

RESEARCH REPORT

Women's Role in Adaptive Measures Regarding Climate Change

Anvita Verma*, Gauravi Dwivedi**

Introduction

Climate change (CC) refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). CC may be due to natural internal processes or external forcing, or due to persistent anthropogenic changes in the composition of the atmosphere or in land use. CC is a reality recognised as the greatest challenge for societies in the twenty-first century. Although in recent years, important advances have been made in reducing losses in the face of associated hazards, their impact continues to be considerable, and almost 90 per cent of deaths in disasters today have a hydro-meteorological origin. Although adaptation is perceived as being very important to protect societies from the effects of climate variability (CV) and CC, statistics reveal a disproportionate impact in developing countries and on less-favoured populations. Although the hazards associated with CC and CV impact societies all over the world, it is important to recognise that they have a different effect on men and women, ethnic groups, social classes, age groups, etc.

Despite the importance of recognising gender-related differences, both the United Nations Framework Convention on Climate Change and the Kyoto Protocol fail to refer to the issue. However, women are more strongly affected by the effects of CC and CV; but, the structures and the patriarchal ideology on which development projects have been based on have led to women's invisibility. In the literature on gender and disasters, a call for adopting greater gender awareness is perceived in disaster prevention and attention, recognising important advances in the understanding of the dimensions of gender. It is also stated that women are more vulnerable in disasters, that they have unique capacities as community leaders or managers of natural resources and that they are under-utilised in strategies for managing emergencies. Nonetheless, in the scientific literature on CC, it is beginning

to be suggested that women generally better understand the causes and local consequences of changes in climatic conditions and have the knowledge and skills for orienting the adaptation process.

By focusing on the three significant 'P's of the Twelfth Five-Year Plan, in this era of globalization, the more emphasis is on 'profit' which is the first 'P', but need is to efficiently working for the sustainability and setting a harmony between economy and ecology to inhibit the adverse effects of the CC with efforts of the second significant 'P', i.e., people without being gender biased for the sake of the third 'P', i.e., planet. The integration and collaboration of the above three 'P's in an adequate manner will provide a right direction to inclusive development. The concept of inclusive development with people's participation to save the planet with proper utilisation of human and natural resources for adequate profit is incomplete without women's participation.

Gender is a socio-culture concept; it refers to the tasks and activities assigned to the sexes by their culture. However, in the present Indian circumstances, it refers to inequality practiced against females only. Gender inequality and CC are interwoven. By exacerbating inequality overall, CC slows progress towards gender equality and thus impedes efforts to achieve wider goals like poverty reduction and sustainable development. Women are powerful agents of change, whose leadership on CC is critical. Women can help or hinder strategies related to energy use, deforestation, population, economic growth, as well as science and technology, among other things.

Although CC will affect everyone worldwide, its impacts will be distributed differently between men and women, as well as among regions, generations, age classes, income groups and occupations. The poor, the majority of whom are women living in developing countries, will be disproportionately affected. Yet, most of the debate on climate so far has been gender-blind.

Gender equality can be significant for development of

Anvita Verma, Guest Faculty, Department of Social Work, University of Lucknow, India, Gauravi Dwivedi, UGC - JRF, Department of Social Work, University of Lucknow, India, E-mail: gauravi.dwivedi@gmail.com

the human race as inequality hinders economic growth. Gender equality would ensure that half of the human resource is also productive and contributory of growth.

Gender inequality and CC are interwoven. By exacerbating inequality overall, CC slows progress towards gender equality and thus impedes efforts to achieve wider goals like poverty reduction and sustainable development. Women are powerful agents of change whose leadership on CC is critical. Women can help or hinder strategies related to energy use, deforestation, population, economic growth, as well as science and technology, among other things.

Impact of CC on Women

CC can have disproportionate impacts on women's well-being. Through both direct and indirect risks, it can affect their livelihood opportunities, time availability and overall life expectancy.

An increase in climate-related disease outbreaks, for example, will have quite different impacts on women than on men. Each year, some 50 million women living in malaria-endemic countries become pregnant; half of them live in tropical areas of Africa with high transmission rates of the parasite that causes malaria. An estimated 10,000 of these women and 200,000 of their infants die as a result of malaria infection during pregnancy; severe malarial anaemia is involved in more than half of these deaths.

People's vulnerability to risks depends in a large part on the assets they have available. Women, particularly poor women, face different vulnerabilities than do men. Approximately 70 per cent of the people who live on less than \$1 a day are women. Many live in conditions of social exclusion. They may face constraints on their mobility or behaviour that, for example, hinders their ability to relocate without a male relative's consent.

CC is likely to have an impact in the ways like: (i) by the 2080s, a substantial dieback of tropical forests and grasslands is predicted to occur, particularly in parts of South America and Africa; (ii) the availability of water in the rivers of Australia, India, Southern Africa, South America, Europe and Middle East is expected to decrease; (iii) cereal yields in Africa, the Middle East and India are likely to decline; (iv) a rise in the sea level could inundate and erode coastal areas, increase flooding and salt-water intrusion; this will affect coastal agriculture, fisheries and aquaculture, freshwater resources, human settlements and tourism; (v) the incidence of water-borne diseases, heat stress and vector-borne diseases such as malaria is expected to increase; (vi) all developing countries facing the problems of population and economic growth will be put under even greater stress as a result of these impacts; (vii) an increase in temperature and seasonal variability in precipitation are expected to result in a more rapid secession of Himalayan glaciers. In fact, the Gangotri

Direct and Indirect Risks of CC and Their Potential Effects on Women

Potential Risks	Examples	Potential Effects of Women
Direct Risks Increased drought and water shortage Increased extreme weather events	Morocco had 10 years of drought from 1984 to 2000; Northern Kenya experienced four severe droughts between 1983 and 2001. The intensity and quantity of cyclones, hurricanes, floods and heat waves have increased.	Women and girls in developing countries are often the primary collectors, users and managers of water. Decreases in water availability will jeopardise their families' livelihoods and increase their workloads, putting their capacity to attend school at risk. An analysis of 141 countries in the period 1981 to 2002 found that natural disasters (and their subsequent impacts), on average, killed more women than men in societies where women's economic and social rights are not protected, or they killed women at a younger age than men.
Indirect Risks Increased epidemics Loss of species Decreased crop production	CV played a critical role in malaria epidemics in the East-African highland and accounted for and estimated 70 per cent of variation in recent cholera series in Bangladesh. By 25050, CC could result in species extinctions ranging from 18 to 35 per cent In Africa, crop production is expected to decline by 20-50 per cent in response to extreme <i>El Nino</i> -like conditions.	Women have less access to medical services than do men, and their workloads increase when they have to spend more time caring for the sick. Adopting new strategies for crop production or mobilising livestock is harder for female-headed and infected households. Women often rely on crop diversity to accommodate climatic variability, but a permanent temperature change will reduce agro-biodiversity and traditional medicine options. Rural women in particular are responsible for half of the world's food production and produce 60-80 per cent of the food in most developing countries. In Africa, the share of women affected by climate-related crop changes could range from 48 per cent in Burkina Faso to 73 per cent in the Congo.

glacier is already retreating at a rate of 30 metres a year; (viii) warmer and wetter conditions would increase the potential for a higher incidence of heat-related and infectious diseases. The incidence and extent of vector-borne diseases, which are significant causes of mortality and morbidity in tropical Asia, are likely to spread into new regions on the margins of the present endemic areas as a result of CC.

Women's Adaptive Capacities and Strategies

Every year, the population is increasing with a rate of ~1.5 per cent. According to scientists, if this continues, eight more planets like earth will be needed. Increased population is manifesting the magnification of environment degradation, as a result of the CC taking place more rapidly. Women comprise almost half of the population; therefore, their footprints on earth are also remarkable. In the Indian scenario, women play a central role in leading a family. Women can nurture their families by upgrading their cultural values, which will make them accountable about their social duties. One of the duties is environmental protection, which can enhance more hand prints. A woman can motivate and mobilise her family regarding environmental degradation and CC by making them aware about the legal provisions related to environment. Increased footprints on earth are resulting in rapid CC or global warming.

Women have managerial skills in accordance with their role in the Indian society. They hold a family where somewhat the norms are of a joint family trend. So, inheritably they are induced to ensure their potentialities towards adjustable and managing sides, which provide them a leadership quality and a keen sense to adopt vital measures to come out from the nexus of the problems.

Women tend to have more limited access to assets - physical, financial, human, social and natural capital - which would enhance their capacity to adapt to CC, such as land, credit, decision-making bodies, agricultural inputs, technology, as well as extension and training services. Thus, any climate adaptation strategy should include actions to build up women's assets. Interventions should pay special attention to the need to enhance women's capacity to manage risks with a view to reducing their vulnerability and to maintaining or increasing their opportunities for development.

Ways to reduce climate-related risks for women include improving their access to skills, education and knowledge; strengthening their ability to prepare for and manage disasters; supporting their political ability to demand access to risk-management instruments; and helping households gain

greater access to credit, markets and social security.

Despite the many challenges they face, women are already playing an important role in developing strategies to cope with CC. They have always been leaders in community revitalisation and natural resource management, and there are countless instances where their participation has been critical to community survival. In Honduras, for example, the village of La Masica was the only community to register no deaths in the wake of the 1998's Hurricane Mitch. Six months earlier, a disaster agency had provided gender-sensitive community education on early warning systems and hazard management. Women took over the abandoned task of continuously monitoring the warning system. As a result, the municipality was able to evacuate the area promptly when the hurricane struck.

Women also play a crucial role in forest preservation strategies and in increasing carbon sinks through reforestation and afforestation. For example, since 2001, women in Guatemala, Nicaragua, El Salvador, Honduras and Mexico have planted more than 400,000 Maya Nut trees as part of the Mayan Nuts Project supported by the Equilibrium Fund, which also increased food supplies for the communities. This shows how specific projects can improve the quality of life for women and at the same time be strategies for mitigation and adaptation to CC.

In Kenya, the Green Belt Movement and the World Bank's Community Development Carbon Fund signed an emissions-reduction agreement in November 2006 to reforest two mountain areas. Women's groups are planting thousands of trees, an activity that will provide poor rural women with a small income and some economic independence, as well as capture some 350,000 tons of carbon dioxide, restore eroded soils and support regular rainfall essential to Kenya's farmers and hydroelectric plants.

Women from indigenous communities often know a range of 'coping strategies' traditionally used to manage CV and CC. In Rwanda, women produce more than 600 varieties of beans, and in Peru, Aguaruna women plant more than 60 varieties of manioc. These vast varieties, developed over centuries, allow them to adapt their crops to different biophysical parameters, including soil quality, temperature, slope, orientation, exposure and disease tolerance.

Measures for Environment Protection in India

Environment protection has been an important fact of the Indian way of life. It gives special importance to trees, plants, forests and wildlife protection. Environmental

protection covers all those activities that relate to the formulation of policies and programmes for prevention of pollution and conservation of ecology. Protection of the environment is regarded as our national duty.

There has been an increasing awareness in recent years about protection of the environment. This awareness was reflected at the Earth Summit in Rio de Janeiro in June 1992. This summit adopted a global action plan called the *Agenda 21*, which aimed at integrating environmental imperatives with development aspirations. It was reiterated through the UN General Assembly Special Session on Environment held in June 1997. Over the last few decades, India has also evolved legislations, policies and programmes for environmental protection and conservation of natural resources. The Indian Government's policy towards the environment is guided by the principle of Agenda 21. The Government of India has issued policy statements on (i) forestry, (ii) abatement of pollution, (iii) National Conservation Strategy, (iv) environment and development.

India is already a signatory to the convention on Biological Diversity, Montreal Protocol, Basel Convention and other international treaties.

A number of measures for environment protection has been initiated by the Government of India. Prominent among them are as under: (i) A separate Ministry of Environment and Forest has been created for planning, promotion, coordination and implementation of various environmental programmes in the country. (ii) In order to deal with the problem of environment in a comprehensive manner, National Policy and Action Strategy on Biodiversity, a National Forest Policy, National Conservation Strategy, Policy Statement on Environment and Development have been adopted by the Government of India. (iii) The Central Pollution Control Board (CPCB) has been constituted for the prevention and control of water and air pollution in the country. At the same level, this work is performed by the State Pollution Control Boards. (iv) The whole issue of pollution control is dealt by a combination of command and control methods, as well as voluntary regulations, fiscal measures, promotion of awareness and involvement of the public. (v) An 'Eco-mark' label has been introduced to label consumer products that are environment friendly. (vi) To facilitate industries in preparing environmental statements, sector-specific environment audit manuals have been prepared. (vii) Under the scheme for adoption of clean technology in small-scale industries, training and awareness programmes are being organised. (viii) Action plans to control pollution for various major cities have been prepared and are being implemented

by the concerned state governments. (ix) A major programme for the improvement of automotive fuels is being introduced in the country in a phased manner. Such initiatives were incorporated in several acts at national and international levels.

Recommendations

Despite their experience and knowledge, women have not been given an equal opportunity to participate in critical decision making on CC adaptation and mitigation. Any accurate examination of CC must integrate social, economic, political and cultural dimensions, including analysis of gender relations.

The **first** important step is to promote international policy action on climate and gender. Negotiations on a post-2010 climate framework under the United Nations Framework Convention on Climate Change (UNFCCC) should incorporate the principles of gender equity and equality at all stages, from research and analysis to design and implementation of mitigation and adaptation strategies. It is critical that the UNFCCC recognises the importance of gender in its meetings and takes the necessary measures to abide by key human rights and gender frameworks, especially the Convention on the Elimination of all Forms of Discrimination against Women, known as CEDAW. The UNFCCC needs to develop a gender road map, to invest in specialised research on gender and CC, and to guarantee the participation of women and gender experts at all meetings and in the preparation of reports. It should establish a system of gender-sensitive indicators for its national reports and for planning adaptation strategies or projects under the Clean Development Mechanism (CDM).

Second, governments need to take action at regional, national and local levels, including translating international agreements into domestic policy. They can also develop strategies to improve and guarantee women's access to and control over resources, use women's specialised knowledge and skills in strategies for survival and adaptation to natural disasters, create opportunities to educate and train women on CC, provide measures for capacity building and technology transfer, as well as assign specific resources to secure women's equal participation in the benefits and opportunities of mitigation and adaptation measures.

Third, all financial mechanisms and instruments associated with CC should include the mainstreaming of a gender perspective and women's empowerment. For example, CC adaptation funds could guarantee the incorporation of gender considerations and implementation of initiatives that

meet women's needs. Women could also be included in all levels of the design, implementation and evaluation of afforestation, reforestation and conservation projects, which receive payments for environmental services, such as carbon sinks. Women should have access to commercial carbon funds, credits and information that enable them to understand and decide which new resources and technologies meet their needs. Finally, the CDM should finance projects that bring renewable energy technologies within the reach of women to help meet their domestic needs.

Fourth, the many organisations, ministries and departments that address women's issues, including UNIFEM, should play a more active role in CC discussions and decision making. CC cannot be considered an exclusively environmental problem; it needs to be understood within all its development dimensions.

One encouraging sign of progress on these issues was the establishment of the Global Gender and Climate Alliance (GGCA) in December 2007 at the Bali Conference of the Parties to the UNFCCC. This was set up by the U.N. Development Programme, the International Union for Conservation of Nature - IUCN, the U.N. Environment Programme and the Women's Environment and Development Organization in response to the lack of attention to gender issues in existing CC policymaking and initiatives.

There is a need to empower them in all the spheres of development like economic, educational, political, etc. In all these spheres, empowered women will be more efficient to make and handle perspectives and provisions regarding CC. Hence, at the end, a vital step should be taken by the competent authority towards proper facilitation of the policies, programmes, legislations, etc. in respect of providing social justice to women, which will enhance their capabilities to assure their conscientisation, which will be helpful in removing the stigma of gender biasness.

Environmentalists of today have broader commitments, wider information base, easier access to the media and also a good financial strength, in some instances. They might be quite effective in bringing valuable information on concerned issues to the notice of the public and the government. As far as the issue of CC is concerned, Indian environmentalists might be successful in mobilising the interest of the nation towards the issue of gender and CC.

Conclusion

In the Indian scenario, a woman is the soul of the whole family. She nourishes and guides her family and her guidance is reflected by her family's attitude and behaviour. From the

very beginning of evolution, women have been managing their families and nurturing their children. If they are provided environmental education or awareness, or in another way if we explore their potentialities and capacities regarding managerial skills, definitely they will prove to be an effective tool for creating awareness regarding the environment or CC.

They can nurture their children with effective norms and values to save the planet, and whatever is fed into the innocent minds of children, it impacts them and is reflected in their whole life. It would definitely be an effective step from the very grass-root level.

On 24 September 2009, in a message to the high level event on 'Peace & Security through Women's Leadership, Acting on 1325 and Climate Change', organised in New York, the UN Secretary General Ban Ki-Moon called on the UN member states to give women a greater say in addressing CC challenges as equal partners in global discussions. He noted that women must be seen as agents of progress and not as victims. Stressing that women are custodians of knowledge with unique information on how to sustainably manage natural resources, he underlined that they are particularly vulnerable to the impacts of CC.

CC is a global security issue and a question of freedom and fundamental human rights. It represents a serious challenge to sustainable development, social justice, equity and respect for human rights for both current and future generations.

Bibliography

- Dash, S.K. 2007. *Climate Change: An Indian Perspective*, jointly published by Cambridge University Press India Pvt. Ltd & the Centre for Environment Education, 230 and 233.
- FAO, 'Women - Users, Preservers and Managers of Agrobiodiversity,' fact sheet (Rome: Sustainable Development Department, December 2001).
- Intergovernmental Panel on Climate Changes. Summary for Policymakers. *Climate Change 2001, Impacts, Adaptation, and Vulnerability* (Geneva 2001).
- OXFAM, Millennium Development Goals Gender Quiz, at www.oxfam.org.uk:80/generationwhy/do_something/campaigns/healthand_education/Quiz/index.
- 'News from Bali: Launch of the Global Gender and Climate Alliance,' WEDO News and Views, January 2008.
- State of the World, Centre for Environment Education 2009, Pg.60.
- The Equilibrium Fund, 'Reforestation,' at www.theequilibriumfund.org
- The Green Belt Movement, 'Green Belt Movement & the World Bank Sigh Emission Reductions Purchase Agreement (ERPA),' press release (Nairobi: 15 November 2006)