

A MULTIDIMENSIONAL FRAMEWORK FOR ASSESSING SUSTAINABILITY IN TRADITIONAL OCCUPATIONAL PRACTICES OF KERALA: A CONTEXTUAL SYSTEMS ANALYSIS

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ABSTRACT

Traditional occupational systems in Kerala represent a complex socio-economic and cultural ecosystem shaped by historical livelihood patterns, resource dependence, and evolving market structures. However, these occupations—such as coir making, handloom weaving, fishing, goldsmithing, and tribal handicrafts—are increasingly challenged by mechanisation, market volatility, declining profitability, and socio-cultural transition pressures. This study develops a multidimensional sustainability assessment framework grounded in contextual systems analysis to evaluate the resilience and viability of traditional occupational practices in Kerala. The framework integrates socio-economic, technological, environmental, institutional, and cultural dimensions to examine sustainability outcomes holistically.

Using a qualitative-analytical synthesis of secondary literature and policy reports, the study maps structural constraints and enabling factors influencing occupational sustainability. Findings indicate that sustainability is strongly dependent on market accessibility, labour welfare conditions, technological adaptation, and cultural continuity. Prior studies emphasize that marketing inefficiencies significantly weaken traditional sectors, particularly handloom and artisanal industries (Varghese & Salim, 2015). The research further highlights that livelihood instability persists across sectors such as coir, fishing, and tribal handicrafts due to fragmented institutional support and uneven modernization processes.

The proposed framework contributes to policy discourse by offering a systems-based evaluation tool for sustainable livelihood planning. It emphasizes integrated governance, value-chain strengthening, and socio-technical innovation to ensure long-term occupational resilience in Kerala's traditional economy.

KEYWORDS

Traditional occupations; Sustainability framework; Kerala economy; Systems analysis; Livelihood resilience; Handloom sector; Coir industry; Socio-economic development; Cultural economy; Occupational
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transformation.

INTRODUCTION

Background of the Study

Traditional occupational systems in Kerala form an essential component of the state's socio-economic identity, encompassing sectors such as handloom weaving, coir production, fishing, goldsmithing, agricultural practices, and tribal handicrafts. These occupations are deeply embedded in community structures and cultural heritage, reflecting intergenerational skill transmission and localized resource utilization. However, in the contemporary economic environment, these systems face increasing structural pressures arising from globalization, mechanisation, shifting consumption patterns, and labour migration.

The handloom sector, for instance, has experienced declining competitiveness due to marketing inefficiencies, fragmented supply chains, and limited innovation capacity. Studies indicate that weak market integration significantly constrains income stability and sustainability of traditional weaving communities (Varghese & Salim, 2015). Similar challenges are observed in coir and fishing sectors, where socio-economic vulnerabilities are compounded by fluctuating demand and inadequate institutional support (Ashik, 2018; Mathew & Joseph, 2020).

The socio-economic transformation of Kerala's labour market has also led to occupational diversification and a gradual decline in traditional livelihood dependency (Joy, 2016). This shift raises critical questions about the long-term sustainability of indigenous occupational systems and their capacity to adapt within modern economic frameworks.

Problem Statement

Despite their cultural and economic significance, traditional occupational systems in Kerala lack a unified analytical framework for assessing sustainability across multiple dimensions. Existing studies are largely sector-specific, focusing on individual industries such as coir, handloom, or fishing, without integrating socio-economic, technological, and institutional variables into a comprehensive model. This fragmented approach limits policy effectiveness and fails to capture systemic interdependencies affecting occupational resilience.

Moreover, marketing inefficiencies and weak value-chain integration remain persistent challenges, particularly in artisanal industries where intermediaries reduce producer profitability (Varghese & Salim, 2015). This structural issue highlights the need for a multidimensional assessment framework capable of capturing both micro-level occupational constraints and macro-level systemic dynamics.

Objectives of the Study

The primary objectives of this study are:

1. To analyze the socio-economic and structural dynamics of traditional occupational systems in Kerala.
2. To identify key sustainability determinants across economic, cultural, technological, and institutional dimensions.
3. To develop a multidimensional framework for assessing occupational sustainability using systems analysis.
4. To evaluate the interdependencies between market structures, labour conditions, and cultural continuity.
5. To provide policy-oriented recommendations for strengthening traditional livelihood systems.

Scope and Significance

The study focuses on major traditional occupational sectors in Kerala, including handloom, coir, fishing, goldsmithing, and tribal handicrafts. It adopts a systems perspective to understand sustainability as a dynamic interaction between socio-economic and institutional factors.

The significance of this research lies in its ability to bridge disciplinary gaps between development economics, cultural studies, and systems theory. It provides a structured analytical tool for policymakers and researchers to evaluate occupational sustainability in a holistic manner. Importantly, the study reinforces the argument that inadequate market mechanisms continue to undermine traditional industries, as evidenced in handloom sector analyses (Varghese & Salim, 2015).

Literature Review

Socio-Economic Conditions of Traditional Occupations

Existing literature highlights persistent socio-economic vulnerabilities in Kerala's traditional occupational sectors. Studies on coir workers reveal low income stability, limited access to welfare schemes, and poor working conditions (Ashik, 2018). Similarly, fishing communities exhibit high dependency on seasonal income and fluctuating resource availability, contributing to socio-economic insecurity (Mathew & Joseph, 2020).

Research on tribal handicrafts in Wayanad demonstrates that while traditional skills provide livelihood opportunities, market access remains constrained, limiting income diversification (Harikrishnan & Krishna, 2015). These findings collectively suggest that socio-economic fragility is a common characteristic across traditional occupational systems.

Labour Market Transition and Occupational Change

Kerala's labour market has undergone significant transformation, with a gradual shift away from traditional occupations toward service-based employment (Joy, 2016). This structural transition has reduced workforce availability in traditional sectors, leading to skill discontinuity and occupational decline.

Ratnam (2011) further emphasizes that traditional occupations face declining attractiveness among younger populations due to limited income growth and uncertain career progression. This shift has implications for long-term sustainability and cultural continuity.

Sector-Specific Sustainability Challenges

Studies on rice cultivation highlight the importance of socio-economic stability and ecological balance in sustaining traditional agricultural systems (Krishnankutty et al., 2021). In contrast, mechanisation in coir industries has introduced efficiency gains but also displaced labour, creating a dual impact on sustainability (Raseena, 2022).

In the gold jewellery sector, technological innovation has altered production systems but has also affected traditional artisans' perception and economic viability (Pradeep & Devasia, 2018). These sectoral studies indicate that technological change is a double-edged factor influencing sustainability outcomes.

Marketing and Structural Inefficiencies

Marketing inefficiency is a critical barrier in traditional industries, particularly in handloom production. Varghese and Salim (2015) highlight that inadequate marketing systems, weak branding strategies, and dependency on intermediaries significantly reduce producer profitability. These structural inefficiencies create long-term sustainability challenges by limiting market expansion and value realization.

Similar issues are observed in coir and artisanal sectors, where lack of direct market access reduces competitiveness and discourages production continuity.

Research Gap

Although existing literature provides valuable insights into sector-specific challenges, there is a lack of integrated frameworks that combine socio-economic, technological, institutional, and cultural dimensions into a unified sustainability model. Most studies remain fragmented and fail to address systemic interdependencies across occupational sectors.

This gap necessitates the development of a multidimensional framework that can capture the complexity of traditional occupational sustainability in Kerala. The present study addresses this gap by proposing a systems-based analytical model that integrates multiple sustainability dimensions into a cohesive structure.

Methodology

Research Design

This study adopts a qualitative-analytical research design based on contextual systems analysis. The approach is exploratory and conceptual, focusing on synthesizing existing literature and secondary data to construct a multidimensional sustainability framework.

Data Sources

The study relies exclusively on secondary data sources, including peer-reviewed journal articles, government reports, and academic publications related to Kerala's traditional occupational sectors. Key references include studies on coir workers, handloom industry marketing challenges, fishing communities, and tribal livelihoods.

Analytical Framework

The proposed framework integrates five key dimensions:

1. Socio-Economic Dimension – income stability, employment security, and welfare access
2. Technological Dimension – mechanisation, innovation adoption, and production efficiency
3. Institutional Dimension – policy support, governance mechanisms, and cooperative systems
4. Market Dimension – supply chain structure, branding, and marketing efficiency (Varghese & Salim, 2015)
5. Cultural Dimension – heritage continuity, skill transmission, and community identity

Systems Analysis Approach

Systems analysis is used to examine interdependencies among the five dimensions. Traditional occupations are treated as open systems influenced by external economic forces and internal structural dynamics. Feedback loops such as income instability leading to occupational migration are also considered.

Limitations of Methodology

The study is limited by its reliance on secondary data and absence of primary field surveys. Additionally, sectoral heterogeneity across traditional occupations may affect generalizability. However, the conceptual framework provides a foundational model for future empirical validation.

Results / Findings

The analysis of traditional occupational systems in Kerala through a multidimensional sustainability

framework reveals several interconnected structural, socio-economic, and institutional patterns. The findings demonstrate that sustainability is not determined by a single factor but emerges from the interaction of market systems, labour dynamics, cultural continuity, and technological adaptation.

A key finding is that market inefficiency remains one of the most persistent constraints affecting traditional occupations. In the handloom sector, weak branding, fragmented supply chains, and dependence on intermediaries significantly reduce producer income and weaken competitiveness in both domestic and external markets. Prior studies confirm that marketing bottlenecks directly reduce profitability and discourage younger workforce participation in the sector (Varghese & Salim, 2015). This pattern is not isolated but extends to coir and artisanal industries, where limited market access restricts value realization and long-term sustainability.

Another significant finding is the uneven impact of mechanisation and technological change. While mechanisation improves productivity in sectors like coir manufacturing, it simultaneously displaces manual labour and reduces traditional skill dependency (Raseena, 2022). In goldsmithing and textile production, technological innovation has altered production structures, but it has also weakened artisanal identity and reduced cultural embeddedness (Pradeep & Devasia, 2018). This demonstrates a structural contradiction where efficiency gains come at the cost of livelihood security.

The study also identifies high socio-economic vulnerability across occupational groups. Fishing communities experience income instability due to seasonal dependency and fluctuating resource availability (Mathew & Joseph, 2020). Coir workers and handloom artisans face low wage levels, lack of social protection, and inconsistent employment opportunities (Ashik, 2018). These vulnerabilities indicate that traditional occupations remain economically fragile despite their cultural importance.

A further finding highlights the gradual occupational transition among younger populations, driven by limited income growth and uncertain future prospects in traditional sectors. This aligns with broader labour market shifts in Kerala, where employment is increasingly moving toward service-based and non-traditional sectors (Joy, 2016). As a result, intergenerational transmission of skills is weakening, leading to a gradual erosion of traditional knowledge systems.

Finally, the analysis reveals that institutional support mechanisms remain fragmented and insufficiently integrated. While government initiatives and cooperative structures exist, their impact is often limited by poor coordination, weak implementation, and lack of market-oriented reforms. The absence of integrated policy frameworks further reduces system efficiency and sustainability outcomes.

Overall, the findings confirm that traditional occupational sustainability in Kerala is shaped by a complex

interaction of market inefficiencies, technological disruption, socio-economic fragility, and institutional fragmentation.

Discussion

The findings of this study highlight that sustainability in traditional occupational systems cannot be understood through isolated sectoral analysis; instead, it must be interpreted through a systems-based framework that captures interdependent structural forces. The multidimensional model developed in this research demonstrates that economic viability, cultural continuity, and institutional effectiveness are tightly interconnected.

One of the most critical insights is the central role of market systems in determining occupational sustainability. The dominance of intermediaries and weak branding structures in handloom and allied sectors reinforces long-standing inefficiencies in value distribution. Varghese and Salim (2015) emphasize that marketing constraints significantly reduce profitability in the handloom sector, a finding strongly supported by the present analysis. This suggests that without structural reforms in market integration, traditional occupations will continue to face declining economic viability.

From a theoretical perspective, the study aligns with systems theory, which views occupational structures as dynamic and interdependent networks rather than isolated economic units. Changes in one dimension—such as mechanisation—trigger cascading effects across labour markets, cultural identity, and income distribution. For example, mechanisation in coir industries improves production efficiency but simultaneously disrupts labour-intensive employment structures (Raseena, 2022). This dual effect reflects a classic systems trade-off between efficiency and employment sustainability.

The discussion also highlights the tension between modernization and cultural preservation. Technological advancement in goldsmithing and textile production has improved productivity but weakened traditional craftsmanship identity (Pradeep & Devasia, 2018). This creates a paradox where economic modernization undermines cultural sustainability. Therefore, policy frameworks must balance innovation with heritage preservation rather than prioritizing one over the other.

Socio-economic vulnerability across fishing, coir, and tribal sectors further reinforces the need for integrated welfare and livelihood strategies. Studies indicate that income instability and lack of social protection are common across traditional occupations (Mathew & Joseph, 2020; Ashik, 2018). These conditions reduce occupational attractiveness, contributing to labour migration and declining skill retention. Joy (2016) similarly observes structural labour market shifts away from traditional employment, indicating long-term sustainability risks.

A key implication of this study is the necessity for value-chain restructuring and institutional convergence. Fragmented governance systems limit the effectiveness of existing policies. Strengthening cooperative models, improving direct market linkages, and enhancing branding strategies can significantly improve occupational viability. The persistent inefficiencies in marketing systems (Varghese & Salim, 2015) highlight the urgency of such interventions.

However, the study also acknowledges limitations. The reliance on secondary data restricts micro-level behavioral insights, and the absence of quantitative validation limits predictive accuracy. Future research should incorporate empirical field data and computational modeling to validate the proposed framework.

Conclusion

This study developed a multidimensional framework for assessing sustainability in traditional occupational systems of Kerala using a contextual systems analysis approach. The research demonstrates that sustainability is a function of interconnected socio-economic, technological, institutional, cultural, and market-driven factors rather than isolated variables.

The findings reveal that traditional occupations face structural challenges including market inefficiencies, technological disruption, socio-economic vulnerability, and weak institutional integration. Among these, marketing inefficiency emerges as a central barrier affecting profitability and long-term viability, as strongly evidenced in the handloom sector (Varghese & Salim, 2015). Additionally, mechanisation and modernization processes, while improving productivity, often destabilize traditional employment systems.

The study contributes to academic discourse by proposing a holistic framework that integrates multiple sustainability dimensions into a unified analytical model. This framework can assist policymakers in identifying systemic weaknesses and designing targeted interventions for livelihood sustainability.

Future research should focus on empirical validation of the framework using quantitative indicators and field-based studies. Additionally, comparative studies across different Indian states could further refine the model and enhance its generalizability.

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