

Building Capacity in the Agricultural Industries of Africa



RUFORUM Strategic Business Plan Meeting

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TRAINING THE NEXT GENERATION OF SCIENTISTS FOR AFRICA

CAADP and agricultural transformation

The successful transformation of agriculture has been at the core of impressive change in China, India, Indonesia, Brazil, Mexico, and Argentina. Fundamental to this achievement has been building capacity in all aspects of agricultural change – from technology development and transfer through infrastructural development and the processing of agricultural commodities into consumer products – to create dynamic research and technology transfer institutions that are focused on finding solutions that suit their local context – environmentally and socio-economically. The World Bank's 2008 World Development Report, published just before the massive food price rises of 2007-8, demonstrated that increasing agricultural labour productivity was three times more effective at reducing poverty in developing countries than growth in non-agricultural productivity. This requires increasing smallholder productivity, linking farmers to markets and boosting non-farm jobs in agricultural areas.

African policy makers recognise the importance of a productive agricultural sector key driver of national growth, and have set ambitious targets for major increases in agricultural productivity, employment, and profitability. The Comprehensive African Agricultural Development Programme (CAADP) provides the framework for continent-wide agriculture policy. CAADP aims to achieve at least a 6% growth in the agricultural sector to reduce poverty and food insecurity in Africa – an ambition which will require world-class services in outreach, credit delivery, technology development and transfer, value chain development, and other key sectors; especially given the complexity of many African farming systems. This will require increased investment in physical infrastructure so that farm households are connected to input and output markets. Crucially, this also needs to be supported by appropriate investment in human capital to deliver the services that are necessary to achieve growth, and to address current and future issues within the sector. Africa thus urgently needs to build strong analytical capacity for directing agricultural development.

The RUFORUM challenge

Despite CAADP ambitions, in much of Africa investment in agricultural development is dominated by external donors. Research stations have been rehabilitated, scientists provided with advanced training, and research agendas broadened from a focus on production to include other aspects of the value chain, and of health and nutrition components. But the reality is that understanding of the real constraints to agricultural transformation at the African policy level is poor.

The RUFORUM initiative builds on the African tradition of collaboration and is designed to be effective in a resource constrained environment, thus building sustainability into the core of the programme. It is a network of African universities which work together to produce skilled, proactive graduates in agriculture and related sciences. These graduates have learned to undertake cost effective, demand driven research in response to local, national, and regional agricultural development priorities. RUFORUM is thus serving to create an African owned and led development platform based on collaboration, coordination and joint learning. The objective is to create truly African universities that address African problems efficiently and

cost effectively. They will be the starting point for the African Green Revolution through the provision of a high quality education to the youth of Africa, with an emphasis on what is arguably Africa's most important business – that of agriculture.

Africa's young people are its biggest asset; the demographic dividend created by increased child survival in Africa will be captured to transform the lives of the poor of the continent. RUFORUM universities aim to produce graduates with a firm grasp of the practicalities of farmer training, implementation of adaptive or on-farm demonstrations or trials, financial management, and understanding agricultural value chain addition. Through the use of modern communication technology, participating universities are able to refresh core courses and introduce new offerings based on the latest knowledge from international and regional science, and informed by farming practice and constraints. Collaboration amongst network partners and international agencies allows a focus on 'over the horizon' issues such as climate change and the role of biotechnology.

Doing more with little

RUFORUM recognizes that the high cost university model which has served Europe and the Americas is not a sensible option for the poor in Africa. Particular efforts are required to broaden access to agricultural education as too many children in Africa do not have adequate access to quality schooling – which restricts the pool of conventional entrants into the university system. Africa needs more women extension agents and scientists. Girls are typically not encouraged to take sciences in secondary school, and agriculture is not a favoured subject amongst graduating high school students of either sex. RUFORUM is able to attract young women into advanced studies in agriculture through offering training within the region. Women are frequently unable, or reluctant to leave their families for extended periods of study overseas. Feedback from female alumni of the programme has shown clearly that the option of studying at a national or regional university is favoured by many women.

The basis of the RUFORUM programme is a unique African concept – the provision of small grants to young professionals to enable them to reach out to their local communities and to address local problems. This creates a flexible and accessible source of funding to empower both the researcher and the community. There are a range of grants available – covering opportunities for young graduates to gain field experience to community based development grants involving several graduate students working collaboratively within the community.

This approach is consistent with successful experience in other sectors. Smallholder access to farm inputs, credit, and markets has been problematic; one of the major obstacles being lack of access to information and to financial services. The widespread growth of mobile phone use, spurred on by low cost handsets and competitive service provision, has opened new options to the rural poor. They can explore commodity and input prices easily. New services, such as Kenya's M-PESA money transfer system, allow simple, reliable, and cheap payments to be made by those previously excluded from the banking system. The poor have responded with enthusiasm to the opportunities created by such initiatives. M-PESA has grown to serve some

17 million customers in Kenya and now operates in six other African countries as well as in Asia and Eastern Europe.

Farmer and other civil society organisations are now organising themselves to provide their own local services. Farmer-based seed multiplication systems linked to farmer based dissemination of technical information are beginning to fill the void left by government extension services. The farmer institutional development is particularly critical to support aggregation of the largely small land holding sizes characteristic of many parts of the continents. Local entrepreneurs are recognising the very real opportunities from providing services to smallholders and entering areas neglected by the major players. The conventional business (and particularly the finance) sectors have been slow to see the opportunities and fail to provide needed support. Scaling-out technological innovations requires a coherent input-to-output value chain approach – which is challenging in a dispersed, and cash constrained environment. Weak rural institutions for delivery of services and inadequate farmer organization contribute to poor capacity for remedying market imperfections in the supply of key inputs and marketing surplus produce.

RUFORUM recognises that the transformation of Africa will follow a radically different route to that of the West and Asia. The new economy of Africa will comprise highly diversified small businesses supporting the commercialisation of smallholder farming. These businesses will include communications, finance, supply and marketing, amongst others. They will be supported by high quality technical research relevant to local areas and situations. The Africa of the 21st Century will pursue multiple opportunities of economic innovation.

A number of African development initiatives are exploring a new vision. The big money, big push initiatives that have dominated development policy for so long have proved blunt and ineffective. The ‘Training and Visit’ (T+V) model based on a centralised system of top down technology promotion, which was a favourite of many development initiatives in the last decades of the 20th century is now seen as expensive, ineffective, and poor value for money. Africans are developing their own approach through building a cadre of highly skilled, adaptable, and innovative young professionals who know their own ‘turf’. Victoria Okot (see box) needed a small loan to build a big, but locally adapted business. Conventional finance was denied her, even although her request was modest and she had a sound business plan. She was fortunate that the Uganda government was able to step in (albeit in a limited fashion).

The agricultural industries of Africa require new thinkers with a fresh vision of development. The great African university will be one whose graduates serve in every niche of the local economies. This is entirely achievable as will be demonstrated by the examples that follow. Just as important is the fact that the costs of training (and retraining) these graduates is modest and the returns from their studies considerable.

Small grants, agricultural transformation, and the Great African University

Small seed money; large returns

In 1994, Victoria Okot, a Ugandan agriculturalist, sought to establish her own seed company. Although the funds she sought were modest, no lending institution would consider her for a loan. She was an unknown small business woman. If she had been working for one of the international or regional seed companies, a loan would not have been a problem as the business case for a quality local seed company was sound. She was fortunate in that the Uganda Government set up a loan guarantee scheme for small businesses that she applied for and was successful. Today her company has three processing centres across Uganda, employs directly some 1000 people, and has several thousand more (many of them women) growing and supplying high value seed and participating actively in the value chain.

Small focused interventions offer an attractive alternative. In 1999, the Malawi government, facing the prospect of widespread famine, introduced a ‘starter pack’ of enough seed and fertiliser to take the typical family through the ‘hungry period’. The pack was given free to all. The cost was small compared to a national food relief programme. Critically, the farmers made outstanding use of the inputs they were given – Malawi had the best harvest that year it had had in decades. The concept is now being further modified and developed by a number of agencies to provide small cash grants to the poor to help them move out of poverty. A Kenyan NGO, Farm Input Promotions Africa (FIPS-Africa) has successfully increased smallholders access to and knowledge of proper use of agricultural inputs. The programme skilfully builds a value chain for agricultural inputs (with a focus on

improved seeds and fertiliser) by assisting farmers to choose the best inputs for their increasingly depleted soils. Inputs, suited to the local area, are given as ‘minipacks’ to the farmers for farmers to try for themselves. If they find the inputs profitable to use, then local stockists are facilitated to have these inputs (for sale at commercial rates) in larger quantities. Athi River Mining (ARM), a Kenyan mineral company, cooperated to produce two multinutrient fertiliser blends suited to the soils in FIPS target areas, and assisted in the distribution of the fertilizers to wholesalers and stockists. FIPS-Africa acted as an “honest broker” empowering farmers to select the most appropriate products for local usage. Through partnerships with input suppliers, local demonstrations and experiments were used to address wide areas of crop nutrition and management such as better use of farm manures and composts, break up of plough pans to improve water penetration, and components of conservation agriculture. Farmers were introduced to new varieties through promotions where, for example, if they purchased a 1kg pack of improved Mavuno fertilizer they received a small introductory pack of a new improved seed (typically a legume or diversification crop) free.

The impacts are impressive. At the supply end, ARM has invested US\$ 8 million in scaling-up its fertiliser production from 3,000 tons per year to 50,000 tons per year and is able now to deliver a better fertilizer cheaper to farmers. A competitor now also sells a multi-nutrient fertilizer in

1 kg bags under the brand name “Chapa Simba.” Sales of improved seed have grown from almost zero in one FIPS target area to over 60 tons annually in just 4 years.

Evaluation data on FIPS show the approach to be remarkably successful in improving food security amongst participating farmers. Once their food crop is secure, they quickly start to use very small quantities of fertiliser on high-value cash crops such as kale and cabbages for income generation. Income growth and livelihood diversification follows rapidly. Spill-over to neighbouring farmers show that farmer-to-farmer advice carries the best of the new messages quickly amongst the poor. In an analysis of FIPS impact, food security amongst poor farmers with whom FIPS was working nearly doubled within 3 years from around 30% to 60%. But, in the same time period, food security amongst the clearly less well-off who were not working with FIPS also doubled from nearly 15% to almost 30%.

The RUFORUM vision is the provision of high quality graduate education in agriculture in Africa. Since 2004, when RUFORUM was established, over 1000 MSc graduates have been trained, together with over 200 PhD students. They did their research with their own farmers, and using resources and equipment available locally. The result is that most find employment quickly on graduation, and, most importantly, nearly all remain working in agriculture in their home country. RUFORUM has been able to bring female graduates into the mainstream of agricultural research through a thoughtful policy of ensuring that its programmes are attractive to young women as they develop their careers. It is building capacity at its member universities.

Having established a successful core programme, RUFORUM is looking critically at international trends and experiences. The typical higher-education model has remained unchanged for centuries and across many countries. But, in the developed world as well as Africa, governments are providing inadequate support for higher education. The result, in too much of Africa, is overcrowded facilities, poorly equipped labs, and out dated tuition. But just as MPESA has disrupted the staid world of traditional banking in Africa, online learning has the potential to transform the delivery of higher education. With internet access expanding across Africa and the increasing availability of smartphones and laptops, African universities can hugely extend their reach beyond the typical tiny elite able to meet university entrance requirements (particularly the cost of obtaining a degree). In addition, universities can support life-long learning and undertake the tasks of training and retraining workers throughout their careers.

A 2009 study of the demand for agricultural graduates in southern and eastern Africa showed the private sector and civil society as the growth area for graduate employment. For every scientist working directly on developing solutions to farmer identified problems, approximately a further eight skilled professionals will be needed to support the processes of implementation. The Apsara Trust Entrepreneurial Programme (ATEP), a charity established by a UK-based agricultural investment firm¹, recognised the importance of addressing the skills gap in agro-food value chains. Widespread consultation, facilitated by RUFORUM, with business groups,

¹ www.apsara-capital.com. Information on ATEP advisors can be found on Apsara Capital’s website: <http://www.apsara-capital.com/projects.php>

universities, and other key stakeholders (especially potential candidates for training) showed there was a real need for advanced, practical training in business skills in the agricultural sectors.

Options considered included consideration of a new business degree programme in the region. However, it was evident that such an approach would be too costly in terms of time and resources for those concerned with developing smallholder focused businesses. Instead a pilot two week intensive training programme was established at Africa University in Zimbabwe in 2014. Graduates from Africa University were invited to apply for the training and, on the basis of written submissions, some 30 candidates were chosen to enter the selection process. Half were then screened out during a rigorous interview and testing process. The selected students went through the practical aspects of developing a business plan for an enterprise of their choice and the top three plans, as chosen by the course presenters and faculty of Africa University, received funding, on a commercial basis, to establish their businesses.

In 2015, the programme will also be run at the University of Zimbabwe. A significantly greater role will be played by local businesses in the evaluation of both the students and the course so as to ensure it meets local needs and conditions, and to build up a strong stakeholder base. The approach will be scaled out across the region, potentially in collaboration with other rural business support initiatives to avoid duplication of effort.

The role of network universities

RUFORUM, with its partner universities, has developed a successful and attractive model for transforming higher agricultural education in Africa. It is cost effective, reliably reaches the poor and disadvantaged, and alumni are retained in the agricultural industries of their home countries. The RUFORUM network provides a real opportunities to turn the ambitions and commitments of CAADP and other continental and regional development and poverty alleviation programmes into creating real change.

The innovations which RUFORUM and its network universities have introduced can be truly transformative for the agricultural industries of Africa. This transformation will need considerable collaboration and coordination within the network. Separately, each university will struggle to gain the traction needed to build the institution that Africa requires. A focused network effort by the universities working together can create the great African universities that will release Africa's potential. The RUFORUM strategy, which uses a foundation of good science, directed by farmers' needs and informed by the commercial, social, and ecological environments of developing countries, will provide gains, not only for the better off producers, but also for the poor and excluded. It can be done.