

This briefing note summarizes the case study findings for discussion and comment

Irrigation is becoming an important trigger for agricultural growth in Sub-Saharan Africa, with both women and men adopting small-scale private irrigation in ever larger numbers. This trend in farmer-led agricultural growth promises to enhance women's productivity and well-being, but only if research can clarify the relevant dimensions needed for effective interventions.

The opportunity

Researchers and program managers have done some assessments on gender in public irrigation schemes, where they have identified gender inequities in irrigated land allocation and membership in water user associations (Meinzen-Dick and Zwarteeven 1998; Van Koppen 2002; Peterman et al. 2010). However, support (and data) for small-scale private irrigation is still piecemeal, with many assumptions and stereotypes prevailing.

One such assumption is that men take the lead in technology adoption for improved productivity to better provide for their families. Yet women and men continue to have their own plots, crops, and incomes. Enhancing agricultural productivity requires, among other things, a better understanding of gendered production relations. Women could well be the leaders in private small-scale irrigation adoption, with women's labor generating incomes that women control.

The research

Researchers examined three gender-disaggregated variables using quantitative farm household surveys carried out under the Agricultural Water Management (AWM) Solutions Project in Ghana and Zambia: household headship; labor provision; and the use of small plots as intra-household production sub-units (Table 1).

In both countries, site selection focused on regions where AWM technology adoption rates were known to be high. In Ghana, the focus was on lift irrigation, but other combinations of technologies were also investigated. In Zambia, several technologies were represented: buckets, river diversions, motor pumps, conservation agriculture, wetlands and a public irrigation scheme.

In Ghana, 10% of the households were female-headed. Between 31% and 47% of these were *de facto* female headed households, that is, where the male heads of households are working elsewhere. *De facto* female-headed households tend to become more common with economic development, but have been largely ignored as a category.

GENDER ASPECTS OF SMALL-SCALE PRIVATE IRRIGATION IN SUB-SAHARAN AFRICA

Based on studies by Barbara van Koppen, Lesley Hope and Willem Colenbrander

Table 1. Sample selection criteria and procedures

Country and regions	Focus within regions	Sampling procedure and sample
Ghana Ashanti Greater Accra Volta	•Focus on lift irrigation with some studies on other technologies	<ul style="list-style-type: none"> •Hut-to-hut census among 12,620 households in five regions •Hut-to-hut household survey among 494 households from 44 communities in 17 districts
Zambia Mpika Monze Sinazongwe	<ul style="list-style-type: none"> •Focus on all smallholder technologies with attention to the main technology per household •Selection of districts with highest prevalence of river diversions, motor pumps, conservation agriculture, and public irrigation scheme 	<ul style="list-style-type: none"> •Hut-to-hut census among 1,935 households •Household survey among 240 representative households, randomly selected from census

Main findings

Technology adoption by type of household

In Ghana, both male-headed households (MHH) and female-headed households (FHH) in all regions actively took up private lift irrigation and half or more moved into mechanization. There were small gender differences and exceptions.

The adoption patterns by type of household in Zambia were quite similar to Ghana. FHHs did adopt technologies but slightly less often than MHHs. FHHs adopted less labor intensive river diversions and motor pumps at half the rate of MHHs; cultivated wetlands twice as often as MHHs; used buckets more often than MHHs; and were more inclined to provide labor for agriculture.

Gendered labor provision for irrigation

Both men and women provided labor for irrigation. In neither country did we find cultural taboos, monopolization of mechanized technologies, or men categorically taking over irrigation for high-value cropping from women. Building capacity in irrigation skills among either women or men is socially acceptable. Control over the income from intra-household production sub-units (plots) further supports this view (Table 2). Almost all FHH-owning plots controlled money from sales (93%). When wives owned plots, they controlled the money in 69% of the cases.

Table 2. Gendered decision-making about income from sale of farmer produce by owner of irrigated plot in Zambia

Owner of irrigated plot	N	Decision-making about income from sales of produce (%)		
		Female head or wife	Husband	Others
Female household head	N=14	93	-	7
Wife in MHH	N=13	69	15	15
Husband in MHH	N=90	24	57	19

The data also show that in MHH, the wife's decisions about the use of produce from her own plot and the husband's plot is relatively stronger on irrigated plots versus rain-fed plots.

Potential impact

The data imply that private small-scale irrigation adoption in Sub-Saharan Africa is not necessarily a process driven mainly by male household heads in which women rapidly lose any independent farm productivity. The link between women's land rights and technology adoption warrants further attention. Gender equity in land rights may well contribute to more technology adoption among women.

Men tend to have better access to public support (e.g. extension services) and to private agricultural equipment and input stores, fuel stations, electricity companies, finances, transport, and markets. Facilitating women's access to these assets would accelerate irrigation technology adoption even further. Targeting women for group ownership of motor pumps appeared to be an effective stepping stone to technology adoption as demonstrated in a World Wide Fund for Nature/SADC-Danida project in 2007.

The data suggest that a pattern of growth is emerging in which productivity and gender equality mutually reinforce each other. Agricultural support agencies will better achieve their goals by addressing structural disadvantages for women such as access to high-performing irrigation equipment, land, technical training and forward (e.g., output markets) and backward (e.g., inputs) linkages. This approach fully aligns with the aims of policies towards gender equality.



Photo by Joe Ronzio

Using a bucket for irrigation in Keta, Ghana

References

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- Van Koppen, Barbara. 2002. A Gender Performance Indicator for Irrigation: concepts, tools, and applications. Research Report 59. Colombo: International Water Management Institute
- Peterman, Amber, Julia Behrman, and Agnes Quisumbing. 2011. A review of empirical evidence on gender differences in non-land agricultural inputs, technology, and services in developing countries. ESA Working Paper No. 11-11 March 2011 Agricultural Development Economics Division Rome: Food and Agriculture Organization of the United Nations and International Food Policy Research Institute (IFPRI). www.fao.org/economic/esa



Photo by Joe Ronzio

Farmworkers using a hose connected to a powered pump for irrigation, Keta, Ghana

These findings and recommendations are preliminary and are reproduced here for the purposes of discussion. The AgWater Solutions Project welcomes all comments and suggestions. These should be directed to AWMSolutions@cgiar.org, please write "Gender Aspects" in the subject line.