

Gender, agriculture and water insecurity

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Climate variability and water insecurity have devastating impacts on developing countries that rely on agriculture for economic growth and livelihoods. Drought, loss of livestock and failed harvests can push poorer households into food insecurity and distress migration, with women and children left particularly exposed.

Women have different access to and control over land and water, and different responsibilities for agricultural production and water management. Too often, however, policies and programmes focused on water for rural livelihoods are gender blind and fail to consider women's needs and experiences. Paying attention to the capabilities of and constraints on female farmers is critical to improving agricultural water management, and in turn to the achievement of the Sustainable Development Goals (SDGs) on poverty, agriculture, gender and water.

Our research used desk-based review, vulnerability mapping and case studies in Malawi and Ethiopia to analyse how men and women are differently affected by water insecurity, climate variability and drought. We identified three critical areas where women are disproportionately affected:

- Women are managing the tension between securing water for use in the home and protecting water availability for the farm, with pressure intensifying around seasonal peaks of water scarcity and farm labour.
- Women, as compared to men, typically have less access to and control over assets such as land, water, agricultural equipment and inputs, assets which might be used to buffer the effects of rainfall variability.
- Women have fewer opportunities to pursue off-farm work or migrate to urban areas as temporary or longer-term coping strategies.

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Recommendations

Donors, development practitioners and ministries engaged in rural development can address these vulnerabilities through adopting gender-focused programming across three domains:

Home and farm: use an integrated approach to plan ahead for seasonal water scarcity and account for multiple uses of the same water source.

Assets and institutions: make rural development programming more gender-sensitive and climate resilient through improved access for women to land and water rights, credit, irrigation and other technologies, along with education and training.

Mobility and livelihoods: support diversification of women's livelihoods in rural areas, while maximising the benefits of migration.



Photo: Ahmed Aziz – A woman pours water from a public standpoint, to use for drinking, cooking, cleaning and washing. Matahara Town, Awash Basin, Ethiopia

Water matters for rural women and men

In sub-Saharan African (SSA) 70% of poor people live in rural areas and are engaged primarily in subsistence farming.¹ Rapid population growth means that many more people are entering the farm economy seeking secure livelihoods. Since farmers are also frontline managers for as much as 90% the world's water, agricultural water management is central to achieving Sustainable Development Goal 1 (SDG1), SDG2 and SDG6 on poverty reduction, sustainable agriculture and water management, respectively.² The challenges are daunting, however. The ongoing 2014–2016 El Niño event illustrates how flood and drought have devastating impacts on livelihoods and food security, and on development progress more broadly. Climate variability is already inflicting high costs on rural communities, and this will intensify in many regions as climate change accelerates.

These frontline water managers are rural men and women. In some regions women are increasingly responsible for the farm as men seek work in cities. Yet agricultural water management policies and investments, as well as associated interventions that are critical to poor rural women, are often gender blind. More gender-sensitive support can help women farmers increase their resilience and reduce poverty. Female empowerment and supporting women's practical needs and strategic interests will also contribute to SDG5 on gender equality. In the longer term, agricultural water management is an entry point to shift the deeper norms that stop women and girls from achieving their full potential.

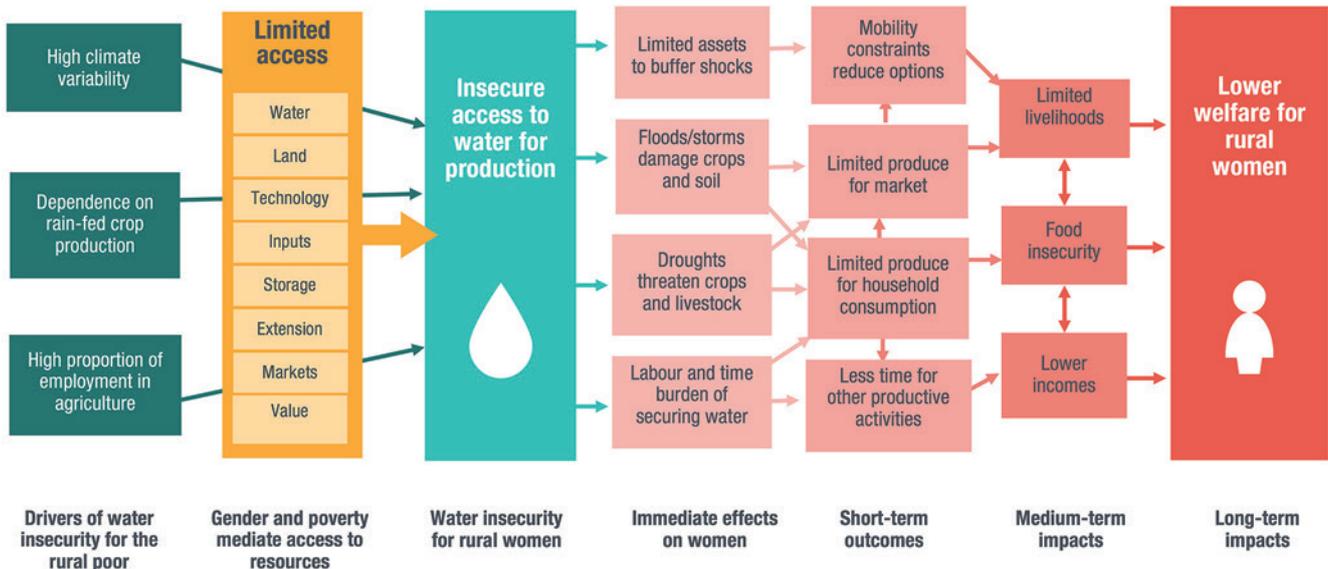
The research

There is a growing body of evidence on the effects of water variability and scarcity on agriculture and rural livelihoods. However, there is a lack of research around how different markers of vulnerability, including gender, exacerbate or mediate the impacts of water (in)security on an individual or household, and what this means for policy and programming. This contrasts with the water supply, sanitation and hygiene (WASH) sector, where there is now an extensive body of literature on gendered approaches to the delivery and management of services. WASH evidence focuses on the negative effects for women and girls of poor access and the positive multiplier effects of WASH improvements. To address how women's livelihoods are affected by water (in)security, our research mapped how rural poverty, floods, droughts and dependence on agriculture affect rural women. We developed the conceptual framework below to explore causal pathways around water insecurity. We then tested these relationships through case studies.

1 International Fund for Agriculture (2015) Rural Poverty Portal, available at www.ruralpovertyportal.org/

2 Lankford, B., Bakker, K., Zeitoun, M. and Conway, D. (2013) *Water security: Principles, perspectives and practices*, Oxford: Routledge

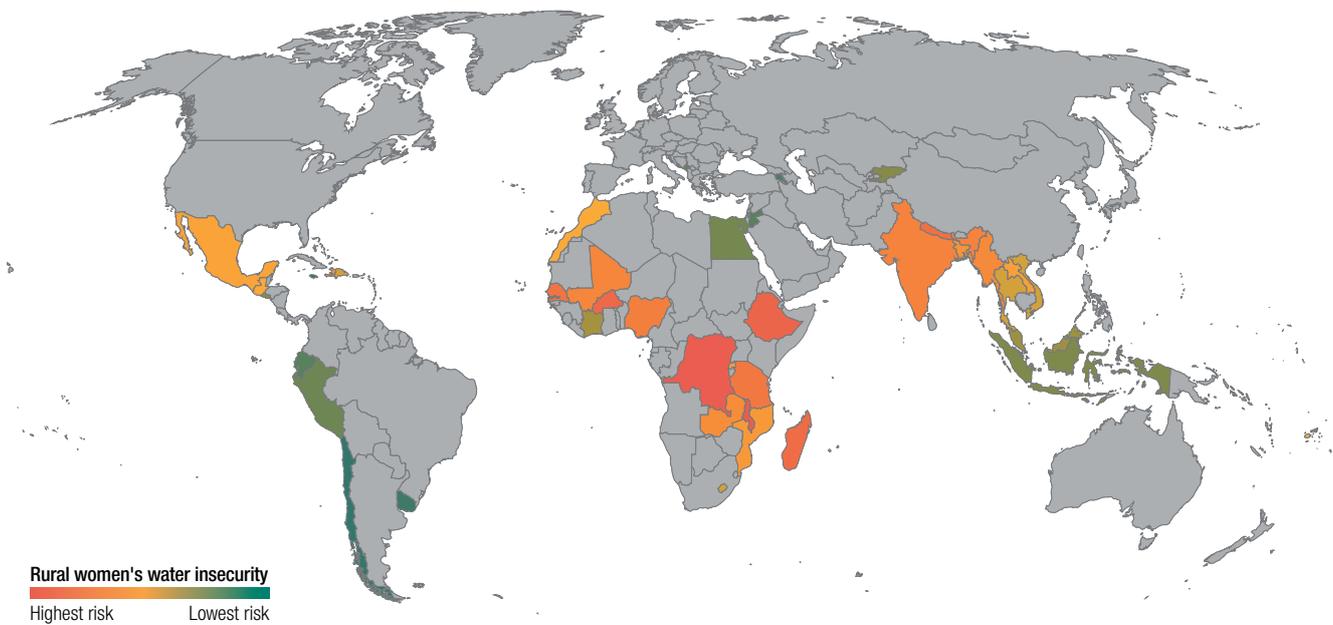
Figure 1: Conceptual framework for rural women's water insecurity



Source: Authors.

To identify case study countries, we designed a simple index as a proxy for rural women's water insecurity. Variables include rural poverty, employment in agriculture, irrigation coverage, the distribution of agricultural holders by sex, and flood and drought risk. Limited data availability meant that it was only possible to calculate scores for 42 countries. The Democratic Republic of Congo, Malawi and Ethiopia ranked highest on the index in terms of rural women's water insecurity. Given existing networks and access, we selected Malawi and Ethiopia for further research.

Figure 2: Hotspot mapping for rural women's water insecurity



Source: Authors, created using mapchart.net using data sources explained further in the report

Research findings

Three key findings emerged from the research:

1. Home and farm: women are caught between water for domestic use and agricultural water insecurity

The clearest gendered link between water supply, agriculture and rural livelihoods is time poverty. The inequitable gender division of labour means women often work across both domestic and non-domestic spheres. Women in the developing world are often responsible for water collection for household use. Fetching and carrying water is mentally and physically stressful, puts women at risk of attack and takes time away from activities such as childcare, farming and other income-generating activities.

This time pressure intensifies across the seasons when an inflexible agricultural calendar clashes with the need to collect water for the household (see Case study 1). Women then have to decide between earning food for today by working on neighbours' farms, growing food for tomorrow by tending their own fields, or risking both to collect water for the household. As reliable, good-quality water sources become harder to find in the dry season, women may trade-off collection distance against water quality. Some choose closer, poorer-quality sources to save time, which puts their families at risk of water-borne diseases. In Malawi, women complained about walking long distances and children getting sick from contaminated water.

“When the borehole breaks we use the river for our household needs but the quality is poor and there is a risk of diarrhoea. It is also far to walk.”

Quote from women-only focus group in Machinga, Malawi

Case study 1: Seasonal intensification of women's water insecurity in Malawi

At the end of the dry season, when water is scarce, women spend more time collecting water – walking long distances and queuing at water points. In Mitawa village, focus groups reported that the borehole failed most frequently in the dry season, likely due to falling water levels or mechanical failure from increased pumping. Then, women have to travel further to collect water or resort to using poorer-quality sources. Seasonal patterns of water insecurity intensify in drought years, especially for poorer households with the least labour to release, and no bicycles to help with water transport. This is also when water is most in demand on the farm for thirsty crops. This creates real difficulties in balancing the demands of farm work with water collection, which in drought years can mean the difference between getting by and chronic poverty.

Seasonal patterns of water availability and agricultural production in Mitawa village, Machinga

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Rainy season	■		■									■	
Water-related diseases*	■										■		
Water scarcity							■						
Rainfed production	■					Harvest	→		Tilling	→	Planting		
Irrigated production			Planting		Harvest & Planting			Harvest					
Hunger period	■												■
Low income months	■					\$	\$	\$	\$	\$			

*Malaria, diarrhoea, dysentery and cholera are common

2. Assets and institutions: women have less access to and control over key resources and institutions to build resilient livelihoods

As climate change accelerates, subsistence-oriented rainfed agriculture will become increasingly risky. Irrigation offers a partial solution as a medium-term buffer against seasonal and drought-related food insecurity. Yet, over the past half century only four million hectares of new irrigation have been developed in SSA, the smallest expansion of any region. There is clear potential for further development, and groundwater irrigation has the lowest ‘entry barriers’ for smallholders. However, the benefits of irrigation for women are constrained by their limited access to key assets and opportunities. Women own less land than men. Land and water rights are often related, and women may also not have the formal title or credit facilities to invest in irrigation equipment. Even when women have access to irrigation schemes, water allocation is frequently controlled by male-dominated water user associations.

Given this context, it is important to acknowledge the complex dynamic between men and women within a household and on the farm. Distribution of work, resources and control across the homestead are fluid, and subject to constant renegotiation and flux. Women can use their own agency to shape situations in a way which supports their interests. However, we found that women consistently face systemic constraints which hinder their ability to reap the full benefits of irrigation investment. Women often have less access to resources such as credit, inputs and farm machinery than men. Wives are often responsible for crop production for household consumption, while their husbands focus on crops for market. This means women may have less power in decision-making around marketing, saving and spending. These dynamics compound women’s vulnerability to domestic and agricultural water insecurity.

Case study 2: Tailoring irrigation interventions to empower women smallholders

A key advantage of groundwater is that smallholder farmers can develop sources using their own resources. A borehole, a simple pump and access to energy can provide water for production. Nonetheless, external support may be needed to help overcome deeply entrenched gender inequalities in access to land, and therefore water. In Ethiopia, a new Household Irrigation Strategy led by the government’s Agricultural Transformation Agency aims to create a ‘vibrant and self-sustaining household irrigation sector’. The strategy takes a proactive approach to gender issues, for example through flexible financing options targeted specifically at women’s groups and tailored delivery methods for communicating technical knowledge and market information. The strategy is addressing the important issues of bottlenecks to irrigation development and women’s participation across the whole value chain.

“ Sometimes the men don’t even tell their wives what they have sold, or might spend the money on beer. If the woman wants to prevent her husband from selling maize to keep some for food, sometimes she will go straight to the mill for pounding. ”

Quote from women-only focus group in Ntchisi, Malawi

3. Mobility and livelihoods: women have fewer options to pursue off-farm work which can buffer against seasonal shortages or the impacts of flood and drought

Rural development and investment in the agricultural sector is a necessary, if not sufficient, precondition for poverty reduction and food security in SSA. It is necessary because farm work uses the main assets that poor people have – labour and land. However, long-term pathways out of poverty will come from outside the sector, from broader processes of economic transformation. For poorer subsistence farmers, providing agricultural labour is a seasonal necessity to cover the deficit in their household food balance. But this can exacerbate vulnerability as farmers neglect their own farms, and because farms in the same area are simultaneously affected by climate shocks.

Rural transitions and the movement of labour to non-farm jobs allow people to spread income and production risks, and break out of poverty in the longer run. Also, remittance flows mean rural households can benefit from migration through income which is no longer tied to uncertain rains. However, in SSA women generally have fewer opportunities to pursue work in the rural non-farm economy, or in urban areas and industry. Social norms around women’s mobility, a lack of skills and fewer assets for transport are major constraints. As a result, migration flows are mostly of men, leading to a ‘feminisation’ of agriculture. Women in Malawi had mixed feelings about migration. Some felt abandoned by their husbands, and female-headed households struggled to keep children in school because they needed labour. On the other hand, with men absent, migration sometimes gave women more freedom at home and on the farm. Tensions can arise, however, as household power dynamics and gender identities are challenged and reshaped.

“It is common in a bad year for the men to go away, for example to buy fish from Lake Chilwa to sell, or go to Mozambique for casual work – they can be away for a few weeks, or even months.”

Quote from women-only focus group in Machinga, Malawi



Photo: Naomi Oates – An all female focus group maps their village and surrounding environment, including different water sources. Kambwiri village, Salima district, Malawi

Recommendations

1. Home and farm: use an integrated approach to plan ahead for seasonal water scarcity and account for multiple uses of the same water source

- **Adopt an integrated approach:** too often, the water sector designs and implements programmes in a silo, creating an artificial divide between water for domestic and productive use, water for emergency relief and longer-term development, and food and water security. This reflects government and donor bureaucracies rather than livelihood realities, and is particularly damaging for rural women who must negotiate and manage the overlaps. A common focus on gender could help encourage collaboration across disciplinary and sectoral divides.
- **Build links between WASH, water security and food-nutrition programmes:** recognise that access to WASH is a necessary condition for food security initiatives to succeed and a precondition for protecting livelihoods during droughts and floods.
- **Plan and provide for seasonality:** programme interventions and water resource development must consider how agricultural and water calendars interact, and help women deal with tensions around water use by, for example, demarcating allocations for different uses across seasons, and providing resources to facilitate water transport and storage.
- **Respond to local demand:** design or adapt systems that meet multiple needs, including small-scale irrigation and livestock watering, and not just ‘domestic’ use.

2. Assets and institutions: make rural development programming more gender-sensitive and climate resilient through improved access for women to land and water, credit, irrigation, other technologies, education and training

- **Adopt gender-sensitive programming:** all rural development programmes must consider women’s unique needs and experiences, with targeted programmes to provide credit, secure land and water rights and facilitate access to inputs and machinery for women. Training and cooperatives should account for women’s tasks, time constraints and childcare obligations, and the tensions around women’s empowerment.
- **Invest in irrigation institutions:** support development of women’s groups, savings and loan schemes and water user associations with strong representation of women to enable women’s collective action around irrigation activities and increase irrigation productivity.
- **Facilitate women’s participation across scales:** small-plot horticulture is a starting point for small-scale irrigation activities. Target women in the groundwater irrigation economy, through gender-sensitive delivery and communication for female smallholders. Develop and enforce appropriate safeguards (e.g. quotas, contracts and childcare) for female employees in commercial irrigation value chains.
- **Foster gender transformative change:** use irrigation investments as a platform to question, challenge and ultimately shift deeper gendered inequalities, for example in addressing attitudes around gender roles, working with male champions of change and using qualitative monitoring to understand challenges and progress towards women’s empowerment.

3. Mobility and livelihoods: support diversification of women’s livelihoods in rural areas, while maximising the benefits of migration

- **Help women build alternative livelihoods:** this may mean rethinking the production-oriented bias of many agricultural and food security programmes, with priority given to broader investments in public goods such as extension training focused on processing and marketing, public storage, market places and rural feeder roads that benefit all economic activities and provide the skills needed to pursue non-farm jobs.
- **Facilitate remittances:** new technologies, such as mobile banking, can support cash flows but priority needs to be given to women’s access to financial services, as senders or receivers.

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