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GENDER, CLIMATE, AND JUSTICE: THE IMPACT OF WOMEN IN SHAPING SUSTAINABLE POLICIES

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ABSTRACT:

Climate change is not just an environmental concern; it is a social justice problem with deeply gendered consequences. Women, especially in vulnerable groups, are disproportionately impacted by climate change as a result of social, economic, and political disparities. Yet they are also central agents of sustainable solutions, actively influencing policies that enhance environmental resilience, equity, and justice. This study investigates the nexus of gender, climate change, and justice with a focus on the essential contributions of women to formulating and shaping sustainable policies at the local, national, and international levels. The investigation looks into how women are supporting climate governance by advocating for climate policies, engaging in grassroots movements, and leading environmental activism. It provides examples of successful female policymakers, indigenous communities, and climate activists who have integrated gender considerations into climate action. Besides, the paper also examines the hurdles of women gaining entry into decision-making forums in terms of structural gender discrimination, marginalization from leadership, and reduced access to funds and information and communication technologies. Through the examination of international arrangements such as the Paris Agreement, SDGs, and gender-mainstreamed climate policy, the research highlights inclusive climate governance in appreciation and support for women's voices. The analysis indicates that involving women in climate policy not only furthers gender equality but also makes environmental policy more effective and sustainable. In this paper, policy reforms, capacity development projects, and gender-sensitive financial frameworks are recommended as means to stimulate gender-sensitive climate policy. Integrating gender inputs into climate policymaking and endorsing women's leadership are key approaches to attaining both environmental sustainability and social equity.

Keywords: *Gender and Climate Change, Social Justice, Women's Leadership, Climate Governance, Sustainable Policy.*

I. INTRODUCTION:

Background of the Study:

Climate change is one of the most pressing global challenges of the 21st century¹, impacting not just environmental sustainability but also social justice and human rights. While climate change affects all communities, its consequences are not experienced uniformly. Women, particularly those from marginalized and economically disadvantaged backgrounds, are disproportionately impacted due to socioeconomic vulnerabilities, structural inequalities, and restricted access to resources (IPCC, 2022). Studies have shown that in developing countries like India, women bear a significant burden due to climate-induced disasters such as floods, droughts, and cyclones, which exacerbate existing gender disparities in livelihood security, health, and social mobility².

Despite these challenges, women have emerged as key stakeholders in climate governance, contributing significantly to mitigation, adaptation, and resilience-building strategies (UN Women, n.d.). International frameworks such as the Paris Agreement (2015) and the Sustainable Development Goals (SDGs) (UNFCCC, 2015) emphasize the need for gender-responsive climate action, yet barriers to women's leadership persist. In India, initiatives such as the National Action Plan on Climate Change (NAPCC) and state-level climate adaptation programs recognize the importance of gender inclusivity in environmental governance, but implementation gaps remain.

Research Objectives:

The primary objectives of this study are:

1. To analyze the gendered impacts of climate change, particularly in the Indian context.
2. To examine the role of women in climate governance and policy advocacy.
3. To identify barriers that limit women's participation in climate decision-making.
4. To evaluate international and national frameworks that integrate gender considerations into climate policies.

¹ Bidhyan Tamang, Global Climate Change: Challenges, Opportunities, and Multilateral Strategies for Sustainable Development, Research gate (Feb 20, 2025, 7:00 P.M.), [\(PDF\) Global Climate Change: Challenges, Opportunities, and Multilateral Strategies for Sustainable Development](#).

² PRB, [Women More Vulnerable Than Men to Climate Change | PRB](#) (last visited Feb. 20, 2025).

5. To propose policy recommendations for strengthening women's leadership in climate governance.

Research Questions:

This research seeks to address the following key questions:

1. How does climate change disproportionately affect women, particularly in India?
2. In what ways do women contribute to climate governance and sustainability?
3. What are the major barriers preventing women from participating in climate policy decisions?
4. How do international agreements and national policies support gender-inclusive climate governance?
5. What policy measures can enhance women's role in climate leadership?

Significance of the Study:

The significance of this research lies in its attempt to bridge the gap between climate justice and gender equity³. While numerous studies have highlighted the environmental and economic implications of climate change, fewer have explored the gender dimensions of climate policies. Given India's vulnerability to climate change and the increasing role of women in community-based adaptation strategies, a focused study on gender-inclusive climate governance is necessary⁴.

Moreover, this study will contribute to ongoing policy discussions by providing insights into best practices and recommending frameworks that ensure women's meaningful participation in climate action. Policymakers, environmental activists, and scholars can utilize the findings to promote inclusive and sustainable environmental governance.

Scope and Limitations:

This study primarily focuses on the role of women in climate policy formulation and implementation⁵, with a particular emphasis on India. While international frameworks and

³ Magda Wojcik, Significance of the study: A practical guide, MW editing (Feb 20, 2025, 7:00 P.M.), [Significance of the study: A practical guide | MW Editing](#).

⁴ Esther Achieng Onyango, Nicola Banwell, Gendered impacts of climate change: women and transformative research, policy and practice, *Frontiers* (Feb 20, 2025, 7:00 P.M.), [Frontiers | Editorial: Gendered impacts of climate change: women and transformative research, policy and practice](#).

⁵ Id. at 2087

global case studies will be discussed, the research will prioritize Indian policy initiatives, grassroots movements, and success stories from Indian women leaders.

Limitations of the study include:

- The reliance on secondary data sources, as field-based empirical research, is beyond the scope of this paper⁶.
- The complexity of gender-climate interactions, which makes it challenging to account for all socio-economic variables.
- The evolving nature of climate policies, requiring continuous updates to remain relevant.

Methodology

The research adopts a qualitative approach, relying on doctrinal analysis of legal instruments, policy frameworks, and scholarly literature. The primary sources include international agreements such as the Paris Agreement (2015), SDG Goal 13 (Climate Action), and India's National Action Plan on Climate Change (NAPCC). Secondary sources include research papers, government reports, and case studies from reputed institutions such as The Energy and Resources Institute (TERI) (Government of India, Ministry of Environment, Forest and Climate Change, n.d.), Centre for Science and Environment (CSE), and the Ministry of Environment, Forest and Climate Change (MoEFCC).

Additionally, case studies of women-led climate movements in India—such as the Chipko Movement, the work of Sunita Narain (CSE Director), and grassroots initiatives led by women in Rajasthan and Odisha—will be analyzed to highlight the impact of female leadership in climate governance.

II. GENDERED IMPACT OF CLIMATE CHANGE IN INDIA

Climate change is not just an environmental issue; it is a socio-economic crisis that exacerbates existing inequalities, particularly those related to gender. In India, where a large portion of the population depends on climate-sensitive sectors like agriculture and fisheries, women face heightened risks due to their socio-economic vulnerabilities (Agarwal, 2010). The disproportionate impact of climate change on women is shaped by factors such as limited land ownership, restricted access to financial resources, and exclusion from decision-making

⁶ Magda, *supra* note 3, at 2087

forums. This chapter examines the gendered impacts of climate change in India, analyzing how women⁷, particularly those from marginalized communities, bear the brunt of environmental degradation and climate-induced disasters. Climate change affects communities differently based on their socioeconomic status, geographical location, and access to resources. Women in rural India, who constitute nearly 65% of the agricultural workforce, often lack land ownership rights and financial independence, making them highly vulnerable to climate shocks such as droughts, floods, and erratic monsoons (Narain, 2017). According to a report by the Ministry of Environment, Forest and Climate Change (MoEFCC, 2021)⁸, climate-induced migration has disproportionately impacted women, leading to loss of livelihood and increased risks of exploitation.

Disproportionate Effects on Women in India:

Impact on Agriculture and Livelihoods - Women play a crucial role in India's agricultural sector, but they are often denied land ownership⁹, which limits their access to credit and agricultural subsidies (Sharma, 2020). The increasing frequency of droughts and floods has forced male members of households to migrate to urban areas in search of work, leaving women to manage farms with limited resources and technological access (CSE, 2019)¹⁰.

A study conducted by the Indian Council of Agricultural Research (ICAR, 2022) found that 80% of women farmers in drought-prone areas of Maharashtra reported reduced crop yields and financial instability due to climate change. Women's lack of access to climate-resilient farming techniques, irrigation facilities, and weather prediction tools further aggravates their vulnerability (MoEFCC, 2021).¹¹

Water Scarcity and Health Burden - In India, women are primarily responsible for water collection in rural areas¹². Climate change-induced water scarcity has increased the burden on women, forcing them to walk longer distances to fetch water, thereby affecting their health and

⁷ Esther, supra note 4, 2087.

⁸ MOEF, [Annual-Report-English-2023-24.pdf](#) (last visited Feb. 20, 2025).

⁹ Bronwen Dingeman, Women Leading the Fight for Climate Justice in the Face of Gendered Climate Impacts, EARTH ORG (Feb 20, 2025, 7:00 P.M.), [Women Leading the Fight for Climate Justice | Earth.Org](#).

¹⁰ Iassajeed, Annual Report, Scribd (Feb 20, 2025, 7:00 P.M.), [ICAR Annual Report 2022 23 English | PDF | Rice | Agriculture](#).

¹¹ UNDP, [India | UNDP Climate Change Adaptation](#) (last visited Feb. 20, 2025).

¹² Pritam Ghosh & Sayantani Sarkar, Female Water Fetchers: Analyzing the Role of Women in Collecting Drinking Water in India, Springer Nature Link (Feb 20, 2025, 7:00 P.M.), [Female Water Fetchers: Analyzing the Role of Women in Collecting Drinking Water in India | Global Social Welfare](#).

productivity (UN Women, 2022). According to the National Sample Survey Office (NSSO, 2020)¹³, women in the arid regions of Rajasthan and Gujarat spend an average of four to six hours daily fetching water, reducing the time available for education and income-generating activities. The scarcity of clean water also has severe health implications, increasing the prevalence of waterborne diseases among women and children (Agarwal, 2018). Additionally, heat stress and vector-borne diseases, such as dengue and malaria, disproportionately impact women, particularly pregnant women, due to their weaker physiological adaptability to extreme temperatures (IPCC, 2023).

Climate-Induced Displacement and Gender-Based Violence - Climate-induced displacement has increased vulnerabilities for women, exposing them to higher risks of trafficking, domestic violence, and sexual exploitation (Sharma, 2022). The National Crime Records Bureau (NCRB, 2022)¹⁴ reported a 25% increase in gender-based violence in regions affected by climate disasters, such as coastal Odisha and flood-prone Bihar. Women displaced by floods and cyclones are often housed in temporary shelters with inadequate security measures, further exacerbating their vulnerability (CSE, 2021).

The impact of Cyclone Amphan (2020) in West Bengal and Odisha highlighted the gendered consequences of climate disasters. Reports from local NGOs found that women in cyclone-affected areas faced increased incidents of domestic violence and early marriage due to economic hardships (MoEFCC, 2021).

Barriers Exacerbating Gendered Vulnerability:

Socio-Economic Inequalities - Despite their critical role in climate resilience, women face systemic barriers that limit their ability to adapt. In India, only 13% of agricultural landowners are women, restricting their access to government subsidies and financial aid (NSSO, 2021). Additionally, a lack of education and digital literacy prevents women from accessing climate-related information and early warning systems¹⁵ (Sharma, 2020).

Exclusion from Climate Policy and Decision-Making - Women remain underrepresented in climate policy formulation at both the national and state levels. The National Adaptation Fund

¹³ JankalyanFile, [171205.pdf](#) (last visited Feb. 20, 2025).

¹⁴ Swayam, [Violence Facts & Figures - Swayam — Ending violence against women](#) (last visited Feb. 20, 2025).

¹⁵ Adaptation, [India | UNDP Climate Change Adaptation](#) (last visited Feb. 20, 2025).

for Climate Change (NAFCC)¹⁶ has limited provisions for gender-sensitive climate planning, and most state action plans on climate change (SAPCCs) lack clear gender-responsive strategies (MoEFCC, 2021). A study by UNDP India (2022) found that only 15% of climate-related policymaking positions in India are held by women, highlighting the need for increased female leadership in climate governance.

Limited Access to Climate Finance and Technology - Climate finance remains inaccessible to most women, particularly in rural areas. Women-run enterprises in sustainable farming, renewable energy, and climate adaptation receive minimal support due to bureaucratic and sociocultural constraints (Agarwal, 2020). The Rural Infrastructure Development Fund (RIDF)¹⁷ has yet to implement specific financial schemes targeting women-led climate resilience projects (TERI, 2021).

The gendered impact of climate change in India¹⁸ is a pressing issue that demands urgent policy intervention. Women, particularly those in rural and marginalized communities¹⁹, face disproportionate hardships due to climate-induced agricultural losses, water scarcity, displacement, and increased exposure to gender-based violence.

III. WOMEN'S ROLE IN CLIMATE GOVERNANCE AND POLICY ADVOCACY IN INDIA

Climate governance is a multidimensional process involving governments, civil society, and international organizations in formulating²⁰ and implementing policies to address climate change. Women, particularly in developing countries like India, play a crucial role in climate²¹ governance at the grassroots, national, and international levels. Despite systemic barriers, women have emerged as key advocates for sustainable policies, driving climate action through activism, community leadership, and institutional policy-making (Agarwal, 2018). This chapter explores the contributions of women in shaping climate governance in India,

¹⁶ Nabard, [NABARD - National Bank For Agriculture And Rural Development](#) (last visited Feb. 20, 2025).

¹⁷ Sathisha & Medhavini S Katti, Examine the Rural Infrastructure Development Fund (RIDF) in Karnataka, Sciendo (Feb 20, 2025, 7:00 P.M.), [IMCL Template](#).

¹⁸ Atanu Sarkar, Arindam Dasgupta & Suman Ranjan Sensarma, Climate Change and Food Security in India: Adaptation Strategies and Major Challenges, Springer Nature Link (Feb 20, 2025, 7:00 P.M.), [Climate Change and Food Security in India: Adaptation Strategies and Major Challenges | SpringerLink](#).

¹⁹ Esther, Supra note 4, at 2087

²⁰ Iassajeed, supra note 10, at 2089

²¹ Bronwen, Supra Note 9, at 2089

highlighting their involvement in environmental policymaking, grassroots movements, and international negotiations.

Women's Contribution to Climate Governance in India:

Women in Political and Institutional Climate Policy-Making - Although women remain underrepresented in formal political institutions, several Indian policymakers have played instrumental roles in shaping climate policies. For instance, Sunita Narain, the Director of the Centre for Science and Environment (CSE)²², has been a leading voice in climate justice, advocating for sustainable environmental policies and equitable climate finance mechanisms (Narain, 2017). At the governmental level, initiatives like the National Adaptation Fund for Climate Change (NAFCC)²³ have included gender-sensitive approaches, albeit with limited implementation. However, female policymakers like Jairam Ramesh (former Minister of Environment and Forests) have emphasized the need for gender-inclusive climate action in policy discussions (MoEFCC, 2021).

Despite these contributions, women hold less than 15% of key decision-making roles in India's²⁴ climate-related ministries, limiting their influence in policy formulation (UNDP India, 2022). Strengthening women's leadership in climate governance requires affirmative action policies, greater political representation, and gender-responsive budgeting.

Women's Role in Grassroots Climate Movements - Grassroots environmental movements led by women have significantly influenced India's climate governance. Some of the most impactful movements include:

- **The Chipko Movement (1973-1981)**

The Chipko Movement in Uttarakhand, led by women like Gaura Devi, is one of India's earliest examples of environmental activism²⁵. Women organized non-violent protests by hugging trees to prevent deforestation²⁶, eventually influencing India's Forest Conservation Act (1980) (Shiva, 1989).

- **Navdanya Movement**

²² Sonali Mukherjee, The Who's Who of Climate Activism: How Indians Are Leading the Wave of Change, Outlook Business (Feb 20, 2025, 7:00 P.M.), [The Who's Who of Climate Activism: How Indians Are Leading the Wave of Change](#).

²³ Nabard, *Supra* note 16, at 2090.

²⁴ Holon IQ, [The 2024 Global State of Women's Leadership](#) (last visited Feb. 20, 2025).

²⁵ Sonali, *supra* note 22, at 2091.

²⁶ Polscience institute, <https://polsci.institute/gandhi-contemporary-world/chipko-movement-women-environmental-conservation/> (last visited Feb. 20, 2025).

Founded by Vandana Shiva, the Navdanya Movement promotes organic farming, seed sovereignty, and sustainable agriculture. The movement empowers rural women by providing them with training²⁷ in climate-resilient farming techniques (Shiva, 2005).

- **Women-Led Water Conservation Initiatives**

In Rajasthan, women have led several community-driven water conservation projects to combat desertification and water scarcity. The Tarun Bharat Sangh (TBS)²⁸, founded by Rajendra Singh, has collaborated with women in constructing Johads (traditional water storage structures) to improve water security in drought-prone regions (CSE, 2019). These movements highlight the critical role of women in ecological conservation and climate adaptation strategies, often in the absence of formal government support.

Women in International Climate Negotiations:

India's Gender Representation in International Climate Agreements - Women have played a role in shaping India's position in global climate negotiations, although their representation remains limited. The Paris Agreement (2015) and COP26 (2021) have emphasized the need for gender-responsive climate action, yet India has relatively fewer female negotiators participating in high-level discussions (UNFCCC, 2021). Notably, Dr. Sunita Narain and Dr. Vandana Shiva have been vocal proponents of equitable climate policies, advocating for India's right to sustainable development and climate finance from developed nations (Narain, 2017).

Gender Mainstreaming in Global Climate Policies

Efforts to integrate gender considerations into global climate frameworks have gained momentum through initiatives such as:

- **UNFCCC Gender Action Plan (2017):** Encourages gender-responsive climate policies at national levels (UNFCCC, 2021).
- **Sustainable Development Goal (SDG) 13 (Climate Action) and SDG 5 (Gender Equality):** Promote women's leadership in climate adaptation and mitigation strategies (United Nations, 2022).
- **Green Climate Fund (GCF) Gender Policy:** Supports gender-sensitive climate financing mechanisms (GCF, 2021).

²⁷ United nations, ['Women-led Climate Resilient Farming' Model \(WCRF\) | Department of Economic and Social Affairs](#) (last visited Feb. 20, 2025).

²⁸ Tarun Bharat Sangh, [Know Us – Tarun Bharat Sangh](#) (last visited Feb. 20, 2025).

However, India's engagement with these policies needs greater institutional commitment to ensure gender equity in climate governance.

Challenges Hindering Women's Participation in Climate Governance

Despite their contributions, women in India face several barriers to meaningful participation in climate governance:

Limited Political Representation - Women occupy less than 10% of leadership²⁹ positions in climate-related policymaking bodies in India, restricting their influence in decision-making (UNDP India, 2022). The absence of gender quotas in climate governance further exacerbates this disparity.

Socio-Cultural Barriers - Deep-rooted gender norms and patriarchal structures limit women's access to climate-related education, financial resources, and decision-making platforms (Agarwal, 2018). Rural women, in particular, struggle to engage in climate policy discussions due to restricted mobility and social constraints.

Lack of Access to Climate Finance - Most climate finance mechanisms remain gender-neutral, failing to address the specific needs of women. The National Adaptation Fund for Climate Change (NAFCC)³⁰ lacks targeted provisions for women-led adaptation projects, limiting their access to crucial financial resources (TERI, 2021).

Policy Recommendations for Enhancing Women's Role in Climate Governance:

Strengthening Gender Representation in Climate Policy

- Implementing gender quotas in climate governance institutions.
- Encouraging mentorship programs for women in environmental policymaking.
- Promoting gender-responsive budgeting in climate action plans.

Supporting Women-Led Climate Initiatives

- Expanding financial support for female entrepreneurs in renewable energy and sustainable agriculture.
- Recognizing and funding grassroots women's movements for environmental conservation.
- Providing education and training programs for women in climate science and governance.

Integrating Gender into Climate Finance Mechanisms

²⁹ Holon, supra note 24, at 2092.

³⁰ Nabard, supra note 16, at 2090.

- Ensuring climate funds like NAFCC and State Action Plans on Climate Change (SAPCCs)³¹ allocate specific grants for women-led projects.
- Simplifying access to climate finance for rural and marginalized women.

Women are central to India's climate governance and policy advocacy, playing vital roles in grassroots movements, environmental policymaking, and international negotiations. However, systemic barriers, including political underrepresentation, socio-cultural norms, and financial exclusion, continue to limit their participation. Strengthening women's leadership in climate governance requires targeted policy interventions, increased financial support, and institutional reforms to integrate gender considerations into climate policymaking³².

IV. BARRIERS TO WOMEN'S PARTICIPATION IN CLIMATE POLICY AND DECISION-MAKING IN INDIA

Despite their significant role in climate adaptation and governance, women in India face multiple barriers that restrict their meaningful participation in climate policy and decision-making. These barriers range from structural gender inequalities, socio-cultural restrictions, financial exclusion, and political underrepresentation to inadequate access to education and climate-related resources. Women's voices remain marginalized in key climate governance institutions, limiting the effectiveness of policies meant to address environmental and social challenges (Agarwal, 2018). This chapter explores the primary obstacles hindering women's involvement in climate policymaking in India and provides recommendations to bridge these gaps.

Structural and Institutional Barriers:

Gender Disparities in Political Representation - Women remain significantly underrepresented in climate-related governance structures in India. Currently, they hold less than 15%³³ of key positions in environmental ministries and climate policy bodies (UNDP India, 2022). Although India has implemented a 33% reservation for women in local

³¹ Adaptation, [India | UNDP Climate Change Adaptation](#) (last visited Feb. 20, 2025).

³² Mudassar Aziz & Gulnaz Anjum, Transformative strategies for enhancing women's resilience to climate change: A policy perspective for low- and middle-income countries, Sage Journal (Feb 20, 2025, 7:00 P.M.), [Transformative strategies for enhancing women's resilience to climate change: A policy perspective for low- and middle-income countries - Mudassar Aziz, Gulnaz Anjum, 2024.](#)

³³ Holon, supra note 24, at 2092.

governance (Panchayati Raj institutions)³⁴, this has not been extended to climate policymaking institutions at the state or national levels. According to the MoEFCC (2021), women's exclusion from decision-making in climate governance leads to policies that overlook gender-specific vulnerabilities. For example, most State Action Plans on Climate Change (SAPCCs) lack a gender-responsive framework, failing to address women's unique needs in adaptation strategies (TERI, 2021).

Bureaucratic and Policy-Level Gender Biases - Even when women enter climate governance, they encounter institutional biases that limit their ability to influence policy. Gender norms often restrict women's participation in high-level climate negotiations, as seen in India's delegation to COP26 (2021), where fewer than 10% of negotiators were women (UNFCCC, 2021). This exclusion results in a lack of gender-sensitive climate policies and limited funding for women-led climate initiatives.

Weak Gender Mainstreaming in Climate Policies - The National Adaptation Fund for Climate Change (NAFCC) and India's Nationally Determined Contributions (NDCs) to the Paris Agreement do not prioritize gender-specific climate resilience strategies (MoEFCC, 2021). Moreover, gender concerns are not integrated into climate finance policies, restricting access to resources for women-led projects (Sharma, 2020).

Socio-Cultural Barriers:

Patriarchal Norms and Gender Stereotypes - Traditional gender roles in India often prevent women from actively engaging in public decision-making, including environmental governance. In rural India, women's primary responsibilities involve household management, caregiving, and subsistence farming, leaving little scope for participation in climate governance forums (Agarwal, 2010).

A study by UN Women (2022) found that in climate-affected regions such as Bihar, Odisha, and Rajasthan, women have limited access to leadership roles in environmental conservation projects due to deep-rooted patriarchal structures. The societal expectation that men should take the lead in financial and governance matters further excludes women from climate policymaking.

³⁴ Polsci, <https://polsci.institute/india-political-process/womens-reservation-indian-governance/> (last visited Feb. 20, 2025).

Mobility Restrictions and Lack of Awareness - Many women, especially in rural areas, face mobility constraints due to cultural norms, safety concerns, and lack of transportation. This limits their ability to attend policy meetings, climate summits, and training programs on sustainable practices (Narain, 2017). Additionally, low literacy rates among rural women (57%) compared to men (77%) reduce their awareness of climate policies and adaptation strategies (NSSO, 2021).

Economic and Financial Barriers:

Limited Access to Climate Finance - Climate finance in India remains largely gender-neutral, failing to address the specific economic challenges faced by women³⁵. Women in agriculture and small businesses lack access to credit and climate-adaptation funds. According to the Reserve Bank of India (2022), only 26% of women-led enterprises receive institutional credit, making it difficult for them to invest in sustainable farming, renewable energy, or climate-adaptation technologies.

Wage Gap and Economic Vulnerability - Women in India's climate-sensitive sectors, such as agriculture³⁶ and fisheries, earn 30-50% less than men for similar work (ICAR, 2022). This wage disparity reduces their financial resilience against climate-induced disruptions such as droughts, floods, and cyclones. Moreover, women's lack of land ownership (only 13% of women own agricultural land in India) limits their ability to receive government subsidies or loans for climate adaptation (NSSO, 2021).

Exclusion from Climate Science, Technology, and Innovation³⁷

Gender Gap in Climate Research and STEM Education - Women's participation in climate science and technology remains low in India. According to DST (2022), only 18% of researchers in environmental sciences and climate studies are women. The lack of female representation in STEM (Science, Technology, Engineering, and Mathematics) limits women's ability to influence climate adaptation strategies, particularly in areas such as renewable energy, sustainable agriculture, and early warning systems for climate disasters (UNDP India, 2022).

Limited Access to Digital and Climate Information - Women, particularly in rural areas, face a digital divide, limiting their access to climate-related data, weather forecasts, and

³⁵ Mudassar, *supra* note 32, at 2094.

³⁶ Atanu, *supra* note 18, at 2091.

³⁷ United nation, '[Women-led Climate Resilient Farming' Model \(WCRF\) | Department of Economic and Social Affairs](#) (last visited Feb. 20, 2025).

adaptation resources. According to NSSO (2021), only 42% of rural women have access to mobile phones and the internet compared to 68% of men. This disparity prevents women from utilizing digital tools for climate resilience, such as mobile-based weather alerts and online financial services (Sharma, 2020).

Strategies to Overcome Barriers:

Increasing women's representation in climate policy requires proactive measures such as implementing gender quotas in climate governance institutions, encouraging women's leadership in environmental ministries³⁸ and climate negotiations, and strengthening gender-responsive budgeting to ensure equitable resource allocation. These steps can help bridge the gender gap³⁹ in decision-making and enhance women's influence in climate governance.

Economic and financial inclusion plays a crucial role in empowering women within climate-sensitive sectors⁴⁰. Establishing women-focused climate finance mechanisms within frameworks like NAFCC and SAPCCs can provide targeted financial support. Additionally, expanding credit access for women-led businesses in renewable energy and sustainable agriculture can foster economic growth, while implementing equal wage policies can address gender-based income disparities in climate-sensitive industries.

Despite their significant contributions to climate adaptation and sustainability, women in India face multiple barriers to participating in climate governance and policymaking. Structural gender biases, socio-cultural restrictions, economic marginalization, and limited access to climate finance and education hinder their involvement. Addressing these barriers requires institutional reforms, gender-inclusive policies, and financial support for women-led climate initiatives.

V. CASE STUDIES OF WOMEN'S LEADERSHIP IN CLIMATE ACTION AND POLICY IN INDIA

Women in India have played a pivotal role in climate action through grassroots movements, policymaking, and sustainable innovations. Despite facing multiple barriers, several women leaders have successfully influenced climate governance, environmental conservation, and

³⁸ Mudassar, *supra* note 32, at 2094.

³⁹ PRB, [Women More Vulnerable Than Men to Climate Change | PRB](#) (last visited Feb. 20, 2025).

⁴⁰ M. Harita & Dr. Y. Chitra Rekha, WOMEN EMPOWERMENT WITH FINANCIAL INCLUSION, *inspiraj journal*, (Feb 20, 2025, 7:00 P.M.), [1102645228.pdf](#).

community-driven sustainability efforts. Their contributions highlight the importance of gender-inclusive climate policies and the effectiveness of women-led initiatives in building climate resilience. This chapter presents case studies of Indian women leaders in climate action, focusing on their achievements, challenges, and impact on policymaking and environmental sustainability.

Women Leaders in Climate Governance and Policy:

Sunita Narain: Advocacy for Environmental Justice - Sunita Narain, Director-General of the Centre for Science and Environment (CSE)⁴¹, is one of India's leading environmental policy advocates. She has played a significant role in shaping climate governance by advocating for sustainable development, air pollution control, and equitable climate finance.⁴²

Key Contributions:

- Played a crucial role in India's negotiations at international climate forums, emphasizing climate justice and the principle of Common but Differentiated Responsibilities (CBDR) (Narain, 2017).
- Led campaigns against industrial pollution, including the Right to Clean Air campaign, which influenced India's air pollution regulations (CSE, 2019).
- Advocated for rainwater harvesting policies, contributing to the National Water Policy (MoWR, 2021).

Sunita Narain's work has influenced India's environmental laws, including the Environmental Impact Assessment (EIA) framework and air pollution policies. Her advocacy has helped integrate social justice into India's climate governance framework (Sharma, 2021).

Vandana Shiva: Sustainable Agriculture and Climate Resilience - Dr. Vandana Shiva, founder of the Navdanya Movement, has been a key advocate for sustainable agriculture, biodiversity conservation, and food sovereignty in India.

Key Contributions:

- Promoted organic farming and seed sovereignty through the Navdanya Movement, which has trained over 500,000 farmers in climate-resilient agricultural practices (Shiva, 2005)⁴³.
- Opposed genetically modified crops and industrial farming, advocating for traditional and indigenous farming techniques.

⁴¹ Sonali, supra note 22, at 2091.

⁴² Tarun bharat, [Know Us – Tarun Bharat Sangh](#) (last visited Feb. 20, 2025).

⁴³ Poliscience, supra note 34, at 2095.

- Advocated for gender-inclusive policies in agriculture, highlighting the role of women as primary food producers and environmental stewards (Shiva, 2010).

Her work has influenced national and international policies on sustainable agriculture. The National Mission for Sustainable Agriculture (NMSA) and several state-level organic farming initiatives have incorporated principles championed by Vandana Shiva (MoA&FW, 2022).

Women Leading Grassroots Climate Movements:

Gaura Devi and the Chipko Movement - The Chipko Movement (1973–1981) in Uttarakhand was one of India’s most influential environmental movements, led by rural women like Gaura Devi.

Key Contributions:

- Organized local women to prevent deforestation by physically hugging trees to stop logging activities⁴⁴.
- Influenced the enactment of the Forest Conservation Act (1980)⁴⁵, which placed restrictions on deforestation in ecologically sensitive areas (Shiva, 1989).
- Empowered rural women to take an active role in environmental conservation and resource management.

The Chipko Movement played a crucial role in shaping India’s forest conservation policies and emphasized the role of women in ecological sustainability (MoEFCC, 2021).

Rajendra Singh and Women-Led Water Conservation in Rajasthan - Though led by Rajendra Singh, the Tarun Bharat Sangh (TBS) movement has involved thousands of women in Rajasthan in community-driven water conservation projects.

Key Contributions:

- Women in Rajasthan played a vital role in constructing “Johads” (traditional water storage structures) to combat droughts and improve groundwater levels (TBS, 2019).
- Increased water security in over 1,200 villages, reducing climate-induced migration.
- Integrated women’s voices in local water governance, improving equitable access to water resources.

Ajaita Shah and Frontier Markets - Ajaita Shah, founder of Frontier Markets, has pioneered gender-inclusive renewable energy access.

⁴⁴ Sonali, *supra* note 22, at 2091.

⁴⁵ Harshita Varshney, All you need to know about the forest conservation Act, 1980, ipleader (Feb 20, 2025, 7:00 P.M.), [All you need to know about the Forest Conservation Act, 1980 - iPleaders](#).

Key Contributions:

- Trained over 10,000 rural women as solar energy entrepreneurs.
 - Developed clean energy solutions, including solar-powered lights and cookstoves, targeted at women-led households (Shah, 2021).
 - Focused on climate adaptation solutions for rural communities vulnerable to extreme weather.
- Her work aligns with India's Saubhagya Scheme and Ujjwala Yojana, expanding clean energy access to women (MoP, 2022).

Challenges Faced by Women Climate Leaders⁴⁶

Despite their successes, women climate leaders in India face several challenges:

- Funding limitations: Women-led climate initiatives receive less investment compared to male-led organizations (Sharma, 2021).
- Institutional barriers: Women in environmental policymaking struggle with gender biases in leadership roles.
- Social resistance: Traditional gender norms often discourage women from engaging in climate activism.

Women in India have significantly contributed⁴⁷ to climate governance, grassroots activism, and sustainable innovations. From policy advocacy and environmental activism to renewable energy and climate adaptation, their leadership has strengthened India's climate resilience. However, challenges such as institutional barriers, financial exclusion, and social constraints continue to hinder their full participation. Strengthening gender-inclusive policies, financial support mechanisms, and leadership opportunities is crucial to maximizing women's role in climate action and ensuring a more equitable and sustainable future.

VI. SUGGESTIONS AND RECOMMENDATIONS FOR ENHANCING WOMEN'S ROLE IN CLIMATE GOVERNANCE IN INDIA

Despite their significant contributions to climate action, women in India continue to face structural barriers in policymaking, finance, education, and leadership⁴⁸. Achieving gender-inclusive climate governance requires targeted policy reforms, financial mechanisms, and institutional changes that empower women to actively participate in decision-making

⁴⁶ Mudassar, *supra* note 32, at 2094.

⁴⁷ Anand, Discuss how have women contributed to environmental activism in India?, Notes world (Feb 20, 2025, 7:00 P.M.), [Discuss how have women contributed to environmental activism in India?](#)

⁴⁸ Id at 2100.

processes. This chapter provides practical recommendations for integrating women's leadership into India's climate governance and suggests policy interventions, capacity-building programs, and financial frameworks to enhance their participation.

Women in India have demonstrated exceptional leadership in climate governance, sustainable agriculture, and renewable energy. However, systemic barriers continue to limit their full participation. Strengthening gender-inclusive policies, financial mechanisms, education opportunities, and grassroots leadership is essential to unlocking women's potential in climate action.

RECOMMENDATIONS:

1. Gender-Responsive Climate Policies and Institutional Reforms

- Integrate gender perspectives into State Action Plans on Climate Change (SAPCCs)⁴⁹ and allocate specific funds for women-led climate adaptation projects.
- Implement mandatory gender quotas in climate governance institutions and global climate negotiations.
- Strengthen gender considerations in environmental laws through gender-specific Environmental Impact Assessments (EIA) and a National Gender and Climate Policy.

2. Economic and Financial Inclusion Strategies

- Develop gender-focused climate investment funds and provide low-interest loans for women entrepreneurs in the green economy.⁵⁰
- Promote women-centric financial models through self-help groups (SHGs), microfinance institutions (MFIs), and the Women Entrepreneurship Platform (WEP).
- Ensure equal pay policies and land ownership rights for women in climate-sensitive sectors like agriculture and renewable energy.

3. Capacity Building and Education for Women in Climate Leadership

⁴⁹ UN, [India | UNDP Climate Change Adaptation](#) (last visited Feb. 20, 2025).

⁵⁰ Iassajeed, *supra* note 10, at 2089.

- Introduce scholarships and fellowships for women in STEM fields related to climate sciences.⁵¹
- Expand digital literacy programs and smartphone-based climate information services for rural women.
- Conduct community training on climate adaptation and promote women-led disaster management teams.

4. **Strengthening Grassroots Climate Movements**

- Support women-led climate movements and NGOs with government funding and legal backing.
- Recognize indigenous women's role in climate governance and establish community-led forest management schemes.

5. **International Cooperation and Best Practices**

- Adapt global gender-inclusive climate models and collaborate with international organizations like UN Women and UNDP.
- Strengthen India's role in gender-inclusive climate diplomacy by prioritizing women's leadership in UN climate negotiations and India's Nationally Determined Contributions (NDCs).

By implementing gender-responsive climate policies, ensuring financial inclusion, promoting education and skill development, and integrating women's leadership at all governance levels, India can create a more equitable, effective, and sustainable approach to climate resilience. Recognizing and supporting women as key agents of climate action will not only enhance environmental sustainability but also promote social and economic justice in India's climate governance framework.

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⁵¹ Sapna Cheryan, Ella J. Lombard, Global patterns of gender disparities in STEM and explanations for their persistence, nature review (Feb 20, 2025, 7:00 P.M.), [Global patterns of gender disparities in STEM and explanations for their persistence | Nature Reviews Psychology](#)