

Climate change, gender and women in the global South: Snapshots of impacts, challenges and actions

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0. The preliminaries—usage and meanings

Climate change means a change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and is in addition to natural climate variability observed over comparable time periods (United Nations Framework Convention on Climate Change (UNFCCC 1992).

Climate variability refers to the climatic parameters of a region varying from its long-term mean, such as short-term changes in climate that take place over months, seasons and years.

Adverse effects of climate change ‘means change in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare’ (UNFCCC, Article 1).

‘Dangerous climate change’: The UNFCCC refers to ‘dangerous anthropogenic interference with the climate system and the UNFCCC parties adopted the 2°C guard rail as the danger limit under the Cancun 2010 Agreement. This was reaffirmed in the 2015 Paris Agreement, which also pledged to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, to significantly reduce the risks and impacts of climate change. This supports the position of most developing countries, that have proposed the under 1.5°C policy option. The logic behind the 2°C limit is that human beings, ecosystems and human systems may not be able to tolerate temperature increases above 2°C. There is considerable uncertainty for ecosystems, human health and wellbeing beyond a 1°C level increase.

Gender is determined by society’s views of the appropriate roles of and behaviours for women and men (WHO 2014). Gender norms in a given society can lead to differences between females and males in social position and power, and in access to resources and services (Muralidharan et al. 2015). The term ‘gender’ as used in this report covers all gender identities: men, women and non-binary persons. As is widely noted in the literature, gender issues intersect with other challenges that might be associated with age, disability, race, ethnicity, nationality or language skills (Inter-governmental Panel on Climate Change (IPCC 2018 Questionnaire).

I. Snapshots of climate change, regional variations and impacts

Africa

- High levels of solar radiation (due to its location largely between the Tropic of Cancer and the Tropic of Capricorn).
- Longer, hotter and more frequent heatwaves (which affect crop production and yields).
- Heightened vulnerability of low-income African countries to desertification, hunger, mortality rates, migration and conflict.

The 2007 IPCC assessment report, chapter on Framing Issues (Halsnaes, et al (2007) estimated decline in rain-fed agricultural crop yields by 50 per cent for some African countries by 2020 or the middle of the century. There will be some variation between regions and crops in the degree of reduction of yields. With respect to regional variation, the IPCC (2014) highlights yield reduction of 22 per cent for SSA, with 30 per cent or more reduction for South Africa and Zimbabwe. East African maize grown at high levels of elevation may also benefit from warming (IPCC 2014). Likewise, other crops such as cassava and peanuts may experience positive effects, at least up to 2030 (IPCC 2014). In general, however, many major crops such as wheat and beans are vulnerable to warming and other climate-related effects. A net decline in food production may also result from decrease in rainfall, or variations and changes in seasonal timing and intensity.

Torrential rain and hailstorms also affect cereal production, resulting in crop loss and disease infestations affecting whole plant varieties. These climate factors will compound the disadvantages of female small-scale farmers who are already facing limited access to seed, fertiliser and credit.

Asia

- Climate change augments hydrological cycles and increases rainfall.
- Annual mean increase in precipitation will be about 3 per cent by 2020 and 7 per cent by 2050.
- This results in water stress and drought that will, in turn, affect rice growing and lead to a general decrease in yields in agricultural trade and slow economic growth.

Small island developing states

- Sea level is predicted to rise between 0.4 and 0.8 metres by the end of the century around the Pacific islands and up to 1 or 2 metres in the Caribbean region.ⁱ
- Storms and hurricanes are predicted to occur with increasing frequency and intensity including a rise in Category 4 and 5 storms.
- Rising sea levels will exacerbate inundation, erosion and other coastal hazards, threatening infrastructure and people's lives.

The rise in sea levels also presents serious implications for freshwater sources due to possible salt water intrusion into ground water supply. Storms will also contribute to potential contamination of fresh water, as salt water inundations may lead to compromised water quality.

The Caribbean

- The Caribbean has seven of the 36 water-stressed nations in the world and, as in numerous African countries, many farmers are also dependent on rain-fed agriculture.
- Intensity and frequency of droughts and severe flooding will increase.
- Drought-like events including low water availability will increase and there will be more seasonal droughts.
- The islands will also experience continuing water challenges, leading to increases in food production costs and corresponding food prices.
- The region is also vulnerable to other climate hazards.

The Pacific

- Pacific islands are vulnerable to various climate hazards including typhoons, tsunamis, flash floods, and heat waves.
- They are likely to experience public health concerns due to consequences of floods, including water-borne diseases (e.g. in Solomon Islands).

Latin America

- Key climate change impacts include serious implications for agricultural land, perhaps associated with desertification and salination.
- Likely consequences include increased stress on food and water security resulting from decreases in freshwater and intrusions of sea water.

II. Climate change and gender:

Overview of impacts opportunities, challenges and constraints

Climate change has broad economy-wide impacts but also specific sectoral and cross-sectoral impacts for developing countries' economies and the lives and livelihoods of the men, women and children within those economies. The impacts include multiple damages to infrastructure with implications for economic growth and trade, and losses and damage to resources and properties, which contribute to displacement, migration and conflicts. Specific economy-wide effects of climate change include hampered potential growth, increased cost of rehabilitation and diverting funds from development, and the cross-sectoral impacts on employment, production and reduced government revenues from decreased productivity of sectors such as agriculture, forestry and fisheries.

The challenges for a large proportion of women and men in developing countries are at least fourfold: rising water scarcity and shortage, food insecurity, loss of employment and, ultimately, loss of lives. For example, men and women suffer different health effects and differences in mortality rates during climate-related extreme events.ⁱⁱ Emerging studies show that women are more likely than men to die during disasters, men consume more energy than women, and

women are more likely than men to suffer from the burning of biomass for energy/cooking because of high levels of black carbon.ⁱⁱⁱ

Pregnant women are also extremely vulnerable to vector- and water-borne diseases linked to floods (which may increase the breeding of mosquitos and other pests^{iv}), which are intensified by climate change. In many cases, droughts also tend to affect women's and girls' health and nutritional status because of these groups' pre-existing nutritional deficits.

Because of gender-specific roles and gender-differentiated access to resources, women currently suffer and will be subjected to increased challenges to their health and wellbeing.

These include:

- (1) Vulnerability to water-borne diseases^v
- (2) An increase in burdensome collection and carrying of water as water sources close to home have become scarce or are polluted, often owing to increased levels of salination and contamination from floods and droughts
(Women are reported to transport an average load of 40 pounds on the head, which is associated with risks of an impaired skeletal system, deformity and disability.)
- (3) Exposure to gender-based violence incidents related to distance needed to travel further away from their dwellings to obtain wood and water. Because they have to travel greater distances, women end up facing more human hazards such as intimidation, kidnapping, and physical and sexual assaults (Bridge 2008; CEDAW 2018; Ortiz-Barreda, n.d.).
- (4) Some countries across Africa (e.g. Malawi and Mozambique) and in Asia (e.g. Bangladesh) have seen a rise in early marriages of girls, exacerbating the already vulnerable status of young girls' health and wellbeing.^{vi}
- (5) In the event of catastrophic climate-related events, governments are likely to reallocate resources to deal with emergency losses and damages. This is likely to mean that certain public sector social programmes will see their funding diverted and targeted programmes such as measures to enhance girls' education and capacity-building for women's small and medium-sized enterprises (SMEs) will be put on hold. Broader objectives such as gender-sensitive public transport options or more accessible and safer feeder roads for all may fall by the wayside.

III. Climate change and gender: snap shots of sectoral impacts

Women, agriculture and climate change

Agriculture is important for women in developing countries, particularly in Africa and Asia, because of its links to food security and nutrition and also for employment and livelihoods, through domestic as well as international trade. Women's vulnerability in agriculture is directly related to the constraint and lack of shared responsibility for care of families. In addition, women and men farmers throughout rural Africa, Asia, and the Caribbean require the key asset land as a means of establishing and maintaining sustainable livelihoods.

Climate change has intensified this situation. Given the alarming impact of climate change on the social and economic wellbeing of rural men and women, there is an increasing trend towards sustainable agriculture and its integrated approach, so-called climate-smart agriculture (CSA).

Sustainable agriculture is grounded in agro-ecology and focuses on the protection of traditional seeds and varieties. It aims to upscale traditional knowledge and practices that reinforce climate-resilient varieties of plants and methods for soil protection and enhancement. This approach draws deeply on women's knowledge and offers ways to enhance and sustain the income-earning opportunities of women and men in rural and farming communities.

Women, fisheries and climate change

Climate change creates warmer weather, which will influence the abundance and mortality rates of wild fish stocks as well as fish farming (FAO 2018). Women will be affected by these changes. Research on the sector in Bangladesh shows that women's range of livelihood opportunities might disappear if fish production decreases. Research also notes less participation of women than men in pre-harvest and post-harvest fishing activities (Uganda). Hence, adapting the fisheries sector to climate change, and to the different strategies of men and women in communities that are dependent on fisheries, is important for sustainable development.

Research is also being updated to increase the understanding of women's role and their participation in the sector by for example the Norwegian Agency for Development (NORAD), the Network of Aquaculture Centers in Asia-Pacific (NACA) and the FAO.

Women, forests and climate change

Forests are important in the struggle against climate change; they are natural carbon sinks for carbon sequestration and so help to reduce GHGs. Forests also provide wood and non-wood products for domestic consumption and international trade (see box 2.6); nuts, fruits, resins, gum, charcoal and social and environmental services; and soil moisture that supports agriculture, fisheries, energy production, water supply and tourism. Forests in turn are affected by human economic activities such as agriculture and mining, which cut and clear forests, depleting forest cover and causing deforestation and degradation. Though forestry is male dominated at the policy and decision-making level and in large-scale industrial processing, women are the main users of forests (for wood, food and medicines) in many developing countries. Women in forest communities can generate more than 50 per cent of their income from forests, compared with about one third for men. Women in Africa, Asia and Latin America are noted to have knowledge of and a high degree of dependence on forests and forest products. 'Women have a serious disadvantageous with monetization of forest and related products' (Global Forest Coalition). Women are often at the forefront of conservation of forests as well as managing forests, agroforests and tree genetic resources. Some examples include:

- ❖ The Chipko Movement in India in the 1970s. Noted for being the original 'tree huggers', these women challenged the extensive logging that was taking place in their communities. Their struggle contributed to a major reform of India's forestry laws.
- ❖ The Tebtebba Foundation in the Philippines works to promote indigenous women's and men's continued access and ownership rights to natural resources.

- ❖ In the Latin American region, there is the long tradition of the Wangki women of Nicaragua, who work to prevent deforestation and degradation, which ensures that more carbon remains in the trees and forests and is not released into the atmosphere.
- ❖ In Africa, the most famous of all, the Green Belt Movement, a Kenyan women's non-governmental organisation (NGO) at the grassroots level, began to plant trees in 1977 to tackle the problems of deforestation, soil erosion and water scarcity. the Green Belt Movement is acclaimed for having planted millions of trees, thereby also preventing deforestation and degradation and helping to preserve the soil in Kenya.

Energy, climate change and gender

SDG7: 'Ensure access to affordable, reliable and sustainable modern energy services for all.' Energy is particularly related to electrification for household, industrial, agricultural and transport uses. The current emphasis is on clean and renewable energy sources: hydro, geothermal, solar, wind, biofuels etc. At the same time, it is recognised that there is a significant deficit in access to energy for millions of women, men and children, particularly in rural areas in many developed countries, and most particularly in Africa and Asia. According to the World Bank SE4ALL Global Tracking Framework database rural access to energy is:

- very low in Niger and Mali, with the proportions of the rural population with access to energy at 4.7 per cent and 1.8 per cent, respectively.
- It is higher in Nigeria, at about 41.1 per cent of the rural population (World Bank 2019b).
- ECREE (2015) also noted that in Africa the proportion of the population accessing modern fuels, including electricity, liquid and gaseous fuels such as liquefied petroleum gas and kerosene, is very low at about 5 per cent in The Gambia and 12 per cent in Ghana and 24 per cent in Nigeria.

Given this lack of penetration of modern fuels, men and women are dependent on fuel wood and traditional biomass. This has contributed to a 'documented annual death toll of 173,396 people each year; roughly half of them children with the largest numbers recorded in Nigeria, Côte d'Ivoire followed at a distance by Burkina Faso, Niger and Ghana' (IEA 2014, cited by ECREE 2015, p. 30). Energy is critical for gender equality and women's empowerment in improving their lives, reducing time deficits, increasing wellbeing and improving their trade production and productivity-related performance. Men and women require clean energy for improving health, enhancing productivity and ensuring livelihoods. There are gender differences in access to, uses of and effects of energy sources and appliances in the home and the community.

In Africa and Asia, where women predominate in the agricultural sector, transformative changes in the energy system will directly affect agro processes and electricity for lighting, heating and cooking. But it can also impact energy prices and food security through the impact on price changes for food and agricultural inputs (ECOWAS 2015).

Tourism, climate and gender

Tourism is intimately connected to the sustainable development agenda, in which it features prominently in goals 8, 12 and 14. These goals focus on promoting 'sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.' According to the World Tourism Organization, tourism gives access to decent work

opportunities in the tourism sector, particularly for youth and women. This is particularly important for the men and women in the tourism sector in small island developing states, which rely on the blue economy of oceans and marine ecosystems.

In many Caribbean countries, women are often over-represented in lower skills and lower paid areas, notably housekeeping and customer contact areas, with low-skilled and unskilled women often holding the most vulnerable jobs. They are under-represented in skilled kitchen work and in areas such as engineering and security as well as in terms of access to senior technical and managerial roles. (Wedderburn and Grant Cummings 2017)

Women as climate change actors

- Women play significant roles in adaptation and mitigation efforts.
- In many countries such as India and Nepal, women's self-help networks and risk management committees help to address climate risk and support adaptation measures around livelihoods, water and sanitation, and health and education.
- Women are managers of land, forestry and biodiversity. For example, many indigenous women in Africa and Asia are stewards of natural resources.
- Many have knowledge of the wild ancestors from which current plants were derived – information that can help in developing adaptive response measures, in enhancing resilience in food crop sustainability and in medicinal plants, and in maintaining ecosystems.
- Women in communities often practice conservation of mangrove and other drought-resistant crops, which are important for adaptation to floods and famines and for mitigation, including in relation to deforestation and carbon dioxide emissions.
- Women also maintain vested interests in water management and distribution as well as in the development of clean and efficient energy technologies for both household and market production activities.

Recognising the realities of impacts and challenges and women's agency in climate change adaptation and mitigation, some governments are working on climate gender action plans, integrating gender issues into their nationally determined contribution and national adaptation plans.

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ⁱ Data for the Pacific are from Aucan (2018). Because of its near proximity to the equator, sea level rise (SLR) will be more pronounced in the Caribbean (Nurse et al 2014). Some forecasts predict SLR up to 1 or 2 metres over the 21st century if the global average temperature rises by 2-2.5°C (Nurse et al 2014; Simpson et al. 2010). Furthermore, the impact on 'impacts of SLR would not be uniform among the CARICOM [Caribbean Community] nations, with some projected to experience severe impacts from even a 1m SLR' due to 'the geophysical characteristics of the islands and their different coastal topographic settings, which also give rise to different vulnerability to climate change and SLR (for example, coastal plains below 10 m-- , low lying island (Guyana, Belize and Suriname, volcanic island coasts (the Bahamas, Barbuda and the Grenadines) volcanic island coasts (Dominica, Grenada, St Kitts & Nevis, St Lucia, St Vincent and Montserrat), and 'varied geophysical characteristics, Antigua, the Bahamas, Haiti, Jamaica and Trinidad and Tobago, (Simpson et al. 2010).

ⁱⁱ The report *Reaching Out to Women When Disaster Strikes* argues that women and children are 14 times more likely to die during disasters (Soroptimist International of the Americas 2008); up to four times as many women as men are reported to have died in the 2004 Indian Ocean tsunami (MacDonald 2005); and more women than men died during the 2003 European heatwaves (Ledrans et al. 2004). Gender differences also show that men's mortality in disaster situations is due to risk factors such as rescue operations, outdoor work (during heatwaves), and unmarried men and elderly men living alone (European heatwaves; Ledrans et al. 2004).

ⁱⁱⁱ Black carbon is reported to cause as many as 2 million deaths a year, mainly of women and children (WHO 2014).

^{iv} Global warming is linked to a rise in mosquito-borne diseases because warming creates more mosquito-friendly habitats. It is projected that warming is likely to increase the infection rates of mosquito-borne diseases such as malaria, dengue fever and West Nile virus (*Scientific American* n.d.).

^v Changes in temperature and rainfall will alter the geographical ranges of vector-borne diseases such as malaria and dengue fever. Women, particularly pregnant women, and children are susceptible to these diseases. Malaria is linked to perinatal mortality, low birthweight and maternal anaemia (OECD et al 2003).

^{vi} There is some reversal of the downward trend in child or forced marriages. That has been argued to be due to conflict and increasingly to climate change and consequent adaptation strategies as well as the interlinkage between climate change and conflicts (Chamberlain (2017), Care 2016; Alston et al 2014).