

AGRICULTURAL R&D: INVESTING IN AFRICA'S FUTURE Analyzing Trends, Challenges, and Opportunities

ASTI/IFPRI–FARA conference | Accra, Ghana | December 5–7, 2011

HOW TO ADDRESS TRAINING NEEDS TO TACKLE HUMAN RESOURCE CAPACITY CHALLENGES IN AFRICAN AGRICULTURAL R&D

**Panel discussion with Ekwamu Adipala, RUFORUM;
Ralph Christy, CIFAD/Cornell University; Mark Laing, ACCI/UKZN;
Agnes Mwang'ombe, University of Nairobi; and August Temu, ICRAF (Chair)**

Agnes Mwang'ombe of the College of Agriculture and Veterinary Sciences, University of Nairobi provided a picture of the highlights of the University's capacity building efforts. The university has dealt with funding constraints since the 1970s, followed by the loss of key donors during the 1990s; in response, it devised so-called (short- and long-term) homegrown solutions. The University introduced fee-paid or at-cost training to generate income. This provided funds that could be used for various areas, including staff development, infrastructure and facility improvements, and salary improvements to deal with the challenges of staff departures. Some donors continued to provide funding, although to a limited extent. Key foundations, such as Rockefeller Foundation, never abandoned the University; they supported staff development, basic equipment, and postgraduate training, as well as research.

More recently, regional initiatives and platforms have been established, such as the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). At the college level, the University has hosted some very successful PhD programs through RUFORUM, and an MSc program in soil and water conservation funded by the Alliance for Green Revolution in Africa (AGRA). Through the provision of short-term training funded by the European Commission and others, the University is continuously building the capacity of its staff to enable them to improve their skills in supervising students. AGRA funds a training program with the private sector to build the capacity for seed-industry players. At the national level, the National Council of Science and Technology provides research grants to support MSc and PhD training. Finally, the Bill and Melinda Gates Foundation (BMGF) and the United States Agency for International Development (USAID) provide funding to build the leadership and management capacities of the female faculty.

Capacity building is integrated in the new CGIAR Research Programs (CRPs), which will facilitate engagement with students and young scientists at national and regional levels. This is especially the case for countries that host CGIAR centers/units and can access the high-level capacity they offer. Although this component is embedded in all CRPs, it needs to be put into action once the CRPs are up and

running. Finally, it is important to have input into reviewing and improving curricula at the international, regional, and local levels. For example, reviews of the curricula of BSc training programs have already made improvements, but more needs to be done. This also required improvements at the high-school level.

Ralph Christy of the Cornell International Institute for Food, Agriculture, and Development (CIFAD) focused his comments on the importance of North–South relationships and how Northern (land-grant) institutions can contribute to the human resource needs of Africa. Given the collective knowledge of the complexities of African agriculture, it is well known that there are no silver bullets. Science and technology are not the sole drivers; human resource capacity is an essential component as well, along with institutions and environmental factors, all acting in concert to achieve desired economic development. Indeed, human capital is critically important, but it must come with investments in other areas.

Today Africa is confronted with a major human resource challenge that has both supply and demand dimensions. How will the new cadre of scientists in Africa have access to world-class training? In previous decades, many donor agencies invested in human capital, but they no longer seem interested today. Important supply and demand factors are influencing their decisions to invest in human resources. On the supply side, the cost of education in the United States is rising. The rate of increase in the cost of education is faster than the rate of inflation, particularly at the elite universities. Furthermore, standards are also constantly rising. The characterization of programs is changing, and—increasingly—faculties are being drawn from nonagricultural programs as agricultural colleges are moving closer in their research and teaching programs to faculties of arts and sciences. The demand for trained people and hence for capacity building will likely be strong because agriculture will continue to be an engine for economic development in Africa. The system’s current pool of scientists are aging, indicating a long-term need for well-trained replacements to fill these positions. Given those supply/demand conditions, it is impossible to overlook the urgency for investments in human capital. We simply must act now.

Three directions are possible:

1. The first path involves focusing on macroeconomic policy, building roads, importing technology, and in the short-run improving agricultural productivity without investing in human resource capacity. This direction would be a tragic mistake. Consider, for example, how Africans should respond to the question of genetically modified organisms; this question should be answered by Africans, but to fully be able to answer the question, African consumers and farmers need highly trained scientists to inform decisionmakers on the way forward.
2. Africa can and must build its own world-class institutions. This direction is expensive and requires long-term investments. Indeed, African institutions will need to be owned and developed by Africans.
3. In the short-term, establishing smart partnerships and innovative relationships is a practical approach. Through this pathway, universities can seek to become global institutions. In my view, colleges of agriculture are behind the thinking of professional colleges of business, medicine, engineering, medicine, and law; those professional programs are investing in global campuses and are innovative, whereas it seems that colleges of agriculture are still trying to “go it alone.” There may not be the resources to create global campuses, but certainly with a cluster of universities in the North, it would be possible to establish well-designed, innovative “sandwich programs” that connect African universities to many of the degree programs. Such programs do not have to be as expensive as the programs of the 1980s.

Given well-designed innovative programs, a greater numbers of African students can returning home after studying abroad. For example, strategies that (1) identify students who are embedded in agricultural institutions in their home country; (2) facilitate regular home visits so students can stay connected with their home countries; (3) assist students in conducting their thesis research on African problems; and (4) encourage long-term communication between professors in both Northern and African universities and former students.

Adipala Ekwamu of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) stressed that although some of the conference papers illustrated major capacity gaps throughout the continent, positive trends exist in some countries, notably Ethiopia, Ghana, Kenya, Mauritius, Nigeria, South Africa, and Uganda. One concern is that capacity building currently focuses mostly on expansion, rather than improving infrastructure and the quality of human resources. In addition, African countries need to develop a rapid response to counter the current high levels of staff turnover. For example, MSc-level training needs to be developed in such a way that graduates can move directly into the PhD pipeline or be deployed in the field. It is important to promote networking between small countries and others within and perhaps outside the region. Finally, the intake of female students is still low at the graduate level, so more conducive arrangements are needed to attract female candidates into higher education.

It is the countries' primary responsibility to build institutions to build capacity, but international partnership programs can enhance these efforts. Countries need to be encouraged to make long-term investments in capacity building. It is therefore highly critical that universities and technical colleges be engaged in the processes of the Comprehensive Africa Agriculture Development Programme (CAADP), because that is where the instruments and possibly the sources of funding are embedded. Kenya and Mauritius, for example, have provided sustained investment, which allowed them to build high-quality institutions.

The next question is how to harness existing regional capacity, and then bring on board external capacity. We need to strengthen the regional approach, but we also need a framework for learning lessons and enforcing quality assurance. Business thinking also needs to be embedded into African institutions of higher education. Kenya provides another example of how universities are being reformed and how performance indicators are being developed. There are five elements needed to achieve the quality of education and level of investment required:

1. facilitating the development of a high concentration of talented people and a framework to keep them, which requires favorable governance, such a regulatory framework for quality insurance and appropriate incentives to attract, train, and retain staff;
2. developing a framework for advance planning that addresses not only the demands of today, but also those of the future;
3. ensuring a culture of excellence, in the sense that universities must recognize the competitive environment in which they exist and strive to raise their standards;
4. mobilizing network resources to support these goals, both from the public and private sectors, along with international input; and
5. establishing a platform for lesson learning.

Graduate training is not everything, but it is a critical resource that requires an appropriate policy framework, multilevel partnerships, resource mobilization, and the engagement of the community, as well as other frameworks to ensure that education delivers.

Mark Laing of the African Centre for Crop Improvement (ICCA) and the University of KwaZulu-Natal (UKZN) provided a “microtalk” on the operation of a specific capacity building program that provides PhD training in plant breeding for 16 crops at national research stations in Africa. After completing their degrees, researchers did not require reintegration in the region. ICCA focused mostly on East and Southern Africa, but after five years the West Africa Center of Crop Improvement (WACCI) was established to cover the West African region. The program covers 16 crops and was initially funded by the Rockefeller Foundation but later received funding from AGRA and Generation Challenge Program (GCP). Within the 10 years of the program’s operation, 86 students have been registered, 36 students have graduated to date, and a further 7 will graduate in April 2012. The program’s efficiency is higher than regular university programs: 84 percent of the graduated students did so on time, 10 percent graduated a year late, and 6 percent dropped out. The program generated a number of research highlights.

The coursework component in the PhD program is absolutely crucial. The training program includes two years of academic studies at UKZN, the first year of which allows students to convert their skills, given that 80 percent are soil scientists, plant pathologists, entomologists, and so on, but have no prior training in plant breeding. This is a major problem, because it slows down the training process. If the program would only take plant breeders, the program could be shortened from five to four years, but there are not enough plant breeders. One of the main advantages of the program is that the students do their field research in their home country, at a home institution, and in a home community, and upon graduating they have all remained in Africa. This is in contrast to PhD students trained overseas, two-thirds of whom do not return to Africa. AGRA has also provided funds to ICCA to enable students to write proposals for additional research after graduating and to convert their research into publications.

It is important that research leads to delivery to farmers. Every student needs to prepare a pre-assessment of how their breeding relates to farmers needs, and this has made a difference. With trait selection, the students are working closely with farmers. In some cases, the student’s parent institution is also responsible for delivering research results, working with NGOs, or linking with local seed companies.

In terms of training academic staff, (1) sabbaticals are important for faculty staff but are often not available, and (2) in-service training courses are important in new areas such as genetics; such courses can be for a few weeks’ duration only, which causes little career disruption.

August Temu of the World Agroforestry Center (ICRAF) and chair of the panel session raised some additional important issues. First, agriculture is not that popular with young people, and most students only come to agriculture when they fail to get into other programs. Second, how much wasted capacity do we have? Those who graduate often don’t get access to jobs (for example, in Kenya). This is also true in other areas: who is constructing and designing roads, and so on? The Chinese. There are no jobs. There are many more graduates than jobs available in agriculture. So there are issues, such as policy and institutional issues, that block capacity development. There is also a strong need to focus on the capacity to build capacity. Currently small groups are training a few individuals here and there, and the concern is how this is trickling down to farmers.