

## Ecofeminism as a Framework: An Appraisal of Gender, Ecology, and Sustainability

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### Abstract

*Ecofeminism represents a critical theoretical framework that examines the interconnections between the exploitation of nature and the oppression of women within patriarchal systems. This research investigates how ecofeminist principles contribute to sustainable development and environmental conservation, particularly within the Indian context. The study employs a quantitative methodology, analyzing data from 400 respondents across urban and rural areas to assess gender disparities in environmental awareness, resource access, and decision-making participation. The hypothesis posits that ecofeminist frameworks significantly enhance sustainability outcomes by addressing gendered power structures in environmental governance. Results reveal substantial gender gaps in environmental education access (68% male vs 42% female), participation in conservation programs (72% male vs 38% female), and decision-making authority (81% male vs 29% female). Statistical analysis demonstrates strong correlations between gender-inclusive environmental policies and improved sustainability indicators. The findings confirm that integrating ecofeminist perspectives in environmental management enhances both gender equity and ecological outcomes. The study concludes that ecofeminism provides essential insights for developing inclusive, sustainable environmental policies that address the dual crises of ecological degradation and gender inequality.*

**Keywords:** Ecofeminism, gender equity, environmental sustainability, environmental governance, sustainable development

### 1. Introduction

The convergence of environmental degradation and gender inequality has emerged as one of the most pressing challenges of the twenty-first century. Ecofeminism, as both a theoretical framework and social movement, offers a comprehensive lens through which to examine the intersecting oppressions of women and nature under patriarchal capitalist systems. The term ecofeminism, coined by Françoise d'Eaubonne in 1974, recognizes that the domination of nature and the subordination of women are fundamentally connected through shared ideological, structural, and symbolic mechanisms (Gaard, 2011). This framework challenges the anthropocentric and androcentric worldviews that have historically justified both environmental exploitation and gender-

based discrimination. In the Indian context, the relationship between gender and environment holds particular significance due to the country's agrarian economy, diverse ecosystems, and persistent gender disparities. Women in India, especially in rural areas, maintain intimate relationships with natural resources through their roles in agriculture, water collection, fuel gathering, and food production. Despite this critical involvement, women remain largely excluded from environmental decision-making processes and face disproportionate impacts from environmental degradation (Shiva, 2016). The increasing frequency of climate-related disasters, deforestation, water scarcity, and biodiversity loss has intensified the vulnerabilities of marginalized communities, with women bearing the heaviest burdens.

The ecofeminist perspective asserts that sustainable development cannot be achieved without addressing the systemic inequalities that marginalize women and degrade ecosystems. Historical movements such as the Chipko Movement of the 1970s in India exemplify how women's environmental activism has challenged both ecological destruction and patriarchal control over natural resources (Mies & Shiva, 2014). These grassroots movements demonstrate that women's knowledge, leadership, and participation are essential for effective environmental conservation and sustainable resource management. Contemporary scholarship on ecofeminism has expanded to encompass diverse perspectives, including materialist ecofeminism, spiritual ecofeminism, and postcolonial ecofeminism, each offering unique insights into the gender-environment nexus. Despite this rich theoretical development, empirical research examining the practical implications of ecofeminist frameworks for sustainability outcomes remains limited, particularly in developing country contexts. This research addresses this gap by quantitatively assessing how gender-inclusive environmental approaches influenced by ecofeminist principles impact sustainability indicators in India.

## **2. Literature Review**

The scholarly discourse on ecofeminism has evolved significantly since its inception, encompassing diverse theoretical orientations and empirical investigations. Merchant (2020) traces the historical development of ecofeminism, arguing that the scientific revolution of the sixteenth and seventeenth centuries established mechanistic worldviews that simultaneously devalued nature and women, creating parallel systems of domination. This historical analysis reveals how Enlightenment rationality constructed nature as passive matter to be controlled, while associating women with nature and emotion, thereby justifying their exclusion from public decision-making spheres. Warren (2015) develops the conceptual framework of ecofeminism by identifying the logic of domination that underlies both environmental exploitation and gender oppression. Her work demonstrates how hierarchical dualisms such as culture/nature, reason/emotion, and male/female create value-laden binaries that rationalize the subordination of entities associated with the devalued terms. This philosophical foundation establishes ecofeminism as a critical analytical tool for understanding intersecting systems of oppression and their environmental implications. Empirical research on women's environmental participation reveals significant gender disparities across multiple dimensions. Agarwal (2018) examines women's involvement in community forestry management in South Asia, finding that despite women's substantial dependence on forest resources,

they hold minimal representation in forest management committees. Her quantitative analysis demonstrates that women constitute only 25-30% of committee members in most regions, and their participation is often nominal rather than substantive, with limited influence on actual decision-making processes. The relationship between gender and climate vulnerability has received increasing scholarly attention. Neumayer and Plümper (2007) conducted cross-national statistical analysis demonstrating that natural disasters have differential mortality impacts based on gender, with women experiencing higher death rates than men in most countries. Their research reveals that these disparities correlate with women's socioeconomic status, indicating that gender inequality amplifies climate vulnerability. Subsequent research by Alston (2014) on climate change impacts in rural Australia confirms that women face distinct challenges including increased workloads, mental health stresses, and decision-making exclusion during environmental crises.

The intersection of indigenous knowledge and ecofeminism has emerged as a vital research area. Shiva (2016) documents how indigenous women in India possess specialized ecological knowledge regarding seed diversity, medicinal plants, water conservation, and sustainable agriculture. However, modernization and corporatization of agriculture have systematically displaced this knowledge, undermining both biodiversity and women's economic autonomy. Her work argues that ecofeminist frameworks must center indigenous women's epistemologies to develop culturally appropriate and ecologically sound sustainability strategies. Research on women's environmental activism demonstrates the transformative potential of gender-inclusive movements. Rocheleau et al. (2013) analyze feminist political ecology case studies from Africa, Latin America, and Asia, revealing how women's grassroots environmental movements challenge both ecological degradation and patriarchal structures. Their findings indicate that women-led initiatives often achieve superior conservation outcomes due to women's local ecological knowledge, collaborative leadership styles, and long-term community commitments.

The economic dimensions of the gender-environment nexus have been examined through various studies. Dankelman (2010) investigates how environmental degradation disproportionately impacts women's labor burdens, documenting increased time spent on water and fuel collection as resources become scarce. Her research across multiple African countries reveals that women spend 25-40% more time on resource collection in degraded environments, reducing time available for education, income generation, and community participation. Institutional analysis of

environmental governance structures reveals persistent gender exclusion. Leach (2007) examines participatory natural resource management programs across developing countries, finding that despite rhetoric of inclusivity, these programs often reproduce existing gender hierarchies. Her research demonstrates that women's participation rates in environmental committees rarely exceed 20-30%, and procedural norms frequently silence women's voices even when physically present.

Recent scholarship has explored the intersectionality of gender, caste, class, and environmental justice. Arora-Jonsson (2011) argues that ecofeminist analyses must acknowledge how multiple identity categories shape environmental experiences and vulnerabilities. Her research in India reveals that Dalit and tribal women face compounded marginalization in environmental governance, experiencing both gender-based and caste-based exclusion from decision-making processes. The relationship between gender equality and environmental sustainability has been examined through cross-national comparative studies. Ergas and York (2012) analyze data from 130 countries, finding significant correlations between gender equality indicators and carbon emission levels, with more gender-equitable societies demonstrating lower per capita emissions. Their statistical analysis suggests that addressing gender inequality may be essential for achieving environmental sustainability goals.

Critical perspectives on ecofeminism have also emerged within the literature. MacGregor (2014) cautions against essentialist interpretations that romanticize women's connections to nature, arguing that such approaches risk reinforcing stereotypes and limiting women's agency. She advocates for materialist ecofeminist analyses that focus on political economy and structural inequalities rather than assumed natural affinities between women and environment. The policy implications of ecofeminist research have been explored by several scholars. Resurreccion (2013) examines climate change adaptation policies across Southeast Asia, finding that gender-blind approaches fail to address women's specific vulnerabilities and knowledge contributions. Her analysis recommends integrating gender analysis throughout policy design, implementation, and evaluation processes to enhance both equity and effectiveness.

### **3. Objectives**

1. To examine the current status of gender participation in environmental decision-making and resource management within Indian communities, identifying specific barriers that prevent women's meaningful involvement in sustainability initiatives.

2. To assess the differential impacts of environmental degradation on men and women, quantifying gender-specific vulnerabilities related to resource scarcity, climate change, and ecological disruption.
3. To evaluate the effectiveness of gender-inclusive environmental programs inspired by ecofeminist principles in achieving superior sustainability outcomes compared to gender-neutral approaches.
4. To analyze the correlation between women's empowerment indicators and environmental conservation success, establishing empirical foundations for policy recommendations integrating ecofeminist frameworks into sustainable development planning.

### **4. Methodology**

This research employed a quantitative research design to systematically examine the relationship between gender equity and environmental sustainability within the ecofeminist framework. The study was conducted across four states in India, representing diverse geographical and socioeconomic contexts including Maharashtra, Kerala, Madhya Pradesh, and West Bengal. The selection of these states ensured representation of varied environmental challenges, cultural contexts, and development levels. The sample consisted of 400 respondents selected through stratified random sampling technique. The stratification was based on gender (50% male, 50% female), geographical location (60% rural, 40% urban), and age groups (18-35 years: 40%, 36-50 years: 35%, 51+ years: 25%). This sampling strategy ensured adequate representation of diverse demographic segments to enable meaningful comparative analysis. Respondents were required to be permanent residents of their communities for at least five years and actively involved in or affected by natural resource management. Data collection was conducted through a structured questionnaire instrument developed specifically for this study. The questionnaire comprised 68 items organized into six sections including demographic information, environmental awareness and education, participation in environmental programs, decision-making authority, resource access and control, and perceived environmental impacts. Each section utilized five-point Likert scales, binary response options, and frequency measures to capture quantitative data suitable for statistical analysis. The questionnaire underwent pilot testing with 30 respondents to ensure clarity, cultural appropriateness, and reliability.

The research employed multiple data collection techniques to ensure comprehensiveness and triangulation. Primary data were collected through face-to-face surveys administered by trained field

investigators fluent in local languages. Each survey session lasted approximately 45-60 minutes and was conducted in private settings to ensure confidentiality and honest responses. Secondary data were gathered from government records, non-governmental organization reports, and published environmental statistics to supplement primary findings and provide contextual information. Data analysis utilized various statistical techniques appropriate for the research objectives. Descriptive statistics including frequencies, percentages, means, and standard deviations were calculated to characterize the sample

and key variables. Inferential statistics including chi-square tests, t-tests, and correlation analysis were employed to examine relationships between gender and environmental variables. All statistical analyses were performed using SPSS software version 27.0 with significance levels set at  $p < 0.05$ . Cross-tabulations were generated to explore interactions between multiple variables simultaneously, enabling nuanced understanding of complex gender-environment relationships.

## 5. Results

**Table 1: Gender Distribution in Environmental Education Access**

Educational Component	Male (%)	Female (%)	Total (%)	Chi-square	p-value
Formal environmental education	68.5	42.0	55.3	28.64	<0.001
Training in sustainable practices	61.0	38.5	49.8	20.25	<0.001
Climate awareness programs	72.5	46.5	59.5	27.89	<0.001
Resource management workshops	55.0	31.5	43.3	22.56	<0.001
Environmental literacy campaigns	58.5	44.0	51.3	8.42	0.004

The data presented in Table 1 reveals substantial gender disparities in access to environmental education across all measured dimensions. Male respondents demonstrated significantly higher participation rates in formal environmental education programs (68.5%) compared to female respondents (42.0%), representing a gap of 26.5 percentage points. This disparity proves statistically significant ( $\chi^2 = 28.64$ ,  $p < 0.001$ ), indicating systemic barriers preventing women's educational access. Climate awareness programs showed the widest gender gap

with 72.5% male participation versus 46.5% female participation. Resource management workshops exhibited the most pronounced exclusion of women, with only 31.5% female participation compared to 55.0% male participation. These findings demonstrate that despite women's critical roles in natural resource management, they remain underserved by environmental education initiatives, limiting their capacity to adopt innovative sustainable practices and participate effectively in environmental governance.

**Table 2: Participation in Environmental Conservation Programs**

Program Type	Male Participation (%)	Female Participation (%)	Gender Parity Index	Statistical Significance
Afforestation initiatives	75.5	41.0	0.54	$p < 0.001$
Water conservation projects	68.0	52.5	0.77	$p = 0.002$
Waste management programs	64.5	58.0	0.90	$p = 0.186$
Biodiversity protection	71.0	35.5	0.50	$p < 0.001$
Sustainable agriculture	79.5	62.0	0.78	$p < 0.001$

Table 2 demonstrates varying levels of gender disparity across different types of environmental conservation programs. Biodiversity protection initiatives exhibited the lowest gender parity index (0.50), with only 35.5% female participation compared to 71.0% male participation, representing severe gender imbalance ( $p < 0.001$ ). Afforestation initiatives similarly showed substantial gender gaps with a parity index of 0.54. Waste management programs achieved the highest gender parity (0.90)

with relatively balanced participation rates of 64.5% male and 58.0% female, though this difference remained statistically non-significant ( $p = 0.186$ ). Sustainable agriculture programs, despite being domains where women perform substantial labor, showed 79.5% male participation versus 62.0% female participation. These patterns indicate that women's exclusion from conservation programs is most pronounced in initiatives involving formal institutional structures and decision-making authority,

while programs focused on community-level activities demonstrate better gender inclusion.

**Table 3: Environmental Decision-Making Authority by Gender**

Decision Domain	Male Authority (%)	Female Authority (%)	Joint Authority (%)	Mean Authority Score (M/F)
Land use planning	81.0	12.5	6.5	4.2 / 1.8
Water resource allocation	76.5	18.0	5.5	4.0 / 2.1
Forest resource management	84.5	10.5	5.0	4.4 / 1.6
Agricultural practices	73.0	22.5	4.5	3.9 / 2.4
Waste disposal methods	62.0	29.0	9.0	3.5 / 2.7

The data in Table 3 reveals profound gender imbalances in environmental decision-making authority across all examined domains. Forest resource management exhibited the most extreme gender disparity, with 84.5% of decisions controlled exclusively by men compared to only 10.5% by women, reflected in mean authority scores of 4.4 for males versus 1.6 for females on a five-point scale. Land use planning similarly demonstrated male dominance with 81.0% male authority versus 12.5%

female authority. Even in agricultural practices, where women constitute the majority of laborers, men retained 73.0% decision-making authority compared to women's 22.5%. Joint decision-making remained minimal across all domains, never exceeding 9.0%. These findings substantiate ecofeminist critiques regarding systematic exclusion of women from environmental governance despite their substantial knowledge and stake in sustainable resource management.

**Table 4: Gender Disparities in Resource Access and Control**

Resource Category	Male Access (%)	Female Access (%)	Male Control (%)	Female Control (%)	Access-Control Gap (F)
Agricultural land	82.5	68.0	79.0	31.5	36.5
Water sources	88.0	85.5	75.5	42.0	43.5
Forest products	76.5	72.0	71.0	28.5	43.5
Financial credit	69.0	54.5	67.5	38.0	16.5
Technology/tools	74.5	48.0	72.0	29.5	18.5

Table 4 illustrates the critical distinction between resource access and resource control, revealing that women's access to resources substantially exceeds their control over those resources. While 68.0% of women reported access to agricultural land, only 31.5% possessed control over land-related decisions, creating an access-control gap of 36.5 percentage points. Water sources showed the largest absolute access-control gap of 43.5 percentage points, with 85.5% female access but merely 42.0% female

control. Forest products exhibited similar patterns with 72.0% female access versus 28.5% female control. These disparities demonstrate that despite women's extensive involvement in resource utilization, patriarchal structures maintain male control over decision-making and benefits. The data validates ecofeminist arguments that addressing environmental sustainability requires transforming gendered power relations governing resource control.

**Table 5: Correlation Between Gender Equality Indicators and Environmental Sustainability Outcomes**

Sustainability Indicator	Gender Equality Correlation Coefficient	Significance Level	Effect Size	R <sup>2</sup> Value
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Forest cover improvement	0.687	p<0.001	Large	0.472
Water quality enhancement	0.723	p<0.001	Large	0.523
Biodiversity conservation	0.651	p<0.001	Large	0.424
Soil health improvement	0.598	p<0.001	Medium	0.358
Waste reduction	0.712	p<0.001	Large	0.507

The correlation analysis presented in Table 5 demonstrates strong positive relationships between gender equality indicators and environmental sustainability outcomes. Water quality enhancement exhibited the strongest correlation ( $r = 0.723$ ,  $p < 0.001$ ), explaining 52.3% of variance in water quality improvements through gender equality measures. Waste reduction showed similarly robust correlation ( $r = 0.712$ ,  $p < 0.001$ ) with 50.7% explained variance. Forest cover improvement demonstrated substantial correlation ( $r = 0.687$ ,  $p < 0.001$ ) accounting for 47.2% of variance. All correlations achieved statistical significance at  $p < 0.001$  with medium to large effect sizes according to Cohen's standards. These findings provide empirical support for ecofeminist theoretical assertions that addressing gender inequality is integral to achieving environmental sustainability. The data suggests that programs incorporating gender-inclusive approaches influenced by ecofeminist principles generate measurably superior environmental outcomes compared to gender-neutral interventions.

## 6. Discussion

The empirical findings of this research provide substantial support for ecofeminist theoretical frameworks that conceptualize gender inequality and environmental degradation as interconnected phenomena requiring integrated solutions. The significant gender disparities documented across environmental education, program participation, decision-making authority, and resource control validate scholarly arguments that patriarchal structures systematically exclude women from environmental governance despite their critical roles in natural resource management (Agarwal, 2018; Shiva, 2016). These patterns persist even in domains such as agriculture and water management where women constitute primary users and possess extensive traditional ecological knowledge. The pronounced access-control gap revealed in the resource analysis offers particularly compelling evidence for materialist ecofeminist critiques of patriarchal property relations.

While women maintain substantial access to land, water, and forest resources through their labor contributions, they exercise minimal control over decisions regarding these resources and distribution of benefits derived from them. This disparity reflects what Mies and Shiva (2014) identify as the appropriation of women's subsistence labor within capitalist patriarchal systems that simultaneously exploit women's work and nature's productivity while denying them decision-making power. The data demonstrates that addressing environmental sustainability without transforming these gendered power relations will prove fundamentally inadequate. The strong positive correlations between gender equality indicators and environmental sustainability outcomes provide empirical validation for ecofeminist assertions regarding the transformative potential of gender-inclusive environmental governance. Communities demonstrating higher levels of women's participation in environmental decision-making achieved superior outcomes across multiple sustainability indicators including forest conservation, water quality, biodiversity protection, and waste management. These findings align with research by Rocheleau et al. (2013) documenting how women's environmental leadership generates enhanced conservation outcomes through application of local ecological knowledge, collaborative governance approaches, and long-term community commitments. The educational disparities documented in this research illuminate structural barriers preventing women's effective environmental participation. The substantial gender gaps in access to formal environmental education, climate awareness programs, and technical training limit women's capacity to engage with contemporary environmental challenges and contribute to policy discussions. This educational exclusion perpetuates cycles of marginalization wherein women's traditional ecological knowledge is devalued while they simultaneously lack access to formal environmental expertise, rendering them invisible in both traditional

and modern environmental governance frameworks (Leach, 2007).

The variation in gender parity across different types of conservation programs reveals important insights regarding the nature of women's environmental exclusion. Programs requiring formal institutional engagement and decision-making authority exhibited the most severe gender imbalances, while community-level activities demonstrated relatively better gender inclusion. This pattern suggests that women's exclusion intensifies as environmental governance becomes more formalized and institutionalized, reflecting broader patriarchal patterns that confine women to private/domestic spheres while reserving public decision-making for men. These findings support feminist political ecology analyses examining how environmental institutions reproduce gendered power hierarchies (Arora-Jonsson, 2011). The research findings carry significant implications for sustainable development policy and practice. The demonstrated relationships between gender equality and environmental sustainability suggest that integrating ecofeminist perspectives into environmental management is not merely an equity concern but a practical necessity for achieving conservation goals. Development programs that fail to address gender inequalities in environmental governance will likely prove less effective than gender-transformative approaches that challenge patriarchal structures limiting women's participation and leadership.

However, the research also reveals tensions within ecofeminist praxis requiring careful navigation. While the data demonstrates women's valuable contributions to environmental conservation, essentialist interpretations suggesting inherent feminine connections to nature must be avoided. As MacGregor (2014) cautions, such essentialism risks reinforcing stereotypes that confine women to environmental caretaking roles while excluding them from technological innovation and formal decision-making. The challenge lies in recognizing women's situated knowledge and leadership while simultaneously challenging the patriarchal divisions that devalue reproductive labor and naturalize women's environmental responsibilities. The intersectional dimensions of environmental marginalization require greater attention in future research and policy development. This study's focus on gender, while revealing significant disparities, may obscure additional axes of marginalization including caste, class, ethnicity, and indigeneity that compound women's environmental vulnerabilities. Dalit women, tribal women, and women from economically marginalized communities face multiple, intersecting forms of exclusion from environmental governance

that demand nuanced analytical and policy responses informed by intersectional ecofeminist frameworks.

## 7. Conclusion

This research establishes ecofeminism as a vital framework for understanding and addressing the interconnected crises of gender inequality and environmental degradation. The empirical evidence demonstrates systematic exclusion of women from environmental education, conservation programs, and decision-making processes despite their extensive knowledge and stake in natural resource management. The substantial gender disparities in resource control, even where access exists, reveal how patriarchal structures appropriate women's environmental labor while denying them authority over resource governance. The strong correlations between gender equality indicators and environmental sustainability outcomes validate ecofeminist theoretical assertions that achieving ecological sustainability requires transforming gendered power relations. Communities incorporating women's participation and leadership in environmental governance achieved measurably superior conservation outcomes across multiple indicators. These findings establish that gender-inclusive approaches informed by ecofeminist principles are not merely equity concerns but practical necessities for effective environmental management. The research contributes empirical foundations for policy recommendations integrating ecofeminist perspectives into sustainable development planning, demonstrating that addressing the dual crises of gender inequality and environmental degradation requires integrated solutions that challenge patriarchal structures governing both women and nature.

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