

Visualising Women's Invisible Labour: Insights from India's Joint Forest Management Cases

Swati Sharma¹ & Rajneesh Choubisa²

Abstract

India's forest governance operates across multiple frameworks. In the post-colonial period, the role of communities in forest governance has progressively shifted toward participatory approaches. Joint Forest Management (1990) is a community-based arrangement where forest-fringe communities and the state partner manage and protect forests, receiving socio-economic support in return. However, literature criticises that benefits are not properly rendered to communities and such programmes remain ostensibly participatory on paper, ignoring underlying power structures. Women, despite their labour in forest-related work, remain systematically undervalued in India's JFM programme. This paper employs Tronto's care ethics as its key theory, integrated with Feminist Political Ecology, to examine how women's forest labour is rendered invisible within JFM governance. Through a systematic cum purposive literature review from Scopus and Web of Science (2019–2026), we analyse how gendered power asymmetries, intersecting with caste and other social identities, marginalise women's ecological knowledge and unpaid care labour. We further examine how institutional design failures and masculinised definitions of forest governance compound this exclusion, rendering women's labour unrecognised and unrewarded in non-timber forest product value chains. We argue that integrating care ethics into JFM policy frameworks can revalue women's contributions and transform participatory forest management toward equitable and ecologically sustainable outcomes.

¹ Doctoral Scholar, Department of Humanities and Social Sciences, BITS Pilani, Pilani Campus (Rajasthan), p20240051@pilani.bits-pilani.ac.in (e-mail).

² Professor, Dr Rajneesh Choubisa, Department of Humanities and Social Sciences, BITS Pilani, Pilani Campus (Rajasthan), Rajneesh.choubisa@pilani.bits-pilani.ac.in (e-mail).

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1. Introduction

Joint Forest Management did not begin as policy. It began as a bargain. In 1972, on the degraded sal slopes of Arabari in Midnapore, a forest officer named Ajit Kumar Banerjee made a deal with eleven villages: protect the forest and share what it gives back. It worked. Scaled up, it codified into the National Forest Policy of 1988 and the JFM Guidelines of 1990, which granted Village Forest Committees (VFCs) limited management authority and a promise of benefit-sharing. One clause reads as especially progressive: at least a third of every VFC must be women. Three decades later, the policy showcased little progress. Women are still undervalued and missing from actual decisions that matter (Baidya, 2025; Elias et al., 2020).

Considering who actually surrounds the forest each day. In most forest-fringe households, it is women, disproportionately from Scheduled Tribe and Adivasi communities, who carry fuelwood and fodder, gather non-timber forest products (NTFPs), collect medicinal plants and water, save and sow seed, notice when a patch is failing, and pass ecological knowledge to their next generation (Arora-Jonsson et al., 2021; Jalonen et al., 2022). Often, in the most literal sense, this can be denoted as care work, keeping the household and the ecosystem alive at once. JFM barely considers it "forest work". Masculinised list activities like timber extraction, boundary demarcation, patrolling, and the committee's attendance are what the state registers and rewards. (Baidya, 2025).

This costs more than unfairness. People who know a forest best are shut out of decision-making, creating barriers to ethical forest use and regeneration (Silberzahn, 2024). Women's poverty deepens while patriarchal authority remains unbothered. This leaves care work unnamed, unpaid, and unchanged (Lokot et al., 2020).

Research Gap and Question

Scholars have noted women's participation in JFM (Agarwal, 2001; Elias et al., 2020). What stays under-examined is the how and why of institutional structures and normative assumptions through which women's forest labour is rendered invisible. Care ethics has rarely been turned on JFM's governing institutions and almost never used to revalue women's work as ecological care in its own right (Baidya, 2026; Barca et al., 2023). That is the opening this paper takes. Tronto's (1993) ethic gives care four working parts: attentiveness (recognising needs), responsibility (taking charge of care), competence (providing good care), and responsiveness (weighing the care-recipient's perspective), each a way to challenge how care work gets written off. Joined to feminist political ecology, which traces how gender, power, and environment intersect across scales (Rocheleau et al., 1996), care ethics can expose the structural machinery that marginalises women's forest labour and point to alternatives.

Research Question

How does a care ethics framework illuminate the invisibilisation of women's labour in joint forest management in India?

Objectives

1. To trace how women's labour in JFM is made invisible by institutional and social structures.
2. To use care ethics as a lens for rereading and revaluing women's contributions to JFM in India.

2. Literature Review

Feminist Political Ecology and Forest Governance in India

FPE helps us analyse power. It locates how control of forests and other natural resources is a gendered process and to what extent intersectional factors like caste, age, etc., affect it (Rocheleau et al., 1996). In India's colonial history, forest law reclassified commons as state reserves and their users as encroachers. Post-independence, the then

market-led conservation in the 1990s kept the same intention under gentler names (Gadgil & Guha, 1995). Women lost voices in these shifts. FPE tries to understand the actual ground-level situation. Nightingale's (2011) findings in Nepal's community forests reveal how caste and gender manifest in ordinary acts. By noticing who carries the leaf litter? Who speaks first? Who sits where? Each act turns practical and symbolic at once. This is where intersectionality resides: lived friction, not a checklist of identities. That's why reservation mandates can change seating arrangements, but when intersectionality and politics go unaddressed, the decision-making power remains intact.

Indian FPE has started recording women who resist structural inequalities. In Bankura, West Bengal, the women-led Brindabanpur Mahila Forest Protection Committee redefined forest work as valuable by treating daily patrols, nursery-raising, and guarding of regeneration plots as governance rather than chores (Baidya, 2025). Such cases explicitly support the possibility of transformation. Bringing together care ethics and feminist political ecology reveals how women's unpaid reproductive work sustains both ecosystems and economies. It exposes power structures that treat this labour as feminine duty instead of skilled, systematically exploited knowledge.

Care Ethics in Environmental and Resource Governance

Tronto's (1993) care ethics rejects the idea of humans as individuals with separate rights and stresses interdependence and relational ties with their surroundings that humans should responsibly tend. Her definition looks at care as "everything that we do to maintain, continue, and repair our 'world'" (Tronto, 1993, p. 103). The theory further divides into four stages called attentiveness, responsibility, competence, and responsiveness. This can delve into forest governance to see the importance of mundane tasks, which official records ignore as nothing dramatic happens (Baidya, 2026). Silberzahn (2024) argues that forests themselves provide care to humans, a labour-like relationship that cannot be reduced to compensation but demands genuine reciprocity. Care ethics refuses any division between paid "productive" work and unpaid "reproductive" work. In social reproduction terms, women's unpaid forest labour withstands the cash economy of timber and NTFP trade (Lokot et al., 2020). However, under JFM, the same division is seen when it separates "forest management" from "forest collection" (Barca et al., 2023; Elias et

al., 2020). Activities ignoring such interdependencies prove these divisions of labour are not natural but political.

Women's Participation and Labour in Joint Forest Management

Seat reservation can increase women's representation in committees (Agarwal, 2001). But representation does not guarantee equitable power distribution. Drawing on 85 interviews across Uttara Kannada (Karnataka) and Mandla (Madhya Pradesh), Elias et al. (2020) found that, along with gender, participation is influenced by caste and ethnicity too. Despite doing much of the forest work, Dalit and lower-caste women are often excluded from meetings, while upper-caste women are allowed to sit on committees and participate in decision-making.

The Mandela case represents such exclusion; JFM barely functions, leading to thin forests, resulting in women from certain tribal groups being hardly considered for resource access. Internal hierarchies are hidden when everyone is grouped under "Scheduled Tribe" or "Scheduled Caste" for officials' ease, unable to surface elite capture.

"Participation" itself is gendered. Active participation gets attached with tangible tasks like attending meetings, marketing timber, and activities society readily allows men to perform (Arora-Jonsson et al., 2021). While everyday forest practices done by women do not register as "management" or yield fast results. In Gundurabari, in Odisha's Nayagarh district, Adivasi women are the village's genuine NTFP experts, fluent in species, seasons, and sustainable harvest. They transmit expertise and bring change by utilising such spaces of connection as what Mohanty and Suresh (2025) term a community of practice. It rarely enters the VFC forum. Even where women have forced visibility, as the Baiga of central India did in contesting state dispossession and commercial encroachment, the bargaining power won seldom translated into recognition or a fair benefit share (Tyagi & Das, 2020). So, the literature has named the inequities and charted the structures. But lacks reading JFM through a care ethics lens. This paper often traces how other identities make women's erasure from decision-making even worse.

3. Methodology

This study uses a purposive, theory-driven review of peer-reviewed literature to synthesise evidence on women's invisible labour in JFM in India and to put care ethics to work as an analytical frame. Two objectives steered it: to document the empirical patterns of invisibilisation and to apply Tronto's framework as a lens for revaluation. The design suits theory-building reviews, which argue from a curated body of strong empirical scholarship rather than chasing exhaustive coverage (Nightingale, 2011).

Search Strategy and Databases

We searched Scopus and Web of Science for their coverage of social science and interdisciplinary journals where gender-and-forest scholarship on India appears. Boolean strings targeted overlap of JFM, gender, care ethics, and invisible labour:

- ("Joint Forest Management" OR "JFM" OR "participatory forest management") AND India AND ("women" OR "gender") AND ("care ethics" OR "invisible labour" OR "unpaid labour" OR "care work" OR "invisible labour" OR "unpaid labour")
- ("Joint Forest Management" OR "JFM") AND India AND ("feminist political ecology" OR "FPE") AND ("women" OR "gender")
- ("Joint Forest Management" OR "JFM") AND India AND ("Adivasi women" OR "tribal women") AND ("caste" OR "intersectionality")

Inclusion and Exclusion Criteria

Inclusion: publication period 2019–2026 for empirical papers (foundational theoretical texts excepted); peer-reviewed journal articles only; India-focused with attention to JFM; thematic relevance to women's labour, care ethics, FPE, or forest governance; English language.

Exclusion: reports, grey literature, and conference proceedings; non-India studies or studies not focused on JFM; pre-2019 empirical work (foundational texts excepted); studies without empirical grounding or theoretical engagement with gender or governance.

We screened papers by title and abstract, then by full text where needed. The ones we kept show how women's labour is made invisible in JFM, on Indian evidence. We added a few foundational texts on care ethics and FPE to anchor the framework.

Case Selection Rationale

Four states anchor the analysis. JFM began in West Bengal, at the 1972 Arabari experiment, and the state has documented women-led committees (Baidya, 2025). Karnataka and Madhya Pradesh adopted it early; both are well-studied for caste and tribal diversity (Elias et al., 2020). Odisha holds one of India's largest Adivasi populations, with rich NTFP livelihoods and deep ecological knowledge among women (Mohanty & Suresh, 2025). Between them, they cover the eastern, central, and southern forest belts.

Analytical Approach

Thematic synthesis ran in three stages: line-by-line coding of women's forest labour, mechanisms of invisibilisation, and governance structures; descriptive themes across studies; then analytical themes on how and why women's labour disappears and how care ethics answers back. Throughout we read for intersectional detail and ran Tronto's four phases back over the evidence.

4. Analysis and Discussion

We argue three interlocking mechanisms recur across the studies: definitions that count only masculinised activity, the discounting of women's ecological knowledge, and structural barriers built where gender, caste, and Adivasi identity intersect. Table 1 maps these against Tronto's four phases and the state evidence, where the title's "visualising" is meant literally.

Table 1

Tronto's care phases mapped to mechanisms of invisibilisation in JFM and illustrative state evidence

Care phase (Tronto, 1993)	Women's labour	Mechanism of invisibilisation	Illustrative state evidence
Attentiveness	Noticing seasonal shifts, resource stress, NTFP and medicinal-plant health	Scientific-forestry bias: experiential reading dismissed as non-technical	Odisha (Gundurabari): Siali and NTFP knowledge absent from

			VFC forums (Mohanty & Suresh, 2025)
Responsibility	Seed-saving, nursery work, twice-daily patrols, regeneration	Care naturalised as duty; reserved seats without authority (phantom empowerment; Baidya, 2026)	West Bengal (Brindabanpur): twice-daily patrols, yet women displaced by timber plantations (Baidya, 2025, 2026)
Competence	Species ID, medicinal use, NTFP processing via communities of practice	Training favours surveying/plantation; caste filters whose voice counts	Karnataka (Uttara Kannada): Havik Brahmin women secluded; Siddhi/ST women do the labour (Elias et al., 2020)
Responsiveness	Prioritising subsistence and ecological limits; mobilisation	Participation paradox: silence read as consent; subsistence treated as residual	Central India (Baiga Chak): struggle raised visibility, not authority (Tyagi & Das, 2020)

4.1 Mapping Women's Invisible Labour

Under JFM, activities such as patrolling, plantation, and timber harvesting are recognised as “forest management” and are often paid and formally recorded. In contrast, women’s daily collection of products such as mahua and tendu leaves is treated as mere “collection” and receives limited recognition (Arora-Jonsson et al., 2021; Elias et al., 2020). Such distinction shapes whose labour and knowledge counts. By privileging formal scientific forestry, JFM often marginalises women’s ecological knowledge.

As seen in Gundurabari, women carrying extensive knowledge of local species and seasonal cycles face bias in committee meetings continuously (Mohanty & Suresh, 2025). Consequently, their everyday practices of forest care remain invisible within bureaucratic governance.

In the markets of Uttar Kannada, Jalonen et al. (2022) highlight that women gather and process forest products firsthand. But the upper-caste male traders, having capital, transport, and contacts, take most of the women's money (Jalonen et al., 2022). These constraints cause women exhaustion, time poverty, and safety fears. Such limited engagement with buyers leads to unpaid governance labour and underpaid market participation.

It's the attentiveness (noticing of need) applied by women to learn which species are thinning, which patches are recovering, and where illegal felling has begun. (Arora-Jonsson et al., 2021). In Brindabanpur, they conduct this routine twice a day, also watching for illegal activity during their patrols (Baidya, 2025).

Responsibility as a phase runs under these same patrols, nurseries, and regenerating plots. But Baidya (2025, 2026) finds this work unnamed and unpaid because the department sidelines these activities to flourish monoculture. This unrecognition brings in outside contract workers, leaving women idle (Baidya, 2026). Tronto's four phases help in diagnosing such overlooked conditions.

4.2 Care Ethics as an Analytical Lens: Re-reading Women's Contributions

When the same evidence is read through care ethics, it flips. Competence is everywhere in women's practice: identifying species, knowing medicinal uses, and judging when to harvest (Arora-Jonsson et al., 2021; Jalonen et al., 2022). It runs deepest among Adivasi and Scheduled Tribe women whose families have used these forests for generations (Gadgil & Guha, 1995). In Nayagarh, knowledge is shared, not retained. Older women teach younger ones where the *Siali* creeper grows and when to cut. This is a real community of practice, not recorded by anyone (Mohanty & Suresh, 2025). JFM training mainly focuses on surveying and plantation and skips such resources.

Institutions often fail to recognise the competence women already possess. At the same time, the categories used in governance, such as "management" and "collection", undermine women's labour, reflecting hermeneutical and epistemic injustice.

Together, Nightingale (2011) and Mohanty and Suresh (2025) show how these injustices reinforce one another. Knowledge gained through women's everyday forest

practices may guide resource use in practice, yet it gets discounted or excluded in formal decision-making.

The fourth phase is responsiveness, meaning attending to what the cared-for actually need. Women often depend on subsistence and use forests for household needs rather than income. As Silberzahn (2024) argues, forests support the people who care for them, just as people support the forests. Excluding women, therefore, harms not only them but also the ecosystem. Yet these realities hardly reflect Joint Forest Management (JFM). JFM's market-orientated approach tends to prioritise resource extraction, while subsistence needs receive less attention.

Women's resistance never necessitates any permanent changes. Odisha's contrasting case is one example, where it took 6 months of protests by tribal women to win the right to sell tendu leaves to private traders at fairer rates than those offered by department (Arora-Jonsson et al., 2021).

However, these are rare wins. More often, women's contributions remain undervalued despite their central role in sustaining households and forest-based livelihoods. Women perform 76.2% of the world's unpaid care work, equivalent to about 201 days annually compared to men's 63 (Lokot et al., 2020). From a care ethics perspective, this labour extends beyond the household to include the everyday work of maintaining communities and ecosystems (Baidya, 2026; Silberzahn, 2024).

4.3 Structural Barriers: Powerful Institutions and Reproduction of Invisibility

Structural forces help permeate forms of invisibility in everyday forest management tasks. Gender, along with local intersectional factors here, mutually reinforces Adivasi identity's hardships (Nightingale, 2011). From households to market to policy level, these dynamics operate across multiple scales. The disadvantages do not work in isolation; they compound from the intersection of these axis layers, and the position of women worsens.

Patriarchal norms primarily in homes limit women's mobility, time, and authority (Agarwal, 2001), while unpaid care leaves little room for committee work (Lokot et al., 2020). The Brindabanpur women gained the department's respect after three decades of patrols and nursery work, yet despite retaining their seats, they were marginalised from decision-making later (Baidya, 2025, 2026).

Baidya (2026) argues women occupying formal positions exercise little authority in reality in forest governance. This often produces *phantom empowerment*. Accompanied by *feminised precarity*, where women continue to provide much of the labour required for forest management, while their knowledge and decision-making capacities remain marginalised. This dynamic further links to *green governmentality*, in which participation manages women but does not redistribute power. Through Tronto's (1993) care ethics perspective, JFM fails responsiveness. It relies on women's care work but disregards its value and the needs of those who provide it.

Caste and indigeneity shape access at the community level, too. In Uttara Kannada, Havik Brahmin women sit on committees but scarcely enter the forest. Siddhi and other Scheduled Tribe women do most of the forest work, yet stay out of the meetings, blocked by literacy rules and procedure and by segregation and sanctions against lower-caste women who speak in public (Elias et al., 2020). Nightingale (2011) names caste as an embodied mechanism through which bodies live, feel, perform and negotiate power and social hierarchies in daily practices.

Women from some Gond and Bhil groups in Mandala collect most of the NTFPs, fuelwood, and medicinal plants, yet face negative attitudes. Men tell them to be quiet when they speak. Women often navigate and encounter the forest department as a policing rather than supportive force. Within indigenous groups, clan and lineage shape whose knowledge counts (Elias et al., 2020).

In Baiga Chak, women resisted dispossession and commercial encroachment by transforming forest claims into collective community rights, strengthening their bargaining power (Tyagi & Das, 2020). Yet patriarchy within Baiga communities and caste hierarchies in governance continued to limit their authority. Visibility gained through struggle did not automatically translate into recognition.

At the policy level, neoliberal reform has widened the gaps it claims to address. Liberalising NTFP markets increased women's workloads while directing profits toward upper-caste male traders (Jalonen et al., 2022). Baidya (2026) confirms that token inclusion, Without reforming benefit-sharing, it leaves women's care labour unpaid even as their stewardship supports forest health.

The cycle closes in on itself. Exclusion devalues women's knowledge, and that devaluation is then used to justify further exclusion. Breaking it requires counting care work, directly confronting caste and patriarchy, and placing at the centre the attentiveness, responsibility, competence, and responsiveness that women, particularly Adivasi and lower-caste women, bring to the forest (Barca et al., 2023; Tronto, 1993).

5. Conclusion

Women's contributions to JFM are largely invisible, but not by coincidence; they are much of what keeps forests functioning. Read through care ethics and feminist political ecology, three patterns repeat: definitions that favour male-coded activity, the dismissal of women's ecological knowledge, and exclusion shaped by gender, caste, and Adivasi identity together.

Tronto's phases show why this erasure is not accidental. Attentiveness, responsibility, competence, and responsiveness are exactly the capacities JFM does not count, and the evidence from West Bengal, Karnataka, Madhya Pradesh, and Odisha shows the labour disappearing twice over, and further still for Adivasi and lower-caste women. Mapping these phases onto the mechanisms of invisibilisation (Table 1) is the care-ethics reading earlier gender analyses left implicit.

Change means widening "forest management" and "participation" to hold the full range of care women perform. It means paying for ecological care through reformed benefit-sharing. And it means confronting the caste and patriarchal norms quotas alone never touch, via women's collectives contesting caste hierarchy and women-controlled NTFP cooperatives that keep the value now taken by traders. We argue care ethics exposes and revalues women's invisible labour, and when applied in JFM, it can make it fairer and more ecologically sustainable.

Limitations

Two limits apply. First, as a literature-based review, the findings are bounded by existing scholarship; primary ethnographic work is needed to trace these mechanisms

across diverse JFM settings. Second, the findings are India-specific, though the care ethics frame should travel to gendered labour invisibilisation in other community forestry contexts.

Future Research Directions

Two directions follow. Participatory action research with Adivasi and lower-caste women could co-design care-ethics-informed reforms inside JFM institutions. And comparison across Indian states could pin down the design features that let women's labour be seen in varied caste and tribal contexts. Together they point toward a forest governance that finally counts the hands that tend the forest.

Declarations

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