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Women and Climate Change with a Special Reference to India

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ABSTRACT

Climate change is a global phenomenon that is happening at an alarming rate. South Asian region, especially India is more vulnerable to climate change because of its geographical location. Climate change not only affects the environment but also affect the various socioeconomic aspect of human beings. Climate change disproportionately affect the vulnerable and marginalised section of the society, especially women. In other words, climate change has a gendered dimension. Women are connected comparatively more to the environment because of their caregiving role in the family. Harming nature is similar to oppressing women, as supported by various ecofeminist theories. This paper focuses on the effect of climate change on women's livelihood, food-security, health and labor market. This study reviews the literature by gathering e-data mainly from two sources, i.e., Scopus and Google scholar from the year 2020 to 2024. Our study finds that voicing women's concern through women-centric climate policy and bringing them at the fore-front by facilitating higher-level decision-making power is the need of the hour. This can facilitate their overall development and help in reducing gender inequality and ultimately empower them.

KEYWORDS: Climate change, Feminisation of agriculture, Food-security, Ecofeminism, Women-centric climate policy, Female labor market, Gender-inequality.



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INTRODUCTION

Women are one of the most vulnerable populations on the planet earth, especially in those countries where sociocultural and economic inequalities are more pronounced and gender defined, which ultimately limits the overall potential of women. Gender equality is a fundamental human right as defined by the UN SDG. According to the Beijing Platform for Action 1995, one of the most critical areas of concern is women and the environment that needs immediate action to ensure equality in terms of opportunities provided to women. Women are disproportionately affected by climate change. Women suffer from time poverty because the responsibility of providing cooked food, collecting water and managing family and farm falls on them, yet they are the ones who do not have access to land ownership, limited decision-making power at the household level and remain unheard in environmental management and polices. Women contribute to half of the production of food grains, yet they are the most food-insecure. Because of the unpaid care work, they have limited economic opportunities in the labour market. They compromise their health and nutrition because of the time poverty. All these factors simultaneously can have negative implications on women's participation in the labour market to be inefficient.

As defined by the UN Climate Action, Climate change is a long-term shift in temperature and weather, which mainly occurs as a result of burning fossil fuels.

Climate change is occurring at an alarming rate. The South Asian region, especially India, is more vulnerable to climate change because of its geographical location. Climate change not only has an implication on the environment but also on the various socio-economic aspects of human beings. Climate change disproportionately affects the vulnerable and marginalized section of the society, especially women in the developing countries, i.e., climate change has a gendered dimension. Women are directly and indirectly connected to the environment because of their caregiving role in the family comparatively more than men. Extreme weather events have significantly differential impact on the livelihoods, food security, health and nutritional aspect of women. Also, women have limited mitigation and adaptation options. Climate change adversely affects agriculture sector and thereby impacts the food security and reduced income.



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It overlaps with the emerging phenomenon of feminisation of the agriculture sector in the Global South. The literature on the study of the feminisation of agriculture is very diversified and complex. On the one side, it can be considered as a positive development for women, indicating enhanced rights for women over resources and decision-making. This can be considered as a way of empowering women. Conversely, this trend could be driven out of agrarian crisis. One of the crucial challenges for women in the agricultural sector is the limited access to land rights, which can negatively impact their ability to secure a credit and agricultural information and technology. This put women in a disadvantaged position. The threat of escalating climate change adds to these vulnerabilities. This argument provides a view that climate change has a significant implication on women's labour market outcomes, especially in the agricultural sector.

This paper brings into focus one of the most unexplored topics women and climate change. They are the two most important areas of concern when we talk about sustainable development. UN Women reports that among the 11 biggest hurdles to women's equality by the year 2030 are: Poverty, lack of economic opportunities and lack of women in leadership. In this study, we have added another dimension that is climate change, which is capable of aggravating women's hardship in her day-to-day lives. This paper links that climate change affects the food security and health of the women and thereby affects women's labour market outcomes which ultimately increases there unpaid-care work. After examining various literatures, the current paper tries to analyse how women are related to climate change. How climate change affects the livelihood, food security, health, sanitation and labour outcome of women. It also tries to underscore the gendered dimension of climate change policy.

This paper is further divided into various sections. The first section shows the methods used in our study. The second section deals with the concept of ecofeminism. Further sections explore the impact of climate change on various aspects of women. The Final section concludes the study.



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METHOD

Our present study is theoretical in nature. This paper does an extensive review of the existing literature in regard to women and climate change. For this purpose, we used two e-database, namely Scopus and Google scholars. Initially we screened at least 53 papers. The time period of our study comprises 2020-2024. After the preliminary screening of the abstract, we reviewed 34 papers out of them. The documents that are selected for full-text screening were collected and compiled in Google spreadsheet. In the spreadsheet we gathered each article which includes the authors name, year of publication, title of the paper, objective of the study, location, population demographics, study design, variables used, data source, findings, and limitations and research gap. The keywords used for the search are: Ecofeminism, women, climate change and labour market, women's health, livelihood, food security and womencentric climate policy.

RESEARCH OBJECTIVE

This study aims to answer the following review questions:

- How are women related to climate change?
- Climate change impact on women's livelihood, food security, health and sanitation.
- Effect of climate change on women's labour market.
- Can incorporating women-centric measures help reduce the effects of climate change?

ECOFEMINISM: HOW ARE WOMEN RELATED TO CLIMATE CHANGE?

The word 'Ecofeminism' was first given by French thinker Françoise d'Eaubonne in the year 1974 (Öztürk, 2020), (Suresh, 2021), (Parameswaran, 2022), (Hoque, 2022). Ecofeminism is a combination of two words ecology and feminism (Ottuh, 2020). The ideology of ecofeminism describes that women have a profound connection with the environment because of their caregiving nature. This resonates the characteristics of the natural environment. It believes that suppression of the environment is parallel to the oppression of women in a society that revolves around a patriarchal mindset (Öztürk, 2020), (Hoque, 2022). It has the characteristics of dualism, like human and nature dualism. Here, human is considered superior to nature.



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Similarly, male vs female, conscious vs unconscious, logic vs emotion has dualism, where the former is considered superior to the later (Öztürk, 2020). Ecofeminism has branched off into various thoughts like liberal-ecofeminism and radical-ecofeminism (Parameswaran, 2022). Liberal ecofeminism transcends from those belonging to privileged class. They advocated for mainstreaming gender dimension in environmental policies and programs. While the Radical ecofeminist believes that the oppression of women and the nature goes hand in hand. This is facilitated by the profit-driven and male-dominated society.

Ecofeminism aroused as a result of the capitalist economy that is driven by profit motive and requires mass production and consumption activity (Swaroop, 2020), (Suresh, 2021). This has resulted in the degradation of our environment, directly as well as indirectly in many ways. The advent of advanced and robust technology facilitated the interest of a patriarchal society (Parameswaran, 2022). Various ecofeminist has written in this regard. In her famous book, 'Staying Alive', Racheal Carson writes about the devastating impact of pesticide industry on the environment and habitat. Also, how the industrial revolution caused the ecological crisis (Parameswaran, 2022), (Joshi, 2023), (Swaroop, 2020). Vandana Shiva is one of the most influential advocates of ecofeminism in India. She talks about 'seed democracy' and points about the harm modern science and technology is creating on both women and nature (Singh, 2023), (SINGH, 2020). Profit-driven capitalist mindset tries to grow at the cost of the environment (Parameswaran, 2022). There is a gendered dimension to environmental harm. Critiques like Bina Agarwal points out the deep-rooted discrimination against women in sociocultural aspects and economic opportunities, lack of access to land rights, decisionmaking power and gender-based division of labour from centuries is often neglected by ecofeminist who blames capitalist society for the harm of nature and women (Swaroop, 2020). The economic reforms of 1990s led to the globalization of India, that required mass production and consumption. This has led to the degradation and depletion of our natural resources (Parameswaran, 2022). A conflict aroused between government's intention of economic growth and the cost of environmental degradation because of it (Joshi, 2023).



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India's connection with nature, which is regarded as mother nature, can be traced back to ancient times. The advent of ecofeminism in India happened through a pioneering Chipko movement in the year 1973 in the Himalayan region of Uttarakhand (Swaroop, 2020). In this movement, women depicted a remarkable stance where they hugged tress to be cut down by loggers for clearing forest land for development purpose (SINGH, 2020), (Hoque, 2022). Emergence of ecofeminism is a process of thinking ecology from a gender perspective. Ecofeminism gained significance because of strong environmental protection movements like the one in Kenya, the Green Belt Movement, organised by Wangari Maathai in 1970s (Swaroop, 2020). Chipko Movement demonstrated the actual connection between women and the nature, showcased through hugging the trees and saving them from being cut down by the capitalist driven motive of the people (SINGH, 2020). It was led by a local woman leader, Gaura Devi (Parameswaran, 2022). 'NARMADA BACHAO ANDOLAN' is also another significant movement led by Medha Patkar to safeguard the life and the livelihood of the tribal community residing in the catchment area of the river Narmada (Swaroop, 2020). The interconnection between women and nature is still celebrated in many parts of India, especially in the north Indian states such as Meghalaya. Matrilineal culture is still followed in the tribes of Garo, Khasi and Jaintia. Matrilineal culture aims to uphold women's freedom and wealth (Mukherjee, 2020). The tribes of Meghalaya are profoundly connected and dependent on nature and natural resources for their living (Mukherjee, 2020). In the matrilineal culture, women are head of the household who possess the land rights and they bequest it to female ancestor. Moreover, after marriage, the husband come to their wife's home to stay with her as opposed to a patriarchal society. This culture that is prevalent in the eastern state of India gives evidence of a deep connection between women and nature.

Climate change affects agricultural sector significantly. The extreme climate events, erratic rainfall, drought and flood make agricultural families, especially women, more vulnerable to climate change. Although in rural India, 73 per cent of women workers depend on agriculture, only 14 % of the landowners are women (Joshi, 2023). The most obvious impact of climate change is the migration of farmers from rural to urban areas in search of sustenance (SINGH,



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2020). It has been found in a primary survey that out of 700 responses, almost 68 percent have chosen to and 38% have not chosen to migrate in the Kharif season (SINGH, 2020).

The ecofeminism has also faced a lot of criticism. Famous scholars like Bina Agarwal criticised ecofeminism by underscoring that ecofeminism primarily believes that the natural environment and the women have suffered due to the developmental process, still they overlook the fact that women have been denied with the economic opportunities and cannot work on their full potential just because they are regarded as care-givers and also because of the division of labour (Singh, 2023). Many critiques point out that the movements led by women to protect the environment are just because their livelihood depends on natural resources and not because they are connected to the natural environment.

Policies should be encouraged in this regard to safeguard our environment as well as the interest of women. Community-based approach for managing the natural resource and the role of women in managing ecologically and economically important resources should be attracted and given attention by academicians and planners (Swaroop, 2020).

CLIMATE CHANGE IMPACT ON THE LIVELIHOOD, FOOD SECURITY, HEALTH, WATER AND SANITATION OF WOMEN

Climate change is happening at an alarming rate whose affect can be felt by the entire world. Various studies point out that climate change disproportionately affects women in several ways (Karmakar, 2021), (Sangram Kishor Patel, 2019). Climate change significantly affects women's livelihood, food-security, health and sanitation. Although, the empirical studies on the effects of climate change on women in the above-mentioned aspects are very scarce, especially in India, various systematic literature review captures this essence. This might happen as a result of the existing socio-economic inequalities, social norms as well as gendered division of labour (Sangram Kishor Patel, 2019), which makes women doubly marginalised. Agricultural sector is the most affected by climate change. The extreme climate events, erratic rainfall, drought and flood make agricultural families, especially women, more vulnerable to the climate change. Climate change is a significant threat to the agricultural sector which may result in food security, livelihood and health condition of people, especially women



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(Bidhubhusan Mahapatra, 2021). Women are primarily responsible for providing caregiving in the household. They manage and provide the essential food, fuel and water for the household needs (Priyanka Kushwah, 2022). Climate change has widespread ramifications. It can lead to erratic rainfall patterns, rise in sea level, flooding, ocean acidification, droughts and extreme weather events etc (Karmakar, 2021), (Bhaduri, 2021), (Kisan Dilip Algur, 2020). This can severely cause exposure and vulnerability of women due to climate change. Extreme climate event like drought results in shortage of food production and water availability and ultimately becomes a threat to food security. In these instances, women have to face the challenges posed by drought in the form of increased workload because they have to walk long distances to fetch water (Kisan Dilip Algur, 2020). Because of their increase in work burden, women mainly deal with "time poverty". Women's social obligation of performing household tasks while working to ensure food security for their family is in itself very engaging and a time-consuming process. In this case, they do not get enough time for childcare and personal nutrition (Sriroop Chaudhuri, 2021). Drought significantly affects pregnant women. Due to heat exhaustion, pregnant women face various health challenges in the form of fatigue, hypertension, dizziness and dehydration. These can lead to preterm birth and miscarriages (F. Scorgie, 2023). Climate change not only affects the health and livelihood of women but also affects their social setting. Even though polygamy is undesirable, in the Indian state of Maharashtra, men practice marrying "water wives". Because of the shortage of safe drinking water in the period of drought, men marry again and again so that more women can work in the field and fetch water. (Priyanka Kushwah, 2022). Many girl children have to leave their education to fetch water with their mothers in the event of drought and extreme dry season (Bhaduri, 2021). Many households in rural areas resort to girl-child marriages because of the climate change. Also, as a result of increasing temperature and glacial melting, there is a rise in sea level that cause flooding. In this scenario, the sanitation, hygiene and health of women is compromised (Karmakar, 2021). Flood-induced damage to bathroom and toilet facilities makes women to bath in outdoor areas. This potentially increases the chance of urinogenital infections comparatively more to men. This can potentially compromise their privacy and also increases the risk of various vector-borne diseases like malaria and dengue (Ganguli, 2021). Also, crop



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destruction because of floods, lead women to sell off their assets and livestock, which makes them further vulnerable to climate change (Sangram Kishor Patel, 2019).

Women, especially those residing in rural areas are comparatively more vulnerable to the effect of climate change because they are more closely associated with it. Livelihood depends mainly on agriculture in rural areas. Climate change results in extreme weather events and erratic monsoon season which impacts agriculture production adversely. As a result, agricultural livelihood, on which most rural people depend becomes unsustainable. Because of the untenable agricultural livelihood, people migrate or search for an alternative off-farm livelihood. The migration is done mainly by male members in the household, who leave the responsibility of family and the farm for the women who are left behind in the house. An important implication of this phenomenon is the "Feminisation of Agriculture", i.e., increasing employment and decision-making of women in the agriculture sector (Sangram Kishor Patel, 2019).

Now the question arises, does the feminisation of agriculture empower women by giving them decision-making power and ownership of land rights or does is create distress among women by increasing the work burden and time-poverty. The literature in this regard provides no valid answer to this. In fact, the result is mixed and there is no clear consensus in this regard. Our present study tries to delve further into this topic and try to learn and find does the feminisation of agriculture empowers women or distresses women, i.e., does it lead to feminisation of agrarian distress?

In this scenario, incorporating gender in climate adaptation is the need of the hour. Various adaptation programmes are not gender-responsive (Joyshree, 2022). Women-centric environmental policies will help in efficient management of environmental resources and climate adaptation and reduce the environmental destruction. This review also suggests that longitudinal and empirical study with regard to the differential impact of climate change on women is lacking, which needs to be explored further, especially for India.



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CLIMATE CHANGE AND THE LABOUR MARKET

The literature is scarce when it comes to assessing the impact of climate change labour market outcome, especially gender inequality. Inequality in the labour market arises when women do not get access to equal economic opportunities parallel to the men. It can happen as a result of various socio-economic and cultural norms that women face in the patriarchal society. In the events of climate change this inequality gets aggravated. Climate change in the form of extreme climatic events such as droughts, heat waves and floods can potentially reduce the economic productivity (Mwiinga, 2022), especially for women as it increases their work pressure. Labour productivity and safety can be significantly undermined because of adverse effects on health, cognition and decision-making power because of higher temperatures (R. Jisung Park, 2021).

The sector most affected by climate change is the agricultural sector. It can lead to crop loss, reduced yield and profit and income of the farmers. It increases the risk of farmers suicide or they resort to migration in search of an alternative livelihood (Kalkuhl, 2020). It is observed in various studies that climate change led to migration from rural to urban areas, especially for men (Kalkuhl, 2020). As a result of these climate migrants, an interesting phenomenon is taking place, called 'feminisation of agriculture' (Sangram Kishor Patel, 2019). In this case, women are taking up more agricultural roles. But the question is, does this phenomenon empower women by reducing gender inequality in the labour market or does it drive distress among women by increasing the work burden when the male farmer migrates? This question remains unanswered in the literature and can be a scope for further study. Although climate change adversely affects both males and females but the strain on women is felt more because of societal expectations and increased workloads in the events of extreme climate events like droughts, i.e., fetching water from far places and taking care of the older people and children when they are sick. These constraints reduce their time to participate in the labour force. It can exacerbate the inequality in the labour market. In India these constraints are more pronounced (Sofia Castelo, 2024) which could be one of the possible reasons that results in the declining trend of female labour force participation rate in India (International Labour Organisation, ILO Report). (Mwiinga, 2022) examines the relation between climate change and labour market and its gendered effects and concludes that extreme whether events reduce the probability of



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labour force participation of women as compared to men. Also, women have a disadvantaged position as compared to men because of fewer resources like limitations in owning land and property rights. This culture promotes 'feminisation of poverty' (Sofia Castelo, 2024). It also reports that according to Home Net South Asia, in the year 2022, 40% of surveyed women reported a loss of income because of increased hours in unpaid caregiving in the events of extreme heat. There are some exceptions in this literature (R. Jisung Park, 2021), (Hala Abou-Ali, 2022), which mentions that men are relatively at a greater risk and their hours of labour increases as a result of climate change and increased temperature.

The views presented above explicitly point out that there is a greater need for prioritising women-centric policies and incorporating gendered analysis of labour market outcomes in the events of climate change. This area remains unexplored and can be a subject of further discussion.

CAN INCORPORATING WOMEN-CENTRIC MEASURES HELP REDUCE THE IMPACT OF CLIMATE CHANGE

In today's world, where climate change is taking unprecedented turns and affecting humanity in several ways, a gendered analysis of adaptation and mitigation is the need of the hour. But the sad reality is that policies and programmes are lacking on this front. (Sangram Kishor Patel, 2019) provides climate resilience plans and strategies of different South Asian countries and mentions that Afghanistan, India, Maldives, Nepal and Sri Lanka have not yet adopted gendersensitive polices in their climate change mitigation approach. Various reasons are working behind it. The first one is the exclusion of women from decision making (Ernoiz Antriyandarti, 2024), especially when it comes to climate change adaptation. A lot of factors work behind it, namely socio-cultural norms, gender-defined roles and society's view that women lack innovative capacity. It is argued that innovation is not a feminine trait. (Séverine LE LOARNE – LEMAIRE, 2020) underscores that if more women are incorporated in science, technology and innovation, then it would increase the development of technological innovation that can help in climate change adaptation and mitigation. It also points out that women with the capacity for social innovation can move away from gadget technologies and their fake promise



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to counter climate change. Another study by (Kavya Michael, 2019) identified the reason why women are excluded from decision-making and participating in climate change adaptation policies. They point out that inequality in control and access over resources happens because of the social reproduction responsibilities of women, sub-ordinate treatment in society as well as in economic and political life. But merely including women in governance cannot make the climate change adaptation effective. (Bhattarai, 2019) has done a case study on gender analysis in community forest management in the wake of climate change adaptation in Nepal. She found that although women occupy the decision-making position in the community, their involvement is nominal and ultimately the decision rests on the male members in the family as they believe that women are not sufficiently capable of taking the correct decision. So, adequate training and education of women is significant in this regard.

So, examining the contribution of women in climate change adaptation and mitigation becomes significant in this backdrop. Does women-centric measures really effective in reducing the impact of climate change? (Momtaj Bintay Khalil, 2019) conducted a field survey at the Gabura district of Bangladesh, examining the contribution made by women in dealing with climate change after the cyclone (Aila), in the year 2016. This study presents an interesting finding of the differential adaptation technique between males and females after a disaster. After the cyclone, as a result of crop loss, reduced income and livelihood loss, males resorted to migration into the cities as an adaptation strategy for better livelihood options. They also cut the contact and link with their family members who they left behind. This study observed that in the absence of male members, women have showed and developed a range of novel adaptation strategies by using social capital and local knowledge. Women of the Gabura district showed remarkable resilience by resorting to bag cultivation, tower method farming technology, home-made organic compost for matcha cultivation that is helpful in gardening, in the saline soil, climate smart farming system (Prapti Barooah, 2023), (Marina Kovaleva, 2022) without using chemical to the soil. This provides evidence of the changing gender roles as an adaptation strategy in the wake of climate change and also an instance of women's empowerment. At the beginning of our paper, we asked the question: does the feminisation of agriculture is opportunity driven or distress driven. (Momtaj Bintay Khalil, 2019) provided the



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evidence that feminisation of agriculture creates opportunity in a situation of distress and states that women-centric adaptation analysis can be effective in countering climate change. Migration of male members, although it increases the workload of women, it opens up space for women's empowerment.

Critics might argue that women already take up so many care-giving and responsibility, so why burdening them with the responsibility of countering climate change. This can be a scope for future studies. Nonetheless, the above discussion calls for a gendered analysis of mitigation and adaptation measures, significant and effective participation of women in decision-making process and equal access to resources.

CONCLUSION

This study tried to capture the essence of the relation between climate change and various aspects of women's lives through an extensive review of the literature. It started with examining the connection between women and nature through ecofeminist theories. Nature has a very close tie with women in general and rural women in particular. Not only climate change affect women socio-economically but also have implication on their day to day lives. The responsibility of care giving and food-security for the family depends generally on women. Climate change is one of the significant causes of decrease in the agricultural production, income and unsustainable livelihood. In this scenario, the food-security of the vulnerable population gets marginalised. Climate change also increases the work burden of women through the feminisation of agriculture. This has significant ramifications on women's labour market outcome. Not limited to it, extreme weather events, pollution etc. can cause serious health and sanitation issues for women who are already marginalised in a patriarchal society. Climate change also increases the work burden of women.

After an extensive examination of the literature on women and climate change, this study arrived at a point where it can be said that the empirical research on the impact of climate change on health, food security, livelihood, water, sanitation and female labour market outcome and policy implication among women is very scarce, especially for India. These areas remain unexplored for the case of India. Moreover, the methods used for this topic is mainly qualitative



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in nature like case studies, meta-analysis and systematic literature reviews. As few as two or three literatures, mostly done for African countries have used logistic regression and panel data analysis. Further, the study used cross-section data. But to have a proper understanding and to capture a dynamism of the impact of climate change on women over the years, we require more longitudinal studies.

In this scenario, incorporating gender in climate adaptation is the need of the hour. Various adaptation programmes and policies are not gender-responsive. At the beginning of this paper, we argued that bringing women into higher-level decision-making is the need of the hour. Women-centric environmental policies can help not only in efficient management of environmental resources but also helps in climate adaptation and reduction in the environmental destruction. This review also suggests that longitudinal and empirical study with regard to the differential impact of climate change on women is lacking, which needs to be explored further, especially for India. Policies and programmes should be placed such that it enhances women's empowerment and improves their resilience to climate change, such as by providing them land ownership rights.



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