Water and gender

Increasing the benefits from rural agriculture for South Africa's women

A recently completed project funded by the Water Research Commission (WRC) has outlined the crucial roles of water and agriculture in the upliftment of specifically women in rural South Africa.

Article by Petro Kotzé.

Researcher, Laura Conde (third from left) and members of the Lutengele Village food producers group.

The challenges of high levels of poverty and deep inequality in South Africa are compounded by the lack of opportunities for employment in the higher-density rural areas of the country. Here, livelihoods are mostly dependent on remittances and government grants.

The third most importance means of support is rainfed agriculture, which contributes some 10% to household survival. There is a general assumption that this sector can contribute more, though the ways and means to facilitate this is unclear. A recently completed WRC-funded study investigated exactly this question, and aims to tease out a strategy that can attain it.

Those that stand to benefit are multiple. About 3.7 million people in South Africa consider themselves subsistence-oriented smallholders, and a further 200 000 to 300 000 are commercially-oriented, although categorisation and data is far from definitive. In this scenario, 60% of all black Africans involved in farming are women, outnumbering men by 65% in the category of 'farming as an extra source of food'.

The research project focused on that sector of farmers that could be most affected: Women. As such, researchers aimed to ensure a comprehensive understanding of the constraints, challenges, opportunities and interventions required for the empowerment of women to promote household food security and rural livelihoods through increased water productivity, with the focus on crop cultivation in, amongst others, the Eastern Cape Province.

The project started in 2011 involving researchers from the Umhlaba Consulting Group, the Wildlife and Environmental Society of South Africa (WESSA) and the University of Fort Hare.

According to project leader, Jonathan Denison of Umhlaba Consulting, promoting smallholder agriculture is a challenging task in the South African context but some simple lessons emerged from the research. "What the project uncovered was that we deal with many diverse farmers who have diverse needs, and this calls for different kinds of support strategies in parallel, not just a focus on one type of farmer. Typically, the approach has been to replicate the business farming style of the commercial sector."

Denison adds that for any successful intervention to maximise the use of available land and water resources, it is vital that this diversity in the purpose of farming and location of the farming activities is recognised.

Diverse farmers, diverse needs

Three rural villages in the Eastern Cape were selected as case-study sites. These were Lutengele (in the OR Tambo District), Sirhosheni (in the Amathole District) and Mbekweni (in the Chris Hani District). A total of 164 households were involved in various sample surveys and 30 households participated in detailed studies over three years.

The sites are characterised by substantial material poverty, with more than 80% of the people in all three villages living below the Lower Bound Poverty Line, calculated at R468 per person per month in 2012. There is high unemployment and a high incidence of social grants, while food insecurity and hunger are prevalent.

On average, 61% of the households are female-headed, and decision-making is shared between men and women in different ways. Typically, male household heads make the strategic decisions (e.g. major investments), generally in consultation with their families, whereas most operational decisions are made by women (e.g. day-to-day and most agricultural decisions).

The aspirations of the women interviewed were found to be diverse and tied to distinct farming practices situated on different parcels of land at their disposal. These are divided into three spaces, each with distinctly different crop-choices, levels of cropping intensity and water-use practices.

In isiXhosa these spaces are called *isitiya, igadhi* and *intsimi*. There are two spaces which fall within the boundary of the homestead, or the *umzi*. This space includes dwellings, kraals and outbuildings. It is the foundation of the family identity and is sacrosanct regards family rights. Here, you will find the *isitiya* (100 to 1000 m^2), which is an intensive vegetable garden that is always watered; and the *igadhi* (usually around 0.1 to 2 ha), which is more extensively farmed and typically rainfed but sometimes irrigated. Tenure of these spaces is never contested and is a family right. The third space, the *intsimi* or *amasimi* are the arable fields usually located away from the homestead.

The bulk of the respondents have access to an *isitiya*, about half had access to an *igadhi* and 69% had access to an *intsimi* with an average size of 1.32 ha. The closer to home the space is, the more intensively it is utilised, the researchers found. High cropping intensity takes place in the *isitiya*, moderate cropping intensity in the larger *igadhi*, and low cropping intensity in the fields.

When incidence of use is combined with cropping intensity this shows very low utilisation of the land resource in the fields (*intsimi*). Plus, though 30% and 55% of people practised farming in fields and homestead gardens respectively, it was found that their water and land resources are substantially underutilised.

"The reality is that the bulk of people really want to farm in their home gardens and fewer people want to farm at scale in fields but, these are equally important areas of focus," explains Denison. "While there are far fewer people that want to farm at scale, and there are many more challenges to successful farming in fields compared with home-gardens, they potentially have a larger impact in terms of the total size of land farmed. The very high number of home-gardens adds up to be significant in total potential area, and is quite clearly the first priority for response as the challenges are far fewer and can be overcome with much smaller investments."

Growing sweet potatoes in the igadhi in Lutegele.

Somewhat surprisingly given popular narratives, the researchers found that women at the three Eastern Cape research sites can get access to arable fields without any particular challenges that are different from those experienced by men. "Maybe because farming at field scale is perceived to be unprofitable, few people want the land, but women who are involved in farming listed numerous other challenges as more important than access to, and rights of use of land," notes Denison. "Even so, tenure issues, particularly in regard to land-exchange remain an important issue to promote use of unused arable fields in particular," he says.

So, Denison asks, how do you bring this together? "It is concluded that no single agricultural development pathway will respond to the diverse aspirations, or use the available set of livelihoods resources to their full potential," it is stated in the final report. "The opportunity suggested by the constraints analysis, combined with the aspirational analysis, is that increased food production must be targeted through multiple parallel interventions prioritised with local participation and be tailored to locally resource opportunities, capabilities and predominant aspirations."

Following on the research process and focus-group planning sessions, nine strategic interventions were identified that have the potential to catalyse crop-farming, with an emphasis on the empowerment of women (see sidebar). The strategies form the basis for a coherent intervention plan that responds to individual aspirations and is based on people's capabilities and their available resources. They meet the project aim for practical, cost-effective support mechanisms to smallholders, but can also be implemented at scale.

While a combination of the strategies is suggested, Denison says that, from the team's perspective, the key to success is to implement a suite of agricultural support interventions rolled out at in watersheds of similar size to hydrological quaternary catchments.

"For any successful intervention to maximise the use of available land and water resources, it is vital that this diversity in the purpose of farming and location of the farming activities is recognised."

Mixed leafy vegetables and mulching in the isitiya at Lutengele.

Implementing the necessary strategy at the right scales

In South Africa, most water institutional interventions are aimed at the macro-scale, as envisaged in the National Development Plan and other key strategies. Increased national water-stress, the capping of national agricultural abstraction volumes, increased urban demands and climate change realities mean that new interventions must optimise and focus on the areas of highest return.

This is exactly what is called for in the research project results but at smaller scales. "The watershed planning approach provides an implementation framework to work in participation with 10 to 20 villages and to strategise and decide together where to spend financial resources most effectively," Denison says. "Successful watershed strategic planning cases were documented in the research, and can lead directly to meaningful actions at farm-level, implemented at scale through a programmatic approach."

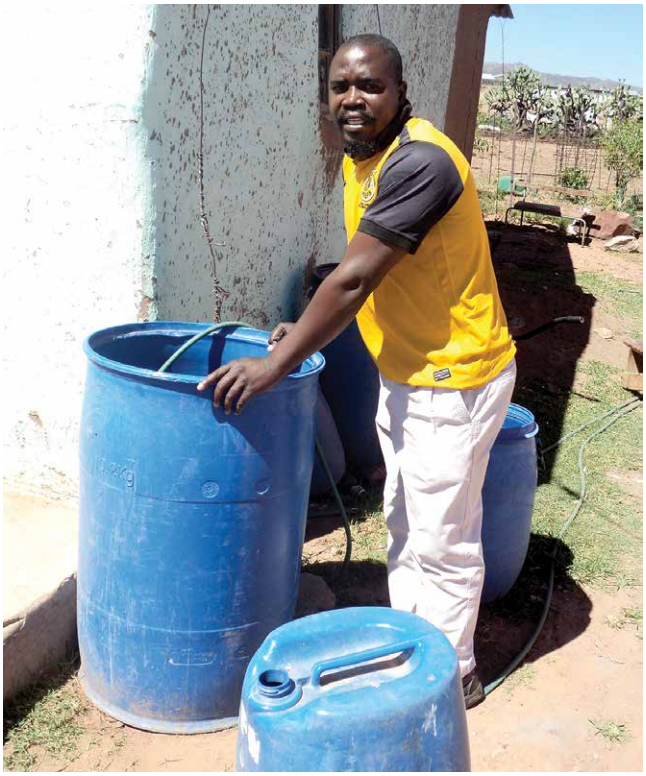
The main advantage of the smaller scale is that the area of engagement is small enough to allow for participatory processes to be used and for consultative processes to align programme interests with those of local stakeholders and government officials. The strategy is particularly appealing as it is punted as one that can increase agricultural productivity, conserve natural resources and reduce poverty in semi-arid regions, especially where highly seasonal hydrologic climates are experienced.

The Indian government, for example, implements watershed management programmes as strategies of reducing poverty by using various rainwater harvesting techniques to capture rainfall and runoff and using it to water rainfed agriculture. Water captured in the rainy season may be used in dry seasons for multiple purposes, including recharging ground moisture for crop irrigation, and domestic and livestock water supply.

In South Africa, the situations of smallholder farmers are widely diverse in relation to land-size, farming approach, aspirations and the contribution of farming to livelihoods. Site-specific opportunities and preferences count heavily and these need to be systematically identified so as to properly inform the intervention plan which must be locally appropriate, and therefore nuanced.

However, a highly localised (micro-watershed management) approach poses the danger that interventions are planned as isolated patchworks and are disconnected from the broader context and objectives of protecting the hydrologic system and managing negative downstream and groundwater effects. Regardless, the embracement of this approach to implementation planning is seen as crucial for water-supply security and to focus scarce resources on high-priority areas.

Household water collection challenges in Shirhosheni.



Researcher, Chenai Murata, of Umhlaba Consulting, measuring home water-storage.

Finding the right fit between opportunity and need

According to the study results, the land and water resources at the three sites are significantly underutilised, and there are parallel opportunities in the cropping spaces of the *isitiya*, the *igadhi* and the *intsimi*. However, Denison highlights that an important question the team had to ask themselves during the study was whether those smallholders with land and water resources really want to farm. It was identified that most people in the three villages do have a real interest in crop production in the future, but are acutely aware of their farming-resource inadequacies, of marginal profitability, and of the multiple risks involved.

Though the farming decision-makers in the 30 case study households demonstrated clear intent to derive agricultural benefits from their land, they also had widely differing aspirations. Most aspired to intensive home-food production, while a few aspired to small-scale farming for food and supplementary cash; only two were interested in farming as a business, and rather significantly, seven to leasing out their land or entering into crop-sharing arrangements.

In their conclusion, the researchers point out that the intervention strategies are not revolutionary in their individual form, but present an alternative approach to engagement that facilitates multiple parallel avenues of smallholder development. This is expected to initiate synergies within the village resource and social systems and exploit the niches of smallholder opportunity that have thus far remained largely un-activated in South Africa. "We know with confidence what we need to do to meet policy objectives around smallholder food production and women in agriculture; all that is needed is political decisiveness to invest in a programme to get it done," Denison says.

The authors thus propose that when the combined set of strategies is implemented with intent, they will contribute to an agricultural transformation process that is practical, can be implemented incrementally as funds allow, and are programmatically scalable.

"Though the farming decision-makers in the 30 case study households demonstrated clear intent to derive agricultural benefits from their land, they also had widely differing aspirations."

Research project leader Johnathan Denison with Gertrude Ndabeni, leader of the women's food production group at Lutengele Village.

The nine strategies

- **Strategy 1: Agricultural learning through knowledge networks**
  Facilitate agricultural knowledge exchange and information access for crop farmers at all scales through dynamically driven linked networks of a variety of interested agricultural groupings. One example of this new agricultural learning approach is the WRC funded 'Amanzi for Food' project coordinated by Rhodes University Centre for Environmental Research and Learning.

- **Strategy 2: Homestead water-storage and supply systems (location: *isitiya* and *igadhi*)**
  A key limitation to home-food production in backyard gardens is water-supply. Within the homestead, storage tanks and ponds which collect water from roofs, drainage ditches and roadways can transform the food-production landscape.

- **Strategy 3: Application of crop-water harvesting and conservation methods (*isitiya*, *igadhi* and *intsimi*)**
  The suitability of water harvesting and conservation techniques and their contextual application to each local situation, must be explored as part of a wider set of intervention responses. The expansion of the concept of irrigation development to one of agricultural water development, which includes water-harvesting in its many forms (beyond storage tanks) is centrally important to achieving the desired impact at scale.

- **Strategy 4: Linkage to commercial or local nursery (*isitiya*, *igadhi* and *intsimi*)**
  Any intervention that aims to increase fresh vegetable food production needs to ensure that farmers have regular and cost-effective access to a seedling supply. While all inputs are important, seedling supply for fresh vegetable production was found to be critical.

- **Strategy 5: Institutional responses to land access and control (*intsimi*)**
  Demands for more land by rural communities often co-exist with large patches of arable lands lying idle in the same communities. A local land-exchange intervention, supported by Chiefs, regional government departments and local farmers, has the best and perhaps the only chance in the short-term, of liberating land that remains perpetually locked up and unproductive in the absence of enabling land institutions. The WRC has published reports on these successful methods.

- **Strategy 6: Financed and trained mechanisation contractors (*intsimi* and *igadhi*)**
  The strategic intervention is needed to establish local mechanisation contractors through structured, practical skills-development and business training.

- **Strategy 7: Value-chain mapping and optimisation for smallholders (*intsimi* and *igadhi*)**
  Identifying and developing market opportunities by mapping and assessing potential off-takers (agribusiness firms, key traders, major urban outlets, etc.) and developing a simple market information system for crops of interest (a register of suppliers and buyers). Major constraints must then be addressed.

- **Strategy 8: Participative implementation planning at watershed scale**