



Closing the gender gap in agriculture under climate change

Mary Nyasimi and Sophia Huyer



Dr Mary Nyasimi is the Science Officer for Gender and Social Inclusion at the CGIAR Research Programme on Climate Change, Agriculture and Food Security (CCAFS), based at the International Centre for Tropical Agriculture (CIAT) in Nairobi, Kenya. She holds a PhD in Sustainable Agriculture and an interdisciplinary Masters in Sustainable Agriculture and Anthropology from Iowa State University, Ames, Iowa. m.nyasimi@cgiar.org



Dr Sophia Huyer is the Gender and Social Inclusion Research Leader at CCAFS, based at Women in Global Science and Technology (WISAT), Ontario, Canada. Before taking on her current position with CCAFS, Sophia Huyer was Executive Director of WISAT. She received her PhD in Environmental Studies from York University in Toronto. s.huyer@cgiar.org

Abstract

Women face barriers that significantly constrain their production and entangle them in a low productivity trap. These barriers encompass societal norms, the gender division of labour (GDOL), resource constraints (access to and use of land), no or low use of inputs (*eg* drought-adapted seeds), and limited access to climate services and agro-advisories. Under a changing climate, these barriers will further constrain women's ability to adapt, and the gender gap in agriculture will continue to widen. Gender-responsive climate-smart agricultural (CSA) practices and technologies provide an opportunity to close the gender gap as well as bring women into the forefront in the fight against climate change. Priority activities include identification of the preferences and priorities of women, men and youth to develop practices that are appropriate to each group; labour-saving and productivity-enhancing technologies; access to climate information services; participation of women in agricultural value chains and non-farm activities; and engaging women and men in challenging social and cultural norms.

Background: the gender gap in agriculture under a changing climate

A complex array of societal norms and beliefs interact with access to resources and decision-making to influence how men and women respond to the impacts of climate change. As a result, women and men farmers in developing countries have different vulnerabilities and capacities to deal with the impact of climate change on agriculture (Huyer *et al*, 2015; Kristjanson *et al*, 2016). This affects their willingness and capacity to make use of (CSA) technologies and practices.

Women make up about 20 percent of the agricultural labour force in Latin America and up to 60 percent in Southern Asia and Sub-Saharan Africa (ILO, 2016), with agriculture the primary economic activity for 79 percent of women in least developed countries (Doss, 2011). Nevertheless, there is a

substantial gender imbalance in agricultural productivity varying from country to country. For example, in Ethiopia, Malawi, Niger, Nigeria, Tanzania and Uganda production levels of women farmers are 13-25 percent lower per hectare than those of men (World Bank, IFAD, FAO, 2015). Across the developing world, women farmers tend to have significantly less access to important productive, financial and information resources for agriculture, including land. However, closing the gender gap by supporting women's access to resources (*eg*, land, credit, fertilisers, extension services and other productive inputs) can increase yields by 20-30 percent and decrease the global hungry population by 150 million (FAO, 2011).

Women living in rural areas are highly sensitive to climate threats and will be among the most affected by climate change. They are more dependent on natural resource-based activities than men for their livelihoods and family wellbeing, and they have less capacity to adapt with fewer resources (Huyer *et al*, 2015; Jost *et al*, 2016). Effects of environmental stress in farming systems (such as those caused by climate change) include the intensification of women's workloads and decreases in household assets, and are exacerbated by male migration to urban centres for employment (Jost *et al*, 2015). As a result, the concern is that climate change will increase global food insecurity and further exacerbate gender inequalities.

Closing the gender gap in a changing climate

Climate-smart agriculture (CSA) options have the potential to provide a range of benefits for women if they are able to take advantage of them. Studies show that when women have access to information, training and services, they are just as likely as men to adopt new practices (World Bank, FAO, IFAD, 2015). For example, women rice farmers in Vietnam were trained in production technologies and practices, including lower inputs of fertiliser and pesticides. As a result of the training, their production increased to the point that they had extra rice bran to raise pigs. Their knowledge, related to rice

varietal choice, crop management and post-harvest management, also increased. As a result of the new practices and knowledge gained, women's participation in household decision-making increased on 'how much money to spend on food', expenditure on children's education, and allocation of remittances. Eighty-four percent felt that they were more highly respected in their family and community (Truong *et al*, 2015). IFAD (2014) highlights several examples of how increased access to seed, credit, and weather information has increased women's social status and their participation in decisions on input use.

However, ensuring that the potential benefits of CSA also extend to women farmers involves recognising gender differences in priorities and capacities for agriculture (Figure 1). As a result of the gender division of labour and household responsibilities, women and men will have different preferences for crops and other agricultural activities. Men tend to prefer crop characteristics that will increase market value such as yield, appearance, and market demand, while women prefer varieties that are more nutritious, better tasting, and easier to cook. Similarly, gender differences in adaptation strategies also exist. A World Bank study in Bolivia found that men focus on large-scale community interventions such as irrigation, whereas women prefer practical improvements such as planting new crop varieties or supplementing traditional revenue with diversified production activities (World Bank, FAO, IFAD, 2015).



Figure 1. Recognising gender differences in priorities and capacities for agriculture is important to ensure the potential benefits of CSA. (Photo: C Schubert (CCAFS))

Evidence suggests that farmers are adopting CSA practices that show small incremental changes rather than large transformative ones. This is because farmers, especially women farmers, lack access to and use of productive resources and information. The introduction of CSA practices will therefore need to respond to both the effects of climate change and gender inequalities to ensure that the *"needs, priorities, and realities of men and women are recognised and adequately addressed ...so that both men and women can equally benefit"* (World Bank, FAO and IFAD, 2015).

A gender-responsive CSA approach takes into account the socially differentiated roles, responsibilities, priorities and resources of producers at the community and household levels. Characteristics include use of gender analysis (with sex-disaggregated data) for project design and implementation; engagement with both women and men on priorities (which

often differ); identification of barriers to adoption and development of strategies to address the barriers; and monitoring of short-, medium- and long-term benefits (Nelson & Huyer, 2016). Sex disaggregated data and gender research can help in identification and selection of CSA practices that best fit and are appropriate for women, while integrating social research (more specifically sex and gender disaggregated research) into development of CSA practices can address social norms and cultural practices that restrict women from adopting CSA. The CGIAR Research Programme on Climate Change, Agriculture and Food Security (CCAFS) *Gender and Inclusion Toolbox* provides an overview of approaches to identify the different priorities, needs and capacities of women, men and youth in designing climate interventions that strengthen the resilience of each group (Jost *et al*, 2014).

Enabling women's adoption of CSA

Promoting labour-saving and productivity-enhancing technologies

The gender division of agricultural labour reinforces the importance of developing labour-saving and productivity-enhancing CSA technologies for women. Women's work in agriculture and within the household is often labour-intensive and time-consuming, reducing time available for other activities such as education or livelihood diversification. Carrying water and fuelwood long distances can have serious long-term health effects, and exposes women and girls to harassment and injury. Some innovations have been developed to reduce agricultural burdens and workloads, *eg* mechanised farm equipment and the use of draught animals. However, these innovations tend to be targeted at men as heads of households, and their greater access to financial services and information means they are more able to take advantage of them. What is needed is affordable labour saving technologies, specifically targeting women, that will reduce their burden of work and free up time; only then will they be in a position to consider CSA technologies and practices (Huyer, 2016). Additionally, the potential for CSA to increase women's workload is a factor in women's decision to adopt it (Murray *et al*, 2016; Jost *et al*, 2016). In Uganda, women are using locally fabricated fodder choppers that are less cumbersome, less noisy, require less energy to operate, and reduce wastage. Additionally, the time required to chop fodder is substantially reduced. In the same community, treadle pumps to draw water from boreholes for domestic and livestock use have reduced both the time required to water animals from five hours to two hours, and the amount of physical effort required (NARO, 2002).

Gender-responsive climate information services

Information and communication technology (ICT), including radio, TV, mobile phones and social media, can increase women's access to CSA and climate information, and reduce perceived risks of using the information. Factors that hinder women's access to climate information include illiteracy, lack of familiarity with information technologies, language barriers, and socio-cultural attitudes and norms. Research also demonstrates that women's access to and use of weather and agro-advisory services is lower than men's in all developing



regions (World Bank, FAO and IFAD, 2015). Their differing access to ICT, and different household and agricultural tasks, mean women require both different *kinds* of information as well as different *channels* for accessing information, such as radio, SMS and voice messaging, as well as through community groups, health clinics and schools. Data from East and West Africa and South Asia indicate that women and men interact with different organisations at the local level, reflecting their information priorities. Women tend to interact with local and informal organisations and prefer information on a wider range of topics such as health and nutrition, while men tend to interact with governmental and international NGOs to obtain information on agricultural production (Huyer *et al.*, 2015; Cramer *et al.*, 2016; World Bank, FAO and IFAD, 2015).

Use of mobile phone technology can reduce the knowledge gap about CSA across genders if access for women is targeted (Mittal, 2016). Another innovative model is *Agri-Kiosks* in India, that work with female farmer collectives to provide affordable access to quality agricultural inputs (World Bank, FAO and IFAD, 2015). In Bangladesh, early warning systems for floods are being developed to reflect the differing requirements of women and men in terms of literacy levels and degree of access to communication technologies (*ie* mobile phones) (IFAD, 2014). Strengthening the capacity of providers of agro-advisory information to deliver equitable CSA services is also necessary. This involves recruiting more women as providers of information, as well as training providers to understand socio-cultural and gender dynamics and design gender-responsive approaches (WB, FAO and IFAD, 2015).

Facilitating the participation of women in agricultural value chains

Facilitating women's participation in agricultural value chains offers greater opportunities for inclusion in CSA and increased income. They can enter into new higher value-added functions (and therefore receive higher prices for their products) and enter into new market channels that lead to new end markets in the value chain – *eg* from domestic to export markets for the same product (Chimedza, 2016). Climate change is increasing the intensity, frequency and variety of those risks, so that the long-term benefits of agricultural value chain projects are at risk. This will especially affect women, since lack of access to financial capital and gender norms often restrict women from participating and investing in agricultural value chains, especially in processing, marketing and leadership. Gender-sensitive financial services can be one option to support women's productivity and quality, and enable them to participate in value chains as suppliers of agricultural inputs and services in the face of climate impacts. Options include identifying gender issues during design of loan schemes, assessing whether services will reinforce or reduce gender inequalities, or providing lower interest rates for women. In Nigeria, the International Fund for Agricultural Development (IFAD)-funded *Enterprise Development Fund for Women and Youth* supports the creation of job opportunities around value chain points in a number of commodities: (i) village-based input supply enterprises; (ii) post-harvest handling enterprises; and (iii) produce marketing enterprises. Training in business plan development, operations and management, as well as in the technical aspects of the selected

enterprise is provided. Starter packs of inputs are provided to trainees after satisfactory completion of the course to support the set-up of businesses (IFAD, 2014).

Enabling diversification of livelihoods for women

It has been found that successful adaptation projects are those that increase women's ability to add value to their agricultural activities – for example, through food processing or marketing – and diversify their income-earning opportunities (Njuki *et al.*, 2011). Diversification into alternative income-generating activities can provide additional income security to counteract variable agricultural production. These can include food processing/drying technologies, and production of vegetables or horticulture for household use or the tourism sector (IFAD, 2014). Migration to urban areas to work in service industries is a common strategy, especially for young men; supporting quality education in rural areas would increase skilled employment opportunities for migrants. Business support funds for rural entrepreneurship in both agriculture and other sectors may provide alternative income options at home. For example, Kenya's *Uwezo Fund* aims at enabling women, youth and persons with disability to access finance for the start-up of businesses and enterprises, and to generate self-employment at the local level. Since its inception in 2013, the fund has disbursed over five billion Kenya shillings (around US\$ 48 million) (GoK, 2016).

Changing the rules of the game: gender-responsive policy and culture

Engendering climate policy

Despite what we know about the gender gap in agriculture and climate change, gender equality is not often integrated in agriculture and climate policies. Gumucio & Rueda (2015) found that while gender can be quite well integrated into agricultural policies in a region, this does not necessarily translate to climate change policy. They note that seven countries in Latin America conducted gender-sensitive consultation processes during drafting of climate policy, which resulted in gender integration in climate change planning. However, research also shows that when policy does incorporate sex-disaggregated data and recognises the contributions of women, the implementation and monitoring of gender results is often neglected (Gumucio & Rueda, 2015; Ampaire *et al.*, 2016).

Participatory and consultative approaches to policy development, as well as the identification of gender and social inclusion as a cross-cutting policy theme can provide guidance and incentive for integrating gender. Capacity building of policy-makers on gender-responsive policy development can also influence changes to organisation cultures and patterns of resource allocation (Gumucio & Rueda, 2015).

Engaging women and men in challenging social norms

Traditional gender roles, that are often deeply entrenched, can prevent women from engaging in adaptive strategies in the face of climate change. The implementation of CSA will fail to benefit women, and in fact may entrench existing inequalities, without an understanding of how gender roles

and tasks in households and community may be affected by new CSA technologies and practices. Participatory approaches that promote change in the interests of women and marginalised groups are important for understanding gender norms and community power relations in terms of governance, decision-making and control of resources, and for identifying opportunities for social and gender transformation (Jost *et al*, 2016). They involve engaging with the community to understand and challenge beliefs and practices that restrict opportunities or capacity of women or men. An IFAD project in Mauritania used a peer-to-peer exchange approach with farming couples to develop household strategies for better livelihoods. Couples learned new technologies that were traditionally only for women (vegetable gardening) or men (irrigation). Both women and men learned new skills, and household diets were diversified. Women also reported improved status as a result of being involved in new activities (IFAD, 2014). By engaging couples in joint activities, men's perceptions of what women can do in agriculture changed.

Conclusions

Investing in women farmers and closing the gender gap in agriculture under climate change will not be attained without various stakeholders (governments, the private sector, civil society, research organisations) coming together to invest in improving gender equality and the empowerment of women. The existing evidence on the gender gap that documents the imbalance between the contribution women make and the control that they have over income, property and decision-making must inform development of CSA technologies and practices including climate change policies, as must consultation with women to ascertain their preferences and priorities. This will make investing in gender-sensitive CSA practices and technologies a practical and transformative solution to removing gender-based barriers and improving women's access to agricultural resources (labour, inputs, credit) and knowledge (climate services). Increased active involvement of women in agricultural value chains (production, processing and marketing) can also contribute to transformation, not only by increasing women's adaptive capacity and food security, but also strengthening and raising growth that is gained through new skills, confidence and challenging gender norms.

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