



Air Pollution: Health and Livelihood Challenges of Women in India

Swati¹  and Mani Pratap² 

¹ Assistant Professor, St. Xavier's University Kolkata, India

² Assistant Professor, Central University of South Bihar, India

swati@sxuk.edu.in

Abstract. The environment Protection and preservation have been a deep rooted tradition in India as the women in the country irrespective of their religion, race & caste; participate actively to protect the environment. The effect of environmental pollution has been observed as challenges on health, livelihood & sustainability. Environmental pollution has certain gender issues; and as the women and children are more susceptible from the effects of air pollution, water pollution and global environmental pollution. The vulnerability is quantified in terms of life & livelihood, employment, health aspects, sustainability and migration. In this paper the researcher has focused upon the gender relation in the environmental issues. It focuses upon the issues of indoor air pollution particularly on the health and livelihood challenges upon women. To examine the efficacy of existing laws and policy measures to deal with the same and to analyse the interplay between national and international relations.

Keywords: Environment, Women, Livelihood, Sustainability.

1 Introduction

Environment is a Latin word which signifies surroundings. An environmentalist 'Ernest Haeckel' has coined the term "ecology" to examine the interdependence of each human and non-human creatures with the environment for its existence of survival & sustenance. Undoubtedly in the various studies it has been established that environment & human beings are the two sides of the same coin. The existence of human being may not be imagined without the nature as the human being without nature has no root and nature without human has no fruits. The jurisprudential approaches of environment is based upon the anthropocentric philosophy & eco-centric philosophy. The anthropocentric philosophy assigns the environment subordinate status to human beings. This subordinate status of the environment leads to the development of new discourse of feminism named as ecofeminism. This feminist discourse of environment discovers the deep nexus that environment and women have. This Unbreakable interrelation between the environment and women exposes the reasons of health, livelihood, sustainability challenges of the women due to environmental deterioration. In this Paper the researcher has tried to find out the

feminine aspect of nature which establish the connection between women and nature. The sustainability of one depends upon the existence of other.

This Paper has been divided into three parts; in the first part, author has made efforts to find out the correct meaning of feminine nature.

In the second part; the causes & effects of air pollution upon the women along with the nature, are highlighted.

In the third part; the possible solutions & suggestion as to the effects of air pollution have been proposed to maintain the existence, sustenance and survival of women & nature.

Environmental pollution is a major threat to the society all over the world. It exists not only outside the home but inside too. Unfortunately, the outdoor pollution attracted the concern, but indoor pollution is neglected in the discourse; which needs to be observed.

2 Environment and Women

The relationship between environment and women is the result of post modernism school of jurisprudence in general and In particular, it has been identified by eco-feminism. Ecofeminists, a branch of feminism, rest their discourse on this principle of interconnectedness and interdependence in ecology to advocate the necessity of a congenial relationship between men and women as well as nature. An American environmentalist and scholar Rachel Carson's in his book *Silent Spring* (1962) has made the early attempts to analyze the environment from women's perspective and make the environment a public issue. Terry Tempest Williams, a forerunner of ecofeminism, significantly focused on social and environmental justice, including ecology, women's health, and culture nature relationship. In the Western Countries, ecofeminism found its currency in 1974 with the French feminist Francoise de Eaubonne's book '*Le Feminisme ou la mort*' (Feminism or Death); who tried to engage with the primary question : is environment a feminist issue?¹

3 Environment: International Perspective

'The United Nations Conference on the Human Environment' held in Stockholm (1972) and 'the United Nations Conference on Environment and Development' (UNCED) held in Rio de Janeiro (1992) have been two flagship & pioneering international legal instruments in the direction of environmental protection. These instruments have recognized the connection between the exploitation of the non-human world and race, class, and gender. Most importantly, the World Women's Congress for a Healthy Planet held in Miami in 1991; drafted the 'Global Action for

¹ Arti Nirmal, Changing Dimensions of Ecofeminist Jurisprudence; East And West ,The Banaras Law Journal, The Banaras Law Journal, vol. 492021.

Women Towards Sustainable and Equitable Development.’ The Agenda 21 adopted at the Rio Conference (1992) stressed the need to recognize the ecological value and to define ‘productivity’ as that which sustains life. In addition, it also emphasized the importance of ensuring women’s participation in ‘public life’ through the elimination of “constitutional, legal, administrative, cultural, behavioral, social and economic obstacles”. Its vision statement ‘Women, Procreation and Environment’ added momentum to the ecofeminist movement and made it a matter of serious concern for the intellectuals and policy makers. It was in 2014 in Peru UN Climate Change Conference, that the United Nations declared that discussions on climate change should engage gender issues but Women, Environment and Development Organization (WEDO) was already talking about it. The Brazilian activist and founder member of WEDO, Thais Corral had actively participated in the Earth Summit (1992) and who emphasized the need to restore the dignity of both women and nature against the dominance of market:

“We want to restore the dignity of women and native which has been used and abused according to the logic of the market...we want to redefine wealth in an ecological framework, peace in a new meaning of people’s security and development in the fulfilment of basic human needs.”

However, the foundation for discourse on ecofeminism was laid down in 1980’s with the first conference on ecofeminism on “Women and Life on Earth: Ecofeminism in the 80s” held in Massachusetts which emphatically furthered this discourse.²

Feminists in general, and ecofeminists in particular; explore various dimensions to understand how the relationship between human and nonhuman world or women-nature and man’s world exists. Karen J Warren recognizes the eight kinds of “woman-nature connections.” - historical, conceptual, empirical and experiential, symbolic, epistemological, political, ethical, and theoretical broadly based on the linguistic, historical, sociological, epistemological, and political factors. The linguistic perspective believes that language plays an important role in problematizing both nature and women. For example, there is a tendency of ‘animalizing women and feminizing nature to authorize their inferior position.’ According to ecofeminists, expressions such as Mother Nature, womb of the Earth, barren land- infertile woman etc. are often used in people’s conversation to signify this. On contrary to that, the historical perspective views about the scientific invention and new machine culture has caused the culture disassociated from the environment and the nature. In the ancient Greek belief system, ‘mining the earth’s womb’ was strictly prohibited. Nature was supposed not to be seen as a resource but as a sustainer. The socio-economic perspective suggested that it is true that both men and women enjoys the environment and nature and the man and women who is chain between nature and culture of the society, whereas they are not treated equally in the society and ultimately the they are not equally connecting the nature & culture. The male

² B.C Nirmal, Climate Change, Sustainable Development and Indian Supreme Court in Manoj Sinha, Shivkumar and Furquan Ahmad(eds.), Environmental Law and enforcement: Contemporary Challenges 245-283 (2016).

ownership culture and concentration of wealth on male as compared to female has resulted in exploitation of natural resources based on ownership of the land and resources, production of food, male-biased allocation and distribution of the economic resources in the society which weaken the women economically and exploited the nature. The epistemological perspective reveals that, women have a better knowledge of nature and their ecology, but they remain 'invisible'. And finally, the political perspective deals with political ideas and values such as freedom, democracy, solidarity, rights, equality, duty, participation with respect to ecological issues.

4 Environment and Indian Perspective

The existence of 'feminine principle' in nature has long been recognized in Indian tradition and belief system. Ecofeminism in India doesn't stand the way as it has been argued in the West, but the fact cannot be denied that ideas and concepts analogous to it finds expression in various Indian cultural and intellectual traditions. Buddhism is again an integral aspect of Hinduism, and hence has been mentioned here to understand how Buddhism recognizes women-nature linkage and proposes the concept of Eco-Sangha.³ Sankhya school in her ecofeminist discourse and provided that "women in India are an intimate part of nature, both in imagination and in practice. As mentioned before, Hindus regard all living creatures as sacred, and women play a crucial role in observing this. Maria Mies⁴ makes an interesting observation of how women in India, connect their tradition with nature. She asserts that the poor women in villages belief that the earth is sacred, a living being that guarantees their survival and also the survival of other creatures⁵. Their survival and sustenance are directly proportional to the nature's health. Hence, the Indian women in their cultural practices to synchronize with nature and their environment. Nature has been entwined with Hinduism since the Vedic era. Besides nature deities, various animals such as cow, snake, bull, monkey, tortoise, and plants namely neem peepal, tulsi, banyan tree, sun, and river, are also observed sacredly in India.⁶ These nonhuman creatures of the nature are worshipped by Indians since time immemorial, and in the worship, women play an active role. Women are mostly the carriers of these traditions and practices. In addition to this, women actively interact with nature while performing various cultural, religious, and spiritual rites particularly at the time of birth, wedding, and death. Most of these rites are performed near rivers or ponds and sacred trees. Women in India also observe ritualistic festivals with nature as an integral part of their day to day life and festivity. Tracy Pintchman in the book *Guests at God's Wedding: Celebrating Kartik among the Women of Benaras* (2005), has beautifully recorded the kartik celebration of the Assi Ghat by women in Varanasi

³ Stephanie Kaza, "Acting with compassion: Buddhism, Feminism and environmental Crisis", in Carol Adamas(ed.), *Ecofeminism and the Sacred* 56-57(NY:Continuum,1993).

⁴ See more: <https://www.jstor.org/stable/43157768> ; last accessed on 21/03/2024.

⁵ *Nature Lovers Movement V. State of Kerla*(2009) 5 SCC 373.

⁶ *Nature Lovers Movement v. State of Kerla*(2009) 5 SCC 373.

(India).⁷ Folk forms such as kajari, chaitya, faag, saanjh parati sung by the rural women of India (particularly in the eastern Uttar Pradesh) have a direct relation to the nature and changing season. Folk song forms such as kajari (while celebrating the season of rain), ropani or savanahi (at the time of sowing paddy), chaitya (while reaping the crop of wheat) are sung on various occasions by the rural women of India with intense folk expressions. Besides, tree and animal worship in India is also very popular among Hindus. Peepal tree is considered as the “tree of enlightenment” respected and worshipped by women in India. Cow is considered as most sacred animal and acquired the status of mother. Similarly peacock signifies the vehicle of Devi (Goddess) Saraswati, mouse of Lord Ganesha, Lion of Devi (Goddess) Durga etc. and these are respectable in the societies. These instances establish the connectivity of women with nature. The deterioration of nature will effects the life and livelihood of women. As women in general are the carriers of the nature so in particular they are most affected one in environmental pollution.

5 Indian Law and Policy relating to Environment

India has adopted comprehensive law relating to the protection of environment. The Indian forest Act of 1927, Wild Life protection Act 1972, The Water Prevention & Control of Pollution Act 1974, The Air Prevention & Control of Pollution Act 1981, The Air Prevention & Control of Pollution Act 1981. The Public Liability Insurance Act 1991, The Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights Act 2006. The Compensatory afforestation Fund Act 2016, The Biological Diversity Act 2002, The Civil Liability For Nuclear Damage Act 2010. The 42nd Amendment to the Constitution added some additional subjects for the protection and preservation by the State. In the fundamental rights⁸ as well as DPSP of the Constitution various provisions have been added to the Constitution.⁹ The Judicial decision also established the principles of protection of the environment. ¹⁰

The existing law and policy measures are providing the law relating to regulation of outdoor pollution. The measurement of air quality index is carried out on the regular basis only for outdoor air pollution not for the indoor pollution. Certainly, the outdoor air pollution will enhance the pollutant in the indoor environment, indoor pollution is one of the causes of outdoor air pollution. The regulation of indoor pollution also required to prevent ambient air pollution. Now a days ambient air pollution is a major threat for the whole world. The legal approach is related with only outdoor air pollution it omitted to regulate indoor pollution. This neglected part should be taken into consideration.

⁷ Tracy Pintchman, *Guests at God's Wedding: Celebrating Kartik among the women of Benaras* (Albany: State University of NY Press, 2005)

⁸ Article 14, 21, 19.

⁹ See more- <https://ebooks.inflibnet.ac.in/esp13/chapter/national-environment-policy-2006/> ; last accessed on 21/03/2024.

¹⁰ Shyam Divan, Armin Rosencranz, “Environmental ;Law and Policy in India” Oxford University Press, 2022, New Delhi.

The pollution initiated at regional level transmitted to the global commons and ultimately it transmitted to atmosphere. The atmospheric pollution caused by indoor pollution & outdoor pollution. The women & children are more vulnerable to indoor pollution in comparison to outdoor pollution.

6 Indoor Pollution: A serious threat to the globe

In the words of Rosalynn Carter, “There is nothing more important than a good, safe and secure home”. It appears from this statement that a house is the most secure and healthy environment for any individual. Unfortunately the same is not the reality, the house can also be a source of the health hazards like air pollutions. Air pollutant generated at home can have a significant adverse impact on health. The major use of unprocessed biomass fuels arising out of and in the process of cooking are analyzed as the significant source of indoor air pollution. Unprocessed biomass releases 50 times more noxious pollutants than gas. These includes particulate matter; carbon monoxide; sulphur dioxide; formaldehyde; nitrogen dioxide; and carcinogens such as benzo (a) pyrene and benzene.¹¹ The Levels of measurement of indoor particulate matter are kept in milligrams per cubic meter and which reaches its frequency peaks of; as high as 20-80 mg/ m³, when the fires are ignited or stirred. The such peaks from up to most of total exposure are seen in women & children, as they are only responsible person who are making foods at home or are exposed to that. The entire process of cooking requires cooking women to stay close to the fire while cooking and traditional cooking system, it was required to give air from mouth to keep the fire alive. The Chulha or chulhi (A Stove made from the bricks or from the mud, where 3 sides are closed one side open horizontally and same time for flame, the top is open) or the Kerosene Stove or now a days gas stove are used for cooking purposes; where the Chulha or stove are giving energy through fire along with lot of fumes. The stoves or chulha are not burning the entire fuel and discharging the good energy. three fourth of the Indian households including 3 out of 10 urban households and 8 out of 10 rural households¹² use open fires or chulhas without chimneys.¹³ Breathing of polluted air is violation of fundamental right to clean environment. Though it appears that breathing is as long as the existence of living being, and when the people built shelters for dwellings, the pollutants into the indoor living space are inevitable.¹⁴

Among the top 10 most polluted city of the world; 3 major cities are from India as per their air quality ranking of world's most polluted cities, namely Mumbai comes at the first position.¹⁵ Delhi & Kolkata are among the top 10 world's polluted cities. India, with its diverse population and cultural practices, faces significant challenges as to the indoor air quality. The use of solid fuels such as wood, crop waste, charcoal,

¹¹ Saleha Jamal, Health impacts of indoor air pollution from household energy used in Aligarh city, at <http://hdl.handle.net/10603/12905>

¹² Ibid.

¹³ NFHS-3, 2007.

¹⁴ See, Supra Note-13.

¹⁵ www.iquair.com, visited on 14 th February 2024.

coal, and particularly the cow dung or the dung of similar animal are used for cooking purposes and which contributes in heating to Indoor Air Pollution. Women, who spend substantial time near the domestic hearth, a place where fire is kept to heat the house, are disproportionately affected by this pollution. Let us explore the various dimensions of this critical issues.

The primary causes of Indoor Air Pollution (In short IAP) in Indian households includes: traditional cooking, house dust, improper ventilation etc. Among these traditional cooking is the root cause of air pollution. In this paper the reason, cause and effects of traditionally the fuel used in cooking is tried to be find out in the specific areas of Ranchi, Jharkhand.

7 Traditional Cooking Fuels

A source of Indoor Pollution. In India, household combustion of household solid fuels is probably the largest single source of exposure of indoor pollution in the country, although only one of many contributors to ambient air pollution. A significant proportion of households in the rural as well as urban areas still rely on inefficient stoves and open fires fueled by wood, dung, and kerosene. These fuels release harmful pollutants into the indoor environment. The traditional cooking fuels are very cheaper, easily accessible and therefore widely used in the traditional societies whereas it affects women at large who is the most neglected individual in the patriarchal families. In the patriarchal families the wish of the male members are the binding for the other family members and if they deny to use modern cooking sources then women do not have the options. During the pandemic of covid 19 and post pandemic era use of traditional cooking fuels have been increased due to crisis of reduced income and rise in the price of clean cooking fuels again lead to the people to rely upon traditional cooking fuels. The most important reason to use traditional biomass fuel instead of stove or LPG connected 'chullah' is: it requires training to operate it and maintenance from time to time.

In India, the improved cookstoves are developed and distributed amongst the people with certain objectives. The objective are as follows:

- Reducing health hazards related to it.
- Reduce the environmental risks associated with biomass combustion. The literature are widely available as to the efficacy and health benefits of these innovations of cookstove, their widespread spreading and use has been slow. The simply making stove available in the market not enough to achieve consistent household adoption as because of behavioral, cultural, and policy related reasons.¹⁶

There is a dire need for widespread uptake of clean cooking energy – which leads a movement away from traditional energy sources and cooking practices. Likewise as in the cases of other health interventions such as improved sanitation, vaccine

¹⁶ Available at: Climate Change and Women's Health: Impacts and Opportunities in India - Sorensen - 2018 - GeoHealth - Wiley Online Library (<https://doi.org/10.1029/2018GH000163>); last accessed on 21/03/2022.

delivery, safer sex, and malaria control. There is also a need to align programme on clean fuels/cooking technologies. The National Biomass Cookstove Program of Government of India must be promoted to improve the access to clean cooking energy in a time bound manner.

Project Surya¹⁷ works with the concepts to reduce the financial barrier and incentivize use among female heads of household. In the Project Surya, the women who are unable to purchase the cook stove are given personal loans from rural banks to make the initial investment in the purchase of stove. Then, the regulation, use, & maintenance of each stove is monitored by a wireless sensor which registers the stove usage, and which calculates up to how much carbon in terms of tons of carbon mitigated. Women are rewarded for such emission reduction of CO₂. The Women gets the quarterly returns; which are distributed directly them into their electronic bank account, established in the woman's name, that can be accessed through a mobile phone. Additionally, women training to fix stoves shall also be provided, which may enable the women for their entrepreneurship and in their business leadership. ¹⁸

Now a days indoor air pollution is the major cause of ambient air pollution but unfortunately it is not considered very seriously. In fact it is one of the neglected areas of research. Post Pandemic era highlighted the need to take it seriously. It resulted into respiratory diseases: including chronic obstructive pulmonary disease asthma, and lung cancer, premature birth of a child increased mortality rate. Cardiovascular Risks: IAP contributes to stroke and is causing heart disease. Children exposed to IAP face acute respiratory infections (ARIs) and other health issues because they always with their mother. Asthma, and lung cancer are prevalent among women exposed to indoor smoke. The indoor pollution causes various health impacts upon women & their children.

8 Health Impacts of Indoor Pollution

- Reproductive Health: Air pollution affects women's physical imbalances. It affects upon reproductive health of women. Exposure during pregnancy increases the risk of preterm births, low birth weight, and developmental abnormalities. Pollutants can cross the placental barrier, affecting fetal growth and development.
- Menstrual Health: Women who are exposed to pollutants may experience irregular cycles, increased pain, and hormonal imbalances.

¹⁷ Ramanathan, T. , Ramanathan, N. , Mohanty, J. , Rehman, I. H. , Graham, E. , & Ramanathan, V. (2017). Wireless sensors linked to climate financing for globally affordable clean cooking. *Nature Climate Change*, 7(1), 44–47. 10.1038/nclimate3141 [[CrossRef](#)] [[Google Scholar](#)]

¹⁸ Ibid.

- **Emotional Imbalance:** Air pollution contributes to stress, anxiety, and depression. Women, often caregivers and homemakers, bear the emotional burden of family health.
- **Livelihood Challenges:** The right to life and livelihood are coincided to each other. The concept of livelihood is provided in the case of *Olga Tellis v. Bombay Municipal Corporation*.¹⁹ “The court held in this case that when a person is deprived of his right to livelihood incidentally he will be deprived of his life.” Equality is one of the essential goals of Indian Constitution. The physical, mental & emotional effects due to indoor pollution upon women resulted into livelihood challenges to women. Already they have less participation in the job, policy making & leadership etc, due to air pollution it will reduce day by day. Most of the rural women are dependent upon the forest for their livelihood.
- **Reduced Productivity:** Women working outdoors face reduced productivity due to respiratory symptoms, fatigue, and frequent illnesses caused by air pollution.
- **Financial Strain:** Medical expenses related to air pollution-induced health issues strain household budgets. Women often prioritize family health over their own well-being.
- **Gender Disparities:** Air pollution perpetuates existing gender disparities. Women’s limited access to healthcare, education, and economic opportunities exacerbates vulnerability.

9 Mitigation Strategies

- **Awareness:** Educating women about air pollution sources, health risks, and preventive measures is crucial. Community-level awareness campaigns can empower women to protect themselves and their families.
- **Clean Cooking Alternatives:** Promoting clean cooking technologies (such as LPG or electric stoves) reduces indoor air pollution. Government schemes should prioritize providing clean fuel to rural households.
- **Urban Planning:** Cities must prioritize green spaces, pedestrian-friendly infrastructure, and efficient public transport to reduce outdoor pollution.

10 Conclusion

It has been established conclusively that women & nature are having deep rooted connection. This bond between nature & women have been from very inception and strengthened by passings of the day. The sense of protection, preservation, procreation are invaluable tenets lying with nature & women necessary for survival, sustenance & growth of humankind. It is the responsibility of every individual to preserve this connectivity for the survival of whole world.

¹⁹ AIR 1986SC180.

The reasons which are identified for the cause of indoor pollution are the unregulated solid fuel burning, improper ventilation, unhygienic conditions. This will be continued due to non-availability of other options as well as absence of any regulation to prevent them. The problem lies in the fact that neglected approach from the side of authorities along with non-seriousness toward this issue by human being.

To address this air pollution's impact on women requires a multi-pronged strategies and approach. The policymakers, the healthcare service providers, and communities must have to collaborative approach, they must co-ordinate with each other towards the safeguard of women's health and livelihoods. By recognizing the gendered dimensions of air pollution, we can create a healthier and more equitable environment for all. The women participation in environmental decision making process and environmental protection may be helpful to address the issues of women's health and livelihood is addressed which is also affected by air pollution.

References

1. United Nations Decade on Ecosystem Restoration. (n.d.). Thais Corral. Retrieved from <https://www.decadeonrestoration.org/advisory-board/thais-corrall>
2. Khatiwada, N. R., Babel, M. S., & Shrestha, S. (2019). Climate change impacts and adaptation strategies in water resources and water use sectors: A review. *Critical Reviews in Environmental Science and Technology*, 49(4), 310-339. <https://doi.org/10.1080/10643389.2019.1565519>
3. Raj. (2013, December 19). Notes on Sri Krishn, Mahabharata, Indus Valley Civilization. Not a Penny for My Thoughts. Retrieved from <https://notapennyformythoughts.blogspot.com/2013/12/notes-on-sri-krishn-mahabharata-indus.html>
4. Li, J., Dong, X., & Zhang, G. (2018). Effects of climate change on forest ecosystems: A review. *International Journal of Environmental Science and Technology*, 16(5), 2397-2410. <https://doi.org/10.1007/s13762-018-2028-9>
5. Dhapola, N., & Jha, C. K. (2016). Wireless sensors linked to climate financing for globally affordable clean cooking. ResearchGate. Retrieved from https://www.researchgate.net/publication/309596067_Wireless_sensors_linked_to_climate_financing_for_globally_affordable_clean_cooking
6. Ministry of Statistics and Programme Implementation, Government of India. (n.d.). Social Statistics Division: Rights of the People. Retrieved from https://mospi.gov.in/sites/default/files/reports_and_publication/cso_social_statices_division/Rights.doc

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

