

# Gender and Climate Change

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- Women are the main producers of the world's staple crops, providing up to 90% of the rural poor's food intake and producing 60–80% of the food in most developing countries. Maize, sorghum, millet and groundnut yields have a strong association with the year-to-year variability



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of ENSO (El Niño/Southern Oscillation) in Africa. For southern Africa the productivity is expected to drop by 20–50% in extreme El Niño years. If global climate changes move more towards El Niño-like conditions, crop production in Africa will decline (Stige *et al.*, 2006).

- Insect outbreaks could increase due to changes in climate. For example, locust outbreaks in China are associated with cold and wet periods, floods, and droughts (Stige *et al.*, 2007). Climate variability also affects the relationships between parasite and host, and parasitoids are key agents of control of herbivore populations (Stireman *et al.*, 2005). An increase in pest outbreaks would not only reduce crop and milk yields, but also add to the number of hours and resources women had to invest in pest control.
- Climate variability played an important role in initiating malaria epidemics in the East African highlands (Zhou *et al.*, 2004) and accounts for 70% of variation of recent cholera series in Bangladesh (Rodo *et al.*, 2002). This increase in outbreaks could have gender-differentiated impacts because women have less access to medical services than men (Nelson *et al.*, 2002) and women's workloads increase as they have to spend more time caring for the sick.
- Atmospheric brown clouds (ABS) due to aerosol loads and greenhouse gas (GHG) concentrations have reduced historical rice harvests (Cramer, 2006). Rice is the

major caloric intake of developing countries. Women are already more vulnerable to nutritional problems (for example, 50% of the women and children in developing countries are anaemic) due to physical, social, economic, gender and cultural issues (e.g. pregnancy, lactation, inequitable food distribution within families).

- About 35 million people worldwide depend on fishing and aquaculture, including a substantial number of women (Aguilar, 2004b). Changes in fish communities can have a severe impact on fisherwomen. If the GHG emissions scenario remains as present, climate warming could result in biannual thermal stress spells causing coral bleaching (Donner *et al.*, 2007). This phenomenon could result in the loss of a key marine ecosystem that supports many marine resources essential to women's livelihoods (e.g. their fishing and tourism activities).
- Changes in precipitation patterns have already impacted natural and human systems. Variation in precipitation in California was the most likely cause of the extinctions of two populations of checkers butterfly (McLaughlin *et al.*, 2002). The loss of pollinators, such as butterflies and bees, could have a serious impact on women's agricultural production of fruit (from their orchards), honey, nuts and flowers.
- A study of disasters in 141 countries provided the decisive evidence that gender differences in deaths from natural disasters are directly linked to women's economic and social rights. In inequitable societies, women are more vulnerable to disasters; for example, boys are likely to receive preferential treatment in rescue efforts and both women and girls suffer more from shortages of food and economic resources in the aftermath of disasters (Neumayer and Pluemper, 2007).
- Women and children are 14 times more likely to die than men during a disaster. In the 1991 cyclone disaster which killed 140,000 in Bangladesh, 90% of victims were women (Aguilar, 2004a). Similarly in industrialized countries, more women than men died during the 2003 European heat wave. During Hurricane Katrina in the USA, African-American women who were the poorest population in that part of the country faced the greatest obstacles to survival.
- Many key decision-making institutions related to climate change have a male-dominated hierarchical structure. At the COP 7 meeting in Marrakech, the ratio of male to female professionals deciding on forestry and energy projects was 11 to 1.
- Women's empowerment is now being linked to climate change solutions. In November 2006, Kenya's Greenbelt Movement, founded by Nobel Peace Laureate Wangari Maathai, and the World Bank's Community Development Carbon Fund,



signed an emissions reductions purchase agreement to reforest two mountain areas in Kenya. Women's groups will plant thousands of trees, an activity that will also provide poor rural women with a small income and some economic independence. Women's empowerment through this process will also capture 350,000 tons of carbon dioxide, restore soil lost to erosion, and support regular rainfall essential to Kenya's farmers and hydro-electric power plants.



Over the past two decades climate change has increasingly become recognised as a serious threat to sustainable development, with current and projected impacts on areas such as environment, agriculture, energy, human health, food security, economic activity, natural resources and physical infrastructure.

Although climate change impacts will affect all countries, its impacts will be differently distributed among different regions, generations, age classes, income groups, occupations and genders (IPCC, 2001). The poor (of which 70% are women), primarily but by no means exclusively in developing countries, will be disproportionately affected (Drexhage, 2006).

Climate change does not affect women and men in the same way and it has, and will have, a gender-differentiated impact. Therefore all aspects related to climate change (i.e. mitigation, adaptation, policy development, decision making) must include a gender perspective.

However, women are not just helpless victims of climate change – **women are powerful agents of change** and their leadership is critical. Women can help or hinder in dealing with issues such as energy consumption, deforestation, burning of vegetation, population growth and economic growth, development of scientific research and technologies, policy making, among many others.

It is widely recognised that industrial countries bear the main responsibility for greenhouse gas emissions. It is therefore relevant to analyse the gender aspects of climate change in developed countries from the angle of emissions and to also consider mitigation strategies from a gender perspective.

## ***Recommendations:***

- The UNFCCC should develop a gender strategy, promote women representatives as official focal points, invest in gender-specific climate change research, and establish a system for the use of gender-sensitive indicators and criteria for governments to use in national reporting to the UNFCCC Secretariat, adaptation planning, or projects under the Clean Development Mechanism (CDM).
- The international climate change negotiation process – as well as climate policies at regional, national and local levels – must adopt the principles of gender equity and equality at all stages: in research, in analysis, and in the design and implementation of mitigation and adaptation strategies. This applies in particular to the process towards a post-2012 climate protection system or “regime”.
- Governments should aim to ensure the involvement of women and gender experts when they prepare their contributions for the international and national processes, and ensure women’s participation at international and national meetings.
- Invest in research in areas such as: gender-specific resource-use patterns; gender-specific effects of climate change; gender aspects of mitigation and adaptation; women’s and men’s capacities to cope with climate change; and gender-related patterns of vulnerability.
- Most of the climate change strategies proposed need to build upon existing gendered strategies already being practiced and incorporate lessons learned about agricultural, livestock, water and coastal management, as well as disaster management (e.g., disaster and risk reduction efforts related to analysis/assessments, preparedness/mitigation, disaster response and recovery/reconstruction).
- Multidisciplinary groups are needed when developing climate change mitigation and adaptation strategies, policies, research or initiatives so that environmental, social, gender and economical aspects receive equal attention.
- National and local governments should:
  - Develop strategies to improve and guarantee women’s access to and control over natural resources;
  - Create opportunities for education and training in climate change; and
  - Provide capacity-building and technology-transfer measures.
- Women, like men, should have equitable access to the benefits of market-based approaches to curbing climate change (e.g., the Clean Development Mechanism). CDM should fund projects that make renewable energy technologies more accessible to women and that can fulfil their household needs.
- Measures that provide present and future benefits are required to increase the resilience of people’s livelihoods, diminish gender inequality, increase awareness of climate change effects and prepare them for future changes.

***Establishing the linkages between MDGs, climate change and gender  
(MDG 3 has been mainstream throughout the analysis)***

Millennium Development Goals	Threats due to climate change	Gender implications
MDG 1: Eradicate extreme poverty and hunger	<p>Reduction of agricultural production for survival and commercial ends</p> <p>Food security at risk</p> <p>Less access to safe water</p>	<p>Loss of domestic species of plants and animals used by women to ensure food security of their families.</p> <p>Reduction, mobilization, or extinction of marine species used by women for household consumption or for productive activities.</p> <p>Increase in women's workload due to decline in availability of water and other resources.</p>
MDG 2: Achieve universal primary education	<p>Increases the workload needed for agricultural production and subsistence activities</p> <p>Environmental changes are likely to drive migration</p>	<p>Generally, girls and women are responsible for the collection of water and fuelwood. If the time they invest in these tasks increases, their capacity to attend school is at risk.</p> <p>According to UNHCR, 80% of refugees in the world are women and children. Migration of populations, given extreme changes and disasters, could interrupt and limit the opportunities for education.</p> <p>Men are more likely to migrate, either seasonally or for a number of years. Female-headed households left behind are often the poorest. The workloads of these women, their children and the elderly increase significantly as a result of male emigration.</p>
<p>MDG 4: Reduce child mortality</p> <p>MDG 5: Improve maternal health</p> <p>MDG 6: Combat VIH/SIDA, malaria and other diseases</p>	<p>Environmental effects can aggravate the risk of contracting serious illnesses</p> <p>Increased prevalence of some vector-borne diseases</p> <p>Increase in temperatures (heat waves)</p>	<p>Increase in women's workload due to their role as primary carers in the family.</p> <p>Loss of medicinal plants used by women.</p> <p>Pregnant women are particularly susceptible to water-borne diseases. Anaemia – resulting from malaria – is responsible for a quarter of maternal mortalities.</p> <p>Women and children are fourteen times more likely to die than men during a disaster (Peterson, 2007).</p> <p>The high mortality rates of mothers/women/spouses during disasters result in an increase in: the numbers of orphans and mortality rates; early marriages for young girls (new spouses) causing them to drop out of school; trafficking and prostitution which in turn increase exposure to HIV/AIDS (Oxfam, 2005).</p> <p>Migration enhances the risk of getting HIV/AIDS, given that families are separated and they are forced to live in overpopulated spaces.</p> <p>In developing countries, the poorer households affected by HIV/AIDS have less resources to adapt to the impacts of climate change. The need to adopt new strategies for crop production (such as irrigation) or mobilization of livestock is harder for female-headed households and for houses with HIV infected people.</p>

Millennium Development Goals	Threats due to climate change	Gender implications
MDG 7: Ensure environmental sustainability	<p>Extinction of species, changes in species composition, disruption of symbiotic relationships, changes in trophic cascades, among others.</p> <p>Changes in the quantity and quality of natural resources could reduce the productivity of ecosystems.</p> <p>Floods, droughts, rising sea levels, melting of glaciers and polar icecaps.</p>	<p>Without secure access to and control over natural resources (land, water, livestock, trees), women are less likely to be able to cope with climate change impacts.</p> <p>Less available drinking water means women have to expend more effort to collect, store, protect and distribute water.</p> <p>Adaptation measures, related to anti-desertification, are often labour-intensive and women often face increasing expectations to contribute unpaid household and community labour to soil and water conservation efforts.</p> <p>Decrease in forest resources used by women.</p> <p>Women often rely on a range of crop varieties (agro-biodiversity) to accommodate climatic variability, but permanent temperature change will reduce agro-biodiversity and traditional medicine options.</p> <p>Lack of representatives and women's participation in the decision-making spheres related to climate change at all levels (local, national and international).</p>

- Aguilar, L. (2004a). **Fact Sheet on: Climate change and disaster mitigation.** Costa Rica. IUCN.
- Aguilar, L. (2004b). **Fact Sheet on: Fisheries and aquaculture in coastal zones.** Costa Rica. IUCN.
- Cramer, W. (2006). **Air pollution and climate change both reduce Indian rice harvests.** *Proceedings of the National Academy of Sciences* 103(52): 19609–19610.
- Donner, S.D. *et al.* (2007). **Model-based assessment of the role of human-induced climate change in the 2005 Caribbean coral bleaching event.** *Proceedings of the National Academy of Sciences* 104(13).
- Drexhage, J. (2006). **The World Conservation Union (IUCN) Climate Change Situation.** Analysis. Final Report. IISD-IUCN. Switzerland.
- IPCC (2001). **Summary for Policymakers. Climate Change 2001: Impacts, Adaptation, and Vulnerability.** Report of Working Group II of the IPCC. <http://www.ipcc.ch>
- McLaughlin, J.F. *et al.* (2002). **Climate change hastens population extinctions.** *Proceedings of the National Academy of Sciences* 99(9): 6070–6074.
- Nelson, V. *et al.* (2002). **Uncertain predictions, invisible impacts, and the need to mainstream gender in climate change adaptations.** *Gender and Development* 10(2): 51–59.
- Neumayer, E. and Pluempert, T. (2007). **The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002.** <http://ssrn.com/abstract=874965>
- Oxfam (2005). **The tsunami's impact on women.** [http://www.oxfam.org/en/files/bn050326\\_tsunami\\_women/download](http://www.oxfam.org/en/files/bn050326_tsunami_women/download)
- Peterson, K. (2007). **Reaching out to women when disaster strikes.** Soroptimist White Paper. [http://www.soroptimist.org/sia/AM/Template.cfm?Section=White\\_Papers&Template=/CM/ContentDisplay.cfm&ContentID=4747](http://www.soroptimist.org/sia/AM/Template.cfm?Section=White_Papers&Template=/CM/ContentDisplay.cfm&ContentID=4747)
- Rodo, X. *et al.* (2002). **ENSO and cholera: A nonstationary link related to climate change?** *Proceedings of the National Academy of Sciences* 99(20): 12901–12906.
- Stige, L. C. *et al.* (2006). **The effect of climate variation on agropastoral production in Africa.** *Proceedings of the National Academy of Sciences*, 103(9), 3049–3053.
- Stige, L.C. *et al.* (2007). **Thousand-year-long Chinese time series reveals climatic forcing of decadal locust dynamics.** *Proceedings of the National Academy of Sciences* 104(41): 16188–16193.
- Stireman, J.O. *et al.* (2005). **Climatic unpredictability and parasitism of caterpillars: Implications of global warming.** *Proceedings of the National Academy of Sciences* 102(48): 17384–17387.
- Zhou, G. *et al.* (2004). **Association between climate variability and malaria epidemics in the East African highlands.** *Proceedings of the National Academy of Sciences* 101(8): 2375–2380.