

Building a People Paradigm

Stories of integrated agricultural research for development in Africa



Jeniffer



Moses



Vincent



Julius



When Jeniffer Twebaze was growing up in Kabale, southwestern Uganda, collective action in agriculture always formed part of the background, just like the region's green, haze-covered hills, which farmers have shaped into narrow horizontal slices of cropland, punctuated with small houses and clumps of trees. Her mother served as an agricultural officer with the local government, while her father worked with farmer cooperatives.

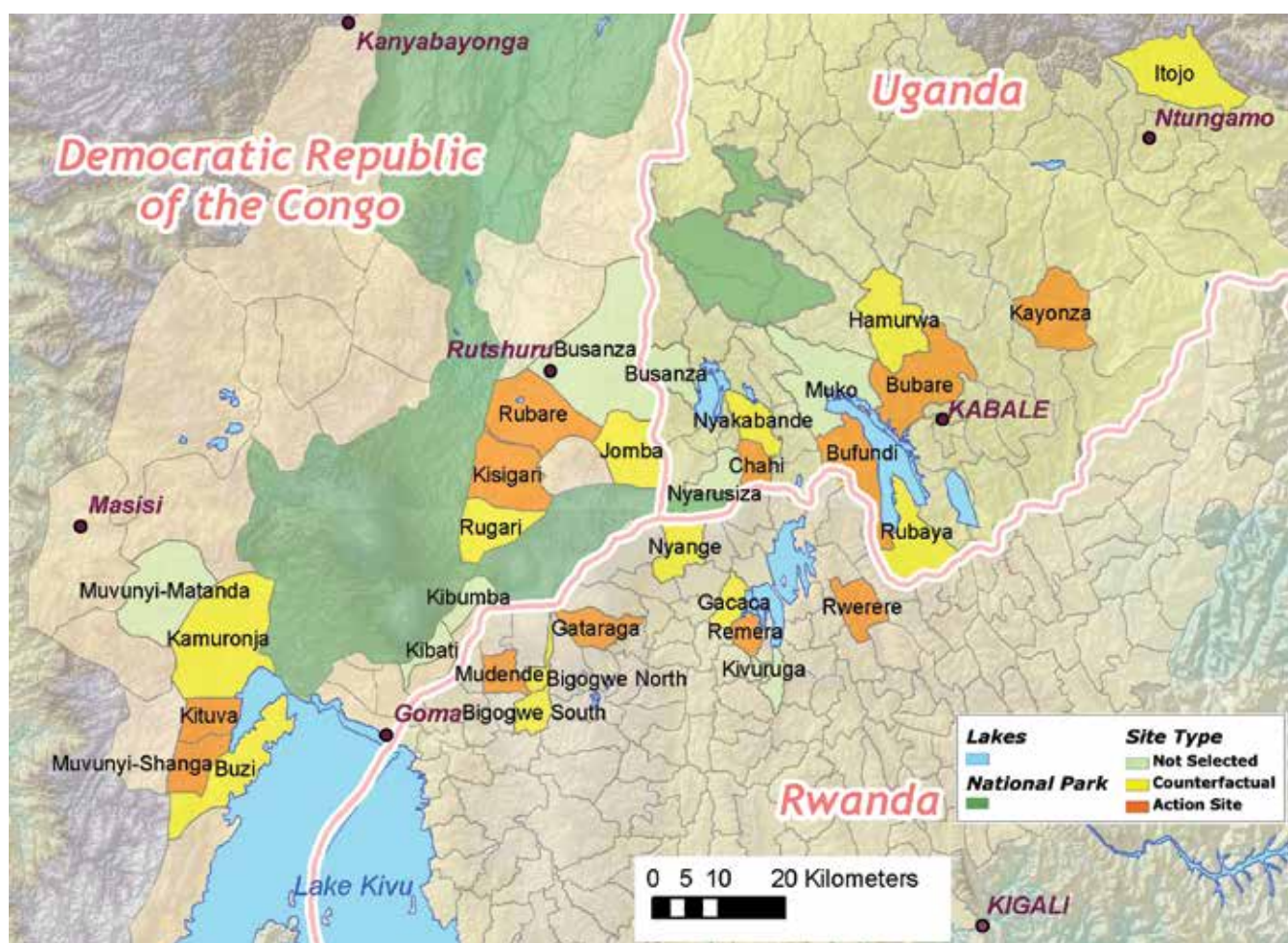
From the diverse mix of crops and animals that sustain the people of this region, Jeniffer absorbed an interest in botany and biology. At university, she initially hoped to become a medical doctor. But in retrospect, she's glad she didn't and instead took up the challenge of making local agriculture more productive, profitable, and sustainable. Jennifer's church cultivated her talents as a leader and organizer.

These experiences prepared her to take up a government post as agricultural production and marketing officer for Kabale District. They also made her the natural choice to act as focal point in this area for a novel and far-reaching international effort to enhance the effectiveness of agricultural research for development.

Scaling up, not winding up

Bringing to fruition the experiment in which Jeniffer takes part is the main task of the CGIAR Sub-Saharan Africa Challenge Program, which is led by the Forum for Agricultural Research in Africa (FARA) and supported by the European Union (EU) through the International Fund for Agricultural Development (IFAD). The Challenge Program operates in three sites across Africa, with a different sub-regional organization coordinating the work in each one.

In the Lake Kivu Pilot Learning Site, the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) designated CIAT to coordinate the effort on its behalf in close collaboration with more than two dozen partner organizations.



The locations where CIAT and its partners set up innovation platforms in the Lake Kivu Pilot Learning Site were chosen through a rigorous analysis based on distance from markets and other key factors.

Encompassing about 20,000 square kilometers, the Lake Kivu site is located in the area where Uganda, Rwanda, and the Democratic Republic of the Congo share borders.

In late November 2014 at an event taking place in Johannesburg, South Africa, partners in the FARA-led effort are gathering to review progress, discuss next steps, and also celebrate the Forum's 15th anniversary. "I think the idea," says Jeniffer, "is not to wind up but find a way to scale up."

Looking to the future, FARA and its partners have meticulously documented their work in articles and books filled with detailed explanations, copious scientific references, and elaborate diagrams, including a special 2013 issue of the *African Journal of Agricultural and Resource Economics*. For the Johannesburg event, researchers from the Lake Kivu site prepared 15 more papers, which draw lessons

learned from work on crop production, marketing of value-added products, policies, and natural resource management.

All of that information provides a solid foundation of knowledge for scaling up the new approach. **The complementary purpose of this document is to tell the stories of selected individuals, who built a people paradigm in research for development by learning to work collectively.** Jennifer and others whose voices and stories are recorded here represent the many leaders and experts in three African countries who made this achievement possible.

Proof of concept

The approach resulting from their efforts over the last 9 years originated in a shared frustration that began to weigh upon agricultural scientists in the late 1990s. Despite several decades of investment in developing

improved crop varieties and other new technologies, farmer adoption was still limited and productivity growth stagnant.

Much of this work, explains Robin Buruchara, director for CIAT's research in Africa, followed a more or less direct line from laboratories and experimental fields to local extension services, and finally to farmers' fields. While the "linear" research model registered important successes in crop improvement, pest management, and other areas, these somewhat isolated cases left the promise of food agriculture as a driver of economic development largely unfulfilled.

In the hope of improving research performance, diverse organizations tried alternative models. Farmer participatory methods, for example, enhanced the relevance of research results by creating a more active role for technology users. Another approach called "integrated natural resource management" struck a better balance between production and conservation. Various attempts to foster technical and social innovation built stronger links between farmers and

markets, based on a better understanding of how rural people work to improve their livelihoods, using diverse assets in rural settings.

Surveying this panorama in the years just after its creation, FARA concluded that a common shortcoming of these approaches is that they deal with the major constraints of agriculture in isolation from one another rather than addressing these problems holistically. In a new attempt to learn from past experience, **FARA proposed an approach called "integrated agricultural research for development" or IAR4D. It fosters innovation through a continuous learning process that brings together multiple actors working on production, markets, policies, and natural resources in an integrated manner.**

Near the outset of the Sub-Saharan Africa Challenge Program, CGIAR science advisors asked FARA and its partners to produce "proof of concept" for the new approach. This is precisely what Jeniffer and others have delivered through their work in the pilot learning sites.



Jeniffer Twebaze, manager (left of white post), and other leaders of the Bubaare Innovation Platform Multipurpose Cooperative Society, Ltd., in Uganda's Kabale District. The group has grown to include more than a thousand members, of whom nearly 70% are women.

Re-engineering science and scientists

“We knew what kind of approach was needed, but there was no blueprint for building it. So, we went step by step,” says CIAT’s Robin Buruchara, who guided the implementation of IAR4D at the Lake Kivu site. **In the process, he and others also had to re-engineer themselves, combining disciplinary expertise with a more open and integrated style of work.**

Trained as a plant pathologist, Robin spent his early career helping develop disease-resistant bean varieties for Africa and promoting productive climbing beans in Rwanda and neighboring countries. Later, as coordinator of the Pan-Africa Bean Research Alliance (PABRA) – which unites research organizations in 29 countries – he learned a lot about coordinating experts in different disciplines and locations to reach shared goals. The PABRA “school of management” prepared him well for the task of helping build a people paradigm for research in the Lake Kivu site.

As Robin’s administrative burden at CIAT increased, he appointed agricultural economist Sospeter Nyamwaro to take on day-to-day coordination in the Lake Kivu site – a task to which Sospeter brought ample experience in leading economics research at the Kenya Agricultural and Livestock Research Organisation (KALRO).

Among the first steps were setting up task forces to address key elements of the new approach (production, markets, policies, and natural resource management), and selecting and getting to know the places and people with which scientists would work. The big challenge was

Moses Tenywa, professor of soil science at Makerere University in Uganda and task force leader for research on natural resource management in the Lake Kivu site.



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turning the initially competing efforts of colleagues from three neighboring countries, each leading a different theme, into a single coherent program.

A key ally in this task was Moses Tenywa, a professor of soil science at Uganda's Makerere University. He earned his PhD at a highly regarded soil science citadel – The Ohio State University in the USA. Early in his career, Moses became frustrated about the limited adoption of new tools and practices, despite their potential to improve cereal production.

"This fueled my interest in strengthening university capacity for rural innovation and making science useful to people," he says. "Picking up new skills here and there," he began finding "creative ways to integrate research, training, and extension." He also learned to appreciate the value of indigenous knowledge.

In this way, the distinguished and soft-spoken professor, who still gives courses in subjects like soil physics, also became a self-described "social soil scientist." So, when Moses was named task force leader for natural resource management in the Lake Kivu site, he gladly took up the challenge, contributing to the establishment of a dozen "innovation platforms," or IPs, across this site.

IPs are the basic building blocks of the new people paradigm. Borrowing this concept from industry, agricultural researchers have found it useful as a way to help rural people break out of subsistence production by building market links that boost rural incomes. To this end, the IPs bring together different actors in food value chains (including producers, traders, and processors), providing them with an informal setting for interaction, while also connecting them with research and development organizations that offer services and support.

Empowered in more ways than one

All the IP needs to begin its work are committed people, initial guidance from researchers, lots of ideas for improvement, and a place to meet within the community. It helps if the group also has some of the trappings of a more formal organization, like T-shirts and a good slogan.

The Kashekuro Banana Innovation Platform, or KABIP, has both. Operating in remote Kitagata Subcounty of Uganda's southwestern Kibingo District, this is the newest IP in the Lake Kivu site. Its slogan, translated loosely from the local language, means "working together, we can crack the hardest problems."

During platform meetings, KABIP's chairman, Vincent Twikirize, likes to pump up the crowd by periodically intoning the first part of the slogan, prompting everyone to shout the second part in unison. He clearly thrives on the group process and constantly proposes new ideas, which he gleans from diverse sources.

Vincent Twikirize, chairman, and other leaders of the Kashekuro Banana Innovation Platform in Kitagata Subcounty of Uganda's Kibingo District.



Symbols and slogans reinforce the group's unity of purpose, which is grounded in a concerted collective effort to derive maximum benefit for every farm family from the district's predominantly banana-based farming system. Set in a strikingly beautiful landscape, the banana plantations also include maize, beans, cassava, sweetpotato, and other crops. Farmers' homes, scattered along dirt tracks, nestle within or alongside the plantations, which are separated by livestock pastures and stands of trees.

A period of low prices for fresh banana prompted the creation of KABIP, initially to organize more advantageous collective marketing of this and other crops. Later, with assistance from food processing experts at a local university, the farmers adopted a method for producing bottled banana wine with a KABIP label. They first extract juice from their bananas to capture added value and then sell the juice for wine making at a price that's generally favorable compared with that of fresh banana. More standardized and hygienic than traditionally processed banana wine, the bottled product is selling in local stores and gaining popularity.

Not satisfied with these gains, KABIP has also begun promoting the construction of underground biogas

generators. Members have installed about a dozen of these so far, with the newest nearing completion at a local school. Using animal and human waste, the generators supply clean energy for cooking, powering small machines and appliances, and providing light in the evening for children to do their school work. They also yield a by-product that serves as manure for crops, animal feed, and when mixed with water, a source of plankton for fish ponds.

Innovation takes money, so KABIP is setting up local savings associations linked with a formal savings and credit cooperative. **With a 50-50 gender balance among its half dozen coordinators, KABIP caters to at least as many women as men and has also created a youth group focused on honey production.**

Adding value to tradition

As KABIP's elected chairman, Vincent Twikirize has visited other innovation platforms, including some in Rwanda. But the star performer among them is just a couple of hours away from Kitagata in Bubaare Subcounty of Kabale District, where Jeniffer Twebaze serves as the local government's production and marketing officer as well as manager of an IP.



In this region, sorghum is the primary staple, and it blankets the surrounding hillsides during the main growing season, which runs from January to June. After every sorghum harvest, young women like Jeniffer are expected to visit their in-laws, taking along grain of the traditional variety as a gift. They also process the grain locally into a nutritious porridge and weaning food called *bushera*. **This product proved to be the perfect point of departure for a journey that eventually turned an informal farmer group into the Bubaare Innovation Platform Multipurpose Cooperative Society, Ltd., with more than a thousand members, of whom nearly 70% are women.**

The journey began when the group decided to partner with HUNTEX Industries, owned and operated by Hunter Byamukama. Having built a thriving business in milk and poultry, he used modern processing, packaging, and branding to turn traditional sorghum into a fermented but non-alcoholic health beverage. Now, he markets it widely through local stores under the registered brand name Mamera.

More recently, Hunter and his son Julius (whom he's grooming to take over the business) developed a ready-to-use malted sorghum flour that appeals to urban consumers. Farmers cash in on the new sorghum products by bulking their grain for collective marketing and by adding value to it through seed cleaning or soaking to produce malted sorghum.

To cater even more effectively to new markets, farmers have improved their planting practices, adopted better sorghum varieties, and begun applying fertilizers, according to a recent Thomas Reuters Foundation article by Zimbabwe-based journalist Busani Bafana. He describes how one farmer, Julius Atuheire, who chairs the Bubaare IP, doubled his annual income from sorghum production to US\$300. Rising demand for the crop has enabled hundreds of IP members to reap similar benefits. Many of them have also gone on to develop other products, including a special honey and potato chips.

A big part of Jeniffer's role is to articulate farmers' demand for technologies and services, and to tap the available supply from Uganda's National Agricultural Research Organisation (NARO), development NGOs, and the private sector. "When farmers are organized," she says, "they can get the things they need" – especially if someone like her is on the scene to close the deal.

The farmers finance their innovations with the aid of local savings associations. Professor Moses Tenywa says that his most memorable experience with this innovation platform was the day members obtained a low-interest loan from the local savings and credit cooperative to pay for bulk storage of their sorghum harvest in a local facility. He has digital photos on his laptop that show the group singing and dancing to celebrate the good news.



Almost there

A colleague of Prof. Tenywa's – economics lecturer Rebecca Kalibwani from Bishop Stuart University in Mbarara – recently conducted a study in the region on the degree to which farmers follow local by-laws aimed at encouraging the establishment of contour grass strips and other measures to control soil erosion on steep slopes. Under Uganda's policy of government decentralization, rural communities are allowed to craft such by-laws, which help make national policies more meaningful in the local context. **While offering no guarantee of compliance, the by-laws at least provide a legitimate framework for addressing natural resource management and other issues at the community level.**

It appears that farmers in Bubaare Subcounty are especially prone to comply with the by-laws, most likely, Rebecca suggests, because many of them participate actively in farmer field schools established by the Food and Agriculture Organization of the United Nations (FAO). One question that Moses would like to investigate is whether stronger market links and rising rural incomes serve as a further incentive for farmers to invest in better soil management.

He may soon get a chance to find out. On 16 October, which coincidentally was World Food Day, Julius Byamukama traveled to Uganda's capital city, Kampala, carrying with him samples of the Mamera products. His purpose was to complete an application for their certification by the Ugandan Bureau of Standards. Once granted, this will open the door to national markets, greatly boosting the demand for his products and the sorghum used to make them.

In a phone call to a colleague at the University of Makerere who's helping Julius clear various bureaucratic and technical hurdles, Moses asks how much longer it will take to get the certification. The reply: "We're 80% there."

About CIAT

The International Center for Tropical Agriculture (CIAT) – a member of the CGIAR Consortium – develops technologies, tools, and new knowledge that better enable farmers, especially smallholders, to make agriculture eco-efficient – that is, competitive and profitable as well as sustainable and resilient. With headquarters near Cali, Colombia, CIAT conducts research for development in tropical regions of Latin America, Africa, and Asia.
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Jeniffer Twebaze with Julius Byamukama, production manager of HUNTEX Industries, in Kabale, Uganda.

