

RETHINKING AGRICULTURAL HIGHER EDUCATION IN PUBLIC INSTITUTIONS OF SUB-SAHARAN AFRICA

Moses M. Tenywa¹, Charles Muyanja¹, Sam Oketch¹, George Chemining'wa², Florence Olubayo², Samuel Mwonga³, Mary Ambula³, Speranza Ndege⁴, Gitonga Nkanata⁴, Christine Onyango⁵, Peter Masinde⁵, George Karanja⁶, Jessica Ndubi⁶, Emily Twinamasiko⁷, Imelda Kashaija⁷, Robert Mutaka-Nsubuga⁷, Joseph Orykot⁸, Robert Booth⁹, Richard Hawkins⁹, Adipala Ekwamu¹⁰, Krishna Alluri¹¹

Makerere University, Uganda¹

University of Nairobi, Kenya²

Egerton University, Kenya³

Kenya University, Kenya⁴

Jomo Kenyatta University of Agriculture and Technology, Kenya⁵

Kenya Agricultural Research Institute (KARI)⁵

National Agricultural Research Organization (NARO)⁷

National Agriculture Advisory Services (NAADS)⁸

International Centre for Development Oriented Research in Agriculture (ICRA)⁹

RUFORUM¹⁰

Commonwealth of Learning (COL)¹¹

Correspondence: tenywamakooma@yahoo.com

ABSTRACT

Higher Education Institutions (HEI) in sub-Saharan Africa (SSA) are in crisis. The capacities of institutions to maintain quality is often undermined by declining funding, brain drain, deteriorating infrastructure, civil disorder, and massive expansion of undergraduate enrolment. Graduates are ill-prepared to meet the demands of the employers in the global market and to address the needs and priorities of the local communities.

Past models (U.S. Land grant universities-1960s &1970s and State Agricultural University, India - 1980s), introduced in African universities to overcome the persistent challenges facing agriculture higher education by increasing efficiency and effectiveness through enhanced connectivity between education, research and extension functions, failed. An EDULINK project "Strengthening of university capacity for promoting, facilitating and teaching rural innovation processes (SUCAPRI) has been conceived to address this issue through south-to-south and south-to-north partnership. It involves a network of teaching and research staff in Makerere University in Uganda, four universities (Nairobi, Egerton, Kenyatta, and Jomo Kenyatta University of Agriculture and Technology) in Kenya, the International Centre for development-oriented Research in Agriculture in the Netherlands (ICRA), and National Agricultural Research Organizations in Kenya and Uganda (KARI and NARO, respectively). The Commonwealth of Learning (COL) has been strategically co-opted to enhance ICT capacity.

This proposal seeks to provide a platform for sharing with stakeholders our pilot experiences in to strengthen the capacity of five African universities to prepare professionals with the competencies needed to promote agricultural and rural innovations. The platform will provide an opportunity for stakeholders to share relevant lessons and experiences on capacity building that promotes holistic learning to address the real needs and priorities of the communities. It is hoped that we will come out with the answer the question –What is the best model for capacity building that integrates the research, training and outreach functions of agriculture?

Key words: Higher education, agriculture, SUCAPRI

APPROACH

The PCF5 is viewed as an opportunity to receive feedback on our experiences. We will have a 1-day shared pre-conference meeting in which various presentations will be presented and also an orchestrated discussion session. The presentation will cover background, challenges, ongoing efforts, opportunities, proposed new-home grown model, sustainability issues and way forward. These will be in form of lcd power point and poster presentations.

Discussions and feedback will be received on:

1. What is the real problem causing the lack of impact of agricultural education, research and outreach efforts on the communities?
2. Is the new home-grown model most suited to address the problem?
3. What are the critical components of the new home-grown model?
4. How best can the model be scaled up and out?

The major issues captured during the preconference will then be presented to an orchestrated session of the general assembly. The foundational content for the presentation is herein enclosed.

BACKGROUND

Generally, public agricultural higher education institutions in SSA carry a triple mandate of training, research and outreach. During colonial times, there nascent agricultural education, research and outreach capacity arising from the importance of agricultural trade in the colonial system. Public agricultural higher education institutions took-off functional integration to address the priorities and needs relevant to the communities. Independence ushered in a new era for these institutions to make a complete turn and face the journey to overhaul the institutions to prepare cadres capable of addressing the priorities and needs relevant to the communities to reap the fruits of training, research and outreach in the colonial era. Perhaps the reader may agree that over the years this has become a failed promise. But if so, why is this? Is the problem due to inadequacies in the organization and implementation of tertiary institutions—resulting in inappropriate design of agricultural programmes and curricula for local conditions - or is it due to ineffective economic, policy, and institutional structures that limit application by agricultural graduates? Policy makers often argue the former, and agricultural staff in public institutions the latter. The answer, however, is ambiguous because agricultural education, research and outreach functions are closely intertwined and interact with the agricultural economy to varying degrees. The issue of building the appropriate capacity to prepare the graduates to implement this interaction forms the thrust of this paper.

The expectation for the public agricultural higher institutions to overhaul their programmes to integrate the education, research and outreach functions, and to prepare a new generation of graduates capable of addressing the priorities and needs relevant to the communities, was a tall order. This responsibility could not be shouldered by staff of the public institutions alone but in conjunction with politicians and other stakeholders. Nationals were taken on as leaders of the institutions and charged with the responsibility to transform the institutions, not only to be locally relevant but also serve international interests, such as commercial agricultural production for export, which were similar to colonial interests.

The shift in emphasis from traditional cash crops such as coffee, cotton, tea and tobacco in colonial times to general agriculture was a major milestone in the agricultural sector. The overhaul called for bold changes in the vision, mission, objectives, activities, policy frameworks, inter-institutional arrangements and work culture to integrate agricultural education, research and outreach functions to realize this vision. Missions were sent abroad to study “successful” models and explore ways and means to implement them. During the 1960s and 1970s a number of U.S. universities, with support from USAID, introduced and helped set up new universities that embodied the Land Grant ideas in which agricultural extension and research was introduced

under Ministries of Higher Education. These new university functions came in conflict with entrenched research and extension departments in the Ministries of Agriculture.

In the meantime, many political and economic changes were taking place and these greatly reduced financial support the agricultural sector in particular. Stakeholders in this sector were forbearing but slowly getting frustrated with the ivory tower syndrome and the failed promise, and seeking new alternatives. By 1980s most of the universities were converted into all-purpose universities with emphasis on undergraduate teaching. In the 1980s India's innovative State Agricultural University (SAU) model, in which university vice chancellors report to the Ministry of Agriculture rather than the Minister of Higher Education, was adopted - but it also failed to bring forth the anticipated results. Since then, this trend has continued with minimal changes. In Makerere University, Uganda, plans are underway to transform the University faculties into affiliate colleges with the hope that they will be more efficient. This provides hope for formation of an agricultural college that will focus on the three pillars of teaching research and outreach.

CHALLENGES

Universities in Africa in general, and specifically those in Eastern and Southern Africa (ESA) are facing severe challenges arising from globalization, increased population and reduced investment in tertiary education. Between 1960 and 1996 the number of universities in Sub-Saharan Africa increased from less than 20 to about 160. Student numbers grew by 8% per year, from 119,000 to almost 2 million over the same period (Beinema *et al.*, 1998). A study by the African Economic Research Consortium (AERC) (Fine, 1990) noted that "graduate training in any meaningful sense appeared to have collapsed in most African universities" because of declining funding, brain drain, deteriorating infrastructure, civil disorder, and massive expansion of undergraduate enrolment. As a result, the public universities can no longer meet the demands from the increased number of applicants. Many private universities have come into existence and the numbers of applicants is still increasing. The resources have been dwindling and institutions hard hit by poor infrastructure, inputs and incentives.

The World Bank and USAID for the last 2 decades have not made considerable investments in tertiary education. The current emphasis is on the achievement of the millennium development goals (MDGs), and the thrust has been on universal primary education and more recently secondary education. For the period 1960-1970s, the funding of higher education generally matched the expanded number of universities and students, but then fell well below the growth in numbers of students since the early 1980s. Real spending per university student declined from US\$6,300 (1980) to US\$1,500 (1988) (Beintema *et al.*, 1998). During the period 1979-1988 real faculty salaries fell by 30% and have continued to decline in most countries. At the same time donor funding was cut for students studying agriculture in overseas universities citing high costs, questionable relevance and low return rates, a trend that has continued in the 2000s. For example, USAID postgraduate scholarships for students from developing countries to study agriculture in the United States fell from 310 in 1990 to only 82 in 2000 (Echeverria and Elliott, 2002).

ONGOING EFFORTS TO ADDRESS THE PROBLEM

The institutions have increasingly responded to the calls for change in forms of curriculum reforms, introduction of new programmes, adoption of the semester system, and use of ICT, but these responses still fall short and are viewed as "cosmetic changes". In many cases, these efforts have been accompanied by voices and efforts to raise fees and generate revenues from the increased number of students to meet budgetary deficits, but the calls have hit hard ears and led to ridicule. These changes have largely been viewed as "packing new wine in old skins" and have further increased stakeholder frustrations and anger.

However, with support from philanthropic foundations and bilateral arrangements, some achievements in work culture have been realised. In Makerere, for example, innovation capacity

for supporting local government has been awakened with support from the Rockefeller Foundation, the numbers and involvement of female scientists in agriculture have been increased by the Ford Foundation, gender mainstreaming has been encouraged by the Carnegie Corporation, and infrastructure development has been facilitated by NORAD, SIDA and JICA and many others.

OPPORTUNITIES

Many changes have taken place globally creating new competitive opportunities for graduates worldwide. Stakeholders and development partners have been forbearing in light of the fact that agricultural development remains one of best approaches to combating poverty and attaining improved livelihoods., and there is agreement that African universities should play a major role in innovation oriented agricultural research and development programmes.

The first generation of post-independence (1960s) African agriculturists has by and large retired, but the desired transformations of the farming systems and impacts on the people's livelihoods are yet to be met. The second generation of teachers and researchers are demoralized by poor conditions of service (salary, infrastructure), and often those that go overseas for training do not return. It is now time to rise up and overhaul institutions to build the capacity necessary to prepare graduates to address needs and priorities relevant to the local communities and to deliver to their expectations. More recently, there is renewed interest in strengthening the capacity of higher education institutes, coming in from European Union-EDULINK, Wellcome Trust etc. The institutions have heeded to the call for proposals and made bold decisions to turn and take the journey to fundamentally bring to bear on the failed promises of impacts on the livelihoods of the communities.

This has paved way for re-thinking and soul searching into home-grown initiatives that will allow building of institutional capacity at lower cost while better preparing the third generation of agricultural professions starting 2010 through programmes grounded in local agro-ecology, farming systems, institutions, financial and the political realities of future clients.

The proposed new home-grown model for strengthening professional capacity in agriculture

The issue of ineffective and inefficient integration of agricultural functions is addressed by a new model articulated in an EDULINK funded project "Strengthening of University capacity for promoting, facilitating and teaching rural innovation processes-SUCAPRI)"

The SUCAPRI model harnesses a combination of south-south and south-north strengths for building both institutional and individual professional capacity needed to promote agricultural and rural innovation holistically. The piloting phase consists of network of teaching and research staff in five (5) African universities (Makerere University in Uganda and four universities (Nairobi, Egerton, Kenyatta, and Jomo Kenyatta University of Agriculture and Technology), 2 national agricultural research organisations (the Kenya Agricultural Research Institute (KARI) in Kenya, and the National Agricultural Research Organization (NARO) in Uganda, and the International Centre for development oriented Research in Agriculture (ICRA) in the Netherlands. The Commonwealth of Learning (COL) has more recently been strategically coopted as a partner to bring along the strength of using ICT to enhance communication and partnership. The model is premised on the hypothesis that active interaction and sharing of knowledge between these partners will enhance the integration of education, research and outreach functions and improve teaching practice in rural innovation processes necessary to prepare professionals with the competencies to participate in decentralized national agricultural research systems (NARS).

The action of piloting the model consists of 5 activities, namely;

1. Building rapport with managerial and technical staff as well as non-university stakeholders;

2. Establishing a learning platform for network dialogue on joint curricula, content, delivery methods, student support and research. This will then be used for content development that will entail review and approval of relevant and quality content by experts. It will take the form of reflection-action-evaluation-mentorship meetings on what competences exist among staff and who will do which courses, nature of learning materials, teaching skills, content development, quality assurance evaluation, publicity, and management of digital content. This process will be custom tailored to meet the unique needs of the individual institutions.
3. Build capacity of network Universities, both individual and institutional capacity:
 - i. *To build individual capacity* by training trainers of core staff that will in turn train others.
 - ii. *To build institutional capacity* by sensitizing university management for the purpose of reviewing policies and institutional arrangements and with other institutions
4. Facilitation of participation of multi-stakeholders from the national innovation systems (NIS) in learning cycles in reflection, planning , action, evaluation cycles of agricultural higher education with focus on needs assessment, priority setting for curricula re-orientation, and programmes as well as proactively creating a learning enabling environment (e.g. institutional reward and promotion systems, quality assurance and standards). National priorities and need will be filtered into regional context for scaling up.
5. The final activity will entail dissemination of the model by holding of an International Symposium on best-practices for strengthening agricultural higher education institutions.

SUSTAINABILITY

The strengths of the model lie in minimizing biases associated with long-term pay offs from investments in agricultural education, research and outreach. This will achieve sustainability by building a community of practitioners that will promote integration of the three functions into the long-term visions and strategic plans. One of the functions is to develop human resource strategies that explicitly value rural innovations. The second is to reward and promote good teaching practices, competitiveness of programmes to attract more students. Thirdly, flow of resources from non-conventional sources and leveraging of resources from complimentary investment in research, extension and outreach functions is important.

Teaching and learning at universities by itself does not necessarily transform economies unless the socio-economic inputs, infrastructural, conducive policy environment to create incentives and adequate local financial resources are available to motivate all the critical actors in the national innovation system to continuously create and support mechanisms for knowledge application. Failure to address these risks has caused many “good” programmes that were conceived in the past to flop.

This problem will be addressed by sensitizing and proactively lobbying university managers in universities where the policy is weak or lacking, to incorporate rural innovations into the long-term visions and strategic frameworks and embrace inter-university collaboration space for enhancing connectivity in agricultural education, research and outreach. The proposed activity will ensure that rural innovation is a core university business that can garner support and investment commitments into infrastructural upgrade through annual budgetary allocations. Once human resource strategies explicitly recognize rural innovations and rewards and promotes good practices academic staff will retained and motivated to make the initiative to bring to bear. The integration of 3 functions in demand driven programmes is expected to increase their marketability and attract more students willing to pay. Students apply for programmes and employers make choices of whom to recruit depending *inter alia* on quality. Competitiveness of the courses and programmes will be achieved by making agricultural science and agribusiness more personally and professionally attractive and closely competitive with global opportunities. The strategy will be to solicit for strong buy-in (creating ownership) and commitment for regional cooperation from a critical mass of partner universities to jointly prepare rural innovation learning resources and undertake “borderless” virtual mobility across participating universities in a fully transparent and accountable manner.

Associate partners that have experience in implementing and promoting rural innovations will assist to achieve this. The benefit of this action, it is hoped, will be increased income from tuition, which could be used to support the programmes. A very interesting and innovative opportunity to ensure sustainability of this action will be to strategically tap into non-conventional sources of funding by increasing stakeholder participation in the national innovation systems. The proposed establishment of a multi-stakeholder platform/partnership (farmer-research-extension-education-consumers-industry-NGOs) is viewed as an investment rather than a “transaction cost” for generating increased effective demand for agricultural research and development with the dividend being increased public R&D resources (supply). Empowering people through increased participation of stakeholders in defining priority issues in training, research and outreach functions to utilize ICT in addressing real society needs, can influence budget allocation and flow of resources into the 3 functions directly or indirectly. As the private sector becomes convinced that research institutions are responsive to their priorities and needs and can deliver increased income to them, when they will be more prepared to directly finance R&D themselves. Indirectly, as smallholder associations become empowered to become more effective “stakeholders in innovation systems” driving the agendas and reaping the benefits, when they will advocate for increased public funding for agricultural R&D funding.

The PCF5 is viewed as an opportunity to received feedback on the conceptual model proposed. It will be presented to a pre-conference meeting and feedback received on:

1. What is the real problem causing the lack of impact of agricultural education, research and outreach efforts on the communities?
2. Is the model most suited to address the problem?
3. What are the critical components of the model?
4. How best can the model be scaled up and out?

References

- Beintema N. M., Pardey P. G., and Roseboos J., 1998.** Educating Agricultural researchers: A review of the role of Agrican Universities. EPDT discussion paper no. 36. International Food Policy Research Institute and International Service for National Agricultural Research. Washington D. C.
- Beintema N.M.,P.G. Pardey, and J. Roseboom. 1998.** Educating agriculture researchers: A review of the role of African universities. EPTD discussion paper no. 36. IFPRI-ISNAR. Washington, DC.
- BIFAD (Board of International Food & Agricultural Development) 2003.** Renewing USAID investment in global long term training and capacity building in agriculture and rural development. Washington, D.C.
- Echeverria R. G. and Elliott H., 2002.** Financing Agricultural research by competitive finds. In Byerlee, D.Echeverria R. G. (Eds.) Agricultural research policy in an erra of privatization. CABI International. New York.
- Fine J. C., 1990.** A strategy for graduate training in economics for Africans AERC Special Paper 9 Initiatives Publishers, Nairobi