

STRENGTHENING CAPACITY FOR AGRICULTURAL RESEARCH  
AND DEVELOPMENT IN AFRICA (SCARDA)

**An Innovation Platform for Small Livestock in Botswana**

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## In Botswana, an Innovation Platform for Small Livestock

A group of some twenty farmers, researchers, government officials and private industry representatives are gathered around a table at the Botswana College of Agriculture to figure out a roadmap for how they can work together.

Botswana is a diamond-rich, sparsely populated country known for raising fine beef cattle. This group, however, is concerned with the small livestock, such as sheep and goats that most small-scale farmers rely upon to supplement subsistence farming.

Market research has shown great potential for a goat meat industry in Botswana, but in order for the industry to grow, the infrastructure needs to fall in to place—and accomplishing that is no easy task. Currently, most farmers own animals in small numbers, and have no way to access distant markets in Gaborone, the capital city.

The barriers at every step of the way are considerable: transporting the animals is prohibitively expensive, and there are currently no facilities in the country equipped for slaughtering goats on a large scale. This project, now in the pilot stage, is seeking to create a platform for all of the different actors who play a role in the small stock value chain—from farmers to butchers to researchers to marketers to retailers—so that they all have a better understanding of how the overall system works, and how to create value and maximize profits within that system.

The Small Stock Innovation Platform, as the initiative is called, is one of the key tangible outcomes of the Strengthening Capacity in Agricultural Research for Development in Africa (SCARDA) program, which focused on strengthening capacity in agricultural research systems in selected countries and institutions in all three sub-regions of Sub-Saharan Africa.

SCARDA took a unique approach to the challenge of capacity-strengthening. The first order of business was to comprehensively study and understand the needs of the focal institutions, and the larger agricultural systems in which they operated. Scoping studies were conducted at the national level, and then at the various institutions, which provided a holistic view of the systems, revealing the specific gaps that hindered their performance.

SCARDA's key innovation was that it sought a holistic approach to building capacity. The program developed from the results of a study conducted by the Forum for Agricultural Research in Africa (FARA), which found that many capacity-building efforts were ineffective because they focused simply on training individuals, rather than addressing the needs and challenges of the systems in which they operated.

As a first step, SCARDA supported the focal institutions in undertaking their own institutional analyses. The process involved assembling a clear picture of both the internal dynamics of the organization itself, and the external factors that influenced the national agricultural research system in which the organization operated.

### Advanced Training in Agriculture

Through the process of institutional analysis, institutional leaders were able to clearly determine their key needs, priorities, and the gaps in their effectiveness. These institutional analyses provided the basis for tailoring the interventions of the SCARDA program to the specific needs of each focal institution.

At the Department of Agricultural Research in Botswana, for example, six staff members were sponsored for MSc training, and numerous additional staff for short course training. DAR needed, for example, scientists with expertise in plant breeding, analytical chemistry, and agronomy, a broad, generalized field which encompasses both soil science and crop science, to help address the widespread problem of soil acidity.

Kelebonye Bareeleng completed her master's degree in agronomy at the University of Zambia. Since returning, she has worked to address the widespread problem of soil acidity in Botswana, working at the Pelotshetina Agricultural Research Station in Botswana's arid southern district. Zambian researchers had already done significant work on issues of soil acidity, and Ms. Bareeleng was able to benefit from their experience. "When the soil is acidic, you can't grow anything," she says.

The problem is particularly devastating for small-scale farmers. Because of low crop yields, she says, they often have no money to buy fertilisers, which keeps them trapped in a low yield, low income cycle.

Since returning to DAR, she has worked with extension officers, who alerted her to particular farms that were experiencing problems with stunted growth of their maize and sorghum crops, one of the telltale signs of soil acidification. She collected soil samples from different farmers in the area, and will soon begin analyzing them. "I enjoy the work very much," she says. "It hasn't been done much in Botswana, and it will help so many people."

Short-term trainings for technical staff at DAR, meanwhile, helped to fill other gaps. Geoffrey Mmusi, a technician in the plant and soil laboratory, for example, travelled to Kenya for training in using high performance liquid chromatography, and other specialised equipment, in order to analyze the vitamin and mineral element content of produce and soil samples. His training, he says, will enable him to help farmers understand the nutritional qualities of the crops they produce, their soil, and their animal feed, and advise them on ways of improving their soil and their produce. "I feel like much has to be done for our growing population, so that everybody understands how to get the most advantages from their agricultural produce," he says.

### Challenges of the System

Staff members at DAR also participated in short workshops, in areas including leadership development, research management, proposal writing, and monitoring and evaluation. Unfortunately, all of the staff members who completed the monitoring and evaluation training have since left the organisation. Some colleagues also felt that SCARDA initially raised great expectations that could not be delivered upon because of budget constraints, says Dr. Wame Mahabile, the head of livestock programmes at DAR. For example, she and some colleagues had hoped to visit South Africa in order to learn about beef recording,

and teach small farmers how to keep better livestock records, but they were not given the opportunity to do so.

Despite such disappointments, the change management process overall was eye-opening, says Dr. Stephen M. Chite, the head of crop research at DAR. “Learning has occurred, it’s just a matter of will at the top to cater for some of the things they feel could move the department forward,” he says. “To me, change management was a new concept: it was a new ways of doing things. It allows flexibility, you can approach things differently, and address situations differently... There are prescribed ways of doing things in government; but change management allows you to be flexible, and to accommodate different views, and different opinions.”

Botswana’s policy environment is difficult to work in, says Dr. Mahabila, because of poor communication and linkages between stakeholders. Because of constant restructuring at the Ministry of Agriculture, she says, the role of DAR is often poorly understood, and the organization tends to be marginalized.

“It is not an easy system,” she says. “We are supposed to be developing agricultural technologies, to be a support department to the Ministry of Agriculture. We are supposed to take what we develop here to the stakeholders through extension; its not an easy exercise; we don’t have strong engagement to work closely with each other: the left hand doesn’t know what the right hand is doing... we have a lot of technologies here we have developed, and the extension people don’t seem to know what we have done. We actually have some forums, some field days to meet each other, but even if that’s done, we don’t seem to be making a lot of progress.”

#### A Demand study for universities

One of the major contributions of SCARDA, which gave support to selected institutions in southern, East, and West Africa, was the publication of studies examining to what extent university education in agriculture matches the needs of the agricultural sector, which have grown increasingly complex. While environmental problems such as climate change, gender inequality, HIV/AIDS, and water scarcity continuously throw up new difficulties for farmers and food systems, these systems are often equally challenged by structural and policy-related problems such as poverty, weak organizational capacities, and poor harmonization between the various actors within the sector, such as farmers, governments, researchers, training institutions and the private sector.

However, the demand study found that universities and technical training colleges are largely not producing graduates with the right combination of practical and soft skills, along with the entrepreneurial mindset, to operate effectively in such a complex and rapidly evolving sector. “Agricultural development policy on the continent is increasingly informed by the use of “agricultural innovation systems” (AIS) to understand how societies generate, exchange, and use knowledge and information for economic, social or environmental gains,” the report argues.

“Institutions have been working in isolation—training for what?” says Joyce Macala, the SCARDA focal person for the SADC region. “We are now trying to come up with policy to guide how training should be done, to guide how to also encourage investment by the private sector into tertiary education.” To build on the original study, one institution, the

Botswana College of Agriculture, is now running its own demand study, and seeking input on the skills and knowledge required for each programme, in order to ensure that the curriculum meets these requirements.

With its emphasis on capacity strengthening, SCARDA provided a number of training workshops to boost researchers' skills in specific areas such as research management and technician trainings—a mixture of technical and soft skills. SCARDA “has created awareness amongst staff of importance that research has to be managed properly,” says Mataba Tapela, the deputy dean of the Faculty of Agriculture at the Botswana College of Agriculture. “Traditionally, researchers would be quite well-trained in their area of study, but the soft skills, like the packaging of the information, were not something they would think about.”

For researchers at the Botswana College of Agriculture, one of the most significant trainings was in farmer participatory research or the practice of working with farmers in the field to ensure that the research and development is closely aligned with their needs. This practice of informing the design and implementation of research based on ongoing interactions with farmers had previously been lacking at the College. In workshops, researchers worked with the concepts of value chains and agricultural innovation platforms: the idea of bringing together all of the different actors in a particular supply chain, in order to enhance the flow of communication between the various parties about what is needed to maximize the value of the product.

The demand study helped academics at the College to recognize that they needed to orient the curriculum more towards promoting the sort of interconnectedness that comes with understanding whole value chains. “Now that we are aware of it, some of our staff members have started incorporating the idea into their teaching: when you produce, you have to know what is going to happen to food, in terms of processing, marketing, in terms of understanding all the key players in the value chain,” says Dr. Tapela.

While researchers at the College increasingly began to appreciate the importance of working with small farmers, however, they still faced the practical challenge of actually connecting with these farmers. Since few formal organisations or networks of small farmers existed, researchers mostly had to seek input from farmers whom they happened to know informally.



The idea for the Small Stock Innovation Platform grew out of general value chain discussions, and gradually moved to a more specific focus, says Dr. Tapela. The relevance of focusing on small livestock quickly became apparent to researchers: nearly every farming household keeps small livestock, especially women from the rural areas, yet the sector is largely informal, with few existing organized marketing or production structures. Small

livestock are a mainstay for poor and small-scale farmers, yet have been historically neglected by the market. At the same time, Botswana imports goat meat from neighboring South Africa, demonstrating that there is a potential local market.

“It’s a sector that involves almost everybody, but is not formally catered for,” says Dr. James Msoso, the head of the Department of Animal Science. In addition, the Ministry of Agriculture has increasingly begun to focus on supporting the small livestock sector in order to alleviate poverty in Botswana, and so researchers saw the additional opportunity to involve government in their plans.

At one time, Botswana’s export abattoir was slaughtering goats, but for reasons that are still unclear to the researchers, the industry just fizzled out with no explanation. The number of goats kept by Botswana’s farmers fell from 2.5 million to less than 1.5 million in 2006, according to researchers. During SCARDA workshops that brought together stakeholders from all of the NARS, there was widespread agreement to begin a pilot innovation platform focusing on small livestock.

### Creating a Vibrant Industry

To the farmers gathered at DAR for their meeting, meanwhile, there is much to be gained through collaboration with one another. Firstly, there is strength in numbers: small farmers who raise goats in small numbers can band together in order to achieve greater economies of scale: as a block, they can negotiate better prices for the transportation of their herds, as well as more favorable prices for their products in the marketplace, says Leo Tumaletse, the president of the Smallstock Industry Federation of Botswana. At the same time, they have a platform for communicating with industry: they can sell their products to supermarkets, and create their own marketing campaigns.

The key emphasis of the innovation platform approach is on integrating all of the various stakeholder roles into a unified and interconnected system—the potential advantages of the platform are many. For the researchers, the platform will offer valuable case studies for the classroom, as well as a platform for strengthening demand-driven research, and a potential model for attracting greater investment in research from the private sector, says Dr. Msoso. Researchers at the College perpetually scramble to attract research funding, as the College allocates only one percent of its budget for research, he says.

Steshwane Kgetse, who works in the Department of Animal Production at the Ministry of Agriculture, says that the government is focusing on providing subsistence farmers with small livestock as a poverty alleviation measure. The government has given some poor families small herds of 30 goats, but because there is not yet a viable small livestock industry, the measure currently has limited potential for lifting these families from poverty, he says.



“With good management they can grow the numbers of goats, but the difficulty is even if they manage well and try and get out of poverty trap, they don’t have places where can easily sell their animals,” he says. “They’re still trapped because they can’t make money out of this, so they will slaughter the goats for their own consumption, because they can’t turn this into money and pay their childrens’ school fees. It doesn’t take them out of poverty.”



“We hope with AIP, if we can commercialize it, these people are more likely to benefit,” he continues. “If they can earn money, they will be more interested in looking after their animals. The government is doing a lot, but it’s not well-planned because without a market, we can’t tell people to increase their production. Somebody who is 500 kilometers away with goats, how does he access the market in Gaborone?”

Last year, members of the nascent innovation platform visited neighboring Namibia, where a vibrant small livestock industry has been established, showing that it can be done. Namibian farmers have collectively established a healthy export market to South Africa. “We feel with the AIP that because we’ll be addressing the whole country, we will negotiate with other transporters, and create more slaughter facilities,” says Mr. Kgetse.

The biggest hurdle is getting the Innovation Platform established: getting farmers to see the value of joining. Mr. Tumaletse is now busy trying to recruit other small livestock farmers and existing regional farmers’ associations to join the Smallstock Industry Federation of Botswana. If the organisation can grow, he says, it will become sustainable from the fees it raises from membership levies, he says. “If we don’t sell animals, the organisation has no money to run, and everything collapses back to zero, the way it was, survival of the fittest,” he says.

Once the body becomes established, he says, they will also have a stronger position to lobby for policy changes to support the industry, such as reversing agricultural land policies which, as currently structured, make it difficult for farmers to obtain land in order to raise small livestock, and convincing the Botswana Meat Commission to work with small livestock producers.

A strong and healthy organisation will also be a boon to research: “The Federation needs people like us to go out and conduct research and provide information to them, so they can advise their membership,” says Dr. Christopher Tsopito, a lecturer in the Department of Animal Science and Production at the Botswana College of Agriculture. “It is only with innovation platform that we can engage the powers that be, the markets that are available, and convince them.”