

## **WOMEN AND ENVIRONMENTAL SUSTAINABILITY: AN ECOFEMINIST PERSPECTIVE ON EMPOWERMENT AND CONSERVATION**

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### **Abstract**

Environmental degradation, climate change, biodiversity loss, and increasing resource scarcity represent some of the most pressing global challenges of the twenty-first century. These crises are deeply intertwined with social inequalities, particularly gender inequality, as women—especially in rural, Indigenous, and developing contexts—are disproportionately affected by environmental harm due to their roles in agriculture, water collection, forest use, and household care. At the same time, women remain among the most influential yet under-recognised actors in environmental conservation and sustainability. This paper examines the dual reality of women's heightened vulnerability to environmental degradation and their indispensable role as environmental stewards, knowledge holders, and sustainability leaders.

Drawing upon empirical evidence, policy frameworks, and case studies from India and the global South, the paper highlights women's contributions across key domains, including sustainable agriculture, traditional ecological knowledge systems, forest conservation, water governance, and grassroots environmental movements. The paper also traces the historical and contemporary role of women in environmental movements and sustainability leadership, underscoring their impact on environmental policy, conservation outcomes, and community empowerment.

Despite these contributions, the paper identifies persistent structural barriers that limit women's access to land, financial resources, technology, and decision-making spaces, resulting in their continued underrepresentation in environmental governance. The study argues that excluding women from environmental policymaking undermines both equity and effectiveness, while gender-responsive approaches lead to more inclusive, sustainable, and resilient outcomes.

Anchored in ecofeminist perspectives, the paper establishes a conceptual and practical link between women's empowerment and environmental sustainability. It concludes that integrating gender-responsive policies, women-led conservation initiatives, and inclusive governance mechanisms is essential for achieving sustainable environmental outcomes and advancing social justice in the face of escalating ecological crises.

**Key Words:** Women empowerment, climate change, sustainability, vulnerability

## **Introduction**

As the world grapples with the crises of climate change and biodiversity loss, there's a powerful force quietly working to turn the tide- Women.

Environmental degradation and its deterioration leading to climate change are pressing global challenges that require collective and innovative actions to address them. It is primarily due to the irresponsible use of natural resources. Anthropogenic activities and consumerist lifestyles have disrupted the balance of nature. The environment is threatened by the destruction of ecosystems, the extinction of flora and fauna, and the pollution of the air, water, and soil. This has led to numerous conflicts in society. It has impacted the communities worldwide.

As a result, many environmental movements emerged and a large number of such movements have been initiated by women. Women contribute significantly to protecting and restoring the environment as they have extensive traditional and modern knowledge of their surroundings. Women are often in charge of caring for and protecting natural resources within their households and communities. They are significantly impacted by environmental destruction since it eliminates their means of subsistence.

Climate change, environmental degradation, and resource depletion disproportionately affect women, particularly in developing and rural contexts, where women bear primary responsibility for securing water, food, fuel, and household well-being. Environmental crises intensify existing gender inequalities by increasing women's unpaid care work, exposing them to health risks, food insecurity, displacement, and livelihood loss. At the same time, women remain underrepresented in environmental decision-making, despite being among the most affected stakeholders.

Their daily engagement with agriculture, forest produce, water management, and caregiving has generated rich reservoirs of traditional ecological knowledge, sustainable farming practices, seed conservation methods, and community-based resource management systems. From smallholder farming and biodiversity preservation to waste management and climate adaptation at the household level, women's contributions are central to environmental sustainability, even though they often go unrecognised and unsupported.

Women's participation in environmental protection has helped societies cultivate the responsibility essential for maintaining a healthy relationship between human needs and the Earth's resources to ensure a sustainable future. The integration of gender equality and

environmental stewardship not only creates opportunities for inclusive development but also strengthens conservation and ecosystem restoration efforts.

The connection between women and the environment is deeply intertwined, shaping not only the well-being of communities but also the health of ecosystems and the planet as a whole. Women's roles in resource management, conservation, and sustainable practices have been historically underrepresented and undervalued. However, recent research and advocacy efforts have highlighted the critical importance of women's empowerment and participation in addressing global environmental challenges.

Against this backdrop, the present article seeks to establish a conceptual and practical link between environmental sustainability and women's empowerment. It examines women's heightened vulnerability to environmental harm alongside their indispensable role in conservation, and argues that empowering women is not merely a matter of equity but a prerequisite for sustainable environmental outcomes. By integrating gender-responsive policies, women-led conservation initiatives, and ecofeminist principles into environmental governance, this article proposes pathways through which women's empowerment and environmental conservation can be advanced simultaneously, ensuring resilient ecosystems and more just societies.

### **Literature review**

Scholarly literature increasingly recognises the intrinsic link between gender and environmental sustainability, emphasising that environmental degradation and climate change are not gender-neutral phenomena. Early feminist environmental scholarship argues that the exploitation of nature and the subordination of women stem from similar patriarchal and extractive structures. Ecofeminist literature highlights women's close relationship with nature, shaped by their roles in agriculture, caregiving, and resource management, and positions women as key agents of ecological preservation rather than passive victims of environmental harm.

Reports by the Food and Agriculture Organization (FAO), UN Women, and the United Nations Environment Programme (UNEP) consistently show that women play a central role in agriculture, water management, forestry, and household food security, yet face systemic barriers such as limited land ownership, unequal access to credit, and exclusion from decision-making. Research on traditional ecological knowledge underscores women's role as custodians of biodiversity, seed conservation, and indigenous medicinal practices. Studies from South

Asia, Africa, and Latin America illustrate how women's knowledge systems contribute to climate adaptation and resilience at the community level. Recent scholarship focuses on women-led environmental movements and sustainability leadership, highlighting grassroots initiatives such as community water governance, agroecology, and renewable energy projects.

### **Objectives**

The present research paper seeks to examine the interrelationship between women's empowerment and environmental sustainability, with a particular focus on women's roles, vulnerabilities, and leadership in environmental governance and conservation. The specific objectives of the study are to analyse the gendered impacts of environmental degradation and climate change, particularly how ecological crises disproportionately affect women in rural, Indigenous, and developing contexts and to examine the role of women as environmental stewards, with emphasis on their contributions to sustainable agriculture, forest conservation, water management, and biodiversity preservation.

### **Research Methodology**

This research adopts a qualitative and descriptive methodology, grounded in an interdisciplinary approach that integrates perspectives from environmental studies, gender studies, development economics, and public policy. The methodology is designed to critically analyse women's roles in environmental sustainability while capturing both empirical evidence and normative frameworks.

The study is descriptive and analytical in nature. It seeks to describe existing realities concerning women's participation in environmental sustainability and analyse the structural factors influencing their roles, vulnerabilities, and leadership.

The research is primarily based on secondary data, collected from a wide range of credible and authoritative sources, including Reports and publications of international organisations such as the United Nations (UN Women, UNEP, FAO, World Bank, OECD), Government policies, national reports, and legislative frameworks from India, Academic journals on gender, environment, and sustainability and case studies.

### **Women as Environmental Stewards**

For centuries, women have been the silent guardians of the environment. In many parts of the world, women are key players in conservation efforts, as their intimate knowledge of local

ecosystems and their experience with environmental changes often make them the first to notice the impact of deforestation, pollution, or droughts. Through their roles as caregivers, resource gatherers, and farmers, their reliance on natural resources for their livelihood makes them highly attuned to environmental changes, driving them to develop adaptive strategies and preserve ecological knowledge through cultural traditions. From understanding the seasons to conserving water and soil, women have been the stewards of the environment and agricultural practices that preserve biodiversity. This expertise, often rooted in generations of lived experience, is indispensable in the mission to protect our planet. When women are given the space to lead, they bring fresh ideas, innovative solutions, and a deep-rooted commitment to sustainability.

### **Women in Agriculture**

In developing countries, women are predominantly dependent on nature for survival. Their innate sensitivity to the environment, natural skills for resource management, and structured ecological consciousness make them competent conservationists. Women are usually in charge of managing and protecting their domestic resources. They spend most of their time maintaining forests, wetlands, and farms and obtaining and storing food, firewood, water, and livestock feed. They provide food for the majority of people, especially in rural areas. About 60 to 80 percent of food is produced by women alone in developing nations<sup>1</sup>.

In sub-Saharan Africa, 66 percent of women's employment is in agrifood systems, compared with 60 percent of men's employment. In southern Asia, 71 percent of women in the labour force work in the agrifood system versus 47 percent of men<sup>2</sup>. Any amount of change in the agricultural pattern has a huge impact on the women and their financial position. Crop loss due to extreme weather events or reduction in availability of firewood and water supply leads to economic and social distress in women.

As per FAO, on an average, women earn 82 cents for every dollar earned by men in wage employment in agriculture.<sup>3</sup> Women comprised 38 percent of all agricultural workers in crop, livestock, fisheries and forestry production around the world in 2019.<sup>4</sup> Despite their extensive control over agriculture, livestock and forestry, women don't have much rights and ownership over the land. Women make up 43% of the global agricultural workforce, yet they own less than 20% of farmland and receive only 10% of agricultural credit.<sup>5</sup>

Women not only grow crops but also create nutritious food out of the produce. They are responsible for 50-80% of food production in developing countries and play a key role

in household nutrition and food distribution.<sup>6</sup> Women-led agricultural cooperatives and rural enterprises create stronger local economies and more resilient food supply chains.

Women adopt sustainable farming techniques at higher rates than men, including crop diversification, organic farming, and soil conservation.<sup>7</sup> Studies have revealed that women are not only involved in eco-friendly professions but are also more willing to implement climate-resilient techniques in their professions. Studies from Nepal indicate that rural women's involvement in planting, weeding, storing produce, and crop management is high. A cross-sectional survey of 383 ECA farmers across the Kavre, Dhading, and Chitwan districts in Bagmati Province reveals that 72.6% are willing to learn about ECA, driven by climate change concerns, economic incentives, and market access.<sup>8</sup>

Despite their significant role, women in agriculture continue to face barriers that limit their access to land, financial resources, and technology. Erratic rainfall, droughts, floods, and rising temperatures reduce crop yields. Women farmers, who often cultivate marginal lands and rely on rain-fed agriculture, are more vulnerable to these losses, leading to food insecurity and loss of livelihoods. Women farmers have less access to credit, irrigation facilities, quality seeds, fertilizers, and climate-smart agricultural technologies. This limits their ability to adapt to changing climatic conditions and adopt resilient farming practices. The climate change induced

### **Women and Traditional Knowledge**

Women play diverse and multifaceted roles as knowledge holders in Indigenous Knowledge Systems. In many communities, women are the primary transmitters of traditional ecological knowledge, particularly in areas related to agriculture, resource management, and health. Their expertise often centres on practices that sustain their families and communities, such as seed selection, crop rotation, and organic farming techniques. In this regard, women are not merely passive recipients of knowledge but active contributors and innovators. In addition to agricultural knowledge, women often possess intricate understandings of medicinal plants and traditional healing practices. They serve as healers or spiritual leaders, drawing from a rich repository of knowledge about local flora and their healing properties. This knowledge is typically passed down through generations, ensuring the survival of both cultural practices and plant species. Acknowledging women's contributions in both agriculture and health emphasizes the importance of their roles in ecological sustainability and community well-being.

Communities also benefit from their traditional knowledge of biodiversity in many ways for food, medicine, and healthcare. Andean women engage in traditional farming practices,

utilizing their intimate knowledge of microclimates and soil conditions to cultivate diverse crops. Their efforts in seed saving and community seed banks not only contribute to food security but also reinforce cultural identity.<sup>9</sup> In Maharashtra, where tribes like the Bhils, Gonds, Warlis, and Mahadeo Kolis reside, women's roles in preserving indigenous knowledge are especially prominent.<sup>10</sup> Knowledge about medicinal plants is highly specialized among tribal women, particularly related to treating common ailments, childbirth, and seasonal diseases. Indigenous women in Odisha and Telangana conserve traditional millets such as ragi, kodo, foxtail millet, etc., that require less water, are not dependent on chemical fertiliser and are resilient to climate variability. Similarly, Adivasi women in central India sustainably harvest herbs such as ashwagandha, amla and giloy using rotational harvesting to allow regeneration without any uprooting.

However, younger generations may not be as knowledgeable due to shifts toward modern healthcare systems. Migration and urbanization are leading to the erosion of traditional knowledge systems. Younger women, particularly those who migrate for work or education, often lose connection with these practices and are less interested in learning them. Industrialisation and the introduction of modern techniques are replacing traditional methods, resulting in the loss of indigenous agricultural and knowledge, especially ecological knowledge among women.

### **Women and Forest Conservation**

Across the world's forests, women are not only dedicated stewards of these vital ecosystems but also trailblazers in reshaping the landscape of gender equality in environmental conservation. The roles women assume in forestry, including subsistence gathering, wage labour, tree cultivation, and participation in community forestry programs, underscore their multifaceted contributions to environmental sustainability and economic resilience.

While forest management and governance have historically been male-dominated, research shows that women's perspectives are equally critical to forest conservation and restoration efforts. Women often have unique knowledge of trees and forests based on their distinct roles in forest management and have applied this knowledge to protecting and monitoring forests. In rural Cameroon, women farmers have led agroforestry projects across 18 villages, establishing nurseries and planting over 72,000 trees including fruit trees and mangroves. These actions improve soil health, biodiversity, and carbon sequestration while creating sustainable incomes.<sup>11</sup>

Women give preference to diverse forest species that can be used for compost, fodder, fuelwood, water recharge and herb-based medicines. They grow traditional crops that have high nutritional value and ensure food and nutrition security, not just for human beings but for animals too. Crops are grown using mixed cropping systems, where 8-12 crops are grown together in one field. This maintains soil fertility, arrests soil erosion, and ensures the availability of different types of food in the household. These practices are being adopted by women in other parts of India, born out of an intrinsic concern for human, animal and

### **Women and Water Conservation**

Water scarcity is a stark reality for a significant portion of India. UNICEF estimates over two-thirds of districts face extreme water depletion, disproportionately affecting women, especially in rural and marginalised areas. The International Development Enterprises estimates that women in India spend 150 million workdays annually fetching water for domestic use.<sup>13</sup> The economic and quality of life cost of this is undeniable: It keeps girls out of school and affects their academic performance, can make them more vulnerable to violence during the commute, may result in physical strain, and lessens the time women can spend on generating income, household tasks, skill development, or leisure activities.

The roles extend beyond homes; they are the traditional guardians of clean water in households, ensuring consumption and hygiene. This is crucial for effective water governance, where local ownership and regulation are pillars of sustainable resource development. Their absence at decision-making tables deprives the process of critical, firsthand insights into domestic water use and an opportunity to empower them. This exclusion stifles their voices and deprives the sector of real-world knowledge, further hindering access for these primary custodians and curbing the opportunity of enhanced confidence and agency of women. This is going to be all the more important in the context of the intensifying water challenges – the Organisation for Economic Co-operation and Development projects a 55% demand increase globally by 2050. Resource preservation hinges on women's active engagement and empowerment in water governance.<sup>14</sup>

The evidence for women's role in water governance is widespread and compelling, and it holds the key to uplifting entire communities from water scarcity, improving public health, and fostering economic development. By ensuring women's voice in water security plan for villages in some districts of Rajasthan, women have not only emphasized on increasing the supply of water through water harvesting, but also influenced the water demand through change

of cropping pattern to reduce the usage of water for irrigation. Women have revived the Women's groups known as Jal Sahelis in the Bundelkhand region (Madhya Pradesh & Uttar Pradesh) have been reviving dry water bodies across approximately 200 villages, helping to restore water availability, improve agricultural productivity, and reduce water scarcity for rural households. These women organise community meetings with local panchayats and have helped resolve water crises where women previously had to walk long distances to fetch water.<sup>16</sup>

The evidence of women's active role in water conservation is undeniable. women's leadership is crucial for sustainable water management, and we must not ignore their traditional knowledge. In fact, a World Bank study found that projects with women's involvement were six to seven times more effective.<sup>17</sup> To unlock this potential, stakeholders must invest in training and education programs that equip women with the skills to implement meaningful water conservation efforts locally. Further, women in key decision-making bodies is crucial to ensure representation and effective contribution, guaranteeing their long-term inclusion.<sup>18</sup>

In India, the Nari Shakti Se Jal Shakti initiative is a groundbreaking effort that is leveraging women's leadership in water conservation. India faces a severe water crisis, with nearly 40 per cent of its population projected to lack access to clean drinking water by 2030. Through this initiative women mobilised the entire communities to adopt water-saving practices, reduce wastage and protect natural water bodies. The initiative also contributes to the United Nations-mandated Sustainable Development Goals 5 and 6, which focus on gender equality and access to water and sanitation.<sup>19</sup>

### **Women and Environmental Movements**

Women have played a significant role in environmental conservation, with their participation dating back to 1731 in Rajasthan. Amrita Bai of Khejarali village, near Jodhpur, Rajasthan, was

In the 1970s, women from rural India began to take the front. The Chipko Movement in Chamoli district in Uttarakhand in 1972, led by Sundarlal Bahuguna and Bachni Devi and Gaura Devi, played a significant role. The Silent Valley Movement in 1978, led by Sughatha Kumari, was against hydroelectric projects to conserve the evergreen forest. The movement aimed to preserve the Silent Valley biodiversity hotspot. The movement opposed the construction of a dam for a hydroelectric project, which would submerge the entire evergreen forest. Prime Minister Indira Gandhi called off the project, and it was declared a National Park

in 1985. The Navdanya movement, started by Vandana Shiva in 1982, promoted biodiversity and encouraged women to promote conventional farming practices in India. "Navadanya " is the largest organic farming movement which means nine crops.<sup>21</sup>

The Aapiko movement in 1983, led by villagers in Uttara Kannada district, showed a large number of rural women participations. In September 1983, men, women and children of Salkani (a village in Western Ghats) "hugged the trees" in Kalase forest. This movement was against government policy to open forest for industrial development. The members of Mahila Mandal include Adivasi women joined for protection of rainforest by writing down to the government for halting of woodcutting. The village women conducted awareness programmes through foot marches, slideshows, folk dance, street plays, and dramas. Thus with the strong protest from people, Government was forced to halt industrial policy on Western Ghats which resulted in destruction of forest.<sup>22</sup>

Narmada Bachao Andolan, launched in 1989, was another significant environmental movement where women played a pivotal role. Under Medha Patkar's leadership, the Andolan organized a Gandhian protest of non-violence, resulting in a satyagraha and hunger strike. The World Bank funded the project, but withdrew it in 1993 after protests. Currently, numerous environmental activists are working for environmental protection and conservation, including To empower women, the Indian government has implemented various environmental programs, including the Environmental Gender Index (EGI), which ranks countries on gender equality and women's empowerment in the environmental arena. The National Forest Policy 1988 and Joint Forest Management (JFM) program of the 1990s mandated that women comprise 33% of the membership of the Vana Samarakshana Samitis, aiming to manage deforestation through joint management agreements with local communities.<sup>24</sup> The National Policies for Women 2016 also prioritize women's rights and participation in environment friendly technologies, promoting organically grown produce for livelihood options. Efforts are being made to recognize women's rights using forest products under the Forest Rights Act and strengthen their roles in forest governance. Emphasis is placed on women's role as stakeholders and custodians of traditional knowledge, as they have been the seed keepers in farming communities.<sup>25</sup>

Women have been at the helm of great environmental movements globally. Their voices have had a tremendous impact on environmental policies on global scale. Rachel Louise Carson, a marine scientist and environmentalist from the United States, initiated the launch of a nationwide environmental movement in the 1960s, which faced strong resistance from

chemical industries. However, it ultimately resulted in the establishment of the Environmental Protection Agency (EPA) in the United States and a change in national policy that banned DDT and other pesticides.

A movement which is one of the biggest in women and environment history, is the Green Belt movement. Nobel Prize winner Wangari Maathai founded this movement on the World Environment Day in June 1977, involving 80,000 women in planting of trees. The Green Belt movement aims to bring environmental restoration along with society's economic growth. This movement led by Maathai focused on restoration of Kenya's rapidly diminishing forests as well as empowering the rural women through environmental preservation.<sup>26</sup>

Marina Silva is an Amazonian Rainforest warrior from Brazil. She collaborated with Chico Mendes and spearheaded campaigns in the 1980s to end the government's exploitation of the

### **Role of Women in Sustainability Leadership**

The multifaceted involvement of women in sustainable environmental initiatives extends beyond conventional societal confines. Women are actively engaging in various forms of activism, ranging from local grassroots conservation initiatives to global advocacy for policy change. Their contributions as agents of change are becoming increasingly evident and impactful. Individuals in leadership positions possess distinctive attributes that contribute to their effectiveness, including but not limited to empathy, collaboration, and a focus on the long-term welfare of their constituents.<sup>29</sup>

Women bring distinct perspectives and skills to sustainability leadership. Research shows that they often prioritise long-term planning, collaboration and community engagement—qualities essential for tackling complex environmental challenges. Companies with more women in leadership positions tend to outperform on environmental, social and governance (ESG) metrics, achieving higher innovation rates and better carbon reduction outcomes.

The growing presence of women in sustainability leadership is more than a milestone. it is a strategic advantage. Women now hold 63% of executive roles in sustainability departments across Fortune 500 companies. Their leadership has proven critical for driving measurable progress in areas such as waste recovery, renewable energy and sustainable supply chains.

Kirti Karanth is the Chief Conservation Scientist at the Centre for Wildlife Studies and has gained recognition as an environmentalist. She contributed to the conservation of the Environment while serving on the editorial boards of the publications such as Conservation

Biology, Conservation Letters, and Frontiers in Ecology. She works towards identifying solutions for global sustainability and conservation"<sup>30</sup>

*Eco Femme* in India has revolutionised menstrual health by producing reusable cloth pads, preventing millions of disposable products from entering landfills while empowering women through education.<sup>31</sup> Similarly, *The Solar Mamas* initiative trains rural women as solar engineers, bringing clean energy to underserved communities while fostering economic independence.<sup>32</sup> Leaders like Kate Brandt at Google have implemented groundbreaking zero-waste policies and circular supply chain principles that set industry benchmarks.<sup>33</sup>

Greta Thunberg, a 17-year-old Swedish environmentalist, launched a movement called Fridays for Future, that swept the world by storm. Greta is well-known for her climate change activism. She communicated with the world leaders at the World Economic Forum, the UN Climate Conference, and the US House Select Committee on Climate Crisis. She has motivated young environmental activists worldwide and brought the global climate catastrophe to public notice.<sup>34</sup>

In the drought-prone region of Langoti, women, faced with severe water scarcity that forced families to migrate, organized themselves into water committees and began the backbreaking work of digging wells.<sup>35</sup> In a society where women's voices are often marginalized, these women challenged traditional gender roles and proved their capability as environmental leaders. They didn't just dig wells, they created a sustainable water management system that included community ownership, water conservation practices, quality monitoring and conflict resolution related to water distribution. The impact was transformative.

Similarly, climate adaptation programs focused solely on technological solutions may miss the social dimensions of vulnerability that particularly affect women. When climate finance mechanisms prioritize large-scale projects over community-level initiatives, women's organizations often struggle to access funding despite their effectiveness as environmental stewards. The failure to integrate gender analysis into environmental assessment, planning, and monitoring represents a missed opportunity. Evidence shows that gender-responsive

Despite women's frontline environmental roles, their voices remain underrepresented in policy discussions and governance structures. This exclusion compromises both gender equity and environmental effectiveness. At the international level, women remain significantly underrepresented in environmental negotiations and institutions. A 2021 UN Environment Programme study found that women comprised only 33% of national delegations to climate

change conferences and held just 15% of leadership positions in environmental ministries worldwide.<sup>37</sup> This representation gap extends from international forums to local resource management committees. Even community-based conservation projects often reproduce existing power dynamics, with men dominating decision-making roles while women perform much of the implementation work.

The consequences of this exclusion are profound. Environmental policies developed without women's input frequently overlook gendered impacts and miss opportunities to leverage women's unique environmental knowledge. As a result, such policies may inadvertently increase gender inequalities while failing to achieve their environmental objectives.

Despite their central role in agriculture and natural resource management, women own less than 20% of the world's land. Legal barriers, discriminatory inheritance practices, and social norms restrict women's land rights in many regions, undermining their ability to make long-term investments in sustainable land management.<sup>38</sup> Women hold only about 23% of senior positions in environmental organizations worldwide, and less than 30% of total conservation professionals, showing a gender gap in formal environmental leadership roles.<sup>39</sup>

A 2019 United Nations Environment Programme (UNEP) report found women make up just 17% of members on environmental governing boards globally, indicating limited participation in high-level environmental decision-making.<sup>40</sup> Research indicates that including women in community water governance has been associated with up to a 30% increase in water management efficiency and better community health outcomes, illustrating how women's

Community forestry initiatives in Nepal illustrate the benefits of gender-balanced governance. When policies mandated women's representation on forest user committees, these groups implemented more sustainable harvesting practices and distributed benefits more equitably. Similar patterns emerge in water management committees, protected area governance, and climate adaptation planning.

### **Initiatives for Women Empowerment in Environmental Sustainability**

At the global level, a wide range of initiatives are actively strengthening women's leadership in environmental sustainability by enhancing their participation, influence, and access to resources in climate action. Programmes such as the Women Delegates Fund, launched in 2009, play a crucial role in supporting women's participation in international climate negotiations, ensuring that gender perspectives are represented in global decision-making forums. Similarly,

organizations like the Women's Environment and Development Organization (WEDO) focus on building the capacity of women leaders and policymakers to advance gender-responsive environmental governance and climate policies.

The Women's Earth Alliance (WEA) stands out as a prominent global platform empowering grassroots women environmental leaders through training, mentorship, and financial support. Its recent initiative, "*Rising Tides, Rising Women*," launched to mark 20 years of WEA's work, aims to significantly expand support for women-led climate and ecosystem protection efforts. Over the next three years, this initiative seeks to train, mentor, and fund approximately 15,000 women leaders, whose work is expected to positively impact nearly 40 million people worldwide through locally grounded climate solutions.

WomenStrong International further strengthens women's leadership by funding women-led grassroots organizations working at the intersection of climate change, environmental justice, and gender equality. In 2024, the organization received a record number of applications, reflecting growing global engagement among women leaders addressing climate impacts. From this pool, WomenStrong selected new grantee organizations focused on climate resilience, adaptation, and environmental justice, reinforcing the importance of community-based, women-driven responses to climate challenges.

Another influential organization, the Women's Earth and Climate Action Network (WECAN) International, operates at the intersection of climate justice, women's rights, Indigenous sovereignty, and ecological sustainability. WECAN actively engages women and frontline community leaders, particularly Indigenous and Global South women, through policy advocacy, grassroots organizing, leadership training, and direct action. Its key initiatives, such as the Women's Assembly for Climate Justice held alongside UN climate negotiations and the *Women Speak Out for Climate Justice* campaign, amplify women's voices in global climate policy and recognize them as vital protectors of land, water, and biodiversity.

UN Women also plays a central role in advancing gender-responsive climate action at the international level. As the United Nations entity dedicated to gender equality and women's empowerment, UN Women works with governments, civil society, and international institutions to integrate gender perspectives into environmental governance and climate policies. Its initiatives support women farmers in adopting climate-smart agriculture, promote women-led renewable energy enterprises, and strengthen disaster risk reduction strategies that address gender-specific vulnerabilities. Through frameworks such as the UNFCCC Gender

Action Plan, UN Women ensures that global climate action aligns with principles of gender equality, sustainable development, and human rights.

In addition, the Global Greengrants Fund provides critical financial support to grassroots environmental justice movements, with a strong emphasis on women-led and Indigenous-led initiatives. By offering small but flexible grants to hundreds of women-led projects each year, Greengrants enables communities to protect ecosystems, defend land and water rights, enhance biodiversity conservation, and respond swiftly to emerging environmental threats, including those posed by climate change and extractive industries.

At the enterprise and community level, initiatives like LADYACT demonstrate how environmental sustainability can be integrated with women's economic empowerment. As a women-led social enterprise, LADYACT promotes environmentally responsible businesses that generate livelihoods for women, particularly in urban and semi-urban areas. Its work spans urban gardening for food security, sustainable fashion through upcycling and ethical production, clean energy microgrids, and plastic upcycling enterprises, all of which contribute to reducing environmental degradation while enhancing women's economic agency.

Finally, global recognition platforms such as the 2024 Fin-Erth Women in Climate Awards further highlight and celebrate women's leadership in sustainability. By showcasing 101 leading women climate champions from 48 countries—including scientists, entrepreneurs, and sustainability advocates—these awards underscore the growing influence of women in climate finance, adaptation strategies, and eco-innovation. Collectively, these global initiatives reflect a comprehensive and multi-layered effort to position women not merely as beneficiaries of environmental action, but as essential leaders and drivers of sustainable and equitable climate solutions worldwide.

At the global level, initiatives like the Women Delegates Fund support women's participation in international climate negotiations, while networks like the Women's Environment and Development Organization build capacity for gender-responsive environmental policy.

## **Conclusion**

The evidence presented throughout this paper makes it unequivocally clear that women are not peripheral actors in environmental sustainability but central pillars upon which effective and enduring conservation efforts rest. As climate change, biodiversity loss, water scarcity, and resource depletion intensify, women remain among the most affected, particularly in rural,

indigenous, and developing contexts. Yet, paradoxically, they are also among the most capable agents of change. Their daily engagement with agriculture, forests, water, and household resource management has endowed them with rich ecological knowledge, adaptive skills, and a long-term stewardship ethic that is indispensable for sustainable environmental governance.

From food production and seed conservation to forest protection and water management, women's contributions sustain ecosystems and community resilience. Their leadership in grassroots movements, traditional knowledge systems, and contemporary sustainability initiatives demonstrates that environmental protection is not merely a technical challenge but a social and ethical one, deeply rooted in equity, participation, and justice. Historical and contemporary environmental movements—from the Chipko and Silent Valley movements in India to the Green Belt Movement in Kenya—affirm that when women mobilize, environmental outcomes are more inclusive, community-driven, and sustainable.

Despite this, systemic barriers continue to limit women's access to land, finance, technology, and decision-making spaces. Their underrepresentation in environmental governance and policy forums undermines both gender justice and environmental effectiveness. Policies and programmes that fail to incorporate women's perspectives often overlook gender-differentiated impacts of environmental degradation and miss opportunities to harness women's leadership for transformative change. Conversely, evidence consistently shows that gender-responsive approaches improve conservation outcomes, enhance resource efficiency, and strengthen community resilience.

This paper has sought to establish that women's empowerment and environmental sustainability are mutually reinforcing goals. Integrating ecofeminist principles, gender-responsive policies, and women-led conservation initiatives into environmental governance is not simply a normative aspiration but a practical necessity. Empowering women through secure land rights, access to credit and technology, education, leadership opportunities, and meaningful participation in decision-making can significantly accelerate progress toward sustainable development goals.

In conclusion, achieving environmental sustainability without addressing gender inequality is neither feasible nor just. Women must be recognized not only as victims of environmental crises but as leaders, innovators, and custodians of the planet's future. By placing women at the heart of environmental policy, practice, and leadership, societies can foster resilient ecosystems, equitable development, and a more sustainable relationship between humanity and nature. The path to environmental sustainability, therefore, is inseparable from the path to women's

empowerment—each strengthening and sustaining the other for generations to come.

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<sup>8</sup> Gonsalvo C.M. & Maharjan K. (2025) *Examining farmers willingness to learn environmental Conservation Agriculture: Implications for women farmer empowerment in Bagmati province, Nepal*. <https://doi.org/10.3390/agriculture15070726>

migration of men has further led to an even more enhanced responsibility of women in farming, household and nutrition.

<sup>9</sup> Vakshibhai D.N. & Thakar R. (2025) Examine the role of IKS and the gendered dimensions of traditional knowledge. *IJSRHSS* (2,2) 39. <https://doi.org/10.32628/IJSRHSS252210>

<sup>10</sup> Kurtkoti M. & Joshi P. (2024) Gender and Tribal knowledge systems: Women's Role in preserving indigenous knowledge. *Young Researcher* (13,1) 24. <https://yra.ijaar.co.in/wp-content/uploads/2025/01/S130403.pdf>

<sup>11</sup> Ndjebet. (2025) *How women led agroforestry has planted the seeds of climate resilience in Cameroon*. <https://www.reuters.com/sustainability/land-use-biodiversity/how-women-led-agroforestry-has-planted-seeds-climate-resilience-cameroon-2025-07-24/?utm>

environmental health; the women believe protecting their environment, and those living in it,

is possible by maintaining cultural and biological diversity.<sup>12</sup>

<sup>12</sup> Sogani R. (2018) Women in rural India are nature's guardians. *International institute of environment and development*. <https://www.iied.org/food-agriculture>

<sup>13</sup> Vasavada S. & Waghela D. (2025) *Uplifting women's role in water governance*. [https://www.tatatrusts.org/insights/opinions/uplifting-](https://www.tatatrusts.org/insights/opinions/uplifting-womens-role-in-water-governance)

womens-role-in-water-governance <sup>14</sup> Supra at 13

traditional water reservoirs, i.e., johads and kunds, to get perennial access to water for household and agriculture.<sup>15</sup>

<sup>15</sup> Qureshi S. (2024) *Jal Sahelis lead water conservation efforts in Rajasthan*. UNICEF. [https://www.unicef.org/india/stories/jal-sahelis-lead-](https://www.unicef.org/india/stories/jal-sahelis-lead-water-conservation-efforts-rajasthan)

[water-conservation-efforts-rajasthan](https://www.groundreport.in/environment/jal-sahelis-battle-water-scarcity-and-drought-in-bundelkhand-region/)  
<sup>16</sup> Pragyaaanant. (2022) *Jal Sahelis battle water scarcity and drought in Bundelkhand region*. [https://www.groundreport.in/environment/jal-sahelis-battle-water-scarcity-and-drought-in-](https://www.groundreport.in/environment/jal-sahelis-battle-water-scarcity-and-drought-in-bundelkhand-region/)

[bundelkhand-region/](https://www.groundreport.in/environment/jal-sahelis-battle-water-scarcity-and-drought-in-bundelkhand-region/)  
<sup>17</sup> Supra at 13

<sup>18</sup> Ibid

<sup>19</sup> Senapati M. R. (2024) *Nari shakti se Jal shakti initiative shows how rural women lead India's fight against water crisis*. [https://www.downtoearth.org.in/water/nari-shakti-se-jal-](https://www.downtoearth.org.in/water/nari-shakti-se-jal-shakti-initiative-shows-how-rural-women-lead-indias-fight-against-water-crisis)

[shakti-initiative-shows-how-rural-women-lead-indias-fight-against-water-crisis](https://www.downtoearth.org.in/water/nari-shakti-se-jal-shakti-initiative-shows-how-rural-women-lead-indias-fight-against-water-crisis)  
the first woman to embrace the Khejri tree, a sacred tree in the Bishnoi community. This event led to a strong resistance and the establishment of the first environmental movement globally.<sup>20</sup>

<sup>20</sup> Zaman S.M. (2023) Study of women's participation in the environmental movement of India. *International Journal of Sociology and Political Science* (5,1)

<https://www.sociologyjournal.in/assets/archives/2023/vol5issue1/7025.pdf>

<sup>21</sup> Mathur R. et. al. (2023) Women at the forefront of environmental conservation.

*International Research Journal of Environmental Studies*.

[https://www.cwejournal.org/vol2no2/pwomen-at-the-forefront-of-environmental-](https://www.cwejournal.org/vol2no2/pwomen-at-the-forefront-of-environmental-conservationp)  
conservationp

<sup>22</sup> Mago P. & Gunwal I. (2025) Role of Women in Environment Conservation. SRCASW. 5

<http://dx.doi.org/10.12944/CWE.18.2.22>

Padma Shri award winner Sunita Narain, Jamuna Tadu, and Radha Bhatt. These activists focus on sustainable development, climate change, and protecting the environment.<sup>23</sup>

<sup>23</sup> Supra at 20

<sup>24</sup> Ibid

<sup>25</sup> Supra at 20

<sup>26</sup> Ibid

rainforest.<sup>27</sup> Isatou Ceesay is an activist and social entrepreneur from Gambia who is often called "The Queen of Recycling." She started a recycling movement in the Gambia called "One Plastic Bag." Through this movement, she taught women in Gambia how to turn plastic trash into things like yarn and make small hand-held bags that they could sell and make money.<sup>28</sup>

<sup>27</sup> Mathur R. et. al. (2023) Women at the forefront of environmental conservation.

*International Research Journal of Environmental Studies.*

<https://www.cwejournal.org/vol2no2/pwomen-at-the-forefront-of-environmental-conservationp>

<sup>28</sup> ibid

<sup>29</sup> Balabantaray S.R. (2023) Women's leadership and sustainable environmental initiatives: a macroscopic investigation from ecofeminism perspective. *International Journal of Multidisciplinary Research and Growth Evaluation* (4,4) 1044.

[file:///C:/Users/Dell/Downloads/20230824203430\\_D-23-176.11%20\(2\).pdf](file:///C:/Users/Dell/Downloads/20230824203430_D-23-176.11%20(2).pdf)

<sup>30</sup> Supra at 27

<sup>31</sup> King C. (2025) The importance of women in sustainability. *Sustainability Magazine.*

<https://sustainabilitymag.com/articles/the-importance-of-women-in-sustainability>

<sup>32</sup> Ibid

<sup>33</sup> Ibid

<sup>34</sup> Supra at 27

<sup>35</sup> EVS Institute, Environmental Studies (2024) *Ecofeminism in India: Women's Role in Environmental Conservation.* <https://evs.institute/environment-and-society/ecofeminism-india-women-environmental-conservation/>

approaches lead to more sustainable and equitable outcomes across conservation, climate adaptation, and natural resource management programs.<sup>36</sup>

<sup>36</sup> Supra at 29

<sup>37</sup> Sustainability Shiksha (2024) *Gender and Sustainability: Women's role in environmental conservation* <https://sustainability.shiksha/sustainability-science/gender->

sustainability-womens-role-environment/

<sup>38</sup>Ibid

<sup>39</sup> Ehtisham Z. (2023) *The Role of women in conservation: An understated representation*. IKEA/WWF [https://ikea.wwf.se/projects/the-role-of-women-in-conservation/?utm\\_source=chatgpt.com](https://ikea.wwf.se/projects/the-role-of-women-in-conservation/?utm_source=chatgpt.com)

<sup>40</sup> ibid

inclusion can improve environmental policy effectiveness. According to global studies of environmental defenders, women account for a significant proportion of grassroots environmental activism cases, i.e., 15% of reported instances where environmental defenders have been targeted, showing both their engagement and the risks that they face.<sup>41</sup>

<sup>41</sup> Maurya L. (2023) 81 women environmental defenders across the world , including India, lost their lives to save forest, water and Land. Down to Earth. <https://hindi.downtoearth.org.in/development/in-the-struggle-to-environment-81-women-environmental-defenders-lost-their-lives-in-india-and-all-over-the-world-89886?utm>