

# Gender and Climate Change in Africa

## FACTS FROM GENDER AND CLIMATE CHANGE: A CLOSER LOOK AT EXISTING EVIDENCE

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Africa is experiencing the impacts of climate change, yet there is wide variation in the capacity of women and men to adequately cope with its effects. Although the research base is wide and growing every day, this fact sheet centers on a select group of themes in literature around gender and climate change in Africa, including agriculture, forests, water scarcity, migration, and food security.

### GENDER, CLIMATE CHANGE, AND ACCESS TO LAND AND AGRICULTURAL ASSETS

- As of 2010, only 15% of land in sub-Saharan Africa is managed by women, despite the fact that access to land provides an important source of resilience for women who may lack other options to adapt to the effects of climate change. (1).



In Ghana and Uganda, male farmers are more likely than female farmers to own agricultural tools and livestock (2).

- In Senegal and Benin, men have control over the use of household productive resources (such as donkey carts and labor). As a result, women's fields are planted last, such that their crops are often not harvested until well into the rainy season, when they are more susceptible to failure from dry spells (3, 4).
- In Kenya, female farmers are substantially more likely to manually till fields, rather than use animals or tractors (5).
- In Ghana and Zambia, female-headed households are more likely to use less efficient and more labor intensive methods for collecting water, such as buckets, whereas male-headed households are more likely to have access to more capital-intensive but efficient methods, such as electric pumps (6).

### GENDER, CLIMATE CHANGE, AND AGRICULTURAL ADAPTATION



Men in Senegal and Uganda tend to have access to better weather information than women that can be used to modify production practices (7).

- In Uganda, female-headed households and wives of male farmers are significantly less likely to adopt drought-tolerant maize than male farmers, which researchers attribute in part to lack of access to resources as well as less knowledge about drought-tolerant crops among women (8).
- In Ethiopia, male-headed households are significantly more likely than female-headed households to adopt new

crop varieties in response to weather changes, though the reasons why in this context are unclear (9, 10).

- Male farmers in Ethiopia and Cameroon are more likely than women to use fertilizer to adapt to rainfall variability as women often lack sufficient capital (11, 12).
- In Tanzania, women report that they are replanting certain crops that they are responsible for (such as groundnuts) more often because of changes in weather patterns that are destroying seeds (13).

## GENDER, CLIMATE CHANGE, AND FORESTS

- In Zambia, male-headed households are no more likely than female-headed households to use forests in response to crop failure (14).
- In South Africa, the collection of non-timber forest products (NTFPs) plays a critical safety net role for marginalized populations after climate shocks, particularly women (15). Female-headed households in South Africa are slightly more likely than male-headed households (not statistically significant) to use NTFP collection as a coping strategy in response to shocks (16).
- In Zimbabwe, NTFP collection by women serves as an important source of fuel, food, and income in response to crop loss driven by climate change (17).
- In Tanzania, an increasing number of men are collecting NTFPs such as firewood and wild mushrooms due to climate-induced stresses in men's traditional livelihood activities (18).

## GENDER, CLIMATE CHANGE, AND WATER SCARCITY

- In sub-Saharan Africa, water collection is mainly undertaken by women, implying that as water becomes more scarce, women may be burdened with extra collection responsibilities (19).



In rural Mali, water scarcity is a growing problem, especially for women who are predominately responsible for collecting water. Recent research notes that the cost of water during the dry season in rural areas is 20-40 times more expensive than water in Mali's major cities, leading to intrahousehold rationing of water supplies (20).

- Survey evidence from rural Ethiopia finds that in a 30 day period, more than 40% of women did not collect water due to long lines and/or insufficient supplies, and 18% kept a daughter home from school in order to help collect water (21). There is also a strong association between household water scarcity and psychosocial distress among women (21, 22).
- In rural South Africa, women report walking increasing distances to collect water, as much as 15 km in some cases (23).



## GENDER, CLIMATE CHANGE, AND MIGRATION

- In Ethiopia, more severe droughts tend to increase migration by men, but reduce it for women, particularly for the purpose of marriage. This may be due to the unwillingness of families to absorb the high costs of marriage (dowry) during droughts (24).
- Drought, disease, and flood shocks in Nigeria reduce migration by women, likely due to shortages of off-farm employment opportunities and the lower cost of bride prices, making it less desirable for households to send females elsewhere (25).
- In Burkina Faso, rainfall variability is significantly associated with migration, particularly for men, who are likely to move from areas with poor rainfall to other rural areas that are wetter (26).

## GENDER, CLIMATE CHANGE, AND FOOD SECURITY

- In South Africa, female-headed households with an unmarried head (who are less likely to receive income support from a migrant partner), are more vulnerable to food shortages than households where the head is married (27).

- In Malawi, female-headed households are more than twice as likely as male-headed households to report reducing the number of meals they eat as an adaptation strategy in response to climate shocks (28).



**In Niger, where drought and flooding are having major impacts on crop yields, female-headed households are significantly more likely to be considered food insecure than male-headed households (29).**

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# Gender and Climate Change in Asia

FACTS FROM GENDER AND CLIMATE CHANGE: A CLOSER LOOK AT EXISTING EVIDENCE

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Many countries in Asia are experiencing significant effects associated with climate change, and the capacity of women and men to cope varies widely across settings, depending on local socioeconomic and geographic contexts. Although the research base is wide and growing every day, this fact sheet centers on a select group of themes around gender and climate change in Asia, including agriculture, forests, water scarcity, biofuels, migration, and food security.

## GENDER, CLIMATE CHANGE, AND ACCESS TO LAND AND AGRICULTURAL ASSETS

- Female land ownership rates in Asia are generally low—only 13% of landholders in India are women, dropping to 11% in the Philippines and 9% in Indonesia, despite the fact that access to land provides an important source of resilience for women who may lack other options to adapt to the effects of climate change (1).
- In India, male farmers are more likely than female farmers to own agricultural tools and livestock (2).



In Vietnam, female-headed households are disadvantaged in securing sufficient water for agricultural needs. Female-headed households report 20% lower rice yields compared to male-headed households due to limited water supplies (3).

## GENDER, CLIMATE CHANGE, AND AGRICULTURAL ADAPTATION

- In Gujarat, India, agricultural extension systems designed to provide information about adaptation strategies are heavily gendered, and such systems often fail to adequately target women and provide them with appropriate information (4).
- In Nepal, NGOs often target information on adapting agricultural activities to climate change to men, reflecting established gender roles (5). In addition, gendered social norms in Nepal often inhibit women from contributing to community discussions on climate adaptation, making it less likely that women's needs will be met in adaptation planning, and in turn, making women more vulnerable to the effects of climate change (6).
- In Iran, pressures related to drought are increasing women's farm responsibilities, even in relatively well-off households (7).
- In contrast, in the Philippines, the farm roles of female household heads are changing as farms struggle to adapt to floods. Women's farming experience and relatively greater education levels compared to men in this setting are enabling them to take on greater managerial responsibilities, challenging traditional gender roles (8).

## GENDER, CLIMATE CHANGE, AND FORESTS



In northern India, climate-induced scarcity of forest resources is leading women to spend more time collecting non-timber forest products (NTFPs), reducing the time they have available for other livelihood activities and making NTFP collection a less viable strategy for coping with climate change (9).

- In Nepal, the collection of NTFPs, such as grasses and medicinal plants, is being hampered by the effects of climate change, reducing the income that women receive from the sale of these products (10, 11).
- Programs designed to address climate change, such as REDD+, often have gender-inequitable effects. For instance, in a Nepal REDD+ program, despite comprising half of the population, women made up only 15% of those in REDD+-related leadership roles (12).

## GENDER, CLIMATE CHANGE, AND WATER SCARCITY

- Survey evidence suggests that in Asia, water collection is mainly undertaken by women, implying that as water becomes more scarce, women may be burdened with extra collection responsibilities (13).



Particularly in South Asia, women are often marginalized in water management activities, often as a result of strong gender norms that limit women's ability to participate in water management institutions and influence decision-making, making it less likely that women's needs will be addressed despite the effects of climate-induced scarcity (14–18).

- In urban India, researchers note that many women report keeping daughters out of school in order to serve as lookouts for infrequent water tanker trucks (19).
- A project to increase water supplies in Bangladesh through new wells resulted in males having access to water year-round (as they used motorized pumps for irrigation), whereas women continued to use handpumps for domestic activities, which did not function during periods of low water availability, effectively increasing the distance that women had to travel to access water (20).

- Projects designed to reduce water scarcity that challenge gendered norms in water governance by involving women in management activities can reduce women's time spent collecting water, while also ensuring that water is distributed fairly to women and men, as illustrated by a case study from Sri Lanka (21).

## GENDER, CLIMATE CHANGE, AND BIOFUELS

- In Mindanao, the Philippines, the use of collective land titles for biofuel plantations effectively undermines women's participation in biofuels activities, as women are poorly represented in biofuels cooperatives that manage the land (22).
- Because customary land rights are often lost when biofuels concessions are granted in Indonesia, individuals who rely on land backed by customary rights for food and forest product collection, generally women, lose access to these resources (23, 24).
- In Papua New Guinea, men tend to control income earned from biofuels activities. However, a shift to biofuels production is reducing the amount of land available for women to cultivate home gardens, effectively reducing their income and household access to food (25).



## GENDER, CLIMATE CHANGE, AND MIGRATION

- In Bangladesh, crop failure and flooding disproportionately increase the rate of migration by women (26, 27).
- In Pakistan, extreme heat increases the likelihood of migrating for both men and women, but women are less likely than men to move long distances (28).
- In Nepal, men's likelihood of migrating is affected by firewood availability (which men tend to collect), and women's likelihood of migrating is affected by the availability of fodder (which women tend to collect), suggesting that the impacts of climate shocks on specific gendered livelihood activities influences the propensity to migrate (29).
- Recent evidence from Bangladesh suggests that parents are marrying off girls soon after they reach menarche,

who in turn go to live with their husband's family, partly as a coping mechanism to address household financial challenges associated with climate change (30).

## GENDER, CLIMATE CHANGE, AND FOOD SECURITY

- In Andhra Pradesh, India, twice as many women as men reported eating less in response to drought (31).
- In Bangladesh, women and girls are typically the first to

skip meals if there is a shortage of food, as often occurs during droughts, floods or storms (32).

- After natural disasters in India, young girls were more likely to be stunted and underweight than boys (33).
- In the Philippines, infant mortality increased after typhoons among girls but not among boys, which researchers attribute to competition for scarce resources within families (34).

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# Gender and Climate Change in Latin America

## FACTS FROM GENDER AND CLIMATE CHANGE: A CLOSER LOOK AT EXISTING EVIDENCE

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Although the literature base is growing, the literature on gender and climate change in Latin America is relatively small compared to other developing regions, in part because Latin America has experienced comparatively fewer climate change-related disasters compared to other developing regions. This fact sheet centers on a select group of themes around gender and climate change in Latin America, including agriculture, social networks, water scarcity, and other livelihood responses.

### GENDER, CLIMATE CHANGE, AND AGROBIODIVERSITY

- A key finding from Latin America is that female farmers tend to plant a diversity of crops, improving household resilience to the effects of climate change (1).
- In Mexico, women who have access to irrigation plant a greater diversity of crops than comparable men (2).
- Case studies from Mexico (3, 4) and Bolivia (5) note that women are playing increasingly important roles in maintaining knowledge about different plant varieties, as well as deciding which crops to plant, particularly as

many men migrate away from the farm. Given that women typically have dual roles as farmers and food preparers, women's selection of traditional crop varieties in this region is often influenced by cooking preferences (6, 7).

### GENDER, CLIMATE CHANGE, AND AGRICULTURAL ASSETS AND ADAPTATION

- Compared to other regions of the developing world, women have better access to land in Latin America. In fact, more than 25% of land managers are women in some Latin American countries (8), providing a source of income and local resilience for women, although some studies note continued disparities in access to land in parts of the region (9).
- A cross-national study notes that gender gaps in ownership of agricultural assets are much smaller in Ecuador than in India or sub-Saharan Africa (Ghana and Uganda). In fact, women are more likely than men in Ecuador to own small livestock or non-farm businesses, providing another resilience mechanism to the effects of climate change (10).



In Mexico, the migration of men to the United States has spurred many women to transfer ownership of land to themselves from their husbands in order to protect land from expropriation. While this can reduce women's vulnerability to climate change by increasing tenure security, these transfers also cause intrahousehold conflict in cases where husbands return and become upset that titles have been transferred from their name (11).

- Research examining seven countries in South America finds that women farm heads are no more likely than men to change their crop mixture to adapt to climate change (12), but are more likely to adopt beef and dairy cattle, as well as sheep (13).

## GENDER, CLIMATE CHANGE, AND SOCIAL NETWORKS



In parts of rural Mexico, social networks, particularly among women, rely on the reciprocal exchange of fruit and vegetable products. As climate variability and water scarcity adversely impact crop yields, the safety nets that women have developed with one another to assist in times of scarcity are fraying, weakening the ability of women to share tasks or engage in community development (14). By affecting production of food used as gifts, these shocks disrupt transboundary ties that women have with family and friends in the United States (15).

- Case study evidence from Nicaragua notes that men are more likely to be involved in community organizations and have stronger social ties than women, which they rely upon following drought events (16).



## GENDER, CLIMATE CHANGE, AND WATER SCARCITY

- A cross-national survey suggests that water collection responsibilities tend to be borne in a more gender-equitable manner in Latin America than in other regions of the developing world, implying that as water becomes more scarce, women may not be as burdened with extra collection responsibilities as in other regions (17).
- However, a case study from water-scarce Cochabamba, Bolivia notes that women are substantially more likely than men to spend time searching for available water vendors (18). Water scarcity is also associated with emotional distress, particularly among female household heads (18, 19).



In northeast Brazil, water scarcity serves as an opportunity for some women; a program designed to reduce water scarcity through the construction of cisterns is carried out largely by women, helping to improve their social status and incomes, as well as shift attitudes regarding acceptable roles for women in resource management (20, 21).

## GENDER, CLIMATE CHANGE, AND LIVELIHOOD RESPONSES

- In Brazil, fears about the effects associated with biofuels development, namely growth of land tenure conflicts, have prompted many women with existing livelihoods strategies that rely on small-scale palm seed and oil harvesting to advocate against the expansion of biofuels activities (22).



Evidence from Peru suggests that males involved in fishing have trouble shifting to new livelihood tasks as fisheries decline due in part to the effects of climate change, particularly when there is a dearth of unskilled employment opportunities in a community. This in turn places the burden of supporting local households on women (23).

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# Gender and Climate Change in North America and Europe

FACTS FROM GENDER AND CLIMATE CHANGE: A CLOSER LOOK AT EXISTING EVIDENCE

Published by the Global Gender and Climate Alliance (GGCA)



Climate change is having substantial gendered impacts in North America and Europe, particularly concerning the socioeconomic and health effects of climate change-related natural disasters. This fact sheet centers on a select group of themes around gender and climate change in North America and Europe, including on socioeconomic responses, mortality associated with heat waves and storms, mental health, gender-based violence, and food security.

## CLIMATE CHANGE, GENDER, AND SOCIOECONOMIC RESPONSES



After Hurricane Katrina, women faced additional burdens because they are typically regarded as primary caregivers for children and elderly parents, and these responsibilities became more challenging to manage in the face of addressing other aspects of rebuilding after the storm, particularly as many childcare facilities were no longer available (1, 2).

- After Hurricane Katrina, women were substantially less likely than men to maintain their pre-hurricane employment (or a job of similar status) (3).
- Women in New Orleans experienced an average loss of earnings of 7% in the year after Katrina (14% loss for African American women), while males experienced a 23% gain, thanks largely to the importance of (male-dominated) construction and sales fields in the labor market following the storm (2).

## GENDER AND HEAT-RELATED MORTALITY

- In the United States, the death rate from extreme heat (which includes deaths from heat waves, as well as isolated days that are abnormally hot) is 2.6 times greater for men than for women (4).
- French research from the 2003 and 2006 European heat waves suggests that females were at greater risk than males (5-7). Research on earlier heat waves in France suggests that women made up between 53-60% of all deaths attributable to heat waves before 2003 (8).
- Heat wave research examining nine Mediterranean cities shows that women age 75-84, were significantly more likely than similarly-aged men to die in heat waves between 1990 and 2004 (9).
- In the United States, the vulnerability of males to heat wave deaths is attributed in part to the social isolation that many elderly men experience. During the 1995 Chicago heat wave, while elderly women were more likely than elderly men to live alone, they were much more likely than men to have active social connections, which were likely

protective during the heat event (10). In Europe, the high number of elderly women living alone (11), as well as social isolation among these individuals (12), have been cited as contributors to the high rate of deaths among elderly women.

## GENDER AND STORM AND FLOOD MORTALITY

- Studies examining mortality from Hurricane Katrina note that gender did not significantly predict risk of death (13, 14).
- In contrast, when including deaths from the United States as well as the Caribbean, males were nearly twice as likely to die than females during Hurricane Sandy (15).
- Studies examining flood mortality in the United States and Europe find that men are substantially more likely to be killed by flood events than women, often as a result of being trapped in vehicles in floodwaters (16–18). A study examining mortality in major flood events between 1989 and 2003 in Europe and the United States found that 76% of Europeans who died were male, while in the US, nearly two men died for every woman (17).<sup>1</sup>

## GENDER, CLIMATE CHANGE, AND MENTAL HEALTH

- After Hurricane Katrina, the odds of women suffering from acute stress disorder were 4.1 times those of men (19). Pregnant women who were most exposed to the storm had odds of suffering from PTSD 3.7 times greater than similar women not exposed to the storm (20).



Studies conducted in the UK find that women are more susceptible to stress-related disorders after flood events than men (21–23). For instance, after 2007 floods, the odds of women suffering from PTSD were 1.5 times greater than those of men (22).

- After 2007 floods in the UK, the odds of women experiencing depression were 1.7 times greater than those of men (22).
- While depression tends to affect females in post-disaster contexts, it also is prevalent among certain predominately male groups, such as emergency responders. A post-Katrina survey found that 27% of firefighters in New Orleans reported depressive symptoms (24).

## GENDER-BASED VIOLENCE AND CLIMATE CHANGE



In a study examining intimate partner violence after Hurricane Katrina, psychological victimization of women and men increased by 35% and 17% respectively in the six months after the storm and physical victimization of women increased by 98% (25).

- A case study from the Red River floods in the United States notes that incidents of domestic violence increased sharply after the event, while volunteer time to help women who had been abused decreased as local residents worked to rebuild their lives after the disaster (26).



## GENDER AND FOOD SECURITY

- In Greenland, research suggests that because of poor hunting conditions, husbands are becoming increasingly dependent on their wives to economically support the family with income in order to pay for food (27).
- Other sources of food in the Arctic, such as berries, often collected by women, are of lower quality, which is attributed to climate change-related disturbances in some Inuit communities (28).

<sup>1</sup> There is some uncertainty with the US figure in this study, as 26% of flood fatalities lacked gender information.



Qualitative evidence from Greenland suggests that Inuit women are more vulnerable to food insecurity than men, as women are more reliant on food sharing networks, which depend on steady supplies of traditional food (29).

- When food is scarce, women are often the first to sacrifice in Inuit communities, skipping meals and selling assets in order to ensure that there is enough food to go around (30). Certain subgroups of Inuit women, such as those who are single or those with lower educational attainment, are especially vulnerable to food insecurity (31).

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# Gender and Climate Change in the Pacific Islands, Australia, and New Zealand

FACTS FROM GENDER AND CLIMATE CHANGE: A CLOSER LOOK AT EXISTING EVIDENCE

Published by the Global Gender and Climate Alliance (GGCA)



Climate change is having substantial gendered impacts in the Pacific Islands, Australia, and New Zealand particularly in rural communities which are experiencing tremendous socioeconomic and health-related stresses as a result of climate change. This fact sheet centers on a select group of themes including mortality, mental health, gender-based violence as well as socioeconomic responses to climate stresses.

## GENDER AND RESPONSE TO CLIMATE STRESSES



Research from rural Australia notes that many women are seeking off-farm employment as a response to the struggles of male farmers to earn sufficient income from farming activities due to the effects of climate change (1).

- Although women in Fiji are less likely to work outside the home than men, which can sometimes constrain

the information they receive on disasters, they were instrumental in communicating about advancing floodwaters to men during a 2012 flood, as many women were awake preparing food the morning of the event (2, 3).

## GENDER AND CLIMATE CHANGE-RELATED MORTALITY

- A study exploring 167 years of data from Australia concludes that men are more likely than women to die from heat-related deaths during periods of extreme heat, although the ratio of male to female deaths has declined in recent decades (4).
- In contrast, other research from three major cities in Australia, which examines all causes of mortality (rather than mortality attributed to heat), finds that females were roughly 10% more likely than males to die during heat waves between 1988 and 2009 (5).
- Related to extreme heat is the risk of bushfires. Detailed data from Australia show that males are disproportionately more likely to be killed by bushfires, as they tend to stay and defend their properties, although in recent decades, there has been growing gender parity in death rates (6).
- Men in Australia are more than twice as likely to die from flood events as women, largely due to being trapped inside vehicles (7).

## GENDER, CLIMATE CHANGE, AND MENTAL HEALTH

- After the Black Saturday bushfires in Australia, the odds of women developing fire-related PTSD were 1.7 times

greater than those of men, whereas men's odds of drinking heavily as a response to the event were 1.7 times greater than those of women (8).

- After Cyclone Larry struck Australia, the odds of girls developing PTSD were 8.7 times greater than those of boys within three months of the storm (9), although a follow-up study 18 months after the event found no significant differences by sex, suggesting that gender differences in the effects of the disaster on PTSD were short-lived (10).
- Research from Australia links rural suicide with drought and deteriorating economic conditions for (predominately male) farmers (11–13). Data show that a moderate increase in the drought index is associated with a 15% increase in the rate of suicides among males, while such an increase is associated with a slight decrease in the suicide rate for females (11).
- In rural Australia, traditional masculinities, in particular a reluctance among men to seek help when having difficulties, serve as an important contributor to the risk of suicide (12–15).

## CLIMATE CHANGE AND DOMESTIC CONFLICT/ GENDER-BASED VIOLENCE



In the 2009 Black Saturday bushfires, men and women responded differently, with men tending to advocate for defending their property and women wanting to evacuate in order to protect the children (16). The delays in resolving these disagreements resulted in the late departure of many women and children from rural homes, and many of these individuals were killed as a result (17).

- Research from Australia links droughts (18, 19) and bushfires (20) with increases in violence against women, which is attributed in part to the burdens placed on men by traditional masculinities in the face of tremendous loss (18).
- After 2004 floods in New Zealand, domestic violence cases increased substantially (21).

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