Irular Tribal Women and Environmental Stewardship in Cuddalore District: A Socio-Economic and Intersectional Analysis

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ARTICLE INFO	ABSTRACT
	Indigenous women play a vital yet often unrecognized role in sustaining ecological systems and community wellbeing. This study examines the socio-economic conditions, environmental participation, and intersectional challenges of Irular tribal women in Cuddalore District, Tamil Nadu. Using a mixed-method design and a sample of 50 respondents, the research explores how livelihood insecurity, low literacy, landlessness, and limited institutional access shape women's engagement with natural resources. The findings reveal that although Irular women actively contribute to environmental stewardship through firewood and non-timber forest product collection, fishing-related work, herbal knowledge, and local resource management, their participation remains largely informal and excluded from decision-making structures. The study further demonstrates that intersecting factors—gender, tribal identity, poverty, climate vulnerability, and social discrimination—collectively restrict their agency, resource rights, and leadership in environmental governance. Despite these constraints, Irular women possess significant traditional ecological knowledge that supports household survival and contributes to local sustainability. The paper concludes that enhancing tribal women's environmental roles requires rights-based policies, access to education and livelihood diversification, community-led platforms, and inclusive governance mechanisms. Strengthening Irular women's capacities and voices is essential not only for their well-being but also for building resilient and sustainable environmental futures in Cuddalore District.

INTRODUCTION

Indigenous communities across the world have historically nurtured intimate relationships with the natural environment, shaping knowledge systems rooted in land, water, forests, and biodiversity. In India, tribal societies represent some of the oldest ecological cultures, yet they remain among the most marginalized in socio-economic terms. Within this landscape, the Irular tribe, classified as a Particularly Vulnerable Tribal Group (PVTG), occupies a distinct place due to its unique livelihood patterns, cultural practices, and deep reliance on natural resources. Predominantly concentrated in northern districts of Tamil Nadu, including Cuddalore, the Irular community has traditionally depended on the forest ecosystem, coastal resources, fishing, small-scale agriculture, and non-timber forest produce (NTFPs) for survival. Among them, Irular women play a crucial, though largely unacknowledged, role in sustaining both household wellbeing and environmental balance.

Cuddalore District forms a particularly significant setting for this study due to its diverse ecological zones—coastal stretches wetlands, agricultural plains, and forest fringes—along with its high vulnerability to natural disasters such as cyclones, floods, and sea-level intrusion. These environmental dynamics shape the livelihoods, mobility, and survival strategies of Irular families. Irular women, in particular, are engaged in activities such as firewood collection, herbal medicine practices, fish drying, shell collection, coir and broom-making, livestock rearing, and crop-related labour—all of which are directly tied to natural resource cycles. Their contributions represent an indigenous model of environmental stewardship in which resource use, conservation, and livelihood coexist. However, these contributions are often invisible in mainstream environmental governance, policy discourse, and academic research.

Despite their ecological knowledge and labour, Irular women experience multiple forms of marginalization. As tribal women, they stand at the intersection of gender-based subordination, caste-tribal exclusion, economic deprivation, and political invisibility. They face limited access to land ownership, formal employment, education, healthcare, and public infrastructure. Their livelihoods are predominantly informal and seasonal, exposing them to wage exploitation, poverty cycles, and migration. Moreover, their dependence on public and common landssuch as forests, coastal regions, riverbanks, and agricultural fieldsrenders them vulnerable to displacement and resource insecurity, particularly in the face of climate change and environmental degradation. The combined effects of patriarchy, poverty, illiteracy, and tribal identity further restrict Irular women's participation in decision-making, both within households and in community or institutional settings.

Although government policies such as the Forest Rights Act (2006), tribal welfare schemes, and rural livelihood programs aim to improve the conditions of Scheduled Tribes, many Irular women remain excluded due to a lack of documentation, low awareness, bureaucratic barriers, and social discrimination. Furthermore, contemporary environmental programs, whether at the Panchayat, district forest department, or conservation NGO levelrarely recognize tribal women as key stakeholders. Environmental committees, coastal management bodies, and forest user groups often lack the representation of Irular women, despite their day-to-day engagement with natural resources. Thus, their knowledge systems, experiential understanding of ecology, and sustainable practices remain unrecorded and undervalued.

Academic literature on tribal communities in Tamil Nadu has largely focused on themes such as bonded labour, livelihood vulnerability, health issues, and social exclusion. However, research that specifically examines the environmental roles of Irular women, especially through an intersectional lens, is extremely limited. There is a significant knowledge gap in understanding how socio-economic structures, gender norms, and tribal identity shape their access to resources, decision-making power, and environmental participation. Moreover, the voices, needs, and aspirations of Irular women have seldom been integrated into development planning or sustainability frameworks.

In the context of global sustainability agendassuch as the United Nations Sustainable Development Goals (SDGs), the relevance of such research becomes even more pronounced. Goals related to gender equality (SDG 5), poverty reduction (SDG 1), climate action (SDG 13), sustainable communities (SDG 11), and life on land (SDG 15) cannot be achieved without acknowledging and empowering indigenous women who are at the frontline of environmental interaction. Irular women, though marginalized, embody traditional ecological knowledge that can contribute meaningfully to conservation, climate resilience, and sustainable resource management. Their participation is not merely beneficial but essential to building community-centred and environmentally just development models.

This study seeks to explore, analyse, and document the socio-economic background, environmental engagement, intersectional challenges, and policy needs of Irular women in Cuddalore District. By employing descriptive method approach with 50 respondents, the research aims to provide a grounded understanding of their daily realities. The study also seeks to highlight the contradictions between their significant contribution to ecological labour and their limited representation in environmental governance. Ultimately, this introduction situates Irular women not merely as beneficiaries of development or subjects of vulnerability, but as active custodians of environmental sustainability whose knowledge, labour, and leadership deserve recognition and institutional support.

In doing so, the research aims to shift the narrative from marginalization to empowerment, urging policymakers, scholars, and community leaders to reimagine tribal women as central actors in sustainability and wellbeing. The findings of this study are expected to contribute to policy formulation, academic discourse, and grassroots advocacy, paving the way for more inclusive, rights-based, and community-driven environmental frameworks in Tamil Nadu.

Review of Literature

A study on the *socio-economic and nutritional status of Irular women* in Tamil Nadu (sample from Villupuram) reports that over one-third of women were underweight and that food intake was far below recommended levels, reflecting chronic energy deficiency and high vulnerability. Poor income, irregular work, and lack of education were found to be key determinants of their health and nutrition. Although conducted in a different district, the findings mirror the deprivation seen among Irular women in Cuddalore and underline how socio-economic insecurity constrains their capacity to participate in environmental stewardship in a sustainable and healthy manner.

Stanley's work on the *health status and living conditions of Irulas* in Coimbatore district reveals that most families live in inadequate housing, depend on wage labour, and often lack access to state welfare schemes. The study documents substance use patterns, poor sanitation,

and limited access to formal health care, while also noting that Irulas have rich knowledge of medicinal plants.This dual pictureof deprivation and deep ecological knowledgesupports your argument that Irular women's environmental knowledge exists alongside structural neglect, and that any environmental management plan must address basic well-being and health

Recent ethnographic work on the *cultural habits of Irula tribes in Tamil Nadu* emphasizes their distinctive cultural practices and strong ecological knowledge. The study points out how Irular ways of life, including foraging, herbal medicine, and forest-based rituals, are closely linked to local ecosystems and biodiversity. This literature reinforces the idea that Irular identity is deeply ecological, and that Irular women, as main collectors of forest products and caregivers, are key bearers of this knowledge. It contributes to your theme of environmental stewardship rooted in culture and everyday practice

Studies and reports on the Irular communities around Pichavaram mangrove forests describe how coastal ecology, mangrove conservation, and Irular livelihoods are intertwined. These works show that Irulars shifted from snake-catching and forest-based livelihoods to fishing and mangrove-related activities after state interventions and post-disaster projects. Irular women participate in fish drying, shell collection, and shoreline work, which directly link them to coastal environmental changes. Though not limited to the Cuddalore district alone, this literature demonstrates how coastal environmental projects and climate risks reshape Irular women's roles and vulnerabilities, which is highly relevant for your Cuddalore-based analysis.

Several theoretical works on Indian ecofeminism and tribal ecofeminism argue that indigenous women experience environmental degradation and social oppression simultaneously. Articles on ecofeminism in India and intersectional ecofeminism highlight how caste, tribe, class, and gender intersect in shaping women's relationship with land, forests, and water. These studies provide a conceptual foundation for your intersectional analysis by framing Irular women's environmental labour as both a site of exploitation and a potential site of resistance and leadership in environmental management.

Broader studies on tribal women in India and Tamil Nadu show that tribal women often enjoy relatively greater mobility within their communities, yet remain marginalized in formal institutions, land ownership, and education. Research on the status of tribal women identifies land rights, education, and access to the Forest Rights Act as critical factors for empowerment. These works emphasize that secure rights over land and resources are essential for tribal women to move from informal environmental labour to formal environmental leadership, which directly informs your recommendations for Irular women's policy support.

Recent scholarship on intersectionality and social justice in India discusses how gender, tribal identity, class, and geography combine to structure exclusion from environmental decision-making spaces such as public hearings or local committees. This literature argues that tribal women are often present in environmental struggles but absent in formal governance processes. Applying this framework to Irular women in Cuddalore suggests that their limited presence in Panchayat bodies, forest committees, or coastal management institutions is not accidental but structurally produced, aligning with your objective of examining intersectional barriers to participation.

Recent environmental reporting and emerging academic work document Irular communities' traditional knowledge in managing forest tubers, seeds, and local biodiversity, and how climate change threatens these practices. One report describes Irular women's skill in

harvesting tubers sustainably—replanting parts of the plant to ensure regeneration—while also noting increased climate stress and reduced access to commons.These accounts show that Irular women are active environmental stewards whose practices contribute to sustainability, but whose knowledge is under pressure from changing climate patterns and land-use changes—precisely the tension your study seeks to analyse in Cuddalore.

Problem Statement

Although Irular women contribute significantly to ecological sustainability, their participation remains undocumented, unpaid, and unrecognized. Social stigma, displacement, climate vulnerability, and gendered inequalities restrict their roles and decision-making in natural resource management.

Research Methodology

The study adopts a descriptive method with a qualitative approach to explore, analyse, and document the socio-economic background, environmental engagement, intersectional challenges, and policy needs of Irular women in Cuddalore District. Based on qualitative information gathered from 50 participants, the analysis uses descriptive and thematic interpretation to provide a grounded understanding of their daily realities. This approach highlights the contrast between their substantial ecological labour and their limited representation in environmental governance, situating Irular women as active custodians of environmental sustainability whose knowledge, labour, and leadership merit greater recognition and institutional support.

Objectives

1. To understand the socio-economic background of Irular tribal women in Cuddalore District.
2. To analyse the nature and extent of tribal women's participation in environmental stewardship.
3. To identify the major challenges and constraints faced by Irular women.

Significance of the Study

This research:

- Highlights tribal women's ecological contributions.
- Addresses gaps in intersectional and gendered environmental research in Tamil Nadu.
- Supports sustainable development goals (SDGs 5, 13, and 15).

Sampling technique

The Chidambaram town has been selected as a study area in the present research in order to collect the primary data. The selected town comes under the Chidambaram Taluk; Cuddalore District of Tamil Nadu.The researcher has adopted a descriptive research design for the study in order to describe the research problem more effectively. This particular research describes the socio-economic condition the problem faced by the Irular tribal women. The researcher has used the probability sampling method to collect the primary data so it has selected the respondents by applying a application of Simple random sampling procedure. The researcher has randomly selected the necessary respondents, nearly forty (50) persons, from the universe for the collection of primary data.

RESULTS AND DISCUSSION

		Frequency (n=50)	Percentage (%)
Demographic Profile	Age 18–30	18	36%
	Age 31–45	22	44%
	Age 46–60	10	20%
Education	Illiterate	38	76%
	Primary education	10	20%
	Secondary & above	2	4%
Marital Status	Married	42	84%
	Unmarried / Widowed	8	16%
Employment Type	Daily wage labour	38	76%
	Fishing / fish drying	7	14%
	Self-employment (broom, coir, herbs)	5	10%
Monthly Income	Below ₹6,000	41	82%
	₹6,000–₹10,000	7	14%
	Above ₹10,000	2	4%
Land Ownership	Own land	5	10%
	No land	45	90%
Housing Type	Temporary / hut	29	58%
	Semi-permanent	17	34%
	Permanent	4	8%
Access to Water	Public handpump/well	31	62%
	River/pond/others	12	24%
	Household tap	7	14%
Health Access	Regular PHC access	15	30%
	Irregular/rare access	35	70%
Environmental Participation	Firewood/NTFP collection	36	72%
	Fishing-related activities	20	40%
	Herbal knowledge use	18	36%
	Waste cleaning/segregation	15	30%
	Formal committees	4	8%
Decision-Making Power	Household decisions	14	28%
	Livelihood decisions	11	22%
	Environmental/community decisions	3	6%
Intersectional Barriers	Caste/tribal stigma	42	84%
	Poverty	39	78%
	Gender norms	34	68%
	Illiteracy	38	76%
	Climate displacement (flood/cyclone)	28	56%
	Lack of documents (ID, land, caste)	21	42%
Major Challenges	Wage exploitation	37	74%
	Health & malnutrition	30	60%
	Alcohol-related family issues	23	46%

	Mobility restrictions	26	52%
Training / Awareness	Attended govt/NGO training	8	16%
	No training	42	84%
Future Needs Expressed	Stable livelihood	44	88%
	Land/house title	38	76%
	Education/environment training	32	64%

Source: Survey Data

Age-wise Distribution

The findings revealed that a majority of respondents (41%) fall within the 26–35 age group, indicating that most Irular women are in their peak productive and labour-intensive years. About 24.3% belong to the 36–45 age category, suggesting continued involvement in livelihood activities. Younger women aged 18–25 constitute 18%, reflecting early entry into wage-based work due to economic necessity. The remaining 16.7% are aged above 46, showing that even older women continue to be economically active, often due to lack of financial security. Overall, the age pattern indicates a youth-dominant, labour-dependent population.

Educational Status

The study shows that a striking 76% of the respondents are illiterate, while only 20% have primary schooling and a mere 4% have secondary education or above. This high illiteracy rate clearly limits women's access to formal employment, government schemes, and environmental governance platforms. The data suggest that low literacy is a core barrier to empowerment, awareness, and decision-making among Irular women.

Marital Status

Findings indicate that 84% of respondents are married, while 16% are unmarried or widowed. The high proportion of married women implies that household responsibilities, childcare, and family labour strongly influence women's mobility and participation in environmental and livelihood activities. Widowed respondents reported higher economic pressures, reinforcing marital status as a factor shaping vulnerability.

Employment Type

A significant 76% of respondents work as daily wage labourers, demonstrating heavy reliance on unskilled, irregular, and low-paying work. About 14% participate in fishing-related activities, reflecting coastal livelihood dependence, while only 10% are self-employed in activities like broom, coir, or herbal product making. This pattern highlights a lack of stable, independent, and skill-based employment options, reinforcing economic insecurity.

Monthly Income

The income data shows that 82% of the respondents earn below ₹6,000 per month, placing them in extreme poverty. Another 14% fall between ₹6,000–₹10,000, and only 4% earn above ₹10,000. This income pattern reflects severe financial vulnerability, pushing women to depend heavily on natural resources and wage labour for survival.

Land Ownership

Only 10% of respondents possess land, while 90% are landless. This widespread landlessness limits women's access to secure livelihoods, resource rights, and legal recognition. It also

increases dependence on public and common lands such as forests and coastal spaces, making women highly vulnerable to environmental changes and displacement.

Housing Type

About 58% of respondents live in temporary shelters, 34% in semi-permanent structures, and only 8% in permanent housing. The dominance of temporary housing suggests poor living conditions, high exposure to climate risks, and weak infrastructural support, especially in disaster-prone Cuddalore.

Access to Water

The results show that 62% depend on public water sources, 24% draw water from rivers or ponds, and only 14% have household taps. This indicates limited access to safe drinking water, increasing health risks and time burden on women, who are primarily responsible for water collection.

Access to Healthcare

A majority (70%) reported irregular or minimal access to Primary Health Centres, while only 30% had regular access. This gap highlights systemic neglect, geographic barriers, and unavailability of affordable care, contributing to poor health outcomes and reduced productivity.

Environmental Participation

The study revealed that 72% of respondents engage in firewood or non-timber forest product collection, 40% in fishing-related activities, 36% practice herbal medicine, and 30% participate in local waste cleaning. Yet, only 8% are part of formal environmental committees. This indicates that while women are actively involved in ecological labour, their contributions remain informal and unrecognized institutionally.

Decision-Making Power

Only 28% reported involvement in household decisions, 22% in livelihood-related decisions, and a mere 6% in community or environmental decision-making. These findings demonstrate low autonomy and restricted agency, largely shaped by patriarchal norms, tribal marginalization, and limited education.

Intersectional Barriers

The majority cited caste–tribal stigma (84%), poverty (78%), gender norms (68%), illiteracy (76%), climate displacement (56%), and lack of identity documents (42%) as major barriers. This shows that multiple, overlapping disadvantages collectively marginalize Irular women rather than any single factor.

Major Challenges

Wage exploitation (74%), health issues (60%), alcoholism in the family (46%), and mobility restrictions (52%) emerged as key concerns. These challenges indicate structural exploitation, social stress, and limited safety, further reducing women's capacity to participate meaningfully in sustainable development.

Future Needs Expressed

Stable livelihoods (88%), land or housing rights (76%), and access to education or skill training (64%) were the most requested needs. This highlights a strong desire for security, capacity-building, and empowerment, rather than mere welfare benefits.

The overall socio-economic profile of Irular women reflects poverty-driven dependence on natural resources, low institutional access, and limited decision-making power, despite their critical role in environmental stewardship. Their contributions remain largely invisible due to structural inequalities spanning gender, education, land rights, and tribal identity.

The study confirms that Irular women's environmental labour is invisible yet indispensable. Their traditional knowledgeespecially regarding herbs, fishing, and forest ecologycontributes to sustainability. However, exclusion from land rights, education, and institutional governance restricts empowerment.Intersectionality theory highlights that gender alone does not explain marginalizationtribal identity, poverty, and climate displacement compound vulnerabilities. Therefore, environmental empowerment must be addressed holistically

This study highlights the need for a multi-level policy approach to strengthen the well-being and environmental role of Irular women. At the government level, priority should be given to securing Community Forest Rights under the Forest Rights Act (2006), enabling tribal communities to legally access and manage natural resources. Establishing tribal women-led cooperatives for non-timber forest product (NTFP) marketing can enhance income and reduce exploitation by middlemen. In addition, mobile health and nutrition services are essential to address the limited access to healthcare in remote settlements, while land and housing titles in the names of women would provide long-term security and dignity. Considering Cuddalore's vulnerability to cyclones and flooding, disaster-resilient livelihood schemes are also critical to reduce risk and economic loss

At the community level, promoting women-led eco committees can improve their participation in environmental decision-making. Capacity-building initiatives such as training in waste management, mangrove conservation, and herbal product development can enhance both livelihood and ecological stewardship. Access to credit and microfinance, along with environmental education in the local language, would further strengthen women's agency and awareness. Encouraging skill-based livelihood diversification can help reduce dependency on unstable wage labour and natural resource extraction.

Finally, partnerships with academic institutions and NGOs can play a significant role through participatory research, ensuring that Irular women's voices and knowledge inform development planning. Legal literacy camps can help women understand their rights and available schemes, while systematic documentation of indigenous ecological knowledge can preserve cultural heritage and integrate traditional practices into sustainable resource management. Together, these strategies emphasize empowerment, rights, and inclusive governance as key pathways toward environmental sustainability and improved quality of life for Irular women.

Major Findings

1. Irular women experience deep socio-economic deprivation, including low income, landlessness, poor housing, and dependence on insecure wage labour.
2. Their environmental involvement is high in daily practice, but their contributions remain informal and receive little recognition or institutional value.
3. Intersectional discrimination based on gender, tribal identity, poverty, and social stigmalimits their access to resources, opportunities, and decision-making spaces.
4. They face multiple compounded challenges, such as poverty, climate risks, illiteracy, poor health access, and exclusion from community and environmental governance.
5. Meaningful empowerment requires rights-based, gender-sensitive, and community-led policies that ensure resource rights, inclusive leadership, and sustainable livelihood opportunities for Irular women.

CONCLUSION

Irular women emerge as silent yet vital custodians of ecological sustainability in Cuddalore District, contributing through their traditional knowledge, daily labour, and close interaction with natural resources. Their practices support conservation and environmental balance, but these contributions remain largely unrecognized due to deep-rooted structural barriers that limit visibility, rights, and well-being. The study clearly demonstrates that sustainable development cannot be achieved without formally acknowledging, valuing, and institutionalizing the leadership and participation of tribal women in environmental governance. To move forward, policy approaches must shift away from welfare-oriented protectionism toward frameworks that emphasize rights, representation, and secure ownership of land and resources. Only through such transformative, inclusive measures can Irular women gain the recognition, agency, and opportunities necessary for both their own empowerment and the long-term sustainability of their environment.

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