

Research in Society Give New Life



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This publication is one of a series that aims to showcase a successful collaboration between African universities researchers and small-scale farmers. This publication is produced by the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) through Enhancing the Contribution of Universities to Development Processes in Eastern and Southern African - an Association of African Universities supported project through DFID.

From Conflict to Prosperity: Researchers and Small-scale Farmers Benefit from Collaboration

Sitting in the shade of a tall, spreading mango tree, a group of community leaders and elders are discussing the beneficial properties of Ebelangite, a local traditional herb, with researchers from Makerere University.

Lucy Aloka, who is nearly 100 years old, tells the researchers that she drinks Ebelangite every morning—which is why she remains healthy and strong enough to dig her own fields and harvest her crops.

To the elders, Ebelangite is a valued mainstay of life. Yet Aloka and her companions fret that their children and grand children have lost their appreciation of the traditional ways, and are more interested in moving to the cities to find factory jobs.

The elders say they hope that the scientists can help them study and document their traditional knowledge and resources, such as Ebalangite, so that the younger generations will begin to recognise the value of their heritage.



“We want our local life to survive, as it is dying now,” explains Stephen Oroni, another community elder.

When researchers first encountered this community, located in the Bukedea District of Eastern Uganda, nearly 20 years ago, the place was emerging from a devastating clash of local rebels against government troops. The people had been herded into refugee camps, and their homes

destroyed. Back then, when researchers from Makerere University arrived in the community, offering new, more productive varieties of cowpeas and groundnuts to improve food security, the community made a conscious decision to embrace innovation as a strategy for survival, and have never looked back.

Today, life here is stable, and the group, called P'kwii, which stands for Popular Knowledge Women's Initiative, is in the midst of pioneering countless new social and commercial innovations, which are helping them to build prosperous lives as small-scale rural farmers. The purpose of today's meeting is to discuss how the university and the community can carry their relationship forward.

Strengthening Food Security

For Professor Adipala Ekwamu, the scientist who initiated the relationship with P'kwii, the relationship represents the fulfilment of one of the core missions of an agricultural researcher in Africa, which is to build research capacity that supports the needs of small-scale farmers.

Prof. Ekwamu, who serves as the Executive Secretary of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), a research and training network of 29 universities across the Common Market for Southern and Eastern Africa (COMESA) region, has worked to build this approach into the organisation's DNA.

The initial focus of RUFORUM was to revitalise postgraduate training in selected African universities, recognising agriculture as the backbone of national economies.

In the early days of RUFORUM, researchers worked to support local small-scale farmers in dealing with food security and malnutrition, providing support for groundnut and cowpea cultivation in drought-prone areas. Cowpeas are an extremely important food security crop, helping farmers to bridge the hungry season between planting and harvest time.

Prof. Ekwamu became involved in a partnership that had formed between the agricultural extension services, research institutions, local NGO's and Ohio State University and the Virginia Polytechnic Institute (Virginia Tech) on integrated pest management, and through this programme reached out to the community in Bukedea. Working through the farmer field schools in Eastern Uganda, Prof. Ekwamu helped to introduce the new groundnut and cowpea varieties in the community.

"We developed a very strong working relationship with this group of village women," Prof. Ekwamu recalls.

"There was strong leadership coming from the group. These were short-term projects, but the group pushed us to a higher level, and put in place the mechanisms for the uptake of new technologies, such as the new varieties of cowpeas. For them it was about survival," he continues.

Building a Vibrant Community

P'kwii was formed by a group of 12 women, who decided to join forces to help one another rebuild their homes and start farming again, recalls Rosaline Ajore, a founding member of the group.

"We would work today in my garden, tomorrow in yours," she recalls. "Everybody was desperate, but how do you help everybody at once? The best way was through the group."

With many of the challenges of rebuilding their community, the women found that they all benefitted from working as a group. Seeds, for example, were hard to come by—so they established a communal area as a nursery. The area was also experiencing the peak of a devastating HIV/AIDS epidemic, and so the group also helped to organise their own structures to support orphans and teenage parents—the products of this social erosion.

Reconnecting with the group in October 2011, Dr. Patrick Okori, a plant breeder from Makerere, discovered that the group had, over the years, internalised and built upon the learning from their initial contact with university researchers.

As Dr. Okori observed, the group had taken three overarching lessons from their interactions with researchers: "The group has more power as a collective than as

individuals; the power of access to technology; and you can teach yourself to do things, and become your own extension agents,” he explains.

From Survival to Enterprise

These simple lessons helped the group not only to survive, but also to prosper. From its initial cohort of 12, the group has grown to include some 2,500 farmers from across the Bukedea and Kumi districts. They have organised their own training and extension services, and, having achieved food security, are now moving into processing and commercialising their own products, such as organic sunflower oil and high-quality cassava flour.



At the same time, the nature of relationships between extension workers and communities has also evolved, from coercive to cooperative and supportive.

“In the previous system, there were punitive ways of extending technology: ‘everybody in this village must plant this variety of cotton.’ You were either on the right side of the law or the wrong side,” explains Dr. Okori.

When Prof. Ekwamu began working with P’kwii, the traditional extension system was in a state of collapse, and a new context of governance, focused on the rights of farmers, was beginning to take hold. The Rockefeller Foundation and the Food and Agricultural Organisation of the United Nations became leaders in the Farmer Field Schools, which were based on partnership with small farmers, and proved to be successful in Southeast Asia—and the concept was slowly spreading within Africa.

Through the Farmer Field Schools, says Dr. Okori, researchers began to recognise that farmers make intelligent decisions, especially in their context of making a living and guarding their food security. “Researchers realised that farmers always wanted to learn, and have the urge to acquire new methods and technologies to make their lives easier,” he says. “If a neighbor’s cattle are looking strong and healthy, a farmer will do anything to figure out the neighbor’s secret and emulate it—it’s an urge for knowledge.”

At the household level, land holdings have grown progressively smaller over the years, and average around three acres. To maximise productivity, P’kwii encourages neighboring households to pool their labour and resources, and work their land collectively. It terms these units, comprised of five neighbouring households, 4-H Clubs, named after the organisation from the United States. A cluster of five 4-H Clubs then becomes a socio-community group of 25 members, and selects a name for itself and pays a fee of USH \$25,000 (which amounts to USH \$1,000 per member) in order to join P’kwii.

Coping With Demographic Changes

While some 80% of the Ugandan population is rural-based, and within that number 70% derive their livelihoods from agriculture, the community now stands in the midst of unsettling demographic transitions. Women and the elderly produce more than 65% of the nation's food, although women usually don't own the land they work, because of traditional land tenure systems.

Young people, however, are increasingly migrating to cities, even though unemployment there is rife. And although Uganda produces plenty of food, a quarter of the population is food insecure, because of inefficient market and distribution systems.

Noticing these transitions, P'kwii members are now working towards ensuring a sustainable future for themselves. Food insecurity is also rising because of greater dependence now on cereal crops, which require more water and fertiliser than traditional crops like cassava, and are thus more prone to seasonal variation and drought, says Dr. Okori. "Our emphasis on maize is making us more food insecure," he says.

Uganda's population growth is another factor. The average Ugandan woman bears six children, placing the country's population growth rate among the highest in the world. The trend is at least in part driven by issues of HIV and war, as indicated by particularly high rates of teenage pregnancy in former conflict areas of northern Uganda.

Agricultural productivity is not keeping pace with population growth, and in the meantime market demands for agricultural produce are on the rise, particularly with the return of peace in South Sudan. While yields are actually growing, this is because more land is under cultivation, not because productivity is increasing, Okori says. "This is why we need new technologies so badly," he says. "You can't continue using a hand hoe. This is why working in groups becomes useful: you team up with neighbors, go and clear and till and plant the land, and harvest in groups. You work this week in my garden, next week in yours."

Prof. Adipala's visits to the village provided many of the early lessons which became integral to the development of RUFORUM. One such lesson was in the native intelligence of indigenous knowledge. While most farmers battled to salvage their harvests from the fast-growing and utterly destructive striga weed, one elderly woman in the village, for example, caught his attention because she somehow managed to successfully control the spread of striga on her land, and produced two particularly healthy and productive millet harvests each year.

Marrying Scientific and Indigenous Knowledge

Pkwi originated with a group of 12 women from five different households and has grown to a group of some 2,500 members spread across a wide area. Over time, the organisation has developed structures for sharing information with its community of small farmers, and offering commercial enterprises in which they can take part.

The organisation's structures are comprised of small "socio-community" groups of 25 farmers, who then elect a key farmer trainer from amongst themselves, who interfaces with the organisation's central leadership.

Of particular importance is cultivating a harmonious marriage between indigenous knowledge on the one hand, and scientific knowledge on the other. The key farmer trainers are trainers who provide the bridge between these two worlds.

In order to keep abreast of scientific knowledge, the community has developed a learning centre, which gathers information that is produced by universities and other research institutions, and adapts this information so that farmers can use it. The messages are translated into the Ateso language, and then recorded onto cassette tapes and distributed amongst the key farmer trainers.

The key farmer trainers then bring the tapes to “radio listening rings,” where groups of farmers gather to hear and discuss the information.

Key farmer trainers are particularly important as trusted intermediaries in their communities. When potential misunderstandings arise between farmers and researchers, they are able to bridge communication gaps and provide explanations. When researchers visited the cassava fields late one evening and released insects as a biological control against meal bugs, for example, the key farmer trainers were able to explain their activities to farmers who might otherwise suspect witchcraft.



Leaders of P’kwii have established a learning centre in an old chief’s house in the community of Bukedea. The house is a veritable showcase of all the various technologies and innovations the community has adopted in order to uplift itself.

“The tendency is to think you are a failure in the rural areas—that it’s a bad place to be,” says Rev. Sam Ebukalin, the manager of P’kwii. “But our philosophy is about re-centering the rural agenda. Now we find we need our children to capture our knowledge, and pass it on.”

In one room lies a metal hand-powered plough, which contains a complete set of attachments for planting and weeding. In another room, a desk is piled high with papers and the walls with scribbled mind maps and flow charts: this is the learning centre where the tapes are prepared for broadcast amongst the socio-community groups.



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And in another small room hang samples of school uniforms and other clothing that mothers in the community have learned to sew, in order to earn extra income.

Another room contains samples of commercial products, which the community is in various stages of testing. There is high-quality cassava flour piled in one corner, and fuel briquettes produced from the husks and peelings of cassava and groundnuts—even soap produced from the by-products of pressing sunflower oil.

When farmers bring their sunflowers to the mill for processing, they are allowed to help themselves to the briquettes, which Sam says will prevent them cutting trees for fuel.

A Community with Vision

But the community's crowning achievement is a new processing plant for sunflower oil, located about a half kilometer down the road. At the facility, built with funding from FAO, P'kwii members are building what they hope will soon become a successful and profitable enterprise. Only recently has the group found itself in a position to begin thinking of making money from crops, says Rosaline Ajore, the founding member, who is also now in charge of knowledge and training for P'kwii.

"We had a firm foundation and a vision. We worked hard around it, and that is why we are surviving, growing and improving," she says.

Progress has happened step by step—and the community has often learnt the hard way. When they began growing sunflowers as a cash crop, for example, they received low prices from the middlemen, and sometimes never got paid at all for their produce.

"You know people are desperate. When you do something today and benefit from it, people want to join you. When you do something and fail, people come back against you."

Now, P'kwii faces similar challenges in bringing its sunflower oil to market as a commercial product. The stringent requirements of obtaining organic certification for the product have become a particular headache—the cost and delays are causing some members to grumble.

Both inside the house and outside on the grass beneath the old tree, discussions continue about how to innovate—how to fix the community's problems, both social and economic. One of the



elders, Stephen Oroni, who heads a group of elders who meet once a week to discuss their traditional knowledge, ponders on how the traditional marriage and justice systems have broken down in the community, and wonders whether P'kwii can learn from the experience of Rwanda's gacchaca courts.

As quickly becomes clear at this meeting, members of the community feel that they have much to gain from collaborating with the university; while university researchers feel likewise. Prof. Adipala envisions bringing a large, interdisciplinary team including food scientists, agricultural engineers, health practitioners, and forestry experts from the university to learn from and contribute towards the organisation's many enterprises.

As the heat of the day slowly begins to cool, the elders sit reflecting that one of the keys to the community's future almost certainly lies in marrying science with indigenous knowledge, so that the community may embrace modernity without losing its traditions.

"We must let the researchers help us put this information into books, so that when we die, the information will be left behind," Mr. Oroni says.