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Intersectionality and Climate Justice: A Literature Review on Gender, Equity, and Sustainable Development

Ankur Jyoti Dutta ¹

¹PhD Scholar, Department of Landscape Architecture, School of Planning and Architecture, New Delhi,

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ABSTRACT

The impacts of climate change are unequally distributed around the globe, especially in developing countries. Studies have shown that the effects of climate change are not gender-neutral. Due to the debate over climate change, the movement for climate justice has expanded since its inception, including concerns of ethics, equality, gender, racism, and human rights. The effects of climate change are evident in all segments of the global population who depend on natural resources for their livelihood or are least equipped to handle natural calamities. Gender inequality integrated with the climate crisis is regarded as one of the significant challenges of our time. When gender issues are mentioned in any discussions related to climate change it is usually concerning women's gendered vulnerability in current society especially in rural areas of the developing countries. This not only poses threats to livelihood and health but also to the safety and security of girls and women in developing countries across the globe. Women in society commonly face greater risks and burdens from the immediate impacts of climate change in situations related to poverty. Climate change also intensifies other societal problems among girls and women such as gender-based violence. Women, elderly people and children spend most of their time indoors leaving them at greater risk for vulnerability during disasters. Furthermore, it is evident that women's uneven involvement in decision-making processes exacerbates existing disparities by limiting their ability to fully participate in planning, policy-making, and implementation linked to climate change. However, because of their local understanding of sustainable resource management and practices at the family and community levels, women may play a critical role in adapting to the effects of climate change. Diversity, equity and inclusion should be the key drivers in achieving gender justice to fulfil the motto of SDGs of leaving no-one behind. The paper will try to analyse how gender justice and inclusivity play a role in achieving the goals leading towards climate justice and can help in the creation of liveable and resilient cities.

INTRODUCTION

Climate change is affecting every part of the world, causing widespread consequences such as severe droughts, flooding,

extreme rainfall and increased temperatures. These changes are also contributing to the food insecurity, human mobility and competition over scarce resources and jeopardizing livelihoods, putting at risk the progress achieved through the

Corresponding author

Email: ankur.phd.355la22@spa.ac.in (Ankur Jyoti Dutta)

development efforts. In areas that are marked by fragility and conflicted settings, where generally governance is ineffective or lacking, these impacts of climate change can primarily intertwine with not only the political and economic pressures but also to the social pressures, exacerbating existing tensions. This can further hinder developmental progress, escalating into violence or disrupting the fragile peace initiatives. Consequently the communities will be left impoverished and less resilient, by violent conflict and political instability, finding themselves to be ill-prepared to deal with the consequences of climate change (Halle & Kellogg, 2020).

LITERATURE REVIEW

Exploring the Gender Dynamics and its relation to Climate Change

Climate change possesses a great deal of security risks for millions of people worldwide, with a disproportionate impact on women and girls. Despite playing a pivotal role as contributors to food, water and energy provisions, they face greater challenges in adapting to the changing conditions due to availability of finite sources. Additionally, certain regions experiencing the impacts of climate change are undergoing significant socio-economic changes, altering their conventional gender norms related to economic activities, decision making and leadership roles (Halle & Kellogg, 2020). The ethical reasoning for prioritizing the role of gender in climate justice lies in acknowledging the fact that women constitute half of the global population. Addressing this well documented and the disproportionate effects of climate change on women becomes undoubtedly an urgent imperative for fairness. Additionally, considering women's substantial biological and cultural roles in reproduction and livelihood production, even minor gender-related differences can overall have significant repercussions for humanity on the whole. Thus, gender stands out as the most pivotal aspects of climate injustice (Perkins, 2018).

The United Nations Sustainable Development objectives (SDGs) 5 on gender inequality and women's and girls' empowerment are closely related to the other objectives, which center on access to water, sanitation, energy, education, and health. Because of the potential for a cascade of effects from climate change, the coherence of these goals is under jeopardy (Atuhamize & Badre, 2023). The social, political and economic pressures in already vulnerable and conflict-affected areas are heightened by climate change, which acts as a danger multiplier. The susceptibility of women and girls to many types of gender-based violence, such as sexual violence associated to conflicts, human trafficking, and child marriage, is often increased by the worldwide increase

in conflict, which is largely caused by climate change. Due to persistent gender disparities in knowledge, mobility, decision-making, and resource availability, women are more likely to survive and sustain injuries during catastrophes. Women and girls may then have difficulties in obtaining aid and relief in the aftermath, which would continue a harmful cycle of susceptibility to future calamities. (UN Women: Explainer, 2022).

Confronted with these significant challenges, it is currently essential to acknowledge that women in today's scenario are not merely survivors but essential contributors to the climate change solutions. They should take a leading role in both adaptation and mitigation initiatives, leveraging their nuanced understanding of local environments. The significance of women's leadership in climate action extends beyond their elected roles to include participation in local government. Greater success may be possible if grassroots women's collectives working with various phases who are directly impacted by climate change on a daily basis collaborate. There is a chance to create a society where women and girls not only survive catastrophes but thrive by prioritizing gender-responsive disaster preparedness and encouraging democratic engagement. Their voices must be heard, their dignity must be upheld, and their significant contributions must be honoured (Sharp, Wojnar, & Bagai, 2023).

Exploring the relationship between indigenous women, biodiversity and climate change

The intricate nexus between the indigenous women, biodiversity and climate change is truly a subject of scholarly exploration, reflecting on the profound interdependence of these components within the intricate layering of indigenous communities. Indigenous women emerge as pivotal stewards of biodiversity, their traditional ecological knowledge (TEK) rendering those custodians of diverse plant and animal species (Brodnig, 2019). This custodial role is integral to the resilience of ecosystems, particularly in the face of escalating climate-induced changes.

Indigenous communities, and by extension, indigenous women, confront disproportionate impacts from climate change due to their reliance on natural resources for sustenance and livelihoods (Denton, 2002). Alterations in weather patterns, coupled with extreme events, directly impinge upon the roles of indigenous women in agriculture, food security, and water management. Despite these vulnerabilities, indigenous women embody agents of adaptation. Their adaptive strategies, grounded in traditional knowledge, manifest in sustainable agricultural practices, water conservation, and the preservation of local seeds,

thereby fortifying community resilience (Ford, Rubis, Maillet, Nagashima, Wilcox, & Pearce, 2016).

This dual role of vulnerability and resilience among indigenous women is embedded within a broader context of cultural and spiritual connections to biodiversity. Indigenous cultures often express profound reverence for the environment through rituals, ceremonies, and traditional practices, reinforcing the sacred nature of biodiversity in their worldview (Duffy, 2009).

METHODOLOGY

This literature review employs a systematic and structured approach to identify, evaluate and synthesize relevant understanding across databases utilizing a combination of controlled vocabulary and free-text keywords. The collected literature was systematically coded and analyzed to identify recurring themes, methodological approaches, and significant findings. This methodical process facilitates the identification of research gaps, contributing to the development of a coherent and critical synthesis of existing knowledge in the field.

LITERATURE ANALYSIS

Gender Justice: Indian Perspective Top of Form

In the realm of climate change, the Indian perspective accentuates the intricate relationship between gender and climate justice. Women in India experience a disproportionate impact of climate change, stemming from pre-existing societal inequalities, particularly in sectors like agriculture and water management (Aggarwal, 2010). Acknowledging this disparity, there is a concerted effort to integrate gender-responsive strategies into climate policies to foster justice. Despite their higher vulnerability, women actively contribute to resilience-building and adaptation through initiatives such as women-led self-help groups and community-based projects (Gender and Climate Change: Building Resilience, Shaping Policy, 2019). The burgeoning participation of women in renewable energy entrepreneurship exemplifies a significant stride towards sustainable development and emission reduction (SEWA, 2021). Nonetheless, challenges persist, notably in the context of climate-induced migration, where women face heightened risks of gender-based violence and encounter barriers in accessing essential services (Rao, 2020).



Figure 1: The Global Gender Gap Report published in 2023 highlights India’s rank as 127th out of 146 countries and ranked lowest in the sectors related to economic participation and opportunity; education attainment; health and survival; and political empowerment. (Source: Global Gender Gap Report, June 2023)

Global Gender Gap Index Indicators						2023
Indicator	Rank	Score*	Compare with Global average	Difference F-M	Female vs Male	Min Max
Economic Participation and Opportunity	142nd	0.367			Min - Max	-
Labour-force participation rate %	139th	0.371		-47.88	28.26 - 76.14	0-100
Wage equality for similar work 1-7 (best)	116th	0.511		-	-	-
Estimated earned income (in US \$ 1,000)	141st	0.228		-8.12	2.40 - 10.52	0-150
Legislators, senior officials and managers %	124th	0.190		-68.13	15.94 - 84.07	0-100
Professional and technical workers %	121st	0.465		-36.51	31.74 - 68.25	0-100
Educational Attainment	26th	1.000		-	-	-
Literacy rate %	1st	1.000		-	-	-
Enrolment in primary education %	1st	1.000		1.91	96.53 - 98.44	0-100
Enrolment in secondary education %	80th	1.000		-0.03	78.75 - 78.78	0-200
Enrolment in tertiary education %	1st	1.000		2.60	30.85 - 33.45	0-200
Health and Survival	142nd	0.950		-	-	-
Sex ratio at birth** %	140th	0.927		-	-	-
Healthy life expectancy** years	137th	1.002		-	-	-
Political Empowerment	59th	0.253		-	-	-
Women in parliament %	117th	0.178		-69.80	15.10 - 84.90	0-100
Women in ministerial positions %	132nd	0.071		-86.67	6.67 - 93.33	0-100
Years with female/male head of state (last 50)	10th	0.407		-21.06	14.47 - 35.53	0-50

Figure 2: This sub-section highlights the major areas under the selected four domains that highlights that the gender gap is the most in the field of legislator and senior officials; women in ministerial positions and in decision making processes. (Source: Global Gender Gap Report, June 2023)

But in recent years, India has also shown a lot of initiative in addressing climate change challenges, making a bold commitment to reduce carbon emissions and increase the use of non-fossil fuel energy. Initiatives such as India's Pradhan Mantri Ujjwala Yojana, which provides clean cooking gas to women in need, are noteworthy examples of how gender-sensitive climate action can simultaneously address environmental and social concerns. The initiatives such as 'Har Ghar Jal' and others aims to provide tap water to all rural households by 2024, which will lessen the burden of caring upon women. (Sharp, Wojnar, & Bagai, 2023). The National Action Plan on Climate Change (NAPCC), which was just unveiled in India, also recognizes that the effect of climate change varies for men and women depending on gender roles and relationships. The plan recognizes that climate change can lead to growing water scarcity, reduced biomass yields, and heightened health risks, particularly affecting children, women, and the elderly in households who become more vulnerable. The potential decline in food grain availability also poses a threat of increased malnutrition. These challenges compound existing deprivations faced by women. Therefore, the NAPCC emphasizes the need to give special attention to gender aspects in each adaptation program, aiming to address and mitigate these differential impacts (Ahmed & Fajber, 2009).

Some of the regions where women are facing major climate change impacts and their related issues are listed below:

- **Agricultural Impact on Women in Punjab:** changing climatic patterns has adversely affected the crop

yields impacting on the women farmers in the region of Punjab (Kaur & Kaur, 2016).

- **Urban Vulnerability in Maharashtra:** women dwelling in the informal settlements of Mumbai face heightened vulnerabilities due to extreme weather events and inadequate urban infrastructure (Bhan, Srinivas, & Watson, 2013)
- **Water Scarcity in Rajasthan:** Women in rural Rajasthan bear the burden of water scarcity impacting their daily lives and livelihoods (Nagdeve, 2017)
- **Natural Disasters in Kerala:** Women in Kerala faced heightened risks of gender-based violence and exploitation after the 2018 floods (Rao, 2020)
- **Changing Rainfall patterns in Andhra Pradesh:** Women in the regions of Andhra Pradesh are facing challenges due to changing rainfall patterns thus affecting water availability, impacting agriculture and livelihood.
- **Monsoon Variability in Jharkhand:** Women in Jharkhand were encountering challenges due to seasonal monsoon variability affecting agricultural practices and food security (Guru & Pramanik, 2018)
- **Himalayan Glacial Retreat in Uttarakhand:** Women in Uttarakhand region are facing challenges due to glacial retreat leading to altered water availability in turn affecting agriculture and increasing water-related burdens (Rawat, Kaechele, & Nautiyal, 2018)
- **Rising Sea-levels in West Bengal:** Women living in the coastal areas of West Bengal experience increased

- vulnerabilities due to gradual rise in the sea levels leading to saltwater intrusion and loss of agricultural land and thus leading to displacement and loss of communal ties (Guru & Pramanik, 2018)
- **Climate-induced migration in Assam:** Women in some parts of Assam are facing challenges particularly associated with climate induced migration including displacement, loss of communal ties and heightened vulnerabilities (Bora, 2017)
 - **Dwindling Water Resources in Haryana:** Women in Haryana are facing challenges due to weakening water resources impacting their roles in agriculture and household activities (Kothari & Sivaramakrishnan, 2019)
 - **Heat waves impacting Health in Telangana:** Rising temperatures and heatwaves in Telangana have adverse effects on women’s health particularly those engaged in outdoor activities (Gupta & Sharma, 2017)
 - **Deforestation impacting livelihoods in Mizoram:** Women in the state of Mizoram are facing severe challenges due to deforestation affecting the traditional livelihood patterns and contributing to the overall economic insecurities (Royte & Tripathi, 2015)
 - **Changing Monsoon patterns in Meghalaya:** Women in Meghalaya are encountering climate-induced challenges leading to changing monsoon patterns that are impacting agriculture and affecting food security (Nongrum, 2016)
 - **Extreme Weather Events in Jammu and Kashmir:** Women in Jammu and Kashmir face challenges during extreme weather events, leading to disruptions in livelihoods, displacement, and heightened vulnerabilities (Bhat, Bukhari, & Sharma, 2019)
 - **Climatic Variability in Arunachal Pradesh:** Women in Arunachal Pradesh encounter challenges due to climatic variability, affecting traditional agricultural practices and contributing to food insecurity (Bhardwaj & Mishra, 2015)
 - **Storm Surges in Pondicherry:** Women in coastal areas of Pondicherry experience increased vulnerabilities due to storm surges, leading to saltwater intrusion,

loss of agricultural land, and displacement (Sundararajan, Murthy, Srinivas, Subhas, & Ramasubramanian, 2018)

- **Snow variability in Himachal Pradesh:** Women in Himachal Pradesh face challenges due to variability in snowfall patterns, impacting agriculture, water resources, and contributing to economic insecurities (Himachal Pradesh State Action Plan on Climate Change, 2018)

These insights provide us the various scenarios into the diverse and region-specific challenges that the women are facing on various states of India due to climate change impact.

Policies and Frameworks that can be considered for successful implementation of actions for Climate and Gender Justice

In this context, adopting the frameworks related to environmental and climate justice can serve as valuable tools to ensure that the suggested policies and laws give due consideration to the differential impact of climate change and disasters on women. Environmental justice, as a concept, emphasizes achieving an equitable distribution of environmental benefits and burdens. The fundamental concern of environmental justice is operationalized by integrating distributive, procedural, corrective, and social justice as essential components. The link between climate change, disasters, and environmental justice highlights profound issues of distributional, procedural, corrective, and social injustice and gender inequalities. Although a wealth of literature worldwide attests to the important role women have played in grassroots environmental movements, the environmental justice movement has historically concentrated mostly on the distributional aspects of poverty, race, and class. (Sharp, Wojnar, & Bagai , 2023).

Table 1: Promoting gender equality and empowering women in the context of climate action involves implementing four primary action-oriented strategies (Source: Report by Gender equality in climate action: Women at the core published by PwC and UN Global Compact, March 2022)

Action 1	Enhancing accountability for strategies by promoting gender equity in the practices of socio-economic and financial institutions
Action 2	Enhancing the efforts in sustainable environmental practices by allocating them with dedicated funding or redirecting the existing resources towards actions that will promote in gender equality, aiming to improve women’s access to resources
Action 3	Incorporating gender considerations into the broader climate and biodiversity commitments through actionable and scalable initiatives
Action 4	Enhancing the engagement with multiple stakeholders to create gender-equitable opportunities for women in micro, small and medium enterprises (MSMEs), as well as other conventional sectors and businesses. This includes focusing on supply chain management to promote equitable participation and advancement of women in the workforce.

Gender Mainstreaming and its implementation

The strategy of 'Gender Mainstreaming' involves incorporating and assessing the gender considerations as a pervasive and overarching theme across all policies, actions, or legislation to address gender inequalities through an inclusive process. The advocacy for gender mainstreaming is not exclusive only to the realms of climate change and disaster. The concept had its inception with the gradual development starting from the Beijing World Conference on Gender, which recognized the importance of its integration into various domains. However, despite the active involvement

of civil societies and women's groups, gender mainstreaming has not consistently succeeded in eliminating or reducing the gender gap (Jolly & Menon, 2019).

The following parameters are considered while doing the study to determine the tenets of gender mainstreaming in schemes in India:

- Inclusiveness in scheme planning/design
- Gender budgeting
- Transgender community
- Impact of gender-friendly infrastructure and policies in place
- Gender Disaggregated Data (Sethi, Kumar, Saini, & Garg, 2022)

Table 2: Through data analysis under these parameters, a performance chart was made to find the best and worst performers under these schemes (Sethi, Kumar, Saini, & Garg, 2022) (Here, 1 is the least and 5 is the best performer)

Sector	Inclusive of Gender	Gender Budgeting	Inclusion of Transgender
Agriculture	1	3	1
Water resources, Environment & Forest Climate Change	2	1	2
Health	2	2	3
Rural Development	3	4	4
Social Inclusion	3	3	2
Urban Transformation	5	2	4
Jobs & Skills	5	1	4
Human Resource Development	5	4	5
Women & Child Development	5	5	2

The findings through various schemes stated that –

- **Gender Inclusivity:** Among 119 Central Sector Schemes (CSS), 89 have provisions related to gender, either directly or indirectly. The top-performing sectors in this aspect are Women and Child Development (WCD), Human Resource Development (HRD), Jobs & Skills, and Urban Transformation. Conversely, the agriculture sector lags due to low alignment with gender mainstreaming (Sethi, Kumar, Saini, & Garg, 2022).
- **Gender Budgeting:** Out of 119 schemes, only 62 practice gender budgeting. WCD leads with 100% implementation in all schemes, followed by Rural Development (RD) and HRD. However, Jobs & Skills and Water Resources, Environment and Forest, and Climate Change sectors have none of their schemes incorporating gender budgeting (Sethi, Kumar, Saini, & Garg, 2022).
- **Inclusiveness of Transgender:** HRD, Jobs & Skills, RD, and Urban Transformation sectors show better performance, incorporating provisions for transgender individuals in some schemes. Nevertheless,

a majority of schemes across sectors lack adequate measures for transgender inclusion (Sethi, Kumar, Saini, & Garg, 2022).

- **Gender Disaggregated Data:** Studies on Union Cabinet Secretariat (UCSS) indicate the absence of disaggregated data in sectors like Social Inclusion, Law & Order, Justice Delivery, and Urban Transformation. The scarcity of gender-specific data poses a significant challenge, hindering comprehensive assessments of gender impacts in various governance dimensions (Sethi, Kumar, Saini, & Garg, 2022).

Case Study: Kerala Sustainable Urban Development Project

The main goals of the Kerala Sustainable Urban Development Project (KSUDP) were to improve the urban environment, promote economic growth, and raise the standard of living for people living in Kochi, Kollam, Kozhikode, Thiruvananthapuram, and Thrissur. The project's many objectives included facilitating improvements in livelihoods, advancing urban infrastructure services, and

strengthening sector organizations’ financial, planning, and urban management capacities, with a special emphasis on municipal corporations. The goal of this strategic strategy was to guarantee the five project cities’ sustained infrastructure service delivery. One of its aims was to increase income and job opportunities in general, with a focus on increasing access to entrepreneurship, especially for women, who were the main group covered by poverty reduction programs.

Gender Equality Issues related to the Aims of the Project

Women and girls handle the majority of family chores because of dominant gender stereotypes and an unequal division of household duties. Their load is increased by inadequate infrastructure, especially when it comes to handling water-related, sanitary, and health-related duties. The primary role of women in water management, the difficulties they encounter because of water scarcity, the negative health effects of poor sanitation, the lack of institutional capacity for gender equality strategies, and gender-based discrimination in the male-dominated construction sector are some of the major gender equality issues that have been identified. Additional concerns encompass:

- Women and girls face security challenges stemming from inadequate sanitation facilities, experiencing violence in public toilets or resorting to open defecation.
- Due to lack of confidence, gender preconceptions, and time restrictions, women face obstacles while trying to participate in community efforts. Women’s groups play a critical role in offering chances for wider involvement and skills.
- Gender and social inclusion issues are interconnected and intersectional, requiring a nuanced gender analysis in project planning that considers factors such as caste, age, social status, marital status, disability, etc.

Inclusion of ‘Kudumbashree’ project under the project plan preparation for addressing gender dipartites

Founded by the Kerala government in 1998 and run by the Local Self-Government Department, Kudumbashree is one of the biggest projects in India, with 3.7 million members that represent more than half of Kerala’s households. It is a major project for women’s empowerment and poverty reduction. Women living below the poverty line are given priority by Kudumbashree, which was structured into three layer organizations: neighborhood groups, area development societies, and community development societies. Its primary functions include managing microfinance operations, encouraging microenterprises, offering training, starting community interventions, and supporting programs for women’s empowerment. (Gender Equality Results Case Study India - Kerala Sustainable Urban Development Project, 2015).

During the initial project design, the Gender Action Plan (GAP) was created with the primary goal of increasing women’s engagement in a variety of positions, such as elected women representatives, office staff, Kudumbashree, and community members. In order to find appropriate sites for community sanitation facilities and create operating agreements, public consultations—in which a considerable number of women participated—were essential. Women were given more economic options by the inclusion of numerous initiatives aimed at reducing poverty, which took use of time savings from effective urban services. The Poverty Social Fund (PSF) and Community Infrastructure Fund (CIF) played a key role in funding a variety of projects, including building facilities for underprivileged women and children, repairing the physical infrastructure for primary health education, helping vulnerable populations, putting income-generating programs into place, and encouraging the growth of microenterprises (Gender Equality Results Case Study India - Kerala Sustainable Urban Development Project, 2015).

Table 3: Project measure that were incorporated to involve women and also to support the overall Gender Equality Results (Source: Report on Gender Equality Results Case Study – Kerala Sustainable Urban Development project funded by Asian Development Bank, 2015)

Project Measures	Procedures
Identification of Gender Equality issues at the Planning Stage	Project preparatory technical assistance considered community perspectives, explicitly addressing women’s viewpoints. A gender action plan was developed and included as a component of the loan covenant.
Poverty Social Fund/Community Investment Fund provisions available to municipal corporations	Organizations affiliated with Kudumbashree, including community development societies, area development societies, and neighbourhood groups, were encouraged to actively participate in the planning, design, and implementation phases of the poverty reduction components of the project.

Performance-based flexible budgeting provisions	The project adopted an adaptive, process-oriented approach, emphasizing continuous dialogue between the project staff and the target communities.
Evidence-based approach strategies	The gender action plan outlined specific elements for monitoring, and baselines for the Poverty Social Fund (PSF) initiatives were established.
Commitments to support equitable working conditions	Contracts were adhered to labour laws ensuring equal wages for equal work, incorporating safety and safeguard clauses. Worksite training encompassed aspects of hygiene, safety and the awareness about HIV/AIDS.
Institutional awareness capacities to promote gender equality	Provision for designated social development officer staff positions, accompanied by continuous capacity building. Both the project management unit and the project implementation unit are reinforced with experts specializing in community development. Comprehensive capacity-building initiatives are extended to community organizations, covering participation, leadership, water and sanitation management, health hygiene, as well as rights and entitlements.

Case Examples across India where equal participation of women can be seen

Apart from the mentioned case study there is also some real-life scenarios where active participation is made to uplift the current scenarios related to the domain of climate and gender justice in Indian sub-continent:

- **Women-Led Climate Solutions in Gujarat:** Self Employed Women's Association, SEWA's initiatives in Gujarat demonstrate successful women-led climate resilience programs (Husain & Ghosh, 2018)
- **Forestry and Women's Empowerment in Himachal Pradesh:** Women in Himachal Pradesh are actively involved in community forestry, contributing both to the environmental conservation and women's empowerment (Bhatia, Nautiyal, & Ravidranath, 2016)
- **Climate Resilience in Tamil Nadu's Fishing Communities:** Women in the coastal areas of Tamil Nadu plays a crucial role in adapting to the adverse effects of climate change by diversifying livelihoods and engaging in sustainable fishing practices (Samuel, 2019)
- **Drought Resilience in Maharashtra:** Women in drought-prone regions of Maharashtra are actively participating in various water management and sustainable agricultural practices to enhance resilience (Kothari & Sivaramakrishnan, 2019)
- **Community-Based Adaptation in Odisha:** Women in Odisha are actively engaging in the community-based adaptation initiatives, such as mangrove conservation, to address climate change impacts (Panda, Shaw , & Mallick, 2020)
- **Sustainable Agriculture in Karnataka:** Women farmers in the region of Karnataka are adopting to sustainable agricultural practices to cope with climate variability and enhance food security (Rudrappa & Govindan, 2012)
- **Biodiversity Conservation in Uttarakhand:** Women in Uttarakhand are involved in numerous community-led initiatives for biodiversity conservation, contributing to climate resilience and sustainable resource management (Rawat, Kaechele, & Nautiyal, 2018)
- **Climate-Resilient Farming in Bihar:** Women farmers in Bihar adopt climate-resilient farming practices, including crop diversification and water management, to address the impacts of climate change (Kumar, Singh, & Kumar, 2020)
- **Livelihood Diversification in Assam:** Women in Assam are diversifying their livelihoods by engaging in alternative income-generating activities, such as handicrafts and sustainable tourism, to cope with climate-related challenges (Bora, 2017)
- **Community-Based Disaster Preparedness in Jharkhand:** Women in Jharkhand actively participate in community-based disaster preparedness programs, enhancing resilience to climate-induced disasters (Guru & Pramanik, 2018)
- **Renewable Energy Initiatives in Gujarat:** Women in Gujarat are constantly participating in various community-driven renewable energy projects, such as solar cooperatives, contributing to both climate mitigation and women's empowerment (Kapoor & Bhatia, 2019)
- **Community-Led Water Management in Rajasthan:** Women in Rajasthan actively participate in community-led water management projects, implementing sustainable practices, enhancing water conservation, and adapting to changing climate conditions (Srivastava, 2017)
- **Agro ecological Farming Practices in Himachal Pradesh:** Women farmers in Himachal Pradesh

adopt agroecological practices, emphasizing biodiversity, organic farming, and water conservation, contributing to climate-resilient agriculture (Dhungana & Jat, 2018)

- **Women-Driven Sustainable Agriculture in Karnataka:** Women farmers in Karnataka lead sustainable agriculture practices, including organic farming, crop diversification, and water-efficient techniques, contributing to climate-resilient food production (Dhamodaran & Parayil, 2012)
- **Bamboo Craft and Sustainable Livelihoods in Nagaland:** Women in Nagaland engage in bamboo craft and artisanal activities, contributing to sustainable livelihoods, fostering local economies, and promoting eco-friendly alternatives (Singh, 2018)
- **Community-Based Agroforestry in Chhattisgarh:** Women in Chhattisgarh actively participate in community-based agroforestry initiatives, contributing to biodiversity conservation, carbon sequestration, and sustainable agricultural practices (Kumar, Singh, & Pathak, 2017)
- **Sustainable Handloom Weaving in Tripura:** Women in Tripura are involved in sustainable handloom weaving practices, promoting traditional craftsmanship, reducing environmental impact, and supporting local economies (Mazumder, 2016)

These scenarios provide us the further insights into the diverse ways that women are actively and currently engaging in the field of climate and gender justice initiative across various regions of India. These insights also highlights the provision of proactive roles of women in various states, fostering sustainable practices and contribution to climate resilience

ANALYSIS AND FINDINGS - What can be done considering the future scenarios?

The elements of international climate change discussions have grown dramatically over the last ten years, mixing top-down and bottom-up approaches that might pave the way for more fruitful future gender-based climate initiatives. Many gender-responsive climate projects should continue to be shaped by the hybrid strategy, which combines aspects of both approaches. To guarantee a thorough and efficient approach to tackling the issues raised by climate change, some sectors within the framework should be incorporated into national and local policies of nations. It is essential to establish specific goals in order to control their credibility when pursuing gender justice in the context of climate change. The effort to change the imbalance of power must go beyond the practical aspect of guaranteeing women's access to necessary services. If this element is neglected, a significant chance to

further women's growth may be lost. In order to encourage women's participation in climate-compatible development, a comprehensive strategy that transcends purely technical issues is required (Devarhubli, 2022).

In order to attain gender-neutrality in India's environmental governance, a two-pronged strategy is required. First and foremost, it is imperative and greatly needed that Indian environmental legislation be in line with international accords. Incorporating non-legislative and non-regulatory methods is crucial for improving the overall engagement of women. For example, it might be helpful to host lectures and workshops that are just for women. These gatherings ought to highlight the importance of women in the formulation of environmental policy. Furthermore, it is suggested that at least 50% of the women who are likely to be impacted or relocated provide their prior agreement before any environmental project may be approved. After giving them thorough information about the project's nature and how it could affect their homes, incomes, and other aspects of their lives, this agreement should be obtained. Additionally, reserving a sizable portion of seats for women can be used to demand women's participation at the policy level (Devarhubli, 2022).

CONCLUSION

In conclusion, there is a complicated and crucial relationship between gender justice and climate change that requires careful examination from both a global and Indian perspective. Empirical data from throughout the world confirms that women are disproportionately vulnerable to the effects of climate change (Denton, 2002). The necessity for intersectional responses to climate policies is highlighted by the fact that pre-existing social and economic injustices make this vulnerability worse. Global recognition of women's contributions to climate resilience, adaptation, and mitigation initiatives is growing. (UNFCCC, 2017).

The effects of climate change on women are particularly noticeable in India, where sociocultural factors are important. Because of their work in agriculture, water management, and resource-dependent livelihoods, women frequently suffer the most from climate-related disasters (Aggarwal, 2010). Notwithstanding their increased susceptibility, Indian women also become change agents by actively engaging in sustainable projects including community-based adaptation programs and entrepreneurship in renewable energy (SEWA, 2021) (UNDP, 2019). The significance of recognizing and embracing women's indigenous knowledge, especially in vulnerable areas, highlights the intersections of gender and climate justice. (Brodnig, 2019). Governments throughout the world, including those in India, have realized how important it is to implement gender-responsive climate change policies. Gender concerns are included into initiatives like India's National Action Plan on Climate Change (NAPCC), which

aims to increase women's ability and engagement in climate change adaptation and mitigation (India, 2018). A paradigm change in international climate discourse is marked by the Paris Agreement, which recognizes the significance of gender equality and women's empowerment in climate activities (UNFCCC, 2015).

In summary, coordinated efforts must be made at the national and international levels to achieve gender justice in light of the present and ongoing challenges of climate change. Encouraging women's empowerment, acknowledging their agency in sustainable practices, and including gender concerns into climate legislation are all crucial steps toward a more resilient and inclusive future.

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