

REGIONAL UNIVERSITIES FORUM FOR CAPACITY BUILDING IN AGRICULTURE (RUFORUM)

Consultancy Report

**Institutional Analysis to Support the Development and Implementation of
Competitive Regional Postgraduate training programmes in RUFORUM
Universities with Special Focus on the PhD Programmes**



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EXECUTIVE SUMMARY

Background to the study

RUFORUM and its member universities are currently implementing a combination of Masters and PhD programmes. These programmes are implementation arrangements for RUFORUM key strategic thrusts. The programmes include the Agricultural Information and Communication Management Programme (AICM-Egerton University), the Dryland Resource Management Programme (University of Nairobi), and the Plant Breeding, Seed Systems and Biotechnology Programmes (Makerere University and University of Zambia) are already on going. Recently the PhD programmes at Bunda College (Agricultural Resource Economics and Fisheries & Aquaculture) and MSC in Research Methods at Jomo Kenyatta University of Agriculture & Technology (JKUAT) were launched. In addition, plans are underway to launch a PhD programme in Soil-Water Management at Sokoine University of Agriculture (SUA), PhD in Food Science and Nutrition at JKUAT, PhD in Agricultural and Rural Innovation Systems at Makerere and a MSc in Integrated Soil Fertility management at Kenyatta University.

In the design and implementation of these programmes several issues have emerged that need to be addressed to ensure smooth implementation and quality of the programmes. These relate especially to institutional arrangements within the hosting institution, and with other partner institutions and the RUFORUM Secretariat.

With these Universities identified as regional focal nodes for training and research in strategic technical disciplines, a number of issues have emerged, which require putting in place guidelines to assure harmony and lesson learning. They include among others:

1. How the programme(s) relate to other planned initiatives and ongoing initiatives in the region;
2. Hosting of the programmes within relevant departments of each University;
3. Synergy with other units in the University and other hosting universities;
4. The quality assurance measures to be put in place to ensure quality of the training and research in the regional training programmes and other similar programmes.

The purpose of this mission was to understudy the above issues in selected Universities hosting regional programmes and make appropriate recommendation to support their effective design and implementation.

Study methodology

The study was guided by a concept note underpinned by the hypothesis that, ***“a clear understanding of demand issues on the hosting institution of what a regional training and research programme comprises and its relationship to RUFORUM determines the extent and quality of preparatory steps needed to successfully implement the programme.”***

This hypothesis was tested by investigating the interactions between intrinsic factors (within host institutions- Department and other University Units) and extrinsic factors (RUFORUM, its member universities and other actors on one hand and existing training and research opportunities in the host Country and region. The key issues clarified included:

- **Host university understanding of regional programmes-** Specifically the interpretation of what makes the programmes regional such as ownership, role of other actors in the programmes and the role of RUFORUM secretariat.
- **Management of the programme in host University-** Host department management structures for implementation of the programmes.

- **Role of other Units of the university in the programmes-** Specifically, role of other units in quality assurance, student accommodation, general support for the programmes.
- **Curriculum development** –Steps being taken to develop competitive curricula at the University and role of other regional and international actors in curriculum development.
- **Hosting infrastructure-** Infrastructure needed for lecture, office space for visiting lecturers and students, other amenities needed for research and the course delivery
- **Research articulation-**Clarification of how the student research agenda will be generated to ensure high quality and response to the RUFORUM Research for Development (R4D) thematic thrusts and other regional and continental development agenda.
- **Funds/resource mobilization-** Clarification on mechanisms to mobilize resources for both student research as well as successful implementation of the programme. This includes the issue of rationalized use of various research and training tools in and outside of the region.

In order to draw lessons from on going regional programmes, the study was administered at Makerere University and University of Nairobi that are implementing regional PhD programmes. The mission also visited Kenyatta University that is developing a regional programme in Soil Health as well as Bunda College of Agriculture that will launch new regional programmes in October 2009. The mission was conducted through focus group discussions, interviews and lessons learnt from engagement in ongoing training and research activities with managers at various levels in Makerere University, University of Nairobi, Kenyatta University, Bunda College of Agriculture and Sokoine University of Agriculture. The key recommendations of the mission are presented below.

Key findings from the study

A. Best practices observed during the mission

1. Curriculum design, delivery and quality assurance

1. **Curriculum design.** All the four programmes currently operational have employed a participatory and highly consultative process in curriculum design. The process has ensured ownership and relevance of the programmes by the hosting departments and universities. All remaining programmes and others to be designed should in principles follow this clear path which involves:
 - Articulation of demand at national level with diverse actors.
 - Regional and international consultation to enrich the curriculum.
 - Curriculum development by a regional team.
 - Review of curriculum at national, regional and international levels.
 - Institutionalization of the new programmes through the relevant university structures.
2. **Curriculum delivery.** At Makerere University a combination of international, regional and local staff were used to teach. The programme also drew staff from other similar programmes in the continent such as from the African Centre for Crop Improvement of the University of KwaZulu Natal. At the University of Nairobi, staff from Makerere University and other places were involved in teaching. These combinations of teachers helped improve quality of teaching as well as lesson learning within the sub-region. This is an example of what could be up-scaled.
3. **Research Quality Assurance.** For the PhD thesis research, perhaps it is worth considering the approach used by Makerere University. Specifically, each student’s proposal is reviewed by a team of 5 persons who are part of the host department and scientists from other institutions in the country. In addition the proposals are sent for further review outside of the country. Final examination of the proposal is then conducted through proposal defence before a departmental post-graduate committee. Through this mechanism, it is hoped that high quality

thesis research is assured at least in their formative stages.

1. **Crosscutting and practical skills.** A core part of these regional programmes is the inclusion of crosscutting skills in the curriculum as well as providing students with hands on experiences in their respective fields. In the two programmes that have completed their course work (Makerere University, and University of Nairobi) together with Egerton University, development of crosscutting skills and practical training as part of training is on going.
2. **Access to learning/teaching materials.** In all the Universities piloting the regional PhD programmes, there exist electronic journals, albeit at various levels of subscription. All students have access to recent journal publications to underpin proposal development and support private study and thesis writing. A key issue however is access to course books that still needs to be addressed.
3. **Infrastructure for teaching.** In all the Universities piloting the regional PhD programmes, there are efforts being made to provide space for teaching and, to an extent, research. At University of Nairobi, the University bought a mini bus for the programme. At Makerere University and as is planned at SUA, the Faculties are providing local transport for the students.
4. **Programme wide- quality assurance system.** This mission noted that the quality assurance system as developed and used in Kenyatta University is an example of a holistic approach to quality assurance in delivery of services by a public university. The system addresses quality in operations, teaching and management of the university. Adopting the core principles of such good practice, with inclusion of research quality, will help the hosting Universities develop highly competitive programmes.

2. Programme management

1. **Management structure.** In all the Universities already implementing programmes, management demonstrates variability in operations at institutional level but nevertheless shares one key principle, selecting the best working solutions. This way, each university is able to secure its stakeholder interests, whilst at the same time addressing the issue of efficiency. A key issue however is the need to have a fulltime coordinator for each programme, as is the case for Bunda College, Sokoine University of Agriculture, Kenyatta University and Makerere University.
2. **Funds management.** At the University of Nairobi, the programme receives rebates from tuition paid out at almost 30%. These funds are released in tranches to ease budget use. Moreover, the University in order to streamline and ease funds access by the programme uses a Grants Office that manages the programme funds. A similar approach is planned for Bunda College. Other Universities without this system may wish to adopt this style of funds management.
3. **Harnessing resources existent in University.** At the University of Nairobi, the programme recognizes the need for Internationalisation of the programme. The Faculty of Agriculture and College (College of Agriculture and Veterinary Sciences) albeit have depended on service provision from International Office of the University. The unit is addressing a number of challenges associated with international students till the relevant units develop the full capacity. The issue of strengthening international program office in each university needs to be prioritized.
4. **Institutionalisation.** At Sokoine University of Agriculture, University of Nairobi, and Bunda College -University of Malawi, University wide approaches have been used to provide support to the new programmes. This has ensured smooth operationalisation of the programmes. It has also ensured capacity to tap into other resources of the University as well as ownership of the new programmes by all actors from top managers to implementers.

3. Resource mobilisation

1. **Own resource mobilization.** The case of the University of Nairobi and Makerere University, provide examples of what can be done when there is commitment from the University leadership to support programmes. All new programmes must charge competitive tuition fees, but also be able to access the proceeds if the programmes are to be run effectively. In the case of University of Nairobi a 30% rebate has been able to run the programme. New programmes may wish to review the tuition rebates to the implementing institutions.
2. **Additional funds mobilisation.** Currently only the University of Nairobi has significant funding for its programmes. The rest do not have this type of support. It is desirable that prior to launching these programmes, efforts be put in place to secure the funds. This could be done with support of RUFORUM. Each University through partnerships with diverse stakeholders can also raise additional funds, as was the case for Makerere University and Bunda College. Such efforts are worth replicating in the region.

B. Niche and value-added of RUFORUM quality assurance initiatives

1. Strategic intervention gap

RUFORUM is supporting development of regional PhD programmes in Eastern and Southern Africa. In both regions the regional agencies the Inter University Council for East Africa (IUCEA) and Higher Education Quality Management Initiative for Southern Africa (HEQMISA) have initiatives to develop regional quality assurance systems. A review of the thrusts of such ongoing initiatives reveals the following key strategic gaps that RUFORUM supported interventions could latch on to add value and forge synergy to the ongoing initiatives.

- a. Both programmes (HEQMISA and IUCEA) are developing frameworks within which recognize institutional differences and peculiarities. They therefore cater for flexibility in the design of specific interventions.
- b. The Quality Assurance (QA) framework in the case of IUCEA being developed is only meant to guide; each University /programme must customize it to their own needs, while maintaining the key principles.
- c. Both programmes recognize the need to pilot evaluation of targeted programmes. The regional PhD and MSc programmes may thus latch on this opportunity to modify the instruments and participate on the evaluations.
- d. A key feature of both programmes is the rather wide view of QA issues beyond just teaching and research but ultimate management of quality in all aspects of university operations. This is an area in line with RUFORUM strategic thrusts that should be pursued as well.

C. Key quality assurance issues associated with RUFORUM programmes

During the mission a number of issues related to QA management were observed, best practices taken note of and gaps identified for the targeting of the proposed regional QA system for the regional programmes. These issues are now presented below:

1. **Curriculum development.**
The quality of curricula is by and large dependent on the steps taken to develop them. The four PhD programmes being piloted have been developed following a needs assessment (national and regional) and subsequently, local and interval review processes. This is a good practice that should in principle be followed in the development of all regional RUFORUM supported curriculum. What is needed is to develop full guidelines to follow for the development of programmes, but lessons for programmes may also be picked on and used to develop courses.
2. **Curriculum content.** The

key features of these programmes include technical content, Crosscutting skills and Practical-skills as well as thesis research. Currently, most QA systems have been mainly designed for teaching technical content and not necessarily the kind of issues addressed by these programmes.

3. **Curriculum delivery.** The programmes are designed to be delivered by host Universities (60-70%) and regional and international actors (40-30%). This mix though desirable requires putting in place systems that will assure quality in delivery by both local and regional and international actors. In all the programmes, course modules and teaching materials were being developed along with course delivery. Yet these modules provide a framework for harmonizing and maintaining the quality and delivery of courses. This too is a critical issue that all programmes in the future ought to avoid getting into.
4. **Credit transfer and accreditation.** All programmes have been designed with the key principle of capacity for delivery within the region. However, this is not possible under the current circumstances because of the need for accreditation and putting in place a credit transfer system.
5. **Management of QA.** It is apparent that all programmes will rely mainly on the existing QA tools and systems of their host universities. Issues of relevance and comparability in the region thus become apparent. For these to be adequately addressed it would be desirable to put in place instruments that measure quality from input (students and curricula), through delivery and impact levels to communities. It is in this aspect that the opportunity placed by regional programmes ought to be latched on. Some of the tools to be developed include pre-admission assessment tools of potential students, pre-course assessment to scope the depth of coverage during teaching, and final course delivery evaluation of especially the lecturers and course material.
6. **Management of the programmes.** Two main approaches of management are being used- fully managed and run by existing structures and semi- detached with management by select committees. What is apparent from both systems is the attempt to run the programmes within the confines of existing structures and procedures. For regional programmes a harmonized system will go a long way in supporting the development a common pool of experiences that assure efficiency and uniqueness of these programmes. This will in short avoid them being “swarmed-up” by weak existing structures.
7. **Student welfare and internationalization.** Given the fact that all these programmes are in fact international programmes, there is a need to put in place mechanisms for both student and international staff movement as well as systems to support their welfare and operations. Linkage to the international offices that in most universities are still under development could help. But importantly, institutionalising this within host Faculties is of importance, as it will ease operations.

D. Key Recommendations

The delivery of course based PhD programmes is a new concept in the region. This carries along with it a number of challenges in the form of insufficient human capacity, inadequate funding, and lack of standards and mechanisms for regulating the quality of cross-border education. On the basis of these and the above issues raised the study makes the following key recommendations

1. Curriculum development and implementation

1. **Development.** As observed during this mission, curricula developed through wide

stakeholder participation led to development of very competitive programmes. This should in principle be the way to go for all regional programmes. It is recommended that all programmes should involve national, regional and international consultation and review processes in their development.

2. **Delivery.** Currently programmes are mainly being implemented by the host universities. This is not exactly in line with the principle for regionality. All programmes should endeavour to implement programmes involving at least 20% of regional staff to tap into expertise and contribute towards sharing of resources in the region. This could also apply to student supervision.
3. **Quality assurance management.** Given the diversity within and among hosting institutions, it is recommended that RUFORUM develop along with the host institutions and regional agencies (HEQMISA and IUCEA), instruments for quality assurance. It is also recommended that subsequently, a stakeholder workshop involving the QA managers of the respective universities be held to promote institutionalisation of especially the management of the proposed system.
4. **Accreditation and credit transfer.** This remains a challenge that cannot be directly implemented by the host Universities *per se*. This is a case where RUFORUM should work with regional agencies and the RUFORUM Board, to develop and pilot a accreditation and credit transfer systems that meet international standards and supports competitiveness within the region.
5. **E-learning.** Currently all programmes have limited or no E- learning resources. There is need to develop these for the good of the students, ease of learning and teaching.

2. Programme management and funding

1. **Management.** A key challenge is the maintenance of these programmes especially as learning points to improve graduate training. The two main approaches of programme management being used- fully managed and run by existing structures and semi- detached with management by select committees. Both approaches if not well managed will undermine their quality and value-added. Thus for regional programmes a harmonized system will go a long way in supporting the development a common pool of experiences that assure efficiency and uniqueness of these programmes.
2. **Management frameworks.** To support the design of an effective implementation that can be monitored, it is recommended that each programme should develop an implementation plan. This Plan should, among others, also show deliverables, yearly work plans, monitoring and evaluation systems.
3. **Financing.** Hitherto, funding for the programmes has mainly relied on RUFORUM Secretariat. The long-term success of these programmes will require the host Universities to jointly work with RUFORUM to mobilize resources. It is recommended that each Host University should undertake an audit of existing national and international opportunities akin to their programme and along with RUFORUM tap-into these resources. It would be desirable if host institutions can raise at least 40% of operational budgets through various means. Currently Each member University has various regulations for fees rebates to implementing institutions. A transfer of 30% and an additional 10-15% of funds generated through various means would improve funding of the programme.

3. Facilities for training and research

1. **Training.** RUFORUM and the Host Universities will have to work in concert to put in place facilities for high quality training. This may include among others- video-conferencing facilities and especially access to library resources. The training of lecturers in the use of e-

learning resources is also critical. However, the high costs associated with the initiatives imply that RUFORUM may mainly act as a broker and advocate rather than a funding agency. A road map to wards development and use of especially e-resources for teaching is critical as the first step in this direction.

2. **Research.** High quality research requires good facilities. What is apparent is that a university may not have all these in place. Partnership is therefore the way to go. Partnerships however carry with them challenges especially costs and Intellectual Property. It is therefore recommended that RUFORUM along with host institutions, develop framework agreements (MOUs, letters of agreements, material transfer agreements etc) to be modified and used by various programmes. RUFORUM should also initiate a formal contact with the CGIAR institutions in the regions and develop MOUs to support the regional PhD research.

4. Student welfare and internationalization

All these programmes are international programmes. Accordingly, there is a need to put in place mechanisms for student and international staff movement as well as systems to support their welfare. A key issue for all host faculties is to hire and/or appropriate funds or persons to oversee this task. Equally important, is the need to address the issues of student housing which should actually be done with support of the University management. The Bunda College effort to build new facilities for the regional PhD programmes is recommended and should be emulated.

1 Background

1.1 About RUFORUM's Regional Postgraduate Programmes

In 2004, RUFORUM launched a new Strategic Plan aimed at strengthening the primacy of African Universities in development processes and practice in Eastern, Central and Southern Africa. The Strategic Plan framed RUFORUM's investment opportunities and thrusts within seven result areas namely:

- 1) Train a critical mass of masters and doctoral graduates who are responsive to stakeholder needs at national/ regional development goals.
- 2) Develop collaborative research and training facilities that achieve economies of scope and scale.
- 3) Increase in participation and voice of women in agricultural research, production and marketing.
- 4) Improve adaptive capacities of universities to produce high quality and innovative training, research and outreach activities that can contribute to policy and development practice.
- 5) Increase the use of technology to support effective, decentralized learning and the sharing of knowledge.
- 6) Mainstream new approaches within university teaching and research that emphasizes quality, innovation, impact oriented Agricultural Research for Development.
- 7) A dynamic regional platform for policy advocacy, lobbying, coordination and resource mobilization for improved training, research and outreach by Universities.

In pursuit of these goals, RUFORUM is piloting regional PhD programmes in centres of leadership (Table 1). Programmes at these centres of leadership are being implemented using a networks approach that seeks to tap into the strengths resident in each member University. In the design of each programme, partner universities with resident strengths are identified and engaged in design as well as implementation. Opportunities resident with other partners in and outside of the region are also brought on board.

The philosophy commonly used in design and implementation of these programmes is "**capacity for capacity building**," whereby human resources are first trained for weaker universities and at the same time enhance competitiveness of the centres of leadership. RUFORUM uses a combination of PhD and masters' degree programmes as one of the routes for delivery of its intended results. The master's degree programmes act as both pipeline for the PhD programmes of RUFORUM and others in the region and elsewhere as well as a quick response to dire human resource needs of the region. The PhD programme on the other hand aims to train future trainers (for Universities) and researchers for the member countries as well as the region. So far four regional PhD programmes are operational, another two will be operational in 2010. Several masters degree programmes are operational. A key challenge is to assure high quality and systems of joint sharing and quality management among member universities in all the programmes. Accordingly, there is need to develop broad guidelines that frame issues for quality assurance, resource sharing and use among member universities. This document is a report on a mission to address the above challenge.

Table 1. Centres of leadership and regional programmes being implemented by RUFORUM.

| *University | Leadership area | **Programmes implemented |
|--|--|--|
| Africa University- Zimbabwe | Agribusiness | Masters in Agri- Business |
| Egerton University | Agricultural Extension and information science | Masters in Agricultural Information and communication management |
| Kenyatta University | Soil science and water management | Masters in Integrated Soil Fertility Management |
| Jomo Kenyatta University of Agriculture | Biometrics and research methods | Masters in Research Methods |
| | Food Science and Technology | PhD in Food Science and Nutrition |
| University of Malawi, Bunda College of Agriculture | Fisheries & Aquaculture | PhD in Fisheries and Aquaculture |
| | Agricultural Economics policy analysis | PhD in Agricultural Resource Economics |
| University of Nairobi | Dry lands and Climatic Change | PhD in Dry lands Resources Management |
| | Agricultural Extension and information science | Masters in Agricultural Information and Communication Management |
| Sokoine University of Agriculture | Soil science and water management | PhD in Soil and Water Management |
| Makerere University | Plant Breeding , seed systems & biotechnology | PhD in Plant Breeding and Biotechnology |
| | | Masters in Plant Breeding and Seed Systems |
| | Agricultural Extension and Education | PhD in Agricultural and Rural Innovation Studies |
| Sokoine University of Agriculture | Soil science and water management | PhD in Soil and Water Management |
| University of Zambia | Plant Breeding | Masters in Plant Breeding |

*These centres of leadership were identified from an earlier commissioned study¹.

** Member Universities have developed these programmes either as those largely supported and initiated by RUFORUM and other regional Universities based on the Blackie and Woomeer report or Developed as a regional response to new challenges and opportunities directly or in partnership with member Universities. Programmes under this category were developed after 2005, most in 2007- 2009.

1.2 Mission Terms of Reference and Interpretation

1.2.1 Summary of the Terms of Reference

RUFORUM and its members are currently implementing a combination of Masters and PhD programmes. Examples include the Agricultural Information and Communication Management Programme (AICM-Egerton University), the Dryland Resource Management Programme (University of Nairobi), and the Plant Breeding, Seed Systems and Biotechnology Programmes (Makerere University and University of Zambia) which are already on going. In October this year, the PhD programmes at Bunda (Agricultural Resource Economics and Fisheries & Aquaculture) will be launched. In addition, plans are underway to launch a PhD programme in Soil-Water Management at Sokoine University of

¹ Malcolm Blackie and Paul Woomeer, 2005. Challenges and Opportunities of the Regional Universities Forum for Capacity Building in Agriculture in Kenya, Malawi, Mozambique, Uganda and Zimbabwe. RUFORUM commission studies.

Agriculture (SUA). MSc in Integrated Soil Fertility Management to be hosted by Kenyatta University is under development.

During the implementation of these programmes, several issues have emerged that need to be addressed to ensure quality of the programmes. These relate especially to institutional arrangements within the hosting institution, and with other partner institutions and the RUFORUM Secretariat. They include:

- How the programme(s) relate to other planned initiatives in the region. In the case of SUA to the proposed MSc programme at Kenyatta University;
- Hosting of the programmes within relevant departments;
- Synergy with other units in the university and other hosting universities;
- The quality assurance measures to be put in place to ensure quality of the training and research in the regional training programmes and other similar programmes.

It is against this background that RUFORUM sought the services of a consultant to review and advice on appropriate institutional arrangements for running the joint regional programmes. In addition, the consultant was to review and advise on the necessary quality assurance measures needed to ensure quality and international competitiveness of especially the PhD programmes.

1.2.2 Interpretation of the Terms of Reference (TOR)

The consultant designed a concept note to guide implementation of the mission. The concept note was framed by the hypothesis that, *“a clear understanding of demand on the hosting institution of what a regional training and research programme comprises, and its relationship to RUFORUM determines the extent and quality of preparatory steps needed to successfully implement the programme.”* This hypothesis was tested by investigating interactions between intrinsic factors (within host institutions- Department and other University Units) and Extrinsic factors (RUFORUM, its member universities; other actors on one hand and existing training and research opportunities in the host country and region as depicted by a model (Figure 1). The issues included following:

- **Host university understanding of regional programmes-** Specifically the interpretation of what makes the programmes regional such as ownership, role of other actors in the programmes and the role of RUFORUM secretariat.
- **Management of the programme in host University-** Host department management structures for implementation of the programmes.
- **Role of other Units of the university in the programmes-** The role of other units in quality assurance, student accommodation, general support for the programmes
- **Curriculum development** –Steps being taken to develop competitive curricula at the University and role of other regional and international actors in curriculum development.
- **Hosting infrastructure-** Infrastructure needed for lecture, office space for visiting lecturers and students, other amenities needed for research and the course delivery
- **Research articulation-**Clarification of how the student research agenda will be generated to ensure high quality and response to the RUFORUM Research for Development (R4D) thematic thrusts and other regional and continental development agenda.
- **Funds/resource mobilization-** Clarification on mechanisms to mobilize resources for both student research as well as successful implementation of the programme. This includes the issue of rationalized use of various research and training tools in and outside of the region.

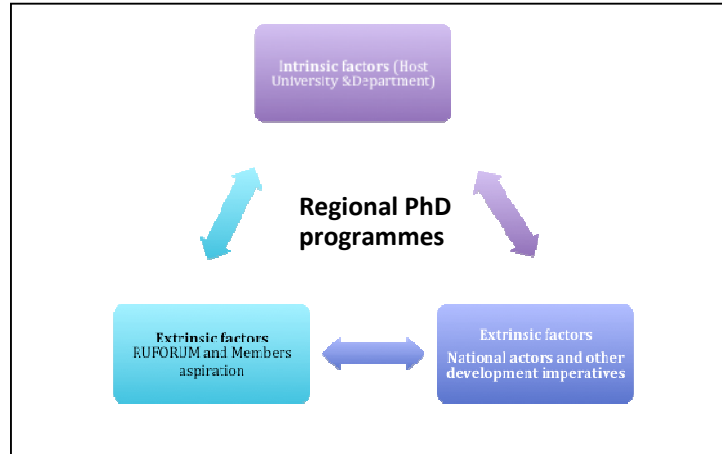


Figure 1. Conceptual model of the expected and ongoing interactions that will influence planning, decision making and operationalization of regional graduate programmes of RUFORUM.

In order to draw lessons from on going regional programmes, the study was administered at Makerere University and University of Nairobi that are implementing regional PhD programmes. The mission also visited Sokoine University of Agriculture and Kenyatta University that are developing regional programmes in Soil health and water management as well as Bunda College of Agriculture University of Malawi. The mission was conducted through focus group discussions, interviews and lessons learnt from engagement in ongoing training and research activities with managers at various levels. The outcomes of the mission are presented in the next chapter.

2 Implementation Imperatives and the Process -Lessons Learnt From Ongoing PhD Programmes

2.1 Makerere University

The lessons from Makerere University are mainly drawn from experiences of the consultant who is also the coordinator of the Regional PhD programme in Plant Breeding and Biotechnology and is part of the University implementation team for both the PhD and Regional Master of Science in Plant Breeding and Seed Systems.

2.1.1 Hosting and Programme Development Arrangements

The Department of Crop Science in the Faculty of Agriculture hosts the PhD and MSc programmes. The development of both programmes was led by the Department of Crop Science in conjunction with a regional team and professionals in and outside Uganda. The key steps taken during development of both programmes are presented below:

A) Programme Curriculum Development

1. **Scoping the programmes.** A survey was conducted in and outside of the region to frame the nature of the PhD and MSc programmes. The tool used to initially scope both programmes is attached as Annex 1. Respondents submitted the reports to the Department of Crop Science. These reports were collated and used to develop a first draft of the curriculum.
2. **Development of draft curricula.** A team in the Department of Crop Science drafted the programme. The first draft was reviewed by experts from the University of Nairobi and University of Zambia as well as plant breeders and experts present in Uganda drawn from the National Agricultural Research Organization, the International Institute for Tropical Agriculture (IITA) Uganda, the Association for the Strengthening Agricultural Research in East and central Africa (ASARECA), Uganda National Farmers Federation and the School of Graduate Studies Makerere University. The outcomes of this process were then used to complete a second draft of the programmes.
3. **Review of programmes.** The draft programmes were sent for review to experts in and outside of the region. The comments were incorporated into the programmes.
4. **Final Internal review and submission.** The draft programmes were presented to the Department and Faculty Post-Graduate Committees and formally submitted by the Faculty of Agriculture to the School of Graduate Studies.
5. **Formalization and accreditation.** The Post Graduate School and Senate Committee reviewed both programmes initially. Review comments were incorporated and programmes transmitted to the Quality Assurance Unit for final review for accreditation. Through this process the programmes were finally readied for accreditation by the National Commission for Higher Education (NCHE) Uganda and formal launch for implementation for Makerere University
6. **Launch of the programmes.** Makerere University School of Graduate Studies formally announced the programmes and invited applications. The programmes were subsequently open for admission in October 2008. They have been running for one year since.

B) Programme Management

The Faculty of Agriculture has put in place two mechanisms to manage the programme, (i) a non-technical committee to address non-academic programme requirements (ii) a committee to guide and assure academic quality of the programmes. The second committee is chaired by the Dean of the

Faculty and draws members from the Department of Crop Science, National Agricultural Research Organization and Victoria Seeds a private seed company. The non-technical committee is mainly composed of members from the Hosting department, Office of the Dean and the University Agricultural Research Institution. Both committees are accountable to Head of Crop Science Department and the Dean Faculty of Agriculture.

C) Curriculum Implementation

The programme is housed at the University Agricultural Research Institute (MUARIK). The courses have been taught by a combination of local and visiting lecturers from Uganda Academy of Sciences, National Agricultural Research Organisation (NARO), University of KwaZulu Natal, University of Southern Illinois, Kenyatta University and Biosciences east and central Africa (BecA). Through this process the curriculum has been enriched with student accessing high quality training form within and outside of the region. The curricula also include a practical session that focuses on developing management skills for plant breeding with visits to the seed companies and on station plant breeding programmes.

D) Quality Assurance

Quality assurance is one area that is being developed. The system being developed seeks to assure quality at admission of the students, course delivery and learning, research undertaking and overall relevance to the needs of employers and wider public. Currently the two tools are being used to assess quality.

1. Assessment of past student experience. A questionnaire is administered at the beginning of each course to map knowledge level of students in order to fine-tune training and learning objectives. A questionnaire is administered to the students prior to the start of each course unit (Annex 2).
2. Post course delivery assessment tool. A questionnaire online for post course delivery is to be developed and administered at the end of the course to fine-tune the next course delivery. For now a simple course assessment that evaluates the extent of learning achieved, low and high points of the training and areas for improvement. Annex 3 shows the framework that will be used to develop an online course assessment tool.

Whereas the programme has a Regional Academic advisory Board, to provide overall quality assurance in relation to RUFORUM programme, this regional team has not yet been put in place.

E) Student Scholarships and Welfare

Scholarships under the programme have been largely managed by RUFORUM, which is paying for 14 students. The programme has however been able to attract additional support with complete funding for 8 more students. For the MSc programme the first year of student intake have been mainly sourced from AGRA and ASARECA SCARDA-ECA.

F) Resource Mobilization

The major drawback to the programme has been limited funding. Makerere University has been slow at mobilizing additional resources to support programme implementation especially student scholarships for the both programmes. This is critical given that graduate training at Makerere University is largely a privately funded. There is also need to mobilize additional resources to upgrade facilities for research, staff and student accommodation.

G) Research Quality Assurance

For the PhD programme, a mechanism has been put in place to assure high quality in training of the student's thesis research. Specifically, proposals are reviewed by a team of 5 persons who are part of the host department and scientists from other institutions in the country. In addition, proposals are sent for further review outside of the country. Final examination of the proposals is then conducted

through proposal defence before a departmental post graduate committee. Through this mechanism, it is hoped that high quality thesis research shall be assured at least in their formative stages.

H) Infrastructure Upgrade.

As part of the efforts to assure high quality, the programme at Makerere University with support of RUFORUM has upgraded facilities mainly focusing on student accommodation, visiting staff accommodation at the University Research Institute (MUARIK). Makerere University on its part has rehabilitated irrigation facilities to support off and-on season research.

2.2 Kenyatta University

The mission to Kenyatta University was conducted on the 8th of April 2009. Kenyatta University was selected because it is one of the host universities for a regional MSc programme in Soil Health. Kenyatta University provides unique opportunities for understudying institutional processes being undertaken to develop regionally competitive academic programmes.

The mission involved meetings with University management represented by the Deputy Vice Chancellor Finance and Planning Professor Daniele Mugendi, Deputy Vice Chancellor Administration Professor Muluvi, Director Quality Assurance Unit Professor Imbuga, F., Director, Centre for Linkages and International Programmes, Prof. Caroline Lang'at – Thoruwa C, the University Quality Manager, Mr Murani, J., the Dean Faculty of Agriculture and Enterprise Development Dr Gitonga, L.M., Head of Department of Agricultural Resource Management Dr Mochoge, B. and Senior member of staff Ass. Prof Kenya, E. The outcomes of the discussions and consultations are presented below.

2.2.1 Background to the proposed regional graduate training in soil health

Kenyatta University in cognizance of reduced soil fertility and food shortages associated with low agricultural productivity as being major impediments to Kenya's and the region's development seeks to contribute to solving this issue via graduate research and training. Specifically, the University seeks to develop a degree programme that addresses integrated soil management.

In that effort, the University began to hold discussions with various stakeholders drawn from Kenya and the region in March 2009. The meeting drew participants from Regional Universities- Makerere University, Jomo Kenyatta University of Agriculture & Technology (JKUAT), Moi University, Sokoine University of Agriculture, and ICRISAT, RUFORUM, and Alliance for a Green Revolution in Africa (AGRA). The meeting discussed *integrated soil fertility management* issues that need redress within the framework of graduate training and research. Two post graduate training programmes were floated as mechanisms for implementation of the graduate training and research, that is, MSc and PhD programmes. The meeting recommended that Kenyatta University develop a regional graduate programme within the framework of its institutional strength, regional advantages and competitiveness.

The University responded by designating the Department of Agriculture and Enterprise Development to host the graduate programmes. The Department went about developing the programme by appointing a management team- headed by the Dean Faculty of Agriculture. The programme also drew support from various Units of the University but with almost 60% of programme development assigned to the host department. The aspiration of the University was to train 60 PhDs and 150 MSc graduates over a five years period.

Following consultations and internal audit, the University has since focused on first development of the MSc in Integrated Soil Fertility Management for the region with Sokoine University of Agriculture Focusing of the PhD in Soil Fertility and Water Management. The readiness and institutional arrangements for implementation of the Kenyatta University are presented below.

2.2.2 Hosting and programme development arrangements

A) Programme Curriculum Development

The Department of Agricultural Resource Management Faculty of Agriculture and Enterprise Development will host the MSc. in Integrated Soil Fertility Management. Programme development is underway in conjunction with a regional team and professionals in and outside of Kenya. The key steps being taken in programme development are presented below:

1. **Scoping the programmes.** The Host Department began to scope the issues to be addressed by the MSc programmes. This initial effort was used shared with the AGRA Soil Health Programme and subsequently with RUFORUM and other actors in the region during a regional consultative workshop held in Naivasha Kenya in March 2009. The meeting recommended the creation of programmes that are regional in nature and implementation.
2. **Development of draft curricula.** Development of the proposed programme is being led by the host department. New degree programme development in Kenyatta University involves, drafting and review of the programme at departmental level, review at School level, approval of the programme at Senate Level and subsequently accreditation to professional bodies in Kenya.

B) Institutional Arrangements in Place for the Proposed Programme

1. Quality Assurance

The University has a Directorate of Quality Assurance (QA) that was established in 2003. The Directorate has developed and is using QA assessment tools for courses delivery with benchmarks for performance established and feedback for improvement in place. The Directorate is also supported by a University Quality Management Secretariat that has developed a Performance Manual that prescribes standards and measures for design, implementation and audit of quality to be used in all University operations. This process led to ISO9001-2000 certification of the University in 2008. The new programme is thus underpinned by a strong culture of quality assurance that also includes audits of all University operations twice a year. An external audit of the University is done by ISO certified agencies such as SGS, and Kenya Bureau of Standards.

Moreover the University has also trained all its staff members (academic and non-academic) to operationalize the quality assurance systems. The institution of performance contracts, a general policy implemented by the Government of Kenya to assure quality and delivery of results in departments has provided a strong policy framework for this effort. Quality assurance is managed by various units all guided by the Quality Management System of the University. For example, the Quality Assurance Unit oversees all academic programmes of the University, whilst quality assurance of research is overseen by the Directorate of Research.

2. Internationalization of programmes.

Through the Centre for Linkages and International Programmes the University has mechanisms for enhancing visibility of its programmes. Indeed, during the discussions it was clear that the University recognizes the need for regionally competitive programmes as part of its medium to long-term agenda for competitiveness and sustainability. The University has used this Centre to internationalize its programmes- examples include development of Mandarin programme to teach Chinese and other foreign Languages. It will launch a Portuguese programme that could benefit students from Mozambique and Angola. It has also played a role in resource mobilization with the private sector to support University activities via the Youth for leadership internship programme with the Agakhan Foundation. It has brokered partnerships with Universities in the North such as the University of Ottawa in Canada and has played a role in the Development of the Watershed Management PhD programme. Among other assignments, the centre also handles accommodation of international students and their general welfare. For the proposed regional MSc In Integrated Soil Fertility

Management, there is wide scope for lesson learning and a strong foundation to internationalization of the programme.

3. Demand articulation in programme development.

Under the Quality Assurance Unit and the office of the Deputy Vice Chancellor Academics, the University has put in place mechanism to obtain feedback on its programmes. This is done through market surveys at school level. This process could be adapted for the proposed programme as a mechanism for assuring relevance and curriculum review processes with the stakeholders

B) Institutional Arrangements Needed To Be in Place for the Programme

Discussions with various managers in the University revealed some key issues that need to be addressed for the success of the programme. They include among others:

1. **Development of competitive curricula:** This will require close working with other units of the University to expedite programme development within the Faculty and University as a whole. It is also in line with the RUFORUM principle of mainstreaming all interventions and investments within its member University systems.
2. **Inclusiveness in design and management of implementation structures.** The host department will have to rely on other Units of the Faculty especially those that have longer experience in managing postgraduate programmes. They will also need to draw-in other courses not necessarily from the host department to engage in teaching to enrich the programme.
3. **Clear definition of role of other regional actors in programme.** As a regional programme, there is need to clearly define the role of other regional actors including RUFORUM and its member universities in order to enhance regionality and inclusiveness of the programme.
4. **Resource mobilization strategy for the programmes.** Currently, the programme will likely be supported by AGRA. However, there are a number of issues that need to be developed and/or addressed in terms of infrastructure, scholarships etc.
5. **Developing and or alignment of a quality assurance system for the programme.** RUFORUM member Universities are in general putting in place quality assurance mechanisms that will allow credit transfer, staff and student exchange among others. The programme also has to address quality issues within Kenya.
6. **Medium plan for operationalisation of satellite programmes in Kenya and the region.** It is the vision of the University to develop Satellite centres to host the programme within Kenya. Doing so requires developing a strategy to guide the process.
7. **Infrastructure upgrade and or development.** The University has limited research infrastructure. This may need upgrade to meet the demands for a competitive programme MSc. programme. Moreover, other issues rose during the mission such as student accommodation that requires consideration and planning.

2.3 University of Nairobi – College of Agriculture and Veterinary Sciences

2.3.1 Background to Proposed Regional Graduate Training in the College

The University of Nairobi hosts one regional programme, the PhD in Dry lands Resources Management. The consultative meeting took place at the University of Nairobi, with the Dean of the Faculty Prof Nderitu H.J. and Head of the Department of Land Resource Management and Agricultural Technology (LARMAT) Prof Gachene. It should be noted that the Faculty of agriculture has two other doctoral programmes- the Doctor of Science in Agriculture and the PhD in Agriculture degrees. These two-

degree programmes are older and provide a foundation especially for student supervision and doctoral level research.

2.3.2 Hosting and Programme Development Arrangements

A) Hosting Arrangements

The programme at the Faculty of Agriculture is located at the College of Agriculture and Veterinary Science (CAVS), Upper Kabete Campus, off Kapenguria Road, 14 km to the Northwest of Nairobi. The Faculty has eight (8) well-established departments. All courses are delivered at the Kabete campus with possibility for field research at the Kibwezi field station in Eastern Kenya.

B) Programme Curriculum Development

The programme was developed following the approach developed for all regional programmes. A survey was used to scope issues to be addressed by the programme. Subsequently, various consultative meetings including both online and face-to-face meetings were held at institutional, national and regional levels. The outcomes of these meetings were then used to develop the new curriculum through the department, school, college and senate of the University for formal approval and launch. The key areas that can be lesson-learning points include:

1. **Course and module development.** The programme was designed to be an all-inclusive one involving various departments and schools in both design and implementation. In general, curriculum development was guided by the following key principles: a) a clear road map of its design including tenets of implementation, b) Curriculum was to involve both local and regional consultation, c) one person was nominated to collate the data being generated from the various sources into one curriculum and d) the curriculum to be developed was to be all inclusive. The Faculty Curriculum Committee was used to support the process of curriculum development with two people per relevant department in the school participating. During the mission it was clear that the programme had started. Overall, the programme at University of Nairobi had a strong institutional grounding to the extent that its implementation took off smoothly and was well received in general.
2. **Course delivery.** Currently, the School of Agriculture accounts for most of the courses. The programme involves a highly diversified background of teachers and the college has over 80 PhD level staff. This capacity according to the university regulation can support up to 240 PhD students with a maximum of three students per PhD level senior staff. Courses are delivered as any other graduate level courses in the School. Currently, the LARMAT department is hosting the students. It was not clear what steps had been put in place for visiting lecturers from outside of Kenya to contribute to course delivery. The mission was informed that the programme would have access to library and other teaching and research facilities. What is not very clear is the dedication of infrastructure for administration of the programme.
3. **Quality assurance issues.** Due diligence had been undertaken to ensure that QA issues are addressed. Specifically, course evaluation mechanisms have been put in place to ensure that learning occurs. Course evaluations are done on overall course delivery basis as well as lecture-by-lecture basis. Moreover these evaluations are considered as incentives for staff promotion. At Faculty level there is a committee set up to perform two functions, i) provide linkage to RUFORUM ii) as well as feed back to the host department on management of the programme.

At University / College level, an evaluation of the implementation of the programme has also been done by a committee that meets students, programme coordinators (Department Chair) as well as lecturers. There have also been attempts to put in place a policy body to generate guidelines for implementation of the programme. Quality assurance for research is based on the vetting of proposals by the post-graduate board that undertakes this on behalf of the

Board of Graduate Studies. Examinations are moderated at two levels, internally at department level and at externally by lecturers from other Universities. The key issues is the linkage of all these good practices to the Regional Academic Advisory Board (RAAB), an organ designed to support common lesson learning across universities and programmes.

C) Programme Management

- **Management at college level.** The Faculty of Agriculture oversight is provided by the Dean with support of a committee that assures linkage to RUFORUM aspirations and compliance to the University's thrusts. The Faculty level committee also provides support to the department in addressing issues of student supervision and welfare. The programme is further linked to an international office that manages student's affairs such as housing immigration.
- **Management at department level.** At department level, the Chair of the host department-LARMAT coordinates the programme. The department thus provides the programme with a secretariat and the chair can delegate management responsibilities to relevant staff members.
- **Funds management.** The programme is currently support through rebates from tuition paid out at almost 30%. These funds are released in tranches to ease budget use. In order to streamline and ease funds access by the programme, the University uses a Grants Office that manages the programme funds as a project. This process is supported by the University-wide policy, which provides for non-interference in funds management as long as it's done within the regulations of the University.

D) Challenges Faced by Both Programmes

1. **Credit transfer.** The University has made provision for transfer of credit for candidates subject to the following conditions:
 - Request for exemption be accompanied by officially endorsed supporting documents, including the syllabi for the relevant course(s) done at the same level.
 - The University of Nairobi reserves the right to administer an appropriate test, through respective departments in order to determine whether the exemption should be granted.
 - Application for exemption shall be considered only after the payment of an exemption fee, as may be prescribed.
 - The courses on which such exemptions are sought shall not exceed one third of the total units.

A critical issue however is to streamline the use of these opportunities for the other RUFORUM regional supported programmes. This is a case where the RAAB and the committee of deans as well as the RUFORUM Board could play critical roles.

2. **Student admission.** Student admission is a potential challenge in especially in subsequent years. The challenge it is envisaged will result from the extent of coverage of advertisements beyond the current RUFORUM member states. This problem is compounded by the limited availability of scholarships for the PhD level training. Thus diversifying student recruitment processes and especially attracting those with funding is a challenge the Faculty has to grapple with.
3. **Teaching materials.** This process has not yet gathered full speed. Albeit, there is need to start the process of developing course models. The critical issue is how to pay for module development to ensure they are of the quality. There is also the issue of increasing Internet bandwidth to support online training and use of Internet. Equally challenging is the issue of

developing and publicly accessed resources especially intellectual property of the resources developed and used for teaching and research.

4. **Books and other learning resources.** Currently the library needs to be strengthened to handle PhD level courses. The students have access to well over 8000 titles in both electronic and hard copy. There may be however need to diversity learning resources with special titles and resources for the programme.
5. **Resource mobilization for the programme.** The programme is currently funded by funds mobilized by RUFORUM. These resources are clearly not adequate. The major challenge with regard to the programme is slow process of procurement. It is proposed procurement of some materials be done by RUFORUM and these can then be donated by to that University to ease acquisition of materials. There is also need to diversity the sources of funding beyond what RUFORUM can provide and this aspect is yet to be done.
6. **Internationalisation of the programme.** As regional programmes, there is need to address the issue of internationalization. The Faculty and University as a whole are cognizant of this issue, and a University Policy to address the issue is being developed. In the interim internationalization of the programme especially handling of international students and staff will be done by two bodies the Faculty and the International Office of the University. Some of the current tasks undertaken by the International Office that will need streamlining and capacity building within the College and School include:
 - Provision of a focal point for international activities in the University.
 - Responsibility for the welfare of international visiting staff and occasional students while at the University of Nairobi.
 - Assisting in travel arrangements for UON academic members of staff as well as visiting scholars and occasional students.
 - Being involved in negotiations leading to the signing of Memoranda of Understanding (MOU) links and/or aid agreements.
 - Ensuring compliance by the benefiting departments and their international counterparts with the terms of the MOU and agreements.
7. **Putting in place essential administrative staff.** The success of this regional programme will require putting in place at least the basic administrative team to manage the programme. This includes addressing logistical issues of student welfare including, travel and immigration, international affairs, course administration etc. There is also the need to put in place the management systems at the host departments e.g. coordinators as well as the governance systems at Faculty and College levels. Currently all these duties are done by the Department Chair and Faculty Dean. It will be essential to develop own capacity to manage expanded programmes especially with two to three cohorts of 18 students each as the current one is.
8. **Expanding partnerships to support research and teaching.** As part of the efforts to enlarge capacity for these programmes at University of Nairobi it is imperative that additional partnerships be sought. These new partnerships should target sourcing teaching staff from in and outside of Kenya and the region. It also includes sourcing additional funds to support the research activities of the students and scholarships.

2.4 University of Malawi –Bunda College of Agriculture

2.4.1 Background To Proposed Regional Graduate Training In The College

Bunda College of Agriculture is a constituent College of the University of Malawi and is host to two regional PhD programmes i.e. Agricultural Resource Economics and Fisheries and Aquaculture. The consultative meeting involved management of the College led by the Principal Professor Moses Kwapata, Deputy Principal Professor Emmanuel Kaunda, Director School of Graduate Studies Dr Alex Kalimbira, Heads of hosting Departments - Dr Joyce Njoloma- Dean of Faculty of Natural Resources and Environmental Sciences and Dr Masangano C., -Dean Faculty Development Sciences, programme coordinators for Agricultural Resource Economics (Dr Mabumba, M. and Fisheries and Aquaculture Dr Kagombe, J., other Deans and other senior staff at Bunda College.

Two meetings were held as part of the mission- first with the Principal and Staff of Bunda College and subsequently with Director School of Graduate studies and Coordinator's of the proposed programmes. The key outputs of the meetings are presented below.

2.4.2 Hosting and Programme Development Arrangements

A) Hosting Arrangements

The Fisheries and Aquaculture programme will be hosted by the Department of Aquaculture and Fisheries, a part of the Faculty of Natural Resources and Environmental Sciences. The PhD in Agricultural Resource Economics will be hosted by the Department of Agricultural Economics in the Faculty of Development Sciences. Both PhD programmes by the time study was conducted were scheduled to be launched in October. That has since been done. This report however, highlights the key learning points for the region as well as the College prepared to launch both programmes. These learning points as the case for the other host Universities of regional programmes are presented below.

B) Programme Curriculum Development

The programmes were developed following in a similar manner to the Makerere University hosted programmes. A survey was used to scope issues to be addressed by the programme. Subsequently, various consultative meetings at institutional, national and regional levels were held to develop the proposal that was transmitted through Department, College and Senate of the University for formal approval and launch. The key areas that can be lesson-learning points include:

- 4. Course and module development.** In both programmes, the course outlines have been developed and approved by the University of Malawi. What remains to be done is module development. During this mission it was apparent no modules would be available for implementation, instead, modules will be developed as courses are taught. A tentative roadmap has been proposed. Course modules will be developed by lecturers at Bunda. These modules may not be ready by October 2009. This is one area that may negatively influence the quality of teaching given that quality assessment mechanisms have not been put in place.
- 5. Course delivery.** In both programmes, the College will account for up to 70% of course delivery. The main challenge is how to get on board other regional actors to engage in the programme. Specifically, Bunda College is relying mainly on funding from RUFORUM to support staff exchange. This means during the first years of programme is it highly unlikely that the wider region may get involved in teaching if funds are not availed. There is need for computers but this is still a problem especially to support teaching besides the laptops. There is still the issue of course books and journal articles for teaching. The Department has also put in place a visiting lecturer office space. The space allocated can cater for a maximum of 3 visitors at a time.

6. **Quality assurance issues.** For the regional programmes, the quality assurance concerns and processes for both regional programmes have yet to be developed and will be done in accordance with the University of Malawi Quality Assurance Policy. The programmes will also benefit from the EDULINK supported quality assurance project. As part of the quality assurance system to be developed the meeting suggested the development of pre-admission assessment tools of potential students, pre-course assessment to scope the depth of coverage during teaching, and final course delivery evaluation of especially the lecturers and course material. The issue of establishing a Regional Quality Assurance System as managed by a Regional Academic Advisory Board (RAAB) is critical but its use by the host Universities is a challenge especially in-line with and as a support to existing systems.

C) Programme management

- **Management at college level.** Bunda College of Agriculture has put in place a 14 member overall College Programme implementation Task Force comprised of Deans of Faculties, the Dean of Students and Dean of Graduate Studies, College Academic Registrar, invited persons with experience in management and/or engagement in regional programmes, the Principle and Vice Principal. The College Task Force is chaired by the College Principal and provides oversight over all graduate programmes of the University in the College. This Task Force has provided leadership in resolving outstanding issues such as student housing, lecture space allocation as well as Laboratory and office space for visiting lecturers and PhD students.
- **Management at department level.** The deputy Head of Department and the Head of Department will manage both Programmes at Department level. Both Department level managers will report to the Dean School of Graduate Studies. However due to leadership changes in the Department of Agricultural Economics, the host for the regional PhD in Agricultural Resource Economics, there may be a change in the leadership from Dr Mannex Mabumba, to a new person. In the Department of Fisheries and Aquaculture, Dr Jeremiah Kangombe will continue to lead the programme.

D) Challenges faced by both programmes

1. **Student admission.** The College has received late applications and at the same time lost two students to other programmes. Keeping the acceptable number of students to economically manage both programmes is challenging especially when the programme delays to start, as is the case for UNIMA. Moreover, attracting students from other member countries to participate in the programme is still a challenge. Both programmes have relied on RUFORUM to advertise them with most students joining through that means. Diversifying this process is still a challenge for an Institution that largely focuses on national training needs.
2. **Teaching materials.** This process has not yet gathered full speed. Albeit, there is need to start the process of developing course models. The critical issue is how to pay for module development to ensure they are of the quality. There is also the issue of increasing Internet bandwidth to support online training and use of Internet. Equally challenging is the issue of developing publicly accessed resources especially intellectual property of the resources developed and used for teaching and research.
3. **Books and other learning resources.** Currently the library is not well stocked to handle PhD level courses. There is also need to diversity learning resources especially, electronic to assure beyond the current facilities managed through Fortunately, Bunda library has the Essential Electronic Library (TEAL), which is up to date (paid for till 2008).
4. **Funding for the programme.** These are the first taught PhD programmes in the University. Implementing such a programme requires that resources be devoted adequately for the programmes. Within the University, there exist other sources of funding such as ARDEP that

could be used to leverage additional resources for both programmes. The Fisheries and Aquaculture programme could also strive to source additional funds from development agencies that previously funded the MSc programme and NEPAD.

5. **Internationalisation of the programme.** As regional programmes, there is need to address the issue of internationalization. The College is cognizant of this issue, however the considered way forward is to embed this whole process into the UNIMA strategy for internationalisation. This process is yet to be done.
6. **Resource mobilization.** The resources being mobilized are not fully adequate and require further mobilization to meet the demand. Of particular interest, is the need to leverage additional resources from going activities at Bunda and or other ongoing regional and national activities. This is where partnership with RUFORUM can be of paramount importance.
7. **Putting in place essential administrative staff.** The success of these regional programmes will require putting in place at least the basic administrative team to manage the programme. This includes addressing logistical issues of student welfare including, travel and immigration, international affairs, course administration etc. There is also the need to put in place the management systems at the host departments e.g. coordinators as well as the governance system at Faculty and College level.
8. **Expanding partnerships to support research and teaching.** As part of the efforts to enlarge capacity for these programmes at Bunda it is imperative that additional partnerships be sought. These new partnerships should target sourcing teaching staff from and outside of Malawi and the region. It also includes sourcing additional funds to support the research activities of the students.

2.5 Sokoine University of Agriculture

2.5.1 Background to the Regional PhD Programme in Soil and Water Management

The mission to Sokoine University of Agriculture (SUA) was conducted as part of a larger mission to Southern Africa conducted at the beginning of August 2009. Sokoine University of Agriculture was selected as a centre to host the regional PhD programme in Soil Fertility and Water Management. The selection was based on Blackie and Woomer 2005 report mentioned in earlier reports. This component of the report is derived from two visits to SUA (5th June 2009) and August 5th 2009. Meeting attendees during the first mission included Prof Musaki, Dr Kaaya, Prof Tarimo, Prof Kilasara and Dr Nyambilila. The first mission mainly consulted with the host Faculty and Departments leadership whilst during the second mission the meetings involved meetings with University management represented by the Vice Chancellor, Professor Monela, G.C., Deputy Vice Chancellor Finance and Planning Professor Kambarage, Deputy Vice Chancellor Administration Professor Pereka, A., Director School of Graduate Studies Professor Matovalo, Deputy Dean Agriculture, Dr Kaaya, Dean Faculty of Agriculture Prof Tiisekwa, Head of Soil Science Department, Prof Musaaki several senior staff in teaching and non-teaching departments of the University as well as students. Highlights of progress made and commitments on implementation of the PhD programme are described below.

2.5.2 Hosting and programme development arrangements

A. Hosting Arrangements

The Department of Soil Science in the Faculty of Agriculture of the Sokoine University of Agriculture will host the Regional PhD Programme in Soil Fertility and Water Management. The department has a long history of running postgraduate programmes at master's degree level and extensive experience in under graduate studies. At SUA as of now, all PhD level programmes are by research. As with all the RUFORUM PHD programmes, the new course will be by both by course work and research. Courses will be administered by both Soil Science Department and Department of Agricultural Engineering.

B. Curriculum Development

The Curriculum is under development and has been subjected to a process that involves scoping and national and regional consultative processes. The programme is being developed as a four-year degree programme involving course work and research. The national and regional stakeholder meetings were held at Morogoro in March 2009 and Dar –es-Salaam in April 2009, respectively. The programme is slated for submission to senate for ultimate approval in September 2009. Key steps undertaken to develop the programme include:

- **Development of course outlines and programme description.** This has been done and the programme submitted through the Faculty board to Senate for approval. This process is critical for development and approval of all degree programmes at SUA.
- **Teaching staff.** The host department has 19 academics staff (10 with PhD on soil and water). These staff will form the backbone of lecturers for the programmes
- **Research and thesis supervision.** The University has 22 PhD staff with potential to supervise thesis research under the new programme. Under the new arrangement of regional programmes of having doctoral committees, a new procedure, SUA is yet to put in place the mechanism for its implementation. The University will draw on its own past experience in PhD programmes by research.
- **Thesis development.** Currently the student, review and formal approval of a final proposal that then frames the PhD thesis goes through a step-wise process that involves, first the presentation of a synopsis. Under the new programme, it is proposed that each student's thesis proposal will be developed during the first year as course work is being done. It is proposed that the doctoral team or supervisors will guide the development of the proposal and finally the thesis. Effort will be made to link research to ongoing research activities.
- **Teaching materials.** Course materials especially the modules are yet to be developed. The scope of these materials are yet to be determined as well as developing them as open source materials for internet use at SUA and the region. Following discussions with SUA staff it was clear that by the time of the launch of the programmes, course module may not have been fully developed. Accordingly, this process will have to be done along with course delivery.

B) Institutional Arrangements in Place for the Proposed Programme

- **Student welfare.** The mission was informed that SUA has put in place a new policy on student accommodation aimed at improving student welfare. The office of the Vice Chancellor Academic Affairs is working to provide accommodations for the students. Currently interim arrangements have been made to accommodate them at one of the University houses in Morogoro Town. A key challenge is the need to repair and maintain high quality of buildings. SUA also has a working process to handle student healthcare using insurance managed by the University. The University also has a student cafeteria on campus that can be used by the students.
- **Regionalization of programmes.** SUA will need to liaise with RUFORUM to source additional resources but also as a new member of the organization there is need to network with other members. This aspect will be critical for module development.
- **Internationalization of programmes.** Discussions with the staff in the hosting Department and Faculty revealed the need to put in place an international office to handle various international affairs of the new programme. This office will address among others travel, visas, local travel and airport transfers, settling-in etc. It was proposed that the programme hire an assistant to manage this office.

- **Office space.** The host Department has allocated space for student office space. It however needs partitioning and wiring to handle computers and other electrical paraphernalia. Office space will be shared with the department of Agricultural Engineering. No lecture space has been put in place but this could be readily found as well.
- **Student transport.** The Faculty has limited transport, but is doing all it can to ensure that it uses the facilities available for the benefit of all. Particularly, the Faculty is repairing a minibus to facilitate transport as a temporary measure. The Department however, is hoping that the bus budgeted for in the programme proposal to AGRA gets funding.
- **Funding generation and cost sharing rebates.** SUA has a system of resource rebate from the central administration to the academic departments. Discussions with the host Department of the regional programme on the amount of the funds received through these rebates indicates that there is need to negotiate with the central administration to improve the total amount of funds that will be received at the Department level for the new programme.
- **Quality assurance systems.** This is yet to be fully addressed. The development of taught PhD programmes carries along new demands for assuring quality in teaching and research quality. Some of the issues that need to be addressed include the roles of doctoral committees, mentoring, publications, relevance to development, anchorage to competitive grants and other ongoing R4D activities at a national level, roles of graduate seminars, access to literature as well as putting in place active research programmes to support training still need clarification.

C) Programme management

Governance. The programme will be answerable to the University Senate and other Governance organs of SUA. The Vice Chancellor and Deputy Vice Chancellor academic affairs will provide overarching guidance to the programmes. This process will be led by the Dean of the Faculty of Agriculture. The Dean is also expected to provide oversight in the management of the programme.

Management. At Department level, management will be done by the Head of Soil Science Department and a management team under the overall leadership of Deputy Dean of Faculty of Agriculture (Dr. Kaaya). Currently the host department has a steering committee that has played significant roles in day-to-day management aspects of the programme. The deputy dean postgraduate school will guide the academic processes especially in the development of the programme. A key assignment is to fully develop clear terms of reference for the management of the programmes.

D) Resource mobilization

The main source of funds will be AGRA to support 20 PhD students in two cohorts. This proposal has been already submitted to AGRA. RUFORUM will support 6 students at an (360,000USD). Additionally, RUFORUM will work with University of Hohenheim in Germany to seek additional support to the RUFORUM programmes.

2.6 Synthesis of Key Implementation Issues From Ongoing and Planned Programmes

On the basis of the meetings held with the five proposed centres of leadership of RUFORUM regional programmes the following issues emerge as critical and best practices in place. These issues can be picked up and used to design guidelines of the implementation of the programmes as competitive and impact oriented outputs of the host universities and RUFORUM in general.

2.6.1 Critical areas/actions that must be put in place

1. **Competitive Curriculum.** A key aspiration of all these programmes is to put in place very competitive programmes. So far at the University of Nairobi, Makerere University and Bunda College of Agriculture, teams drawn from the host University, regional actors and, to an extent, international actors have developed the programmes. For all these programmes, a key challenge has been the development of course modules and other teaching resources that are easily available to both students and any other interested parties. Moreover all these programmes have been developed as host University degree-programmes, and thus the design may have not inbuilt aspects for regional credit transfer, teaching and student movement. Addressing this issue is critical for joint learning and evaluation purposes by RUFORUM and other actors.
2. **Curriculum delivery.** In all the ongoing programmes the major curriculum delivery method is teaching with more roles of teachers than student based activities. Moreover, the use of modern ICTs with exception of Microsoft Power- point during lectures is limited. The development of E-based teaching and design of student-centred-learning activities could support the transformation of curricula delivery to student centred learning. Some of the key tenets of student-centred-learning that need to be addressed include:
 - Focusing on helping students to discover their own learning styles, to understand their motivation and to acquire effective study skills that will be valuable throughout their lives. The learner has full responsibility for her/his learning.
 - Involvement and participation as necessary for learning.
 - The relationship between learners is more equal, promoting growth, development.
 - The teacher becomes a facilitator and resource person.
 - The learner experiences confluence in their education with the learner seeing himself or herself differently as a result of the learning experience.

Lecturers wishing to ensure a student-centred approach must know their students and their backgrounds in order to help them develop appropriately. Accordingly, there are cultural and personal issues to be addressed, as student-centred learning will be different for each group.
3. **Quality assurance.** In all the Universities it is clear that there are Quality assurance systems for especially teaching. The quality assurance systems for research are just being developed. This is mainly due to transformation from teaching to research led universities. The implementation of research and course work based programmes introduces new challenges that need to be addressed. This is where the proposed regional pilot quality assurance project would help. In the mean time there is need to carefully design and operationalise the Regional Academic Advisor Board (RAAB), critical body for regional support to quality assurance of these programmes.
4. **Resource mobilization.** In all the host Universities and countries graduate studies receive very limited support. The creation of high quality PhD programmes further exacerbates the situation. In all the programmes, the issue of resource mobilization has been mainly undertaken by RUFORUM. The long-term success of these programmes will depend on the development of systems for funds generation and rationalization, host universities must actively engage in resource mobilisation for the programmes.
5. **Student recruitment.** Currently four regional programmes are underway. In both programmes there is a less proportion of regional students compared to nationals in the hosting country. An aggressive marketing and student recruitment drive is thus necessary for the long-term success of the programmes.

6. **Institutionalization of operations.** In all the Universities the standard systems for development and approval of programmes was and are being used. There are however differences when it comes to implementing the approved programmes. At Bunda College a two pronged approach is used- a college wide committee and department level committee led by the head and a coordinator. At University of Nairobi, the programme implemented by the Head of Department (LARMAT) and a Faculty Committee; at Makerere University, the programme is implemented by a Faculty level committee with coordinators that reports to the Faculty Graduate Committee. This variability notwithstanding, demonstrates variability in operations at institutional level but nevertheless shares one key principle, selecting the best working solutions. This in principle is the way to go, securing diversity for generating similar results.
7. **Regionalization of programmes.** An important aspect of all these programmes is the need to address adequately the issue of regionalization. In both the Dry lands and Plant breeding programmes, there have been efforts to involve other lecturers from Regional Universities. One fundamental aspect of regional programmes- i.e. student and credit transfer is yet to be fully realized. This aspect needs to be addressed in the mid-term, if the principle of shared resource-use is to be realized.
8. **Student welfare and internationalization.** All programmes involve international students. Moreover, they will increasingly need to attract more students and personnel from within and without the region. There are some typical challenges that all the programmes will need to address i.e.
 - Student welfare –accommodation, work and study permit etc.
 - Staff and student movement.
 - International and regional agreements and permits, etc.

2.6.2 Best Practices Observed During the Mission

2.6.2.1 Curriculum Design, Delivery and Quality Assurance

1. **Curriculum design.** All the four programmes currently operational have employed a rather participatory and highly consultative process in curriculum design. The process has ensured ownership and relevance of the programmes, by the hosting departments and universities. All remaining programmes and others to be designed should in principles follow this clear path which involves:
 - Articulation of demand at national level with diverse actors.
 - Regional and international consultation to enrich the curriculum.
 - Curriculum development by a regional team.
 - Review of curriculum at national, regional and international levels.
 - Institutionalization of the new programmes through the relevant university structures.
2. **Curriculum delivery.** At Makerere University a combination of international, regional and local staff were used to deliver the programme. The programme also drew staff from other similar programmes in the continent such as from the African Centre for Crop Improvement of the University of Kwazulu Natal. At the University of Nairobi, staff from Makerere University and other places were involved in teaching. These combinations of teachers helped improve quality of teaching as well as lesson learning within the sub-region. This is an example of what could be up-scaled.
3. **Crosscutting and practical skills.** A core part of these regional programmes is the inclusion of crosscutting skills in the curriculum as well as providing the students with hands on

experiences in their respective fields. In the two programmes that have completed their course work (Makerere University, and University of Nairobi) together with Egerton University, development of crosscutting skills and practical training as part of training is on going. This will distinguish the graduates from these programmes from those from others, which do not offer this kind of support.

4. **Access to learning/teaching materials.** In all the Universities piloting the regional PhD programmes, there exist electronic journals, albeit at various levels of subscription. The gist of this issue is that the students have access to some recent journal publications to underpin proposal development and support private study and thesis writing. A key issue however is access to course books that still needed to be addressed.
5. **Infrastructure for teaching.** In all the Universities piloting the regional PhD programmes, there are efforts to provide space for teaching and, to an extent, research. At University of Nairobi, the University bought transport specific for the programme. At Makerere University and as is planned at SUA, the Faculties are providing local transport for the student.
6. **Programme wide- quality assurance system.** This mission noted that the quality assurance system as developed and used in Kenyatta University is an example of a holistic approach to quality assurance in delivery of quality services by a public university. The system addresses quality issues in operations, teaching and management of the university. Adopting the core principles of such a good practice, with inclusion of research quality will help the region develop highly competitive programmes.

2.6.2.2 Programme management

1. **Management structure.** In all the Universities already implementing programmes, management structures being used demonstrate variability in operations at institutional level but nevertheless share one key principle of selecting the best working solutions. This way each university is able to secure its stakeholder interests whilst at the same time addressing the issue of efficiency. A key issue however is the need to have a fulltime coordinator for each programme.
2. **Funds management.** At the University of Nairobi, the programme receives rebates from tuition paid out at almost 30%. These funds are released in tranches to ease budget use and minimize frequent requisitions. Moreover, the university in order to streamline and ease funds access by the programme uses a Grants Office that manages the programme funds as a project funds. A similar approach is planned for Bunda College. Other Universities without this system may wish to adopt this style of funds management, which eases access to funds.
3. **Harnessing resources existent in University.** At the University of Nairobi, the programme recognizes the need for Internationalisation of the programme. The Faculty of Agriculture and College albeit do not have the capacity and have depended on service provision from International Office of the University. The Unit is addressing a number of challenges associated with international students till the relevant units develop the full capacity.
4. **Institutionalisation.** At SUA, University of Nairobi, and Bunda College, University wide approaches have been used to provide support to the new programmes. This has ensured that operationalisation of the programmes are owned and tap into other resources of the University It is an approach worth emulating albeit with room for adaptation to local situations.

2.6.2.3 Resource mobilisation

3. **Own resource mobilization.** Again the case of the University of Nairobi and Makerere University, provide examples of what can be done when there is commitment from the University leadership to support programmes. All new programmes will have to charge

competitive tuition fees, but the hosting units must be able to access these if the programmes will be able to run effectively. In the case of University of Nairobi a 30% rebate has been able to run the programme. New programmes may wish to review the tuition rebates to the implementing institutions.

4. **Additional funds mobilisation.** Currently only the University of Nairobi has significant funding for its programmes. The rest do not have this type of support. It is desirable that prior to launching these programmes efforts be put in place to secure the funds. This could be done with support of RUFORUM. Each University through partnerships with diverse stakeholders should also raise additional funds, as was the case for Makerere University. Such efforts are worth replicating in the region.

3 Quality Assurance Imperatives

3.1 The Quality Assurance Demands of Regional Programmes

3.1.1 Towards Regional QA Systems for Eastern, Central and Southern Africa

3.1.1.1 East Africa

Among most of the Public Universities in Eastern, Central and Southern Africa the authority for assurance of quality in higher education rests with commissions and councils of higher education. Regionally organised quality assurance frameworks that embrace internationally recognised standards have gained popularity. Accordingly, in 2006, three East African higher education regulatory agencies - the Commission for Higher Education of Kenya, the National Council for Higher Education in Uganda and Tanzania's Commission for Universities - signed a memorandum of cooperation in a bid to streamline and harmonize higher education accreditation, quality assurance practices and procedures in the region.

The purpose of this quality assurance system is to promote adherence to appropriate academic standards and acceptable learning environments for the regions universities to compete effectively globally. The proposed system will also put in place standards for comparability of university education among member countries. It should however be noted that the system being designed will initially focus on undergraduate education- largely a teaching based mode of training. The graduate training on the other hand requires design of supportive tools and systems for teaching, research and outreach. The process of developing a regional quality assurance system for the region is described below²:

In September 2005 the Inter University Council for East Africa (IUCEA) Governing Board observed that there was need to establish an East African quality assurance framework in order to address the need to:

1. Participate in and to promote cross-border education within and outside East Africa.
2. Set higher education quality standards for East African universities in view of on-going expansion of the same.
3. Safeguard the quality of outputs from East African universities against international competitors as a result of globalization, etc

This initial process led to the creation of a regional quality assurance standing committee in March 2006 with functions of:

1. Advising IUCEA Governing Board on all QA issues within a regional framework.
2. Promoting and constantly reviewing QA mechanisms in East African universities.
3. Maintaining QA linkages among universities in East Africa, and between universities in East Africa and the rest of the world.
4. Carrying out any other activity relating to the promotion of best QA practices in East Africa.

Consultative meeting by the IUCEA quality assurance standing committee in and outside of the region identified key areas that needed to be addressed such as:

1. Strengthening QA at universities;
2. Strengthening/consolidating existing national QA review agencies;

² Source: IUCEA website and associate partners- www.afriquinitis.org/public_documents/2-IUCEAEdulinkOct08.pdf,

3. Exploring the possibility to establish a more market oriented QA framework with a supra-national agency for accrediting the national agencies;
4. Starting a regional QA review agencies forum;
5. Establishment of an East African Quality Assurance Network;
6. Development of national and regional QA management systems;
7. Training of QA managers.

In June 2006 a regional workshop identified critical steps for creation of a regional QA system such as

- There was need to harmonize university QA regulatory and accreditation through establishment of a common QA framework in East Africa;
- There was need to establish regional QA office, preferably within the IUCEA to set uniform higher education benchmark quality standards for all universities, whose adoption would be purely on a voluntary basis;
- IUCEA protocol gives the council the legal mandate to undertake QA activities in the region;
- IUCEA should prepare a QA handbook for East African Universities.

Since then QA handbook for the region serving two main purposes has been developed. The purposes are given as:

- Spelling out the objectives and goals of a common East African QA framework and establish appropriate QA instrument;
- Defining QA and benchmark standard guidelines for university core activities.

This handbook nevertheless recognizes the diversity in the region both at country and institutional levels. Accordingly it has been designed to:

- Cover the common denominators of higher education QA practices in East Africa, in a broad and general approach.
- The QA instruments will have to be adapted to the national context of each country.
- The instruments will have to be adapted to each university's own situation.
- Within a university they will have to be adapted to the specifics for a particular faculty or programme.

These developments nevertheless, show the need to develop custom QA tools for the regional PhD programmes, something RUFORUM is keen to undertake.

3.1.1.2 Southern Africa

The management of quality in higher education is similar to what has been described for East Africa; albeit with efforts to create a regional system that embraces the diversity of quality assurance systems in the sub-region. Accordingly, a regional programme called the Higher Education Quality Management Initiative for Southern Africa (HEQMISA) has been developed focusing on quality management in higher education institutions of Southern Africa. The current composition of HEQMISA includes the Universities, Teacher Training Institutions, Quality assurance units/organisations and the Ministries of Education of the SADC countries.

HEQMISA was founded in January 2003 in Malawi at a meeting of some SADC University Vice Chancellors and interested collaborators. HEQMISA has been recognized by SADC Secretariat and the Association of African Universities (AAU). It also has links with the Southern African Regional Universities Association (SARUA), the Southern African organization that looks after the interests of the

universities in the Southern Africa region. The given aim of HEQMISA is to assist Higher Education Institutions, through quality management programmes to contribute to the sustainable economic growth, poverty reduction, human development, social justice and political stability in the SADC region. This focus recognizes the expansion and establishment of quality management paradigm and activities to improve the teaching, learning, research and management in Higher Education Institutions and enhances the ability to provide outreach and consultancy services. The key activities of HEQMISA are given below³

1. Strengthening regional co-operation

1. Establishing linkages with relevant bodies.
 - Clarifying and strengthening relationship with SADC Secretariat.
 - Establishing relationship with Ministries.
 - Establishing links with higher education bodies.
 - Developing public relations brochure/flyer.
2. Establishing a database on quality management in higher education institutions in the region.
 - Establishing country databases on higher education institutions.
 - Surveying quality management status in participating institutions.
3. Developing a framework for staff exchange.
4. Facilitating the development of joint activities in pilot institutions.
5. Facilitating the exchange of best practice in curriculum review.
6. Developing proposal on cross border accreditation for quality management programme.

2. Establishing quality management systems and programmes

- a. Developing a conceptual framework for quality management systems
 - Disseminating guidelines for information awareness
- b. Piloting quality management system in selected institutions
 - Training of quality management practitioners
- c. Designing and offering generic short course in quality management
- d. Developing marketing strategy and action

3. Sharing of information, knowledge and experiences

Establishing inter-active database (ICT). This also includes facilitating information sharing mechanisms (e.g. workshops, conferences, meetings, seminars, etc).

3.2 Niche and value-added, of RUFORUM quality assurance initiatives

3.2.1 Strategic intervention gap

RUFORUM is supporting the development of regional PhD programmes in Eastern, Central and Southern Africa. In both regions IUCEA and HEQMISA have initiated steps to develop regional QA systems that if operationalized will promote achievement of the RUFORUM objective. A review of the thrusts of ongoing initiatives reveals the following key strategic gaps that RUFORUM supported interventions may latch on to add value and forge synergy.

- a. Both programmes (HEQMISA and IUCEA) are developing frameworks which recognize institutional differences and peculiarities. They therefore cater for flexibility in the design of specific

³ Source www.heqmisa.org.mw. Downloaded 19th November 2009.

interventions.

- b. The QA framework in the case of IUCEA being developed is only meant to guide, each University /programme must customize it to their own needs, while maintaining the key principles.
- c. Both programmes recognize the need to pilot evaluation of targeted programmes. The Regional PhD and MSc programmes may thus latch on this opportunity to modify the instruments and participate on the evaluations.
- d. A key feature of both programmes is the rather wide view of QA issues beyond just teaching and research but ultimate management of quality in all aspects of university operations. This is an area in line with RUFORUM strategic thrusts that should be pursued as well.

3.2.2 Key Quality Assurance Issues From the Mission

During the mission a number of issues related to QA management were observed, best practices taken note of and gaps identified for the targeting of the proposed regional QA system for the regional programmes. These issues are presented below:

1. **Curriculum development.** The quality of curricula is by and large dependent on the steps taken to develop them. The four PhD programmes being piloted have been developed following a needs assessment (national and regional) and subsequently, local and interval review processes. This is a good practice that should in principle be followed in the development of all regional RUFORUM supported curricula. What is needed is to develop full guidelines to follow for the development of programmes, but lessons from programmes may also be picked on and used to develop courses.
2. **Curriculum content.** The key features of these programmes include technical content, crosscutting skills and practical-skills as well as thesis research. Currently, most QA systems have been mainly designed for teaching technical content and not necessarily the kind of issues addressed by these programmes.
3. **Curriculum delivery.** The programmes are designed to be delivered by host Universities (60-70%) and regional and international actors (40-30%). This mix though desirable requires putting in place systems that will assure quality in delivery by both local and regional and international actors. In all the programmes, course modules and teaching materials were being developed along with course delivery. Yet these modules provide a framework for harmonizing and maintaining the quality and delivery of courses. This too is a critical issue that all programmes in the future ought to avoid getting into.
4. **Credit transfer and accreditation.** All programmes have been designed with the key principle of capacity for delivery within the region. However, this is not possible under the current circumstances because of the need for accreditation and putting in place a credit transfer system.
5. **Management of QA.** It is apparent that all programmes will rely mainly on the existing QA tools and systems of their host universities. Issues of relevance and comparability in the region thus become apparent. For these to be adequately addressed it will be desirable to put in place instruments that measure quality from input (students and curricula, through delivery and impact levels to communities. It is in this aspect that the opportunity placed by regional programmes ought to be latched on.
6. **Management of the programmes.** Two main approaches of management are being used- fully managed and run by existing structures and semi- detached with management by select committees. What is apparent from both systems is the attempt to run the programmes within the confines of existing structures and procedures. For regional programmes a harmonized system will go a long way in supporting the development of a common pool of experiences that

assure efficiency and uniqueness of these programmes. This will in short avoid them being “swarmed-up” by weak existing structures.

7. **Student welfare and internationalization.** Given the fact that all these programmes are in fact international programmes, there is a need to put in place mechanisms for student and international staff movement as well as systems to support their welfare and operations. Linkage to the international offices that in most universities are still under development could help. But more importantly, institutionalising this within host Faculties is of importance, as it will ease operations.

4 Key Recommendations

The delivery of course based PhD programmes is a new concept in the region that has mainly run Research only based studies. This carries along with it a number of challenges in the form of insufficient human capacity, inadequate funding, and lack of standards and mechanisms for regulating the quality of cross-border education. On the basis of these and other issues raised, the study makes the following key recommendations

4.1 Curriculum development and implementation

1. **Development.** As observed during this mission, curricula developed through wide stakeholder participation led to development of very competitive programmes. This should in principle be the way to go for all regional programmes. It is recommended that all programmes should involve national, regional and international consultation and review processes in their development.
2. **Delivery.** Currently programmes are mainly being implemented by the host universities. This is not exactly in line with the principle for regionality. All programmes should endeavour to implement programmes involving at least 20% of regional staff to tap into expertise and contribute towards sharing of expertise in the region. This could also be done in student supervision.
3. **Quality assurance management.** It is apparent that all programmes will rely mainly on the existing QA tools and systems of their host universities. Issues of relevance and comparability in the region thus become paramount. For these to be adequately addressed it would be desirable to put in place instruments that measure quality from input (students and curricula), through delivery and impact levels to communities. It is in this aspect that the opportunity placed by regional programmes ought to be latched on. Some of the tools to be developed include pre-admission assessment tools of potential students, pre-course assessment to scope the depth of coverage during teaching, and final course delivery evaluation of especially the lecturers and course material.
4. **Accreditation and credit transfer.** This remains a challenge that cannot be directly implemented by the host Universities *per se*. It is a case where RUFORUM should work with regional agencies and the RUFORUM Board to develop and pilot a system that meets international standards and supports competitiveness within the region.
5. **E-learning.** Currently all programmes do not have E- learning resources. There is need to develop these for the good of the students, ease of learning and teaching and increasing access to knowledge and best practices.

4.2 Programme management and funding

1. **Management.** A key challenge is the maintenance of these programmes especially as learning points to improve graduate training. The two main approaches of programme management being used- fully managed and run by existing structures and semi- detached with management by select committees offer both opportunities and challenges for effective delivery. For regional programmes a harmonized system will go a long way in supporting the development of a common pool of experiences that assure efficiency and uniqueness of these programmes.
2. **Management frameworks.** To support the design of an effective implementation that can be monitored, it is recommended that each programme should develop an implementation plan. This Plan should among others, also show deliverables, yearly work plans, monitoring

and evaluation system.

3. **Financing.** Hitherto funding for the programmes has mainly relied on RUFORUM. The long-term success of these programmes will require the host Universities to jointly work singly and jointly with RUFORUM Secretariat to mobilize resources. It is recommended that each Host University should undertake an audit of existing national and international opportunities akin to their programme and along with RUFORUM tap-into these resources. It would be desirable if host institutions can raise at least 40% of operational budgets through various means. Currently each member University has various regulations for fees rebates to implementing institutions. A transfer of say 30% and an additional 10-15% generated through various means would improve management of the programme.

4.3 Facilities for training and research

1. **Training.** RUFORUM and the Host Universities will have to work in concert to put in place facilities for high quality training. This may include among others- video-conferencing facilities and especially access to library resources. The training of lecturers in the use of E-learning is also critical. The high costs associated with this imply that RUFORUM may mainly act as a broker and advocate rather than a funding agency. A road map towards use of especially E-resources for teaching is critical as the first step in this direction.
2. **Research.** High quality research requires good facilities. What is apparent is that a university may not have all these in place. Partnership is therefore the way to go. Partnerships however carry with them challenges especially costs and Intellectual Property. It is therefore recommended that RUFORUM along with host institutions develop framework agreements (MOUs, letters of agreements, material transfer agreements etc) to be modified and used by various programmes. Along with this RUFORUM should also initiate a formal contact with the CGAIR institutions in the region and develop MOUs to support the regional PhD research.

4.4 Student welfare and internationalization

All these programmes are in fact international programmes. Accordingly, there is a need to put in place mechanisms for student and international staff movement as well as systems to support their welfare and operations. A key issue for all host faculties is to hire and/or appropriate funds or persons to oversee this task. Equally important, is the need to address the issue of student housing which should actually be done with support of the University management. The Bunda College model in which the College has undertaken to build new facilities for the regional PhD programmes is recommended.

5 Annexes

5.1 Annex 1. Questionnaire used to Scope the implementation of the regional PhD and MSc In Plant Breeding and seed systems.

Dear Stakeholder,

Please help and complete the questionnaire and return, preferably by 15 June 2006, to: pokori@agric.mak.ac.ug with copies to eadipala@agric.mak.ac.ug and eadipala@yahoo.com

THANK YOU FOR YOUR HELP

Operationalisation of RUFORUM Strategic Initiatives: Pilot PhD programmes in Plant Breeding and Biotechnology and MSc in Plant Breeding and Seed Systems

Following the approval of the RUFORUM Programme of Action by the Annual General Meeting and subsequently by the Board of Directors in August 2005, the Secretariat has initiated implementation of some of the Strategic Initiatives, one of which is Piloting Regional based PhD training. Pilot PhD programmes were subsequently identified through the Blackie and Woomer (2005) report and the meeting of Deans from the RUFORUM member universities, basing on regional demand and capacity to implement these programmes. RUFORUM now proposes to implement two programmes, PhD in Dryland Resource Management to be based at the University of Nairobi, Kenya and PhD in Plant Breeding and Biotechnology, to be based at Makerere University, Kampala, Uganda. These programmes are to utilise human resource from other RUFORUM universities and elsewhere. To help guide the process and other regional-based graduate training programmes, please help and answer the questions below.

1. Which programme are you commenting on?

- Plant breeding and biotechnology is the default in this case

2. What should the programme aim to achieve and what is the added value (if any) to other on-going similar PhD training programmes?

- What should the goal of the programme be:
- What is the Added value:

3. What should be the core and elective courses, and how should they be organized over a 3-4 year time frame?

- Core courses
- Elective courses

- Suggestions for sequence of courses

4. What research areas would your university/ or others in and outside the region that you know of, or your country wish to be handled by this programme?

5. What modalities / arrangements should be put in place to ensure quality training and research outputs/outcomes?

6. What human resource is available in your university/ institution or any other organization you know of to contribute to this Programme?

7. How do we promote broader regional ownership for this and other similar programmes?

8. What are the likely success and failure factors?

- Success factors
- Failure factors

9. Any other suggestions/comments?

10. If you wish to be contacted further, Please indicate your contact details below. The same tool was used for Dry lands PhD programme at University of Nairobi.

Annex 2. Assessment of background knowledge to courses administered under regional programmes

A) Name of the Course Unit: _____

B) Bio-data

1. Name of the student _____
2. Undergraduate Degree _____
3. Post Graduate Degree _____
4. Previous Degree awarding institutions attended University

C) Background courses attended

1) Relevance and or related to course to new course (s) done in the past. Please list them

2. Level of subject undertaken (***tick as appropriate***)

i) Under graduate (ii) Post graduate level (iii) Other training

4. Confidence in previous knowledge acquired

(i) Very confident (ii) Confident (iii) Slightly confident (iv) Non –confident (v) Forgotten

5a. If the answer is (***i-iii***) please provide an answer in the space below

5a. If the answer is (***iv-v***) please provide an answer in the space below

D) Expectations by students

6. What are your expectations for attending this course

E) Practical experience

7 Briefly describe you level of practical knowledge in the subject area. Please grade them as

(i) Excellent (ii) very good (iii) Good (iv) fair (v) Limited or poor and explain in the space below

F) Lesson learning

8. On the basis of your experience in past courses, what worked really well that could be adopted to improve

i) Teaching

ii) Student participation

iii) Practicals

iv) Examination processes

8. Any other comments

Please fill in and return before the beginning of the course unit.

Annex 3. Broad Guidelines being used to develop Course assessment tools used to evaluate the quality of course delivery under regional programmes

Dear Student,

The purpose of this course assessment is to evaluate the programme with a major purpose of improving the quality of future training. It is recognized that during course instruction, you have engaged with the lecturer in learning with you the student being also a source of information. We also recognize that you may have experiences in your own right, which could be used to improve the quality and especially delivery and learning environment for future students. This questionnaire seeks to address at least four areas

1. **The types of things we want to assess.** These could include such things as knowledge, attitudes, communication skills, etc.
2. **Whom we want the input from.** This includes mainly self-assessment as well as peer-assessment for fellow course mates.
3. **When we want to collect the data.** This could be once or twice during the semester
4. **Purpose of the assessment.** We want to use it to improve and/or assess teaching and learning, Share the results with colleagues and use it to evaluate performance of lecturers.

The detailed online QA assessment tool will be developed by the quality assurance programme of RUFORUM in conjunction with partner Universities. Key areas it will address include:

A) ATTRIBUTES OF THE COURSE UNIT

- 1 Name of the Course Unit: _____
- 2 Number of credit Units _____
- 3 Total hours of lecture attended _____
- 4 Total hours of Tutorials attended if applicable _____

PART I. STUDENT LEARNING OBJECTIVES

A) Educational context. What the programme seeks to achieve, derived from the programme

B) Curricular objective. This will be obtained from the programme write-up
Curricular objectives addressed by this course: (To be filled in by respective Course leader

C) General education objectives (This will be obtained from the programme write-up). It may also be derived from curriculum objectives

D) Course objectives and student learning outcomes This will be obtained from the programme write-up

| Course Objectives | Learning outcomes by the student |
|-------------------|----------------------------------|
| 1 | a |
| 2 | b |
| 3 | c |
| 4 | d |
| 5 | e |

| | |
|---|---|
| 6 | f |
| 7 | g |
| 8 | h |

PART II. Assignment design: Outcomes, Activities, and Assessment tools

E) Objectives addressed in assessment assignment

| |
|---|
| Course objective(s) selected for assessment: (to be derived from specific course objectives) |
| |
| |
| Curricular Objective(s) selected for assessment: (to be derived from curricula objectives) |
| |
| |
| General Education Objective(s) addressed in this assessment: to be derived from programme objectives |

PART III. ASSESSMENT STANDARDS (RUBRICS)

As part of the assessment a description of the standards by which students' performance will be Measured will be provided as a checklist. The modalities of its administration to the students will also be determined as part of the tool development. assignment.

PART IV. ASSESSMENT OF RESULTS

The tool to be developed will also be included mechanisms for receipt and utilization of respondents from students.