



IMPACT OF CLIMATE CHANGE ON TRIBAL WOMEN AND THEIR ROLE IN ENVIRONMENTAL PROTECTION

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Abstract

Tribal societies, especially tribal women are the most affected groups in the rapidly changing India. Talking about Climate change, it has a severe impact on Tribal people due to their close connection with mother earth and nature as their livelihoods are highly dependent on forests and tribal valued resources. This article examines the climate impacts along with the reasons and the resulting effects on tribal women and their resources. It is a high time to incorporate tribal people's views and perspectives particularly that of tribal women in the policy and decision-making process, which will be helpful in tackling global warming and the extreme weather conditions. The article will also talk about tribal women adaptive strategies to climate change and look into the various prospects for strengthening the Government and tribal relationship to address the same. The methodology adopted is purely doctrinal in nature and it is mainly based on the newspaper articles, journals, and other e- resources, and lastly it contains some of my personal thoughts.

Keywords: Tribal Women, Climate Change, Policy, Adaptation, Mitigation, Environment Protection.

1. INTRODUCTION

“Climate change affects us all, but it does not affect us all equally. The poorest and most vulnerable – those who have done the least to contribute to global warming – are bearing the brunt of the impact today.”

(UN Secretary General Ban Ki-Moon)¹

Climate change as one of the greatest environmental and ecological challenges of our time, it is also an indisputable challenge to human rights, security and economic development. Climate change in simple terms refers to the unpredictable weather conditions, rising sea levels and other catastrophic events that can be related to human activities and greenhouse gas (GHG)² emission that caused global heating. Climate change is primarily considered as a technological and scientific phenomenon, but it is also a social, environmental, economic and political issue with severe repercussions associated with social justice and gender equality. The Secretary-General of the United Nations Ban Ki-moon has declared that “2015” the year of global action on climate change. In addition, the UN Millennium Development Goals introduced in 2000, which have been now transformed into the post-2015 Sustainable Development Goals, having wide scope and are fundamental to human progress and development by putting greater focus on sustainability-ecological fairness, social justice environmental integrity and economic stability. The IPCC has also emphasized that people that are geographically, socially, economically, physically, historically, politically, institutionally, or otherwise marginalized are especially susceptible to climate change, along with other approaches to adaptation and mitigation.³

The international reaction represented the importance of mitigating the serious impacts of climate change, with efforts being coordinated by multilateral organisations such as the United Nations and the World Bank, through mobilizing funds and establishing carbon emission targets so as decrease the earth temperature. The climate change issue and its potential responses have created problems for developed countries such as the United States of America but much more to developing countries such as India, Brazil, China, etc. where fast industrial growth is contributing to an exponential increase in carbon emission per capita. Given that, the world is facing borderless and multidimensional impacts of climate change, it is very crucial that we now research and consider the influence of climate change that to with gendered lenses as it is also not gender neutral. In this paper we will discuss about the climate change impact on tribal women, as well as the role of their agency in resolving these challenges. Indigenous

¹ Address to the High-Level Segment of the UN Climate Change Conference at Bali, Available at: <https://www.un.org/sg/en/content/sg/speeches/2007-12-12/address-high-level-segment-un-climate-change-conference> (Visited on 24.09.2020).

² Naturally occurring and human-made gases that absorb infrared radiation as it is reflected from the earth’s surface, trapping heat and keeping the earth warm (UNFCCC website).

³ IPCC, Summary for Policymakers, in C.B. Field, V.R. Barros, D.J. Dokken (eds): Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge and New York, Cambridge University Press, 2014).

societies are among the first to witness the immediate effects of climate change, they are also the most affected group due to their close connection with mother earth and nature, even though they contribute too little to greenhouse gas emissions⁴.

Hundreds of millions of indigenous men and women worldwide manage their forests and crops that contribute sustainably to the sequestration and confiscation of GHG from the global atmosphere. But, in many areas of the world, tribal and indigenous populations tend to struggle to save their natural wealth and ecological resources from deforestation and destructive exploitation of minerals, energy, oil and gas, etc.⁵ through mining. Indigenous communities are advocating, at numerous local, regional, and international discussion forums, to maintain sustainable production and consumption systems,⁶ and this endeavour is perhaps as essential as ever. The goal of this article is to decode the gendered effect of climate change on tribal and indigenous communities.

As sustainable agriculture and harvesting are of critical importance to the livelihoods of many tribal communities, these areas are of particular interest and are grounds through which gender relations can be examined. In addition, they show how socio-economic conditions can influence indigenous women's resilience to the impact of climate change, particularly due to gender relations the often-unequal positioning of women and men in relation to each other, which edge the expression of capabilities and has profound impact on their livelihoods. In the case of tribal women, gender relations have an impact on sustainable natural resource management. However, the success of tribal people's sustainable practices, particularly by tribal women, largely rests on the egalitarian relationships between community members and the resilience of the entire community in the face of external pressures such as privatization and globalization.

IMPACT OF CLIMATE CHANGE ON WOMEN

Climate change's impacts such as drought, flooding, severe weather events, growing food and water insecurity, increased disease incidence etc., affect the world's 1.3 billion poor people, of which women constitute majority. A recent study by the Women's Environmental Network⁷ further states that women are more likely to remain in poverty and thus affected severely by climate change due to the

⁴ *Indigenous peoples and climate change: from victims to change agents through decent work*, International Labour Office, Gender, Equality and Diversity Branch, Geneva, ILO, (2017), Available at: https://www.ilo.org/wcmsp5/groups/public/---dreports/---gender/documents/publication/wcms_551189.pdf (visited on 12.08.2020).

⁵ On the impoverishment of indigenous peoples in UN: State of the World's Indigenous Peoples (New York, 2009), Available at: <https://www.un.org/development/desa/indigenouspeoples/publications/state-of-the-worlds-indigenous-peoples.html>, (Visited on 02.08.2020).

⁶ Tauli-Corpuz and Lynge, Indigenous Women, Climate Change Impacts, and Collective Action, , Climate Change ,UNPFII ,29 Hypatia 601 (2014) , Available at: https://www.jstor.org/stable/24542019?seq=1#metadata_info_tab_contents, (Visited on 06.09.2020).

⁷ WEN, 2010, Available at: <https://www.wen.org.uk/> (Visited on 24.08.2020).

obvious gendered social position. For instance, women belonging to poor communities are more likely to die from climate-related disasters, experience increased workloads, losses of income and negative health effects, and experience violence and harassment following disaster events, increased water and fuel collection burdens and related health concerns resulting from increased drought occurrence or other climate changes. The effect of rising food prices will also be experienced more strongly and acutely on women and they will be first to witness food shortages, worsen health disparities due to biological differences and gender stereotypes, abuse, violence, including sex harassment, property conflict and much more worst impacts.

Of the 68.5 million people who have been forcibly displaced around the world, an average of 21.5 million are estimated to have been displaced annually since 2008 due to climate-related issues.^{8,9} Throughout 2017 alone, 18.8 million people were affected by storms, flooding and tropical storms throughout 135 countries.¹⁰ Although, climate change impacts all, because of socio-economic challenges such as poverty and inadequate access to natural resources, vulnerable communities are severely impacted. Indigenous and tribal communities make up 15 per cent of the poorest people in the world and preserve 80 per cent of the planet's biodiversity, yet they are among the first to face the direct effects of climate change¹¹ and in this case also it is girls and women, though, who face the biggest brunt of climate change and are predominantly affected in contrast with men¹².

Some figures suggest that, women account for an average of 43 percent of the agricultural labour force in developed countries and 50-60 percent in parts of Asia and sub-Saharan Africa thus, women are impacted by any burden on agricultural growth.^{13,14} Women has to work harder to obtain water, food, and cooking

⁸UNHCR Figures at a Glance Global Trends: Forced Displacement in 2017, New York: UNHCR, 2018, Available at: <http://www.unhcr.org/en-us/statistics/unhcrstats/5b27be547/unhcr-global-trends-2017> (Visited on 26.08.2020).

⁹Internal Displacement Monitoring Centre. "Global Report on Internal Displacement." Geneva: Internal Displacement Monitoring Centre, 2016, Available at, <http://www.internal-displacement.org/globalreport2016/> (Visited on 26.08.2020).

¹⁰ Global Report on Internal Displacement 2018, Internal Displacement Monitoring Centre, 2018, Available at, http://internal-displacement.org/sites/default/files/publications/documents/IDMC-quarterly-update_2018-QU2.pdf (Visited on 26.08.2020).

¹¹ Indigenous Peoples, Understanding Poverty, The World Bank, (2018), Available at: <https://www.worldbank.org/en/topic/indigenouspeoples>, (Visited on 26.08.2020).

¹² Lake, Osprey Orielle, Why Women Are Central to Climate Justice and Solutions, (2015), <http://ecowatch.com/2015/09/24/women-climate-change/>, also in Women, Natural Resource Management, and Poverty: A Review of Issues and Opportunities, 2010, Available at: <http://anewcourse.org/wp-content/uploads/2014/04/women-natural-resource-management-and-poverty-PEW.Pdf> (Visited on 29.08.2020).

¹³"The State of Food and Agriculture 2010-2011: Women in Agriculture Closing the Gender Gap for Development", Food and Agriculture Organization of the United Nations, 2011, Available at: <http://www.fao.org/docrep/013/i2050e/i2050e00.htm>, (Visited on 30.08.2020).

¹⁴ Why Women Are Key, Women's Earth & Climate Action Network, International. 2016, Available at: <http://wecaninternational.org/why-women-are-key> (Visited on 30.8.2020).

fuel for their families during times of drought and irregular rainfall^{15, 16}. This puts additional pressure on household daughters, who could be forced to drop out of school to help their mothers deal with the heavier load^{17, 18}. Additionally, other forms of oppression, including inequality, disability, migrant status and race, will further aggravate the vulnerability of girls and women to natural disasters. The following can be linked to some main causes of the decreased social status of women in society and increased vulnerability over the last few years:

- an increase in the decline in women's land use and land and housing rights.
- lack of access to new technology and facilities for agricultural expansion.
- insecurity and displacement of human beings.
- lack of involvement in community resource use and decision-making processes (forests, pastures, water), and inadequate marketing knowledge and control.¹⁹

2. CLIMATE CHANGE AND VULNERABILITY OF TRIBAL AND INDIGENOUS WOMEN

In recent years, community attention has increasingly been drawn to adaptation and mitigation strategies for the various impacts of climate change mentioned above. The international and national communities have responded to these calls, but the key question is who is most vulnerable to the projected impact in these communities?

The United Nations IPCC (Intergovernmental Panel on Climate Change) points out in its discussion on the distribution of the adverse effects of climate change “Those in the poorest economic situation often have the greatest risk of climate change...They have limited adaptive capacities and depend more on climate-related resources such as local water supplies and local food supplies.”²⁰ In India, the National Climate Change Action Plan has addressed the protection of “the poor and disadvantaged sections of society” through “a climate-sensitive, inclusive and sustainable development plan.” The connection between insecurity, isolation and injustice may seem evident. However, what is less apparent

¹⁵Gravisindia, Effect of Drought on Women (2016), Available at: <https://gravisindia.wordpress.com/2016/08/10/effect-of-drought-on-women/> (Visited on 2.09.2020).

¹⁶ How the drought affects women, (2011), available at: <http://www.actionaidusa.org/2011/07/how-drought-affects-women> (Visited on 4.09.2020).

¹⁷Water & Sanitation, The Water Burden: Girls and Women Lack Safe Water. UNICEF USA, Available at: <https://www.unicefusa.org/mission/survival/water/water-burden-girls-and-women-lack-safe-water>, (Visited on 25.08.2020)

¹⁸ “Why Women Are Key”, Women’s Earth & Climate Action Network, International. 2016, Available at, <http://wecaninternational.org/why-women-are-key>, (Visited on 05.09.2020).

¹⁹ GLRF, (2007) as in Adivasi Women engaging with climate change, Govind Kelkar with the help of UNIFEM, IFAD, The Christensen Fund, Available at: <https://www.refworld.org/pdfid/4ab37acb2.pdf> (Visited on 14.9.2020).

²⁰ UN IPCC, 2007 report, (2007), Available at: <https://www.ipcc.ch/report/ar4/syr/> (Visited on 12.01.2020).

are the various interdependent factors of women's vulnerability because of inequalities in gendered social structures, particularly among tribal and indigenous communities.

Indigenous and tribal women are more vulnerable to social and economic threats due to climate change as compared with both the non-indigenous community and indigenous people. These threats include exposure to crime, violence, inadequate access to social care, inequality, and concentration of occupations or industries that are prone to insecure and hazardous working environments in addition to violations of labour and human rights.²¹ In several nations, for example, domestic workers are predominantly women from different socially vulnerable communities like tribal girls, women and children.²²

Similarly, the lack of identity due to climate-induced displacement, and the dangers associated with living in slums or informal settlements impact indigenous and tribal women in various ways compared to their male counterparts. The United Nations Human Settlements Program (UN-Habitat) has warned that while women, and particularly poor women, are often excluded from climate change planning, processes and discussions, while the risk of injury or death is higher for them when a natural catastrophe occurs.²³ Many of these discriminatory policies and conservative practices contribute to the segregation of some communities into high-risk neighbourhoods, and the fact that indigenous and tribal populations, in particular, are still excluded from decision-making, education, health care and knowledge on assistance and relief services²⁴ has significantly enhanced the vulnerability of indigenous women to the slightest shock.

2.1 Why they are more susceptible to Climate Change?

For a complexity of reasons, indigenous and tribal people are among the most vulnerable populations. The most prominent is their significant reliance on natural resources, which makes them prone to any changes in natural resource efficiency and quantity. Indian indigenous people face further challenge due to existing discrimination and their traditional lifestyle making them as excluded communities.²⁵ They are often absent from decision-making processes at national and local level, and

²¹ Economic Commission for Latin America and the Caribbean (ECLAC), *Guaranteeing indigenous people's rights in Latin America: progress in the past decade and remaining challenges*, Santiago, Chile, (2014), Available at: https://repositorio.cepal.org/bitstream/handle/11362/37051/4/S1420782_en.pdf (Visited on 5.9.2020).

²² M. Oelz and U. Rani, *Domestic work, wages, and gender equality: lessons from developing countries*, Research Department Working Paper No. 7 Geneva, ILO, (2015), Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_430902.pdf (Visited on 7.09.2020).

²³ UN-Habitat: *Cities and climate change: global report on human settlements 2011*, Global Report on Human Settlements (London and Washington DC, Earthscan, 2011).

²⁴ UN-Habitat: *Cities and climate change: global report on human settlements 2011*, Global Report on Human Settlements (London and Washington DC, Earthscan, 2011).

²⁵The International Fund for Agricultural Development (IFAD) 2002, Available at: <https://www.ifad.org/en/web/knowledge/publication/asset/39578687> (Visited on 14.08.2020).

various companies and corporations of non-indigenous people are increasingly controlling the ecological systems upon which they depend.

In this sense, the 1989 Convention on Indigenous and Tribal People offers an essential mechanism for improving dialog among all stakeholders, including organisations of indigenous people, governments, labour unions and organisations of employers, to ensure effective representation and involvement of indigenous peoples in decision-making.²⁶ In the name of development and construction ventures, they experience disruption and displacement, from which they reap little or no gain. Their populations have remained practically cut off from economic growth and technical development due to very restricted exposure to education, health services, emerging technology, agricultural resources, finance, and infrastructure advancement.

Although not denying the effect of these circumstances on indigenous men, focus needs to be given to the compounding effects women face that lead to their further marginalisation. No other community of society has this set of characteristics as a special combination of challenges faced by native and tribal women in the fields of climate policies and climate change impacts. In terms of social, economic and environmental insecurity, tribal women are among the weakest and poorest of the poor, and therefore the most vulnerable group of the world population. About 15% of the world's impoverished are indigenous communities, while the indigenous peoples constitute mere 5 % of the world's population. At the same moment, up to 80 per cent of the world's over 370 million indigenous communities are scattered throughout Asia and the Pacific, area especially susceptible to climate change impacts.²⁷

The World Bank predicts that 13 million people in East Asia and the Pacific will collapse into poverty by 2030²⁸ out of the 100 million people worldwide who will be forced further into poverty because of climate change. This indicates that indigenous and indigenous and tribal populations will be impacted, and that their female population will have the worst impact. These numbers point out that the 2030 Sustainable Development Agenda, adopted under the promise that "nobody will be left behind", is a major and difficult challenge to achieve. Overcoming this task would include concentrating on indigenous communities and making use of their capacity as agents of transformation, growth, and change.

Tribal women and girls have a crucial role to play in conventional and non-traditional livelihoods, unpaid care jobs, and food safety. However, with increasing insecurity regarding their livelihoods, many

²⁶ ILO Statement to the Third Committee of the 68th General Assembly, 68th Session of the United Nations General Assembly, New York ,21 October 2013, Available at: http://ilo.org/newyork/at-the-un/general-assembly/general-assembly-third-committee/rights-of-indigenous-peoples/WCMS_226792/lang--en/index.htm (Visited on 15.09.2020).

²⁷ INDIGENOUS PEOPLES, understanding poverty, The World Bank, Available at: <https://www.worldbank.org/en/topic/indigenouspeoples> (Visited on 10.09.2020).

²⁸ Rapid, Climate-Informed Development Needed to Keep Climate Change from Pushing More than 100 Million People into Poverty by 2030, November 8, 2015, The World Bank, Available at: <https://www.worldbank.org/en/news/feature/2015/11/08/rapid-climate-informed-development-needed-to-keep-climate-change-from-pushing-more-than-100-million-people-into-poverty-by-2030> (Visited on 14.09.2020).

seek employment in the informal economy and participate in activities ranging from agricultural wage work in rural areas to urban domestic work^{29,30} In fact, many tribal women concurrently bear the responsibility of income production, social occupations, and household-related works. However indigenous people and tribal women frequently face violence both from within their societies and from beyond, despite making significant contributions to the financial, economic, and cultural existence of their populations and community at large. As a result, they are prone to social and economic discrimination, oppression, marginalization and gender-based abuse^{31,32}. Climate change continues to make indigenous and tribal people more prone to these massacres.

Poverty among indigenous and tribal women makes it susceptible to climate change, for example, access to land, money, and resources may be further restricted than the already limited access to indigenous and tribal peoples in general, and they might even experience market and workplace inequalities even within their communities. These conditions will only be worsened and will intensify if these problems are not discussed. The effects of the climate change on many of the tribal women living on the margins of society were harsh and unpleasant in India. They experience various forms of discrimination, both as women and as indigenous and tribal people. Traditionally, Adivasi / indigenous women have historically played a significant role in protecting their cultural identity, including sustainably retaining the local resources. They have been food producers and providers for their communities. They have served as “custodians of biodiversity for many ecosystems worldwide and practitioners of medicine, pharmacology, botany, nutrition, diet and agriculture-based technology that sustains poly-cultures critical to maintaining biodiversity”³³.

²⁹ D. Vinding and E. Kampbel, Indigenous women workers: with case studies from Bangladesh, Nepal and the Americas, Working paper, Geneva, ILO, (2012), Available at : https://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_173293.pdf (Visited on 14.09.2020).

³⁰ Martin Oelz and Rishabh Kumar Dhir, Indigenous Peoples in the World of Work Snapshots from Asia, ILO, (2015), Available at: https://www.ilo.org/wcmsp5/groups/public/dgreports/gender/documents/publication/wcms_389366.pdf (Visited on 14.09.2020).

³¹ Trafficking in Person, National report 2013-2015, National Human Rights Commission (NHRC), Nepal, (2016), Available at : https://reliefweb.int/sites/reliefweb.int/files/resources/397604438Trafficking_in_Persons_National_Report_2013-15.pdf (Visited on 14.09.2020).

³² Breaking the silence on violence against indigenous girls, adolescents and young women: a call to action based on an overview of existing evidence from Africa, Asia Pacific and Latin America, United Nations Children's Fund (UNICEF), United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women), United Nations Population Fund (UNFPA), ILO, Office of the Special Representative of the Secretary-General on Violence against Children (OSRSG/VAC), (2013), Available at: https://www.unfpa.org/sites/default/files/resource-pdf/VAIWG_FINAL.pdf (Visited on 15.09.2020).

³³ International Indigenous Women's Forum Declaration, (2005), Available at: http://www.mdgfund.org/sites/default/files/FIMI%20project%20docs_0.pdf (Visited on 18.09.2020).

3. TRIBAL WOMEN ROLE IN ENVIRONMENTAL PROTECTION THROUGH ADAPTATION AND MITIGATION STRATEGIES

The relationship of indigenous peoples to the natural environment has been drastically changed, with significant and major impact on women. When forests were under indigenous or say local control, women played a very important role in forest-created commodities and production, especially in matrilineal societies. They most often enjoyed an extraordinary status due to their prior knowledge in relation to various traditional flora and fauna. While tribal women continued to use forests even after centralisation by the state, but now the same has to be often done in clandestinely manner and in visits that were very limited or very short. Furthermore, many forests trees were cut and substituted with monocrops, which supplies very few resources as compared to resources which are previously controlled and utilized by women. With this new situation and controlled access of tribal women to altered forest, there is also a reduction in the power and value of women in community. We can see that women's exposure to land and other economic capital has deteriorated because of globalization and privatization a structure that benefits the wealthy, giving them a straight and easy access to wealth, resources and employment, by neglecting needy and poor. It has influenced even the matrilineal groups of tribal societies, such as the Khasi and Jaintia tribe of north east India. In these communities also women's access to agricultural land, assets and resources has decreased dramatically, and yet they remain predominantly responsible for food security in the household. Such gender-based household duty imposes a strain on women to search for alternative and additional livelihoods, including those that raise risk of violence and their exposure to crime, such as, human trafficking, sexual abuse etc. and limit opportunities for living.

The transfer of forest management of many forest societies, from local community hands to private companies or individuals has paved a way to greater socio-economic disparity. Local elites have accumulated the power and hence, the income generated from the forests, have usually excluded women and the marginalised people from land and forest from any kind of usufruct, ownership and control rights. In many cases, therefore, tribal, and indigenous societies who are forest based have suffered intensified gender inequalities.³⁴

One of the major determinants of Khasi property structure is women's ownership over property, which has been greatly impaired and one of the major reasons behind this downfall can be attributed to privatization. In some villages, community held or owned forests are not considered to be 'ancestral property', but during the registration process it is registered as privately owned land making it a part of the usual land which can now be easily controlled by an outsider. Also, in many cases, forests were privatized in certain settlements, like the properties were separated and then allocated to the persons whose lands or

³⁴ Kelkar and Nathan, 2003, as in Adivasi Women engaging with climate change, Govind Kelkar with the help of UNIFEM, IFAD, The Christensen Fund, Available at: <https://www.refworld.org/pdfid/4ab37acb2.pdf> (Visited on 14.09.2020).

households were adjoining to the forest, and then the titles were granted in the names of those adjacent land men and women holders.³⁵

Patricia Mukhim, a journalist, and activist for the Khasi woman, observed that the recent launch of a formalised village economic management, has limited the women's participation in decision-making processes at community-level relating to the management of natural resources, including forest management etc. and has also strengthened men's role as community managers. Mukhim also talks about the creation of fallow lands as village-reserved forests increase this men's control on lands, and the incoming of funds through projects such as the Northeast India Natural Resource Management Project sponsored by the IFAD into the village, has also helped in paving a way to increase men's financial control - although their awareness of the local economy is restricted since they are not in the position to manage the market as they neither play much role in production of agricultural produce nor in their marketing.³⁶

In summary, the major reasons the tribal women are losing control and power over natural resources in relation to men can be pointed out as: (a) interventions from outside the community- such as annexation, privatization, and globalization that are proved to have been largely extractive and exploitative, (b) the delicateness and fragility of the economic and production structures of tribal people have made this problem more complex for tribal women to cope up with, (c) the failing and loosing of traditional institutional mechanisms is also a major issue which could worsen the harm, and (d) the differentiation of power between women and men, which are already prevailing and reinforced by social, economic and political structures, whereby restricting women's voice and value in community affairs, as is typical of gender relations.

3.1 Some examples of Adaptation strategies

Given insufficient assistance to tribal and indigenous women in preparing and implementing adaptation strategies, it is promising that tribal and indigenous women have autonomously incorporated adaptation strategies in a variety of cases in poor rural areas.

For example, in Jaintia Hills, woman vegetable farmers took on a new range of cabbage variety including other crops such as turmeric and broom grass which can beat unexpected, unseasonal, and heavy rainfalls. Similarly, two women swidden farmers in the Meghalaya district of Ribhoi reported their typical conventional main cash crops were repeatedly damaged by erratic rainfalls over the past few years. This in turn made them to adopt an alternative method of growing new cash crops like ginger, strawberry etc. which they grow in the swidden field along with sweet potatoes, yams, beetroots, carrots, and Chinese Turnips. When they were asked about any difficulties faced by them regarding the sale and marketing of these new cash crops, Mirseda Umdor, one of the farmers, said: "We have no problems with the

³⁵ Nathan, 2004 as in Ibid.

³⁶ Mukhim, 2000 as in Ibid

marketing of vegetables. We can sell agricultural products of all kinds, either on the local market or in Shillong". Traditional herbs and fruits grown by these female tribal farmers in their field or in their house backyard have also been added along with the usual crop which they sell mostly in market, while also providing and looking after the household consumption as well.³⁷

Along with originality, these activities show comprehensive expertise of tribal women in agriculture as well as their awareness of the nutritive and medicinal properties of local plants, roots and trees. These knowledges will be of great importance to the societies experiencing environmental strain and predicted food scarcity due to Climate change and global warming. These studies indicate parallels with the results of the International Union for the Conservation of Nature, which talked about the woman tribal farmers of Sikkim state, who cultivated a new variety of cardamom that are best adapted against heavy frost and fog³⁸.

3.2 Some examples of Mitigation Measures

Adivasi and native women have the lowest carbon footprint on earth as they are more inclined towards the use of environmentally friendly practices, renewable and/or recyclable resources for the sustainable living, few examples are swidden agriculture, pastoral activities, hunting and collection, foraging and production of basic goods and services through eco-friendly ways. Their control and productive usage of agricultural land offer added benefits for a balanced environment that helps to conserve biodiversity and decreases global greenhouse gas (GHG) emissions³⁹.

Tribal women have engaged in mitigation projects in many cases to both combat and collaborate with them, depending on circumstances equitably. For example, Adivasi women emerged as leaders to raise their voice against some renewable energy projects in the state of Maharashtra, so as to prevent the use of their ancestral lands and forests for the construction of wind farms. However, in many instances, as with the wind energy organization, Suzlon, Tribal women have partnered together with the company for promoting the corporate social responsibility strategies of the business, and their staff. As a result, the organization have also implemented several recommendations of tribal women such as, their proposal to retain access to their water provided by Suzlon to households, on pasture lands and provide power and drinking within a region of 2-3 kilometres of wind energy network. Tribal women also recommended that such properties and assets should be in the name of women through the self-help groups collectives, and that any subsequent purchases and negotiations also be held with women, as men usually spend all the money obtained from the land sale to Suzlon in drinking. Another suggestion from Mandabai, a tribal

³⁷ Adivasi Women engaging with climate change, Govind Kelkar with the help of UNIFEM, IFAD, The Christensen Fund, Available at: <https://www.refworld.org/pdfid/4ab37acb2.pdf> (Visited on 14.01.2020).

³⁸ IUCN boosts climate change coping initiatives, supports agroforestry in Sikkim, India, IUCN, (2019), Available at: <https://www.iucn.org/news/india/201908/iucn-boosts-climate-change-coping-initiatives-supports-agroforestry-sikkim-india> (Visited on 13.09.2020).

³⁹ UNFII, Tauli-Corpuz and Lyng, 2008, Available at: https://www.un.org/esa/socdev/unpfii/documents/E_C19_2008_10.pdf, (Visited on 15.09.2020).

women group leader in wind farm village Supa, Maharashtra, that Suzlon's as a part of its corporate strategy, could offer bicycles to all tribal girls who are enrolled in middle or high school as an encouraging and cooperative strategy for girls' higher education⁴⁰.

Tribal Women have expressed the following few points as their strategic priorities, which can play a vital role in reducing their vulnerability to climate change, which are as under: -

- Rights to own and control land, credit, housing, and livestock like cattle rearing, poultry farming, fisheries etc.
- Broadening, diversifying, and enlarging the crops growth along with promoting and including varieties resistant to floods and droughts, i.e., capable to outlive the harsh weather conditions, which are ill effects of climate change.
- Expansion of awareness on safe usage of fertilizers, pesticides, chemicals, and irrigation methods.
- Sharing information about methods and ways, about how women and men manage their livelihoods in other parts of the world and adapting to environmental stressors.
- Developing capability and awareness on sustainable options and livelihoods.
- Flood storage shelters to store their livestock and poultry properties, seeds, feed, and milk.
- Access to low-cost and collateral-free financing for the needs of production growth, consumption and health care.
- Exposure to markets and marketing skills to improve exchange in farm produce and non-forest goods, with equitable representation of women in collective relations, community affairs, natural asset management and decision-making in negotiating, developing livelihoods and finance adaptation strategies.

4. CONCLUSION AND SUGGESTION

Climate change remains one of the most challenging problems threatening our planet today. It has become one of the hurdles in the progress made in eradicating poverty over many years, while its impacts present the life-threatening danger and threat to communities who have the smallest part to play in its causes, like indigenous peoples, especially tribal women, who are among the most vulnerable because they are greatly reliant on the natural environment of the world. Gender equality and empowerment for women is important to allow tribal people and all people to respond effectively to the consequences of climate change, as gender stereotypes are still synonymous with increased hardship. For rural and tribal women in particular, policies are required to help their attempts to respond to climate change. Without these policies, actions and approaches, change would be minimal throughout the social and economic growth. Tribal women have a major role to play in bringing positive transition as an environmental saver. Many consider it as a most significant challenge relating to human rights and development, along with

⁴⁰ Kelkar, Field Notes, 2008 as in Adivasi Women engaging with climate change, Govind Kelkar with the help of UNIFEM, IFAD, The Christensen Fund, Available at: <https://www.refworld.org/pdfid/4ab37acb2.pdf> (Visited on 14.09.2020).

raising numerous ethical concerns about justice and equity. Nevertheless, committed, and right approach-based climate change action plans and policies will present a significant opportunity to promote a just transition towards environmentally healthy economies, progress and cultures for each and every one on this planet, holding this in mind following a few recommendations which I would like to note in relation to this article:

- Potential research work needs to be deepened: More context-specific work on successful adaptation and mitigation approaches for indigenous and tribal populations at local as well as national level is needed, especially in relation to the current global food and energy crises. There is a shortage of adequate data to research and matter to study the effect of climate change on tribal women, and their role as a both preserving and changing agent in mitigation strategies.
- Necessity to strengthen participation and engagement of tribal women and gender experts in climate change policy drafting, making, planning and decision-making processes.
- Requirement of Capacity-building for unconventional livelihoods i.e., exposure and easy access to alternative livelihoods, which is necessary for both communities and at individual's level for responding to climate change and contribute to GHG mitigation.
- Need for framing policies that are quick to respond to the gender specific and differentiated impact of climate change along with its proper implementation: Political power is an important aspect of climate variability and change. Political participation of vulnerable tribal and also of non-tribal women is very vital and necessary so as to ensure their interest and influence are reflected in policy and that their voices are heard in major forest and climate related activities, negotiations, decisions and environment agreements. For negotiations at local (village) level, people's representation, including the opinion of vulnerable populations, is essential and need of the hour.

In addition to the above, negotiations at national level, should involve networking and policy support with various multidisciplinary institutions, ensuring decentralization and transfer of powers. There is also a need for proper implementation strategies for monitoring and reviewing adaptation practices besides allocation of funding and resources. And globally, negotiations need to involve transparent deals that benefit vulnerable groups including tribal women. To record and evaluate the community-based solution and to know the situation of tribal people, a great deal of work is required. Rights relating to forest and land tenure of tribal women and other vulnerable groups could harmonize their practices in adapting and mitigating to climate change and variability. Mainstreaming community-based change isn't the only alternative in infrastructure and development projects. Some of the factors that female tribe populations may want to consider include international human rights standards, environmental justice, and tribal sovereignty, the unique connection that many indigenous communities have with their land and environment, and traditional knowledge of the environment.

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