



Forest-based livelihoods and resource management among the Irular Tribe in Villupuram District: Past and present perspectives

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Abstract

The Irular tribe, a Scheduled Tribe community of Tamil Nadu, has historically depended on forest-based livelihoods such as snake catching, herbal medicine, honey collection, and the gathering of non-timber forest products (NTFPs). These livelihood systems were embedded within a broader ecological knowledge framework that ensured sustainable interaction with forest ecosystems. Over time, deforestation, restrictive forest legislation, environmental degradation, and socio-economic marginalization have significantly reduced their access to natural resources and weakened traditional occupations. At present, a majority of Irular households depend on wage labor and informal employment. This paper examines the historical foundations of forest-based livelihoods, analyzes structural and ecological causes behind their decline, documents recent field realities (2023–2025), and proposes inclusive strategies for sustainable livelihood reconstruction. The study argues for a rights-based and participatory approach to development that recognizes indigenous ecological knowledge as central to conservation and resource governance.

Keywords: Irular Tribe, forest livelihoods, resource management, snake catching, ethnomedicine, land rights, Villupuram

Introduction

The Irular tribe of Tamil Nadu represents one of the historically forest-dependent communities whose socio-economic organization evolved in close association with forest ecosystems. Traditionally inhabiting regions of northern Tamil Nadu including Villupuram district, the Irulars developed a livelihood pattern rooted in ecological knowledge, sustainable extraction practices, and community-based resource management. Their economy was not solely subsistence-oriented but culturally embedded, linking environment, identity, and social structure.

Forest-based livelihoods such as snake catching, honey collection, gathering of non-timber forest products, and ethnomedicine formed the backbone of their traditional economy. These practices were guided by customary norms that regulated access and ensured ecological balance. However, state forest policies, wildlife protection regulations, agricultural expansion, and socio-economic transformations altered their access to resources. Consequently, traditional occupations declined, and wage labor emerged as the dominant survival strategy.

This paper examines the transformation of forest-based livelihoods among the Irulars of Villupuram district from historical to contemporary contexts. It analyzes the impact of legal frameworks, environmental change, market forces, and climate variability, while proposing sustainable strategies grounded in participatory and rights-based development perspectives.

Theoretical Framework

1. Political Ecology

Political ecology provides a critical analytical lens for examining the intersection of environmental governance, resource control, and social power (Blaikie & Brookfield,

1987; Robbins, 2012). Rather than viewing conservation policies as neutral instruments of ecological protection, political ecology situates them within broader political and institutional structures that shape access to resources.

In the context of the Irular community, forest reservation policies and wildlife protection regulations restructured customary access to forest territories. Although framed as biodiversity conservation measures, these interventions simultaneously curtailed traditional occupations such as snake catching and non-timber forest produce collection. The regulation of forest access transformed historically embedded subsistence practices into legally restricted activities.

From this perspective, the marginalization of Irular livelihoods is not merely a consequence of environmental decline but an outcome of asymmetrical power relations between state institutions and indigenous communities. Environmental governance, therefore, operates as a site where conservation objectives and livelihood rights intersect, often producing new forms of vulnerability while legitimizing exclusion under the discourse of ecological protection.

2. Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF) conceptualizes livelihood as the combination of capabilities, assets, and activities required for a means of living (Chambers & Conway, 1992; Scoones, 1998). It identifies five forms of capital—natural, human, social, financial, and physical—that collectively determine resilience and sustainability.

Historically, Irular households relied substantially on natural capital in the form of forest ecosystems, human capital represented by specialized ecological knowledge, and social capital embedded in community networks and cooperative

labor systems. However, restrictions on forest access significantly reduced natural capital availability, while limited access to education and institutional resources constrained the enhancement of human capital.

The shift toward wage labor provides short-term financial capital but remains insecure, seasonal, and structurally dependent. Applying the SLF reveals that vulnerability among the Irulars is multidimensional, shaped by declining natural assets, limited institutional support, and constrained livelihood diversification. Livelihood transformation, therefore, reflects structural disruption rather than voluntary occupational mobility.

3. Indigenous Knowledge and Cultural Ecology

Indigenous ecological knowledge constitutes a cumulative and adaptive body of environmental understanding developed through generations of observation, experimentation, and practice (Berkes, 2012). Among the Irulars, expertise in snake ecology, medicinal plant identification, and sustainable extraction methods represents a sophisticated local knowledge system grounded in lived ecological interaction.

Cultural ecology further explains how such knowledge systems evolve as adaptive responses to specific environmental conditions. Forest-based occupations among the Irulars were not isolated economic activities but culturally embedded practices that reinforced social identity, ritual systems, and ecological stewardship.

The erosion of forest-based livelihoods thus signifies more than economic displacement; it indicates a disruption in knowledge transmission and socio-cultural continuity. The gradual disengagement of younger generations from traditional occupations weakens the intergenerational transfer of ecological expertise, potentially resulting in long-term cultural loss.

4. Climate Vulnerability and Adaptation

Climate variability introduces an additional layer of structural vulnerability. Adaptation theory suggests that resilience depends upon access to resources, institutional flexibility, and livelihood diversification (Adger, 2006). In regions such as Villupuram district, erratic rainfall patterns and environmental stress directly affect forest productivity and agricultural stability.

For the Irular community, climate stress does not operate in isolation. Instead, it interacts with legal marginalization and restricted resource access, creating compounded or layered vulnerability. Reduced forest access limits adaptive options, thereby weakening resilience capacity.

Understanding livelihood change through a climate adaptation lens underscores the necessity of integrating indigenous ecological knowledge with institutional support mechanisms. Sustainable resource management strategies must therefore combine rights-based forest governance with climate-resilient livelihood diversification.

5. Integrated Theoretical Position

By synthesizing political ecology, the sustainable livelihoods framework, indigenous knowledge scholarship, and climate adaptation theory, this study conceptualizes Irular livelihood transformation as a structural reconfiguration of socio-ecological relations. The decline of forest-based occupations reflects the interaction of conservation governance, resource control, market pressures, and climatic stress.

Such an integrated framework strengthens the argument for participatory, rights-based development policies that recognize indigenous ecological knowledge as central to equitable and sustainable forest governance.

Review of Literature

Scholarly studies on tribal livelihoods in Tamil Nadu emphasize the centrality of forest resources in sustaining indigenous communities. Research highlights how colonial and post-colonial forest policies redefined access rights and marginalized customary systems of resource management. Studies on tribal land alienation demonstrate the structural barriers faced in securing tenure security.

Anthropological literature on indigenous ecological knowledge underscores the role of traditional communities in biodiversity conservation. Ethnobotanical research documents the medicinal knowledge systems of forest-dependent tribes, particularly women's roles in knowledge transmission. However, few recent studies focus specifically on the Irular community's contemporary livelihood transitions in Villupuram district, particularly in relation to climate variability and policy implementation gaps. This study contributes to bridging that gap.

Methodology

The study is based on qualitative fieldwork conducted in selected Irular settlements in Villupuram district between 2023 and 2025^[4, 9]. Data were collected through participant observation, semi-structured interviews, focus group discussions, and informal interactions with community elders, women, and youth. Secondary sources such as government reports, newspaper articles, and previous research studies were also consulted. The methodological approach is ethnographic, emphasizing lived experiences and community perspectives.

Traditional Forest-Based Livelihoods

Snake catching has historically been the most distinctive occupation of the Irular community. Their specialized knowledge of tracking venomous snakes contributed to anti-venom production and public safety. Cooperative institutionalization in the 1970s formalized this occupation. However, restrictive wildlife regulations and declining forest access significantly reduced participation in this livelihood.

Ethnomedicinal knowledge formed another essential dimension of livelihood and healthcare. Irular women possessed detailed understanding of medicinal plants used to treat fever, skin diseases, digestive disorders, and snake bites. This knowledge was orally transmitted across generations and integrated with ritual practices.

Honey collection and NTFP gathering provided seasonal income and subsistence support. Sustainable harvesting methods ensured ecological balance. Forest produce such as wild fruits, tubers, bamboo, and palm leaves were utilized for both consumption and sale. These practices reinforced a reciprocal relationship between community and environment.

Decline and Structural Challenges

The decline of traditional livelihoods can be attributed to forest reservation policies, wildlife protection laws, deforestation, and agricultural expansion. Reduced access to forests limited traditional occupations. Simultaneously, lack

of documentation hindered recognition of customary land rights.

As forest-based occupations declined, Irular households increasingly depended on wage labor in agriculture, brick kilns, construction, and other informal sectors. These forms of employment are characterized by insecurity, low wages, and vulnerability to exploitation. Socio-economic marginalization persists in the form of limited education, inadequate healthcare access, and poverty.

Climate Variability and Contemporary Transitions (2023–2025)

Field observations indicate increasing climate variability in Villupuram district. Erratic rainfall, prolonged dry spells, and occasional forest fires have affected both agriculture and forest ecosystems. Reduced honey availability and declining tuber growth directly impact household food security.

Women increasingly engage in domestic work in nearby towns, while youth aspire for education and salaried employment. However, economic pressures contribute to school dropout. The gradual disengagement of youth from forest activities threatens the continuity of indigenous ecological knowledge.

Sustainable Resource Management Strategies

Revitalizing forest-based livelihoods requires secure tenure rights and participatory governance. Recognition of community forest rights can enhance livelihood stability. Documentation and revitalization of indigenous knowledge systems are crucial for intergenerational continuity.

Forest-based micro-enterprises such as honey value addition, herbal product preparation, bamboo craft production, and direct market linkages can generate income while preserving ecological sustainability. Capacity-building initiatives integrating traditional skills with contemporary conservation frameworks are essential. Collaborative engagement between government agencies, research institutions, and non-governmental organizations can bridge policy gaps and strengthen inclusive development.

Discussion

The transformation of Irular livelihoods reflects broader structural processes of exclusion and uneven development. While conservation policies aim to protect biodiversity, inadequate integration of indigenous rights undermines community well-being. Political ecology perspectives highlight the tension between state control and customary resource governance. Sustainable livelihood frameworks emphasize the need to strengthen natural, human, social, physical, and financial capital among marginalized communities.

Recognizing indigenous ecological knowledge as a resource rather than an obstacle is fundamental to inclusive conservation strategies. Climate resilience planning must integrate traditional adaptive practices with scientific approaches.

Conclusion

The transition from forest-based livelihoods to insecure wage labor among the Irulars of Villupuram district illustrates the complex interaction of ecological change, legal structures, and socio-economic marginalization.

Despite declining traditional occupations, indigenous ecological knowledge remains a valuable asset for sustainable development and biodiversity conservation.

A rights-based, participatory, and culturally sensitive development model is necessary to restore livelihood dignity and ecological balance. Future policy interventions must integrate forest rights recognition, climate resilience strategies, and community-driven enterprise development to ensure inclusive and sustainable growth for the Irular community.

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