Asian Journal of Conservation Biology, July 2026. Vol. 15 No. 1, pp. 195–199 AJCB: SC0075/87779
ISSN 2278-7666 ©TCRP Foundation 2026 https://doi.org/10.53562/ajcb.87779

Short Communication

Ecofeminism and Biodiversity Conservation in Asia: A Review of Gendered Approaches to Sustainability

Hiranya Hazarika[1*], Sujata[1] , Shivani Vashist[2]

[1]*Department of English, Manav Rachna International Institute of Research Studies, Faridabad (Haryana)-121004, India*
[2]*Registrar, Regional Centre for Biotechnology, Pali, Faridabad, (Haryana)-121001, India*

(Received: October 07, 2025; Revised: February 18, 2026; Accepted: February 18, 2026)

ABSTRACT

Conservation biology increasingly acknowledges that effective biodiversity conservation is closely linked to social equity; however, gendered dimensions of environmental stewardship remain insufficiently examined within Asian contexts. This paper presents a narrative and conceptual review of ecofeminist and social -ecological scholarship to examine how women's knowledge, roles, and participation influence biodiversity conservation and sustainable development in Asia. Focusing on documented cases from South and Southeast Asia - including community forestry initiatives, indigenous resource management practices, and women-led environmental movements - the study situates gender within core conservation concerns such as ecosystem resilience, local biodiversity protection, and sustainable resource governance. Through thematic synthesis of existing literature and case-based evidence, the review identifies three conservation-relevant dynamics: (i) women's traditional ecological knowledge contributes to sustainable management of forests, water, and agro-biodiversity; (ii) gender-inclusive participation improves conservation outcomes by enhancing local compliance, stewardship, and institutional legitimacy; and (iii) ecofeminist frameworks provide analytical tools to critique exploitative power structures that undermine both ecological integrity and community-based conservation. The paper contributes to conservation biology by demonstrating how integrating gender equity and women's participation into conservation strategies can strengthen biodiversity outcomes in Asia. By linking ecofeminist theory with applied conservation practices, the study offers a conceptual foundation for gender-sensitive conservation planning, policy formulation, and community-based biodiversity management, highlighting women as indispensable actors in achieving long-term ecological sustainability.

Keywords: Ecofeminism, Women's Participation, Biodiversity Conservation, Social Ecology, Sustainable Development, Asia

INTRODUCTION

Biodiversity conservation in Asia increasingly confronts a paradox. The region hosts some of the world's richest biological diversity including tropical rainforests, mangrove ecosystems, alpine habitats, and freshwater wetlands while simultaneously experiencing rapid land-use change, extractive development, and ecological fragmentation (Myers et al., 2000; FAO, 2022). These ecological pressures unfold within social landscapes shaped by gendered divisions of labor, customary tenure systems, and unequal access to resources. Yet conservation policies and biological research frameworks have often treated ecological degradation as a technical problem, insufficiently engaging with the social systems that govern human–nature relations. This paper argues that biodiversity conservation in Asia cannot be meaningfully advanced without sustained attention to gender, particularly to women's roles as ecological knowledge holders, everyday resource managers, and collective actors in conservation practice. An ecofeminist perspective provides a valuable entry point for addressing this gap. Ecofeminist scholarship highlights how patriarchal and capitalist modes of production structure both gender inequality and environmental exploitation, shaping who bears the costs of ecological decline and who participates in conservation decision-making (Shiva, 1988; Agarwal, 1992). In Asian contexts, women's daily responsibilities for water collection, fuelwood gathering, seed saving, and subsistence agriculture place them in continuous interaction with biodiversity-rich landscapes. These interactions generate forms of traditional ecological knowledge that are directly relevant to species conservation, habitat management, and ecosystem resilience. Treating gender as peripheral to conservation therefore risks overlooking critical ecological intelligence embedded in local practice.

This paper contributes to conservation biology by offering a focused narrative and conceptual synthesis that links ecofeminist theory to concrete biodiversity outcomes in Asia. Rather than advancing ecofeminism

[*]*Corresponding Author's E-mail: jaanhazarika48@gmail.com*

as an abstract ethical position, the study examines how women's participation and knowledge materially affect conservation-relevant processes such as forest regeneration, agro-biodiversity maintenance, and sustainable resource governance. By synthesizing literature from conservation biology, environmental sociology, and gender studies, the paper addresses a key gap in existing research: the limited integration of gendered social analysis into biodiversity-focused conservation frameworks.

Ecofeminism is not a singular doctrine but a cluster of approaches united by the insight that social hierarchies and ecological degradation are structurally connected. From a conservation standpoint, this means that biodiversity loss cannot be understood solely through species decline or habitat metrics; it must also be analyzed through institutions of power, access, and decision-making that shape land use (Bookchin, 1982; Agarwal, 2010). When combined with social-ecological systems thinking, ecofeminism offers an analytical framework that treats ecosystems and human communities as mutually constitutive. Conservation outcomes are thus shaped not only by ecological variables but also by gendered labor, customary norms, and governance structures.

Empirical evidence from Asia demonstrates that women's involvement in conservation yields measurable biodiversity benefits. In India's community forestry programs, villages with higher female participation in forest management committees show improved forest regeneration and reduced illegal extraction compared to male-dominated institutions (Agarwal, 2009). Similarly, women-led self-help groups in Odisha and Jharkhand have played a central role in restoring degraded commons through collective protection and native species planting, resulting in increased tree density and species diversity (Sarin et al., 2003). In the Eastern Himalayas, women's seed-saving networks preserve indigenous crop varieties that enhance genetic diversity and climate resilience in mountain agro-ecosystems (Singh et al., 2016). These cases illustrate that women's ecological labor is not symbolic but produces tangible conservation outcomes.

Southeast Asia provides further evidence of gendered conservation impacts. Indigenous women in Indonesia and Malaysia have been at the forefront of resistance to oil palm expansion, defending customary forests that function as biodiversity refuges for endemic flora and fauna (Li, 2015). Their conservation efforts are often rooted in livelihood dependence on non-timber forest products and medicinal plants, linking biodiversity protection to household food security and health. Such movements demonstrate that women's ecological activism is closely tied to landscape-level conservation and challenges development models that prioritize monocultural expansion over ecological complexity.

While comparative global examples such as the Green Belt Movement are occasionally referenced in conservation literature to illustrate women-led environmental action, this paper treats them strictly as illustrative parallels rather than analytical anchors. The primary empirical focus remains Asia, where distinct socio-ecological histories and biodiversity pressures require region-specific analysis. This distinction is essential to avoid diluting the paper's geographical scope and to maintain relevance to Asian conservation biology.

Intersectionality further complicates gendered conservation dynamics in Asia. Women's experiences of environmental change differ across caste, class, ethnicity, and location. Indigenous women managing forest commons face different vulnerabilities and conservation opportunities than urban or landless women dependent on degraded peri-urban ecosystems. Recognizing these differences is critical for designing conservation interventions that do not reproduce existing inequalities. Ecofeminist approaches encourage such multidimensional analysis, emphasizing that conservation policies must address overlapping social and ecological vulnerabilities to be effective.

From a governance perspective, integrating women's participation into conservation planning also requires rethinking evaluation metrics. Conventional indicators such as protected area coverage or deforestation rates remain essential, but they overlook social dimensions that influence long-term sustainability. Gender-inclusive conservation initiatives have been shown to enhance compliance, reduce conflict, and strengthen local stewardship institutions (Westermann et al., 2005). These outcomes directly affect biodiversity persistence and ecosystem resilience.

The core contribution of this paper lies in bridging ecofeminist theory with conservation biology by demonstrating how women's knowledge and participation generate measurable biodiversity benefits in Asian contexts. By synthesizing gender-focused scholarship with conservation outcomes, the study advances a framework for gender-sensitive biodiversity conservation that is empirically grounded, policy-relevant, and scientifically actionable. In doing so, it positions women not as peripheral stakeholders but as central actors in sustaining Asia's ecological futures.

LITERATURE REVIEW

Ecofeminism and feminist political ecology provide a critical framework for understanding biodiversity loss as both an ecological and social process. Foundational scholars such as Merchant, Shiva, and Plumwood demonstrate how modern development and scientific rationalities have historically linked the domination of women with the exploitation of nature through hierarchical dualisms and extractive economic systems. Feminist political ecology extends this insight by grounding gender analysis in material outcomes such as access to land, resource governance, and ecological change. From a conservation biology perspective, these approaches are valuable because they shift attention from abstract ethics to mechanisms that directly affect biodiversity outcomes, including decision making authority, resource use practices, and stewardship incentives. When conservation institutions exclude women or undervalue care based knowledge systems, they often undermine local compliance, adaptive management, and ecosystem resilience. Integrating gender therefore strengthens conservation science by improving how human behavior, governance, and ecological feedbacks are understood.
Empirical evidence from Asia demonstrates that women's traditional ecological knowledge and participation generate measurable biodiversity benefits. In South Asia, community forestry studies show that forests managed by groups with meaningful female participation exhibit higher regeneration rates, reduced illegal harvesting, and more diverse species composition compared to male dominated institutions. In the Eastern Himalayas and Northeast India, women led seed saving networks maintain indigenous crop varieties that preserve genetic diversity and enhance resilience to climate variability. In coastal South and Southeast Asia, women's involvement in mangrove restoration and fisheries

co management has contributed to improved nursery habitats and increased local fish abundance. These cases illustrate that women's ecological knowledge is not anecdotal but produces outcomes directly relevant to conservation biology, including habitat recovery, species diversity, and ecosystem stability. The literature thus supports a central proposition of this study: empowering women through rights, participation, and recognition of traditional ecological knowledge constitutes a scientifically grounded pathway to biodiversity conservation in Asia rather than a purely normative or social objective.

OBJECTIVES

This study aims to critically review and synthesize existing scholarship on ecofeminism, feminist political ecology, and biodiversity conservation in Asia, with particular attention to women's roles in ecological stewardship. The specific objectives of the review are:

1. To examine how women's traditional ecological knowledge contributes to biodiversity conservation outcomes in Asian ecosystems, including forests, agroecosystems, wetlands, and coastal landscapes.
2. To assess the relationship between women's participation in conservation governance and measurable conservation outcomes, such as resource regeneration, species diversity, and ecosystem resilience, as documented in Asian case studies.
3. To synthesize ecofeminist and feminist political ecology perspectives to identify structural drivers of gendered exclusion in conservation practices and evaluate how these structures influence biodiversity loss and sustainability in Asia.

To identify key gaps, limitations, and future research directions in the gender–biodiversity literature relevant to conservation biology, policy formulation, and community-based conservation in Asian contexts.

METHODOLOGY

This study adopts a qualitative narrative review methodology to synthesize scholarship on ecofeminism, feminist political ecology, and biodiversity conservation in Asia. Literature was identified through systematic searches of Web of Science, Scopus, Google Scholar, JSTOR, and ScienceDirect, conducted between January 1990 and December 2024. Search terms included combinations of *ecofeminism*, *feminist political ecology*, *women and biodiversity*, *gender and conservation*, *traditional ecological knowledge*, and *Asia*.

Inclusion criteria comprised peer-reviewed journal articles, academic books, policy documents, and reputable institutional reports that (i) focused on Asian contexts, (ii) addressed women's roles, gendered knowledge systems, or participation in conservation, and (iii) demonstrated relevance to biodiversity outcomes such as habitat protection, species diversity, or ecosystem management. Studies lacking explicit conservation relevance or focusing exclusively outside Asia were excluded, except where used for brief comparative framing.

In addition to literature synthesis, documented case studies and environmental movements were reviewed, including the Chipko movement in India, women's participation in community forestry in South Asia, indigenous women's resistance to palm oil expansion in Southeast Asia, and women-led mangrove restoration initiatives. The selected materials were analyzed thematically to identify recurring patterns linking women's knowledge, governance participation, and conservation outcomes. This integrative review approach enables a structured synthesis of ecofeminist pathways relevant to biodiversity conservation and sustainable development in Asia.

DISCUSSION

This study demonstrates that women's participation, traditional ecological knowledge, and care-oriented stewardship contribute measurably to biodiversity conservation outcomes in Asian ecosystems. By synthesizing ecofeminist and feminist political ecology scholarship with empirical evidence from forests, agroecosystems, and coastal landscapes, the discussion moves beyond normative claims to show how gender-inclusive conservation improves ecological performance, governance legitimacy, and long-term sustainability.

Evidence from community forestry in South Asia provides some of the clearest links between women's participation and biodiversity outcomes. Comparative studies in India and Nepal show that forest user groups with higher levels of female decision-making authority exhibit significantly improved forest regeneration, higher tree density, and lower rates of illegal harvesting compared to male-dominated institutions (Agarwal, 2009; Chhatre & Agrawal, 2008). These outcomes are not explained solely by participation quotas; rather, they correlate with women's influence over rule design, enforcement, and harvest calendars. Such findings support the argument advanced in this study that gender-inclusive governance strengthens conservation effectiveness by aligning management rules with subsistence needs and ecological thresholds.

Women's traditional ecological knowledge also contributes directly to species and genetic diversity. In agro-biodiversity systems across the Eastern Himalayas and Northeast India, women-managed seed networks have been shown to conserve a greater number of indigenous crop varieties, enhancing resilience to pests and climate variability (Singh et al., 2016). Similarly, studies of home gardens in Sri Lanka and Southeast Asia report higher plant species richness in plots managed primarily by women, reflecting diversified planting strategies and knowledge of medicinal and food plants (Kumar & Nair, 2004). These practices function as in situ conservation mechanisms, maintaining genetic resources that formal conservation programs often overlook.

Coastal ecosystems provide further habitat-level evidence. In India and Bangladesh, women's involvement in mangrove restoration and fisheries co-management has been associated with improved seedling survival rates, enhanced nursery habitats, and increased fish abundance (Datta et al., 2012; FAO, 2018). These outcomes illustrate how women's everyday engagement with tidal cycles, species behavior, and resource limits supports ecosystem recovery. The findings align with broader social-ecological research showing that conservation success depends on integrating local knowledge into adaptive management (Berkes, 2018).

The discussion also highlights how women-led resistance to extractive land-use change contributes to biodiversity protection at landscape scales. Indigenous women's opposition to oil palm expansion in Indonesia

and Malaysia has delayed or halted conversion of biodiverse forests into monocultures, preserving habitats for endemic species and maintaining ecosystem services (Li, 2015). While such resistance is often framed as social activism, it has clear conservation implications: preventing forest loss remains one of the most effective strategies for biodiversity preservation in tropical regions (Gibson et al., 2011).

Comparing these findings with mainstream conservation biology reveals persistent gaps. Conservation strategies frequently prioritize protected area expansion and species-level metrics while underestimating the role of governance quality and social equity in sustaining biodiversity (West et al., 2006). This study supports calls to integrate social variables into conservation science, showing that legitimacy, compliance, and stewardship capacity are as critical as ecological design. Gender -inclusive approaches improve these social foundations, increasing the durability of conservation outcomes.

However, the discussion also underscores important caveats. Gender inclusion does not automatically translate into positive ecological outcomes if participation is symbolic or if internal inequalities remain unaddressed. Intersectional analyses show that caste, class, and ethnicity mediate who benefits from conservation initiatives, and poorly designed programs can reinforce existing hierarchies (Agarwal, 2010). Moreover, essentializing women as innate conservationists risks increasing unpaid labor burdens. Effective interventions therefore require redistributive measures, secure tenure, and compensation mechanisms that recognize women's time and labor.

Market-based conservation instruments present additional challenges. Studies of carbon and biodiversity offset schemes indicate that without safeguards, financialization can exclude women and customary users from benefits and decision-making (Corbera et al., 2017). Ecofeminist critiques caution that commodification may undermine care-based stewardship and weaken social norms that support conservation. The evidence reviewed here suggests that market mechanisms must be embedded within rights-based, gender-sensitive governance frameworks to avoid ecological and social harm.

Overall, this discussion demonstrates that ecofeminist pathways are not abstract ideals but empirically grounded strategies that enhance biodiversity conservation in Asia. Women's knowledge contributes to species and genetic diversity, gender-inclusive governance improves forest and habitat outcomes, and resistance to extractive development protects intact ecosystems. Integrating these insights into conservation biology strengthens both scientific understanding and policy effectiveness. Biodiversity conservation, as the evidence shows, is most resilient when ecological objectives are pursued alongside gender equity and social justice.

RESULTS AND OUTCOMES OF THE REVIEW

The qualitative narrative review yielded consistent patterns across the literature linking women's participation, traditional ecological knowledge, and governance inclusion to improved biodiversity conservation outcomes in Asian contexts. Analysis of community forestry, agro-biodiversity systems, and coastal resource management revealed three recurring outcome domains: ecological performance, governance effectiveness, and social resilience.

First, ecological outcomes indicate that conservation initiatives with substantive female participation are associated with improved habitat condition. Community forest groups in India and Nepal with women in decision-making roles report higher forest regeneration, greater tree density, and reduced illegal harvesting. Women-managed agro-ecosystems maintain higher crop varietal diversity, supporting in situ genetic conservation, while women's involvement in mangrove restoration improves seedling survival and nursery habitat function.

Second, governance outcomes show that gender-inclusive institutions enhance conservation effectiveness. Meaningful participation by women in rule design, monitoring, and enforcement increases compliance and reduces conflict by aligning regulations with local ecological cycles and subsistence needs. Exclusionary or technocratic governance structures weaken stewardship and undermine conservation durability.

Third, social and livelihood outcomes are tightly linked to ecological success. Women-led initiatives that integrate biodiversity protection with food security and livelihood diversification strengthen long-term stewardship. In contrast, symbolic participation or exclusion under market-based conservation mechanisms is associated with weaker biodiversity outcomes and increased inequity.

Overall, the results indicate that women's knowledge systems, governance participation, and collective action contribute measurably to biodiversity conservation in Asia. These outcomes support the central proposition of the study that gender-responsive and ecofeminist-informed approaches are not supplementary but integral to effective conservation biology and sustainable development.

CONCLUSION

This study affirms that biodiversity conservation in Asia is most effective when women's knowledge, participation, and governance roles are treated as integral components of conservation systems rather than as supplementary social considerations. Evidence synthesized across forest, agro-ecological, and coastal contexts demonstrates that women's traditional ecological knowledge contributes directly to measurable biodiversity outcomes, including improved forest regeneration, maintenance of crop genetic diversity, enhanced mangrove restoration success, and increased ecosystem resilience. These outcomes are particularly relevant in Asia, where conservation challenges are closely intertwined with subsistence livelihoods and common-pool resource use.

The review further indicates that gender-inclusive governance improves conservation effectiveness by strengthening institutional legitimacy, compliance, and adaptive capacity. Conservation initiatives that enable women's substantive participation in decision-making and enforcement are more likely to align management rules with ecological cycles and household needs, thereby supporting habitat protection and sustainable resource use. Conversely, exclusionary or tokenistic approaches weaken stewardship incentives and undermine long-term conservation outcomes. Ecofeminist and feminist political ecology perspectives help explain these patterns by identifying how extractive development models, insecure tenure, and market-driven conservation instruments can simultaneously marginalize women and erode biodiversity.

recommendations emerge. First, biodiversity policies in Asia should explicitly integrate gender-responsive governance by ensuring women's meaningful authority in community-based conservation institutions, not merely formal representation. Second, conservation planning should incorporate women's traditional ecological knowledge into monitoring, restoration, and adaptive management frameworks, recognizing it as a source of ecological data relevant to species diversity, habitat condition, and resilience. Third, legal recognition of customary tenure and safeguards against exclusionary market mechanisms are essential to protect biodiversity-rich landscapes and the communities that steward them. Finally, conservation success should be evaluated using combined ecological and social indicators, including forest cover change, species diversity, seed varietal continuity, and livelihood security.

In sum, the study concludes that ecofeminist pathways offer empirically supported and policy-relevant strategies for biodiversity conservation in Asia. Empowering women as knowledge-holders and decision-makers strengthens conservation outcomes and enhances the durability of ecological protection. Integrating these insights into conservation biology and policy is therefore not only a matter of equity but a practical necessity for sustaining Asia's threatened ecosystems.

REFERENCES

Agarwal, B. 1992. The gender and environment debate: lessons from India. *Feminist Studies* 18(1): 119–158.

Agarwal, B. 2000. Conceptualising environmental collective action: why gender matters. *Cambridge Journal of Economics* 24(3): 283–310.

Agarwal, B. 2001. Participatory exclusions, community forestry, and gender: an analysis for South Asia. *World Development* 29(10): 1623–1648.

Agarwal, B. 2009. Gender and forest conservation: the impact of women's participation in community forest governance. *Ecological Economics* 68(11): 2785–2799. https://doi.org/10.1016/j.ecolecon.2009.04.025

Bennett, N.J., Roth, R., Klain, S.C., Chan, K.M.A., Clark, D.A., Cullman, G., Epstein, G., Nelson, M.P., Stedman, R., Teel, T.L., Thomas, R.E.W., Wyborn, C., Curran, D., Greenberg, A., Sandlos, J. & Veríssimo, D. 2017. Mainstreaming the social sciences in conservation. *Conservation Biology* 31(1): 56–66. https://doi.org/10.1111/cobi.12788

Berkes, F. 1999. *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*. Routledge, London.

Berkes, F. 2018. *Sacred Ecology*. 4th ed. Routledge, New York.

Chhatre, A. & Agrawal, A. 2008. Forest commons and local enforcement. *Proceedings of the National Academy of Sciences USA* 105(36): 13286–13291.

Datta, D., Chattopadhyay, R.N. & Guha, P. 2012. Community-based mangrove management: a review from the Indian Sundarbans. *Ocean & Coastal Management* 56: 46–54.

FAO. 2018. *Gender and fisheries: policy brief*. Food and Agriculture Organization of the United Nations, Rome.

FAO. 2022. *The State of the World's Forests*. FAO, Rome.

Gadgil, M., Berkes, F. & Folke, C. 1993. Indigenous knowledge for biodiversity conservation. *Ambio* 22(2–3): 151–156.

Gibson, L., Lee, T.M., Koh, L.P., Brook, B.W., Gardner, T.A., Barlow, J., Peres, C.A., Bradshaw, C.J.A., Laurance, W.F., Lovejoy, T.E. & Sodhi, N.S. 2011. Primary forests are irreplaceable for sustaining tropical biodiversity. *Nature* 478: 378–381.

Guha, R. 1989. *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*. University of California Press, Berkeley.

Kumar, B.M. & Nair, P.K.R. 2004. The enigma of tropical homegardens. *Agroforestry Systems* 61–62: 135–152.

Li, T.M. 2015. Social impacts of oil palm in Indonesia: a gendered perspective. *Journal of Peasant Studies* 42(3–4): 703–724.

Merchant, C. 1980. *The Death of Nature: Women, Ecology, and the Scientific Revolution*. Harper & Row, New York.

Plumwood, V. 1993. *Feminism and the Mastery of Nature*. Routledge, London.

Rocheleau, D., Thomas-Slayter, B. & Wangari, E. 1996. *Feminist Political Ecology: Global Issues and Local Experiences*. Routledge, London.

Shiva, V. 1988. *Staying Alive: Women, Ecology and Development*. Zed Books, London.

Singh, R.K., Pretty, J. & Pilgrim, S. 2016. Traditional knowledge and biocultural diversity: learning from tribal communities for sustainable development. *Journal of Environmental Planning and Management* 59(6): 1–20.

Westermann, O., Ashby, J. & Pretty, J. 2005. Gender and social capital: the importance of gender differences for the maturity and effectiveness of natural resource management groups. *World Development* 33(11): 1783–1799.