnerable to mechanization and restructuring. Although some women adapted successfully to new technologies, many others found themselves excluded from emerging employment opportunities. The decline of household production reduced the possibility of combining wage earning with domestic responsibilities, thereby affecting women's participation in the industry more severely than men's. Labour displacement consequently assumed a distinctly gendered character.

The coir industry's experience therefore raises important questions regarding the validity of the Automatic Reabsorption Theory. The theory assumes that labour released from declining sectors will eventually find productive employment elsewhere through market adjustment. However, successful reabsorption depends upon several conditions: the availability of alternative employment, access to retraining, mobility across occupations, and the capacity of expanding sectors to absorb displaced workers. In Alappuzha, these conditions remained only partially fulfilled. New employment opportunities emerged, but not at a scale sufficient to absorb the labour released from traditional production. Retraining programmes remained limited in scope. Many older workers found adaptation difficult, while younger workers increasingly abandoned the occupation altogether.

The result was a paradox that lies at the centre of the coir industry's modern transformation. Industrial performance improved while employment security weakened. Export growth coexisted with occupational decline. Technological progress generated productivity gains but failed to ensure equivalent social gains. The modernization process succeeded in preserving the industry as an economic institution but was less successful in preserving the occupational community upon which that industry had historically depended. From a theoretical perspective, the evidence suggests that neither technological optimism nor technological pessimism adequately explains the coir experience. Modernization theory correctly anticipated improvements in productivity, efficiency, and competitiveness. Marx's analysis correctly anticipated labour displacement, alienation, and the concentration of control over production. But neither framework fully captures the social consequences that emerged within the coir-producing communities of Alappuzha. The industry evolved into a situation where economic growth and social dislocation advanced simultaneously.

The significance of this contradiction extends beyond the coir industry itself. It points to a broader limitation within development strategies that evaluate success primarily through production, investment, and export indicators. Economic modernization may preserve industries, expand markets, and increase productivity while simultaneously weakening the social institutions, occupational identities, and community relationships that historically sustained those industries. The coir industry thus demonstrates that industrial survival and human development do not necessarily proceed at the same pace or in the same direction. It is at this point that the problem transcends labour displacement alone and enters the realm of moral and social disorder. When traditional norms governing work, community, status, and occupational identity weaken more rapidly than new forms of integration emerge, workers experience not merely economic insecurity but a broader crisis of social meaning. This condition is best understood through Durkheim's concept of anomie, which provides a framework for analysing the wider moral consequences of modernization in the coir-producing communities of Kerala.

8. ANOMIE, SOCIAL DISLOCATION AND THE MORAL CRISIS OF MODERNIZATION

The displacement of labour altered more than the economic structure of the coir industry. It weakened the institutional and social arrangements that had historically

connected work, family, and community. For more than a century, coir production provided a relatively stable framework within which workers organized their lives. Employment was linked to neighbourhood production networks, cooperative societies, trade unions, and household enterprises. These institutions offered not only livelihoods but also predictable social roles and collective identities. As mechanization reduced the importance of labour-intensive production, many of these relationships weakened simultaneously. The resulting uncertainty extended beyond employment and entered the sphere of social life.

Durkheim used the concept of anomie to describe situations in which established norms lose their capacity to regulate social behaviour and provide collective direction. The experience of Kerala's coir industry reveals several features associated with such conditions. The occupational community that emerged around coir production during the twentieth century depended upon continuity. Skills, employment, social status, and community membership were closely interconnected. Industrial restructuring disrupted these connections. Traditional occupations disappeared, household production contracted, and established pathways linking work to social mobility became increasingly uncertain. Workers were often compelled to navigate new economic conditions without the institutional supports that had previously structured occupational life.

One visible consequence was the weakening of intergenerational continuity. During the period of industrial expansion, occupational knowledge moved from one generation to another through family participation and everyday work practices. Entry into the industry required little formal training because skills were acquired within households and local production networks. This pattern changed significantly after mechanization. Younger generations increasingly viewed coir work as economically insecure, physically demanding, and socially unattractive. Employment opportunities became less predictable, while alternative occupations emerged in construction, services, migration, and informal urban sectors. As a result, younger workers gradually withdrew from the industry, weakening the mechanisms through which occupational communities reproduced themselves.

The ageing profile of the workforce reflects this transition. Studies of the coir sector consistently indicate the growing concentration of older workers within traditional segments of production. Many remained in the industry not because of expanding opportunities but because alternative employment options were limited.

Younger workers exited while older workers remained. This demographic imbalance reduced the long-term sustainability of traditional occupations and accelerated the decline of inherited skills. Occupational communities increasingly lacked successors capable of sustaining established production practices. The weakening of generational renewal contributed directly to the erosion of collective occupational identity.

The effects of industrial restructuring were equally visible among small producers and household enterprises. During the decades of expansion, ownership of a loom or a small production unit represented economic independence and social respectability. Household production enabled families to combine labour, entrepreneurship, and local market participation. Mechanization altered the economic foundations of this arrangement. Modern production required capital investment, technological adaptation, and access to larger markets. Many small producers lacked these resources and struggled to remain competitive. The decline in the number of operating units was therefore not simply a statistical reduction in enterprises but a contraction of the social base upon which the occupational community had historically depended.

The concentration of production further intensified these pressures. As larger mechanized establishments expanded their role within the industry, control over production increasingly shifted away from small producers and local enterprises. The social relations that had connected workers, producers, and communities became more distant and impersonal. Earlier production systems relied upon regular interaction among workers, suppliers, household producers, and local entrepreneurs. Mechanized production increasingly organized these relationships through markets, contracts, and specialized production networks. Economic activity continued, but its social foundations became less visible.

Trade unions also confronted a changing environment. Historically, unions functioned not only as institutions of collective bargaining but also as centres of social organization and worker solidarity. Industrial restructuring reduced their influence within several segments of production. Labour displacement, fragmentation of work, and the decline of traditional occupations weakened the social cohesion that had previously supported collective action. The issue was not the disappearance of unions but the transformation of the social conditions upon which union strength had depended. Occupational fragmentation made it increasingly difficult to sustain the forms of collective identity that characterized the earlier labour movement.

These developments generated a growing sense of insecurity among workers and producers. The traditional industry had provided relatively clear expectations regarding employment, occupational advancement, and social recognition. Mechanization altered these expectations without creating equally stable alternatives. Workers faced uncertainty regarding employment prospects, income stability, and occupational relevance. Small producers confronted rising costs, technological pressures, and declining competitiveness. Many households experienced the gradual disappearance of economic activities that had supported family livelihoods for generations. The resulting insecurity was not merely economic; it reflected the weakening of established frameworks through which individuals understood their social position.

The significance of these changes lies in their cumulative impact. No single development produced anomic conditions. Rather, they emerged through the interaction of labour displacement, occupational decline, demographic change, weakening community networks, and the contraction of small-scale enterprise. Modernization increased productivity and improved industrial competitiveness, yet it simultaneously disrupted many of the social institutions that had historically provided integration and stability. Economic transformation therefore generated consequences that extended beyond the workplace and into the wider social fabric of coir-producing regions.

The coir industry's experience demonstrates that industrial modernization cannot be evaluated solely through production, exports, or technological efficiency. Such indicators capture important dimensions of economic performance but reveal little about the capacity of communities to adapt to structural change. The persistence of insecurity, occupational decline, and social fragmentation suggests that modernization did not create a corresponding framework of social integration. Development occurred, but its social foundations remained uneven. It is within this gap between economic advancement and social well-being that the moral crisis of modernization becomes visible. The consequences of this crisis were not experienced uniformly across the workforce. Women, who constituted the majority of workers in traditional production, encountered many of these disruptions in particularly intense forms. Their experience reveals how modernization reshaped labour markets through existing structures of gender inequality, making the social costs of industrial transformation disproportionately borne by women workers.

9. GENDER, LABOUR AND UNEVEN MODERNIZATION

Women constituted the productive foundation of Kerala's coir industry throughout the twentieth century. Most studies estimate that women accounted for between 75 and 80 percent of the workforce, while spinning, fibre preparation, yarn production, and several household-based activities were overwhelmingly dependent upon female labour. At its peak, the industry supported between three and four lakh workers across Kerala, and women formed the majority within almost every labour-intensive segment of production. In Alappuzha, where coir production was concentrated, female earnings constituted an important component of household income and often sustained families with limited access to alternative employment opportunities. The growth of the industry therefore depended not simply upon labour availability but upon a gendered division of work in which women occupied the core productive roles.

The consequences of modernization reflected this occupational structure. Technological intervention was concentrated in precisely those sectors where female employment was highest. Hand spinning, fibre extraction, and household production experienced the earliest and most extensive forms of mechanization. Available estimates indicate that employment in traditional dehusking declined from nearly 25,000 workers in 1970 to fewer than 200 by 2025, while fibre extraction employment fell from approximately 40,000 workers to below 1,000 during the same period. Household-based production, one of the most important sources of women's employment, experienced a decline exceeding 90 percent. Small-scale production units that had historically absorbed large numbers of female workers also recorded a comparable contraction. These changes reveal that labour displacement was not socially neutral. The burden fell disproportionately upon occupations dominated by women.

The broader restructuring of the workforce confirms this pattern. In Alappuzha, the total coir workforce declined from approximately 164,650 workers in 1990 to about 31,180 by 2020, representing a reduction of more than four-fifths of the labour force. Simultaneously, the number of operating units declined from 8,148 to around 260. Since women constituted the largest segment of workers within traditional production systems, they absorbed a substantial share of this contraction. The displacement of labour therefore occurred not only on a large scale but also through a process of gender concentration in declining occupations. Mechanization

reduced demand most sharply in the very activities through which women had historically entered and remained within the industry.

The exclusion of women from emerging opportunities further intensified this imbalance. Modernized production increasingly relied on machine operation, technical supervision, equipment maintenance, and specialized production processes. These activities required training, technological familiarity, and access to mechanized workplaces. However, many women workers had acquired their skills within household production systems rather than through formal technical education. Their occupational experience remained extensive but was rooted in labour-intensive production methods. The transition from traditional production to mechanized production therefore created a mismatch between existing skills and emerging labour requirements. Labour displacement consequently proceeded faster than occupational adaptation.

The effects of modernization extended beyond employment numbers because women also functioned as the principal custodians of occupational knowledge. Traditional coir production depended upon skills transmitted through families and neighbourhood production networks. Spinning techniques, fibre preparation methods, yarn quality assessment, and production practices were largely acquired through participation rather than formal instruction. This process of intergenerational knowledge transfer was sustained primarily by women. The decline of household production and manual spinning weakened these systems of transmission. Mechanization therefore displaced not only labour but also a substantial body of indigenous occupational knowledge accumulated over generations. The loss was simultaneously economic, cultural, and social.

Existing studies also indicate that women continued to experience disadvantages within the reorganized industry. Wage disparities, delayed wage payments, irregular employment, and limited access to social security remained recurring concerns among workers. Occupational health studies report widespread exposure to dust-related respiratory problems, musculoskeletal disorders, and chronic physical strain among women engaged in traditional coir activities. Yet many remained concentrated in lower-paid and less secure segments of production even after modernization. The benefits generated by productivity growth, technological upgrading, and export expansion were therefore distributed unevenly across the workforce. Women contributed substantially to the historical development of the industry but derived only limited advantages from its technological transformation.

Demographic changes further reveal the uneven character of modernization. Younger women increasingly moved away from coir employment and entered alternative occupations, migration streams, service-sector work, or public employment programmes. Older workers remained concentrated within shrinking traditional sectors because opportunities for retraining and occupational mobility were limited. As a result, several studies identify an ageing workforce, declining recruitment, and weakening occupational continuity within traditional coir-producing regions. The industry thus experienced both labour displacement and generational withdrawal, reducing its capacity to reproduce the workforce upon which it had historically depended.

The cumulative outcome may be described as the feminization of vulnerability. Women remained strongly represented within the industry, but increasingly within its least secure segments. Employment became more irregular, occupational mobility remained constrained, and traditional forms of economic independence associated with household production declined. Productivity increased, exports expanded, and mechanization strengthened industrial competitiveness. Yet these gains coexisted with declining employment opportunities, weakened knowledge systems, and growing insecurity among large sections of the female workforce.

The experience of women in Kerala's coir industry demonstrates that modernization cannot be evaluated solely through production, export performance, or technological efficiency. Such indicators reveal important dimensions of industrial growth but obscure questions of access, participation, and distribution. The coir industry illustrates a broader contradiction of development: those who contributed most to the formation and expansion of an industry are not necessarily those who benefit most from its modernization. The gendered consequences of industrial transformation therefore provide one of the clearest examples of uneven modernization within Kerala's traditional industrial sector.

10. MODERNIZATION, MORAL ECONOMY AND HUMAN DEVELOPMENT

The experience of Kerala's coir industry reveals both the strengths and limitations of modernization as a development strategy. Classical modernization theory associates technological advancement, industrial specialization, productivity growth, and market expansion with economic and social progress. Measured against these

indicators, the coir industry experienced substantial transformation during the late twentieth and early twenty-first centuries. Mechanization expanded across major production processes, product diversification increased, new technologies improved productive efficiency, and export-oriented production strengthened the industry's position within domestic and international markets. Evidence from firm-level studies indicates a positive relationship between mechanization, production levels, labour productivity, and market expansion. The modernized sector demonstrated greater productive capacity than traditional production systems and contributed significantly to the survival of the industry under conditions of increasing competition.

Yet the social consequences of this transformation complicate the assumptions of classical modernization theory. The expansion of mechanized production was accompanied by a sustained contraction of labour-intensive occupations. Employment opportunities declined in spinning, fibre extraction, and household production even as productivity increased. The workforce in major coir-producing regions contracted sharply, while thousands of traditional workers exited the industry. Small-scale units disappeared, occupational continuity weakened, and younger generations increasingly abandoned coir work. These outcomes suggest that economic modernization and social advancement did not proceed simultaneously. Industrial growth occurred, but its benefits were distributed unevenly across occupational groups and social categories.

One of the central assumptions of modernization theory is that labour displaced by technological change will eventually be reabsorbed into expanding sectors of the economy. The coir industry's experience provides only limited support for this proposition. Mechanization generated new opportunities within machine-based production, but these opportunities required technical skills, training, capital investment, and organizational capacities that many traditional workers did not possess. Labour displacement therefore proceeded faster than labour reabsorption. Workers released from labour-intensive occupations often lacked the resources necessary to participate in the modernized sector. The transition was particularly difficult for older workers, women concentrated in traditional production, and small-scale producers dependent upon declining forms of enterprise. The result was a widening gap between industrial modernization and labour adjustment.

The concept of moral economy helps explain why the consequences of modernization extended beyond employment statistics. Historically, coir production was embedded within social institutions that connected economic activity to family life, community relations, and occupational identity. Household production units, neighbourhood labour networks, cooperative organizations, and trade unions formed the social infrastructure of the industry. These institutions distributed knowledge, provided employment, facilitated collective action, and sustained local economies. Their significance cannot be measured solely through output or productivity because they performed social functions that extended beyond production itself.

Mechanization altered these relationships. Production became increasingly dependent upon capital, technology, and specialized organizational structures. Household production declined, local networks weakened, and many small enterprises lost economic viability. Market efficiency improved, but the social embeddedness of production diminished. In Polanyi's terms, economic activity became progressively detached from the social arrangements through which it had historically operated. The transformation therefore represented more than a technical reorganization of production. It involved a restructuring of the relationship between economy and society.

The evidence examined in the preceding sections also confirms the continuing relevance of Marx's concept of alienation. Mechanization fragmented production, reduced the value of traditional skills, and narrowed workers' engagement with the production process. Labour became increasingly specialized and machine-centred. Workers lost control over significant aspects of production, while inherited occupational knowledge declined in economic importance. The erosion of occupational identity and the weakening of traditional skill systems were therefore not incidental consequences of modernization but structural outcomes of the reorganization of labour.

Durkheim's concept of anomie illuminates a different dimension of the same process. The decline of occupational communities weakened forms of social integration that had historically connected workers to collective institutions and shared norms. Labour displacement, demographic ageing, youth withdrawal, and the contraction of household production reduced the stability of traditional occupational structures. Economic transformation proceeded rapidly, but new forms of social integration emerged only partially. The resulting gap generated conditions

of uncertainty, insecurity, and social dislocation within many coir-producing communities.

The gendered experience of modernization further exposes the uneven distribution of developmental outcomes. Women constituted the majority of the traditional workforce and played a central role in the transmission of occupational knowledge. Yet they experienced disproportionate displacement from sectors most affected by mechanization. Their concentration within low-paid and insecure segments of production limited access to many of the benefits associated with industrial modernization. Productivity gains therefore coexisted with the marginalization of a substantial section of the workforce that had historically sustained the industry.

Taken together, these findings suggest that productivity alone cannot serve as an adequate measure of development. Mechanization improved industrial performance and contributed to economic growth, but development involves more than output, exports, and technological sophistication. Employment security, occupational dignity, social inclusion, knowledge preservation, and community stability are equally important dimensions of human well-being. An industry may become more productive while simultaneously becoming less capable of supporting the communities upon which it was historically built.

The coir industry therefore presents a paradox that lies at the centre of contemporary debates on development. Modernization preserved the industry but transformed its social foundations. It strengthened competitiveness but weakened occupational continuity. It generated economic gains while producing labour displacement and social dislocation. The evidence does not support a rejection of modernization, nor does it justify an uncritical celebration of technological progress. Instead, it demonstrates the need for a human-centred approach to development in which economic efficiency is balanced with social protection, labour adaptation, skill transition, and inclusive access to the benefits of technological change. The history of Kerala's coir industry ultimately demonstrates that the success of modernization cannot be evaluated solely by the survival of industries or the expansion of markets. It must also be judged by its capacity to sustain livelihoods, preserve human capabilities, and maintain the social relationships that give economic activity meaning. It is within this broader framework that the moral crisis of development in the coir industry becomes fully visible.

CONCLUSION

The experience of Kerala's coir industry reveals a contradiction that conventional modernization narratives struggle to explain. Technological modernization strengthened productivity, improved product diversification, expanded export competitiveness, and enabled the industry to survive under conditions of intensified interstate and global competition. Yet these achievements were accompanied by the contraction of labour-intensive occupations, the decline of household production, the weakening of small-scale enterprise, and the displacement of a workforce that had historically sustained the industry. The evidence suggests that modernization resolved the crisis of production but not the crisis of livelihood.

The findings challenge the assumption that technological progress automatically generates broad-based social advancement. Labour displacement proceeded more rapidly than labour reabsorption, while the benefits of modernization remained unevenly distributed across workers, producers, and regions. Women, who constituted the majority of the traditional workforce, experienced disproportionate exclusion from emerging mechanized segments. Small producers struggled to adapt to capital-intensive production systems, and long-established occupational knowledge lost much of its economic value. The transition therefore altered not only employment structures but also the social foundations upon which the industry had historically operated.

The study demonstrates that modernization in the coir sector cannot be understood solely through indicators of output, productivity, or export growth. Marx's concept of alienation helps explain the fragmentation of labour and the erosion of occupational identity. Durkheim's notion of anomie illuminates the weakening of social integration that accompanied occupational decline. Moral economy perspectives reveal how the displacement of embedded production systems disrupted relationships linking work, family, community, and local enterprise. Together, these perspectives show that economic transformation and human development followed different trajectories.

The central conclusion emerging from the study is that modernization preserved Kerala's coir industry while simultaneously weakening the occupational community that had enabled its growth. The coir experience therefore highlights the limits of development strategies that privilege technological efficiency without comparable investment in labour transition, skill adaptation, and social protection.

Industrial transformation becomes socially sustainable only when productivity gains are accompanied by measures that protect livelihoods, preserve human capabilities, and ensure equitable access to the benefits of economic change. In this sense, the coir industry offers a broader lesson for labour-intensive traditional industries confronting technological transformation in the contemporary world.

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