

**ENHANCING RESEARCH CAPACITY AND  
SKILLS IN EASTERN AND SOUTHERN  
AFRICA Project 9-ACP-RPR-118 #9**

**TERMINAL EVALUATION**

**Draft report**

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**Regional Universities Forum for Capacity  
Building in Agriculture (RUFORUM)**

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## List of acronyms and abbreviations

AICAD	African Institute for Capacity Development
CGIAR	Consultative Group on International Agricultural Research
CTA	Technical Centre for Agricultural and Rural Cooperation
ESA	Eastern and Southern Africa
EU	European Union
GIS	Geographic Information System
HEI	Higher Education Institution
ICIPE	International Centre for Insect Physiology and Ecology
ILRI	International Livestock Research Institute
JKUAT	Jommo Kenyatta University of Agriculture and Technology
KARI	Kenya Agricultural Research Institute
MAK	Makerere University
NARES	National Agriculture Research and Extension Systems
NARI	National Agriculture Research Institute
NARS	National Agricultural Research System
NIDA	Nkoola Institutional Development Associates Limited
R4D	Research for Development
RM	Research Methods
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SDM	Scientific Data Management
SSC	Statistical Service Centre
ToT	Training of Trainers
UNIMA	University of Malawi
UNZA	University of Zambia

## Executive summary

The project on enhancing research capacity and skills in Eastern and Southern Africa (ERESA) was conceived with the aim of building, sustaining and strengthening regional capacity for impact oriented research for development through training programmes which provide a solid foundation in research methods and promote collaborative networking to exploit regional research potential and inform policy. Project implementation commenced in February 2009 for a 3 year period and ran through to November 2011. ERESA was implemented by RUFORUM and its partners:- University of Reading (Statistical Service Centre, SSC), Technical Centre for Agricultural and Rural Technology (CTA), Makerere University (MAK), Jomo Kenyatta University of Agriculture and Technology (JKUAT), and University of Malawi (UNIMA). RUFORUM engaged Nkoola Institutional Development Associates Ltd to undertake a final project evaluation to establish extent to which project objectives were achieved in relation to targets and indicators in the logframe; analyze the outcomes and impacts of the project and draw up some recommendations for future action after the project.

**Methodology:** Data was collected through a review of literature on project documents; key informant interviews with RUFORUM secretariat staff, students of the MSc Research Methods (RM) course and staff who were involved in delivering the modules; and an email questionnaire to project partners.

### Findings:

#### **1. Establishing, developing and strengthening partnerships and institutional arrangements to support quality training**

Key achievements under this result are include: formation of Student Advisory Committees and Research Task Forces and the establishment of partnerships with JKUAT, UNZA, UNIMA, MAK and SSC as well as linkages with National Agricultural Research Institutions and International Research Centre (CGIAR), among others thus achieving its performance target requiring that at least 3 partnerships are formed or strengthened and operational by December 2010. Inter-institutional networking was enabled as an interdisciplinary and inter-institutional pool of trainers and lecturers were drawn from the RUFORUM network to deliver MSc RM and staff participated in the short courses for retooling. 20 resource persons including staff of JKUAT, SSC, Moi University, MAK, Africa University, University of Nairobi, Maseno University, International Centre for Insect Physiology and Ecology (ICIPE), and International Livestock Research Institute (ILRI) participated in delivery of modules for the MSc RM thus achieving the minimum target number of resource scientists from ESA and EU participating in the joint training.

#### **2. Developing, testing, verifying and sharing modules, approaches, and tools for capacity development using 'real world' examples in the area of research methodology**

A total of 18 modules were developed and offered at JKUAT during the first and second years with a shortfall of 2 from the proposed target of 20 modules. Nevertheless, it surpassed the target of developing and testing 5 modules by December 2009 while it attained 90% achievement of the proposed target of 20 modules by end of project. Key shortfall was in the inability to publish the reviewed and updated course modules due to financial flow problems. The Moodle site was set up

in the first year, initially hosted SSC and later by JKUAT, to serve as a central location for all materials relating to the MSc RM. It has been noted to ease access to research materials in JKUAT by staff and students; and promote self-learning and e-learning thus contributing to agricultural research capacity strengthening amongst staff and students, notably at JKUAT.

New versions of CAST electronic books were produced and availed to MSc students and lecturers although many lecturers had not yet fully integrated them into the modules. Students' feedback was positive, noting that the books simplified principles and techniques which they had previously found hard. Furthermore, the project produced a set of 50 case studies, games for teaching statistics research design principles, and guides on statistical software and research methods- all of which were availed to resource persons via the website and distributed by DVD.

### **3. Developing and strengthening regional and national capacities for enhancing research quality**

41 teaching staff and 20 NARs staff were trained through two TOT workshops held in Kenya and Uganda; while 3 retooling workshops for facilitators to equip them with new skills in teaching, online learning and module preparation; and 3 writing retreats for development of electronic content for regional training programs were conducted-the latter resulting in the development of 6 modules of the MSc RM course. The SDM course was evaluated positively and participants were empowered to conduct similar courses in their institutions. The short courses on SDM proved an effective way of contributing to the harmonisation of statistics training in the region. However, limited past exposure to and experience with use of e-learning platforms, perceived inadequate training on these, and the lack of a follow up strategy to ensure that e-content was updated regularly were noted to have undermined effective use of the Moodle site by lecturers.

Project achievements surpassed design targets with respect to giving postgraduate students remedial courses in research methodology as 148 students participated in the trainings on SDM and proposal and scientific writing, and the e-learning RM short course. However, scaling up this course to other regional postgraduate programs was not possible due to inadequate funds. Poor timing of the courses, short duration of the SDM course and lack of effective demand to participate in the short courses were cited as key factors that impaired their effectiveness.

A two-year curriculum of a course based MSc in RM was developed and conducted by an inter-institutional pool of resource persons with support from SSC in delivery and technical backstopping of the modules. This course was unique in its regional nature; its use of a modular approach; delivery through facilitation; and use of e-learning facilities, as well as its focus on applied research for agricultural development in Africa. It registered a total of 63 students during the project life span (29 in the first cohort and 24 in the second). The course is equipping a new generation of agricultural scientists from across the region with expertise in the production of high quality, demand-driven research as they have acquired both hard science analysis skills and range of soft skills. On an institutional level, the course induced changes in teaching delivery methods for other courses in the host faculty and other faculties at JKUAT; and increased capacity for research in the universities through increased access to GENSTAT software. Students are attached to institutions during their second year for them to gain practical work experience. They were attached in 5 countries (Kenya, Uganda, Tanzania, Malawi, Ethiopia and Mozambique). A guide for the

attachments was developed with guidelines on choice of institutions, student conduct and expectations, and the module ARM 3107 was offered to prepare students for these attachments.

Among the challenges faced during implementation of the MSc RM course were: the use lecturers who had not been retooled due to the unavailability of the selected resource personnel; slow internet and interruptions; limited resources for monitoring coupled with physical distance which restricted supervisors' visits during field attachments; and high intensity of the modules owing to their short duration. Overall, the project surpassed its design targets in two out of the four performance indicators under this result area, while it achieved above 50% on one indicator.

#### **4. Establishing, developing and promoting knowledge management and communication systems for joint learning, sharing and scaling up.**

The project achieved its performance target requiring that at least 3 networking/joint learning forums are held and documented by December 2011 with over eight meetings and workshops held; 3 writing retreats organised for staff; and a project blog and the web based Moodle LMS established. It also achieved its target of developing and sharing at least 30 communication products by the same period as the MSc Research Methods facilitators' guide to developing and teaching course modules, articles in the *RUFORUM monthly* newsletter and pull up stands were produced; 2000 copies of project summary brochure were produced and distributed, over 500 copies of an MSc program prospectus were distributed in various conferences and meetings; the Research Methods DVD of teaching was distributed to all resource persons and students in the first cohort; and DVD on case studies was produced. In addition, papers on the MSc RM were presented at two conferences and 29 theses were produced by graduates of the first cohort.

#### **Conclusions**

Project relevance is rated as satisfactory as its objectives and interventions fully addressed gaps in generating well-trained research methods specialists and were consistent with university (MAK, JKUAT and UNIMA), regional and continental strategic goals. Project effectiveness is also rated as satisfactory given that the project fully achieved its design targets on six out of the ten performance indicators while it attained above 50% on two others. Project sustainability is likely given stakeholder ownership; commitment of partner university management to support research for development; and interest by other universities to conduct the MSc RM course among other factors.

Overall, results indicate that the project made significant contribution in strengthening institutional competencies of East and Southern Africa HEIs in impact oriented research for development through its achievements in strengthening capacity of university academic staff as well as NAREs staff, retooling graduate students in research methods, establishing MSc Research Methodology training program in the region and training over 60 Masters level students.

#### **Emerging issues and lessons**

The MSc RM has emerged as a discipline in its own right and is increasingly being demanded by students and their employers. Among the key lessons that emerged from the project have been the need: to gather feedback from a broad range of relevant players in an iterative process of developing quality e-content; to systematically track adherence to set course standards by

lecturers and students; for supportive regional and institutional mechanisms to entrench the programme within the universities; and to ensure buy-in from partners for successful implementation and adoption of new approaches such as the use of the e-learning platform.

### **Recommendations**

The following recommendations are proposed: (i) that RUFORUM Secretariat should increase access to some of the project outputs such as the resource materials by both students and staff from other member universities beyond the project partners and scale out the e-learning short course on RM; (ii) the Secretariat in collaboration with its member universities should support further capacity strengthening of resource persons in problem solving approach, e-content development and use of LMS to sustain project gains; (iii) universities should establish supportive institutional policies and strategies for effective harnessing of ICT in training and research programmes and provide incentives for lecturers to develop and update quality e-content; (iv) the Secretariat in collaboration with its member universities should cultivate stakeholder buy in to facilitate student field placements by forging partnerships with NARES and raising partners' awareness of the purpose of field attachments and the nature of support expected from them; (v) ample time for the language bridging course and assessment of student proficiency be offered to enable provision of adequate support for non-English speaking students; (vi) make provision for a moderator/ facilitator for the project website and online blogs so as to encourage and sustain interest among the website's audience and project related web-based interactions; and (vii) universities should formalise relationship with the mother institutions of the resource persons to ensure availability of the resource persons and access to resources like equipment.

## **1. Introduction**

### ***1.1 Background***

The European Union-African, Caribbean and Pacific (ACP) countries Cooperation Programme in Higher Education (EDULINK) provided a grant to the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) to implement a project on enhancing research capacity and skills in Eastern and Southern Africa (ERESA). The project was conceived with overall goal of enhancing the capacity of Higher Education Institutions (HEIs) in Eastern and Southern Africa (ESA) to contribute effectively to development and socio-economic transformation of society. ERESA was geared at building, sustaining and strengthening regional capacity for impact oriented research for development through training programmes which provide a solid foundation in research methods and promote collaborative networking to exploit regional research potential and inform policy.

The action was developed to address the recognised weaknesses in application of research methodology skills among researchers of National Agricultural Research Systems (NARES) in ECSA. It was a response by universities in ESA to pool their efforts to build capacity for agricultural research and enhance relevance of universities by producing market demanded products in terms of skilled human resources, technologies and processes. Its intermediate objective was to strengthen capacity for shared training, quality assurance and knowledge management for lesson up-scaling. The main expected outputs were: a core group of professionals able to effectively engage in impact oriented research for development (R4D); approaches for integrating cross disciplinary R4D skills; and action research at multi-scale levels.

The project targeted Kenya, Uganda and Malawi. It was implemented by RUFORUM in partnership<sup>1</sup> with:- University of Reading (Statistical Service Centre, SSC), Technical Centre for Agricultural and Rural Technology (CTA), Makerere University (MAK), Jomo Kenyatta University of Agriculture and Technology (JKUAT), and University of Malawi (UNIMA). The direct beneficiaries were the research scientists in universities and NARIs in the region. Project implementation commenced in February 2009 for a 3 year period running through November 2011. With the project life span coming to an end, RUFORUM engaged the services of Nkoola Institutional Development Associates (NIDA) Limited to undertake a final project evaluation.

### ***1.1 Purpose of the final evaluation***

The evaluation was intended to assess project performance with regards to attainment of results; ensure feedback from the stakeholders; and also provide lessons to guide similar projects in the future.

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<sup>1</sup> Roles of University of Reading (Statistical Service Centre, SSC) in this partnership are described in Annex 1.

Specifically the study set out to achieve the following objectives:

- i. Establish extent to which project objectives have been achieved in relation to expected targets and agreed indicators in the logframe;
- ii. Analyze the expected and unexpected, positive and negative outcomes and impacts of the project;
- iii. Draw up some recommendations for future action after the ERESA project ends.

This report presents study methodologies, findings of the study; lessons learned and recommendations.

### **1.2 Methodology**

The approach used in the study involved information gathering from project implementers, staff who were involved in teaching the modules, students and secondary data sources. Data was collected through:- i) review of literature on project documents, ii) key informant interviews with RUFORUM secretariat staff, students of the MSc Research Methods course, staff who were involved in delivering the modules and iii) an email questionnaire to project partners.

Field data collection was preceded by development of study instruments which were presented and discussed with the client. Field findings as well as information from secondary sources have been compiled, and subjected to critical analysis with a view to establish progress towards project indicators<sup>2</sup>.

### **1.3 Arrangement of the Report**

These next sections of the report are arranged as follows:

Chapter 2: Presents the study findings.

Chapter 3: Presents the assessment of project performance.

Chapter 4: Presents the conclusions, emerging issues and recommendations.

## **2. Findings**

Project interventions undertaken by the RUFORUM, its implementing partners and associates fall in four result areas: establishing, developing and strengthening partnerships and institutional arrangements to support quality training; developing, testing, verifying and sharing modules, approaches, and tools for capacity development using 'real world' examples in the area of research methodology; developing and strengthening regional and national capacities for enhancing research quality; and establishing, developing and promoting knowledge management and communication systems for joint learning, sharing and scaling up.

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<sup>2</sup> Analysis and resultant findings make an attempt to talk to the indicators. However, in absence of baseline figures as well as some data due to limited time of field data collection, it was not possible to measure the indicators in the magnitudes reflected in the project logframe. It should be noted that this study is part of an on-going field data collection exercise intended to monitor and evaluate RUFORUM interventions.

Findings present evidence of the undertaken activities, achievement of expected results, shortcomings, and challenges. In presenting the findings, an attempt is made to talk to the indicators but conclusive data has not been established to measure the indicators as stipulated in the logframe.

### **2.1 Establishing, developing and strengthening partnerships and institutional arrangements to support quality training**

Project interventions under this result area focused on establishing baselines, establishment of student advisory committees, organisation of annual review meetings, as well as preparation of annual work plans and budgets. The interventions were expected to result into: i) short courses to enhance research and skills of academic staff and scientists in NAREs; and ii) increased inter-institutional networking amongst HEIs in the ESA region and with University of Reading and Technical Centre for Agriculture and Rural Cooperation (CTA).

Student Advisory Committees composed of JKUAT staff and representatives from the private sector, civil society and research institutions were formed. In addition, Research Task Forces were formed and proved resourceful in guiding the first cohort of students in the selection of field attachments as well as mentoring and supporting them. A total of eight meetings (4 in Kampala and 4 at JKUAT) were held. The meetings helped to review project progress, select students for the second cohort of the MSc Research Methods course; generate consensus on implementation plans and actions to be undertaken during implementation as well as address issues that arose during implementation.

Findings reveal that partnerships/formal relationships were established with JKAUT, UNZA, UNIMA, MAK and the Statistical Service Centre (SSC) at University of Reading. Linkages were also established with National Agricultural Research Institutions and International Research Centre (CGIAR), among others. Staff from these institutions served as trainers, participants in the short courses for retooling staff as well as lecturers during delivery of MSc Research Methods program at JKUAT. The linkages were also noted to have been instrumental in facilitating field placement for students as well as supervising and mentoring them. The findings suggest that the project achieved its performance target requiring **that at least 3 partnerships are formed or strengthened and operational by December 2010.**

Recognising challenges in capacity in a single institution, programme design emphasized partnerships as a strategy for drawing human resource capacity for implementing the programme. The project generated an interdisciplinary and inter-institutional pool of trainers from the RUFORUM network and this pool is expanding to other institutions. Therefore, the JKUAT MSc RM programme was run using lecturers from within JKUAT, other universities and research institutions in the region as well as Europe. Findings reveal that a total of 20 resource persons including staff of JKUAT, SSC, Moi University, Makerere University, Africa University, University of Nairobi, Maseno University, International Centre for Insect Physiology and Ecology (ICIPE), and International Livestock Research Institute (ILRI) participated in delivery of modules for the MSc Research Methods, while 7 participated in facilitating the

short courses for retooling staff and young scientists (Details provided in Annex 2). The findings suggest that the project achieved the performance measure requiring that ***at least 20 resource scientists from ESA and EU participate in the joint training.***

## ***2.2 Developing, testing, verifying and sharing modules, approaches and tools for capacity development, using 'real world' examples in the area of research methodology***

Project interventions in this result area focused on documenting and adapting existing learning resources for graduate students, lecturers and NARES; and producing, regularly updating and disseminating the learning resources in appropriate media. It also focused on reviewing and updating short course modules, as well as publishing the reviewed and updated course modules. The interventions were expected to result into strengthened capacity of ACP HEIs to deliver market oriented programs and production of research scientists with a solid foundation in research methods with a focus on professional and soft skills and equipped with current tools for research and teaching.

Key achievements include:- development and sharing of guidelines for developing delivering modules, development of 18 modules, development of electronic Learning Management System (LMS) Moodle Site; preparation and availing of new versions of CAST electronic text books, compilation of 50 case studies coupled with a guide on how to use them in teaching. The project achieved its design target with regards to production of a training manual while it registered 90% achievement with regards to development of modules (Table 2.1). The key shortfall was in publishing the reviewed and updated course modules. This activity had been slated for year 3 but it was not done due to financial flow problems. RUFORUM pre-financed activities in year 2 as well as some in year 3 but exhausted its capacity to pre-finance further hence activities stalled.

**Table 2.1: Physical delivery of targets related to developing, testing and sharing modules, approaches and tools for capacity development as at November 2011**

Output indicator	Planned		Cumulative physical achievement	Cumulative percentage achievement
	Unit of measure	Performance target		
Annual reports	Number	3	2	75
Training manual	Number	1	1	100
Training modules developed, verified and shared	Number	20	18	90

### 2.2.1 Development of modules.

In the first academic year 2009/2010, a total of 16 modules were developed and offered at JKUAT while 2 additional modules were developed in the second year bringing the total to 18 with a shortfall of 2 from the proposed target of 20 modules. Feedback on clarity of learning objectives, scope and applicability of the content among other aspects of the modules was sought from resource people through a peer review process. The Statistical Services Center (SSC) of the University of Reading in the UK was on board to support the development and subsequent

delivery of the modules. A guide to developing and teaching course modules was prepared in 2009 for teaching staff. This offered guidelines on teaching style; planning and delivery of modules; and examining among other aspects. The findings suggest that the project surpassed its performance target ***requiring that at least five modules are developed and tested by December 2009 while it attained 90% achievement of the proposed target of 20 modules by end of programme.***

#### 2.2.2 Development of the Learning Management System Moodle Site.

The Moodle site was set up in year 1 of project implementation, and at that time it was hosted by the SSC at the University of Reading. Later, JKUAT developed their LMS system and host the learning platform. The site serves as the central location for all materials relating to the MSc Research Methods. It was used for up-loading course materials and content, as well as a forum for discussions between staff, between students and between staff and students. Key informants highlighted that it was also used by facilitators to provide assignments, as well as communicate deadlines for their submission. Likewise, students would submit the assignments online and the respective lecturers would post the results. Discussions with students revealed that some lecturers were still using the traditional approach of delivery and would only upload the course outlines. Students noted that the site was very useful in aiding learning by facilitating access to resource materials, enabling the sharing of lessons as well as informative discussions, and making guidance from fellow students and lecturers more available.

The project provided an opportunity to learn and this has enabled the university to strengthen its LMS which currently hosts the training platform for the MSc RM. JKUAT has provided good teaching facilities, with a room dedicated to the course which is wired for internet and power, so that all students can work online. However, it noted that intermittent access to internet impaired stability of the LMS. Frequent power and internet interruptions were noted to have disrupted facilitators' plans to use online resources during their classes thereby resulting into staff frustration.

The study reveals that e-learning has been continuously instrumental in agricultural research capacity strengthening amongst staff and students, notably at JKUAT. There was relatively easy access to research materials in JKUAT as staff and students were trained on how to download materials and were issued with different authentication privileges (passwords) to access e-learning management system, booklets and journals. A lecturer from JKUAT testified that re-tooling workshops conducted in Uganda and Naivasha were a new experience in harmonising the modules into e-learning which has enabled him to upload two modules on the e-learning platform for the MSc Research Methods programme.

#### 2.2.3 Production of new versions of the CAST electronic text books.

The project invested in production of new versions of CAST electronic books. This was achieved with the help of Dr. Doug Stirling from Massey University, New Zealand, who originated CAST. The new text books were completed and made

available to MSc students and lecturers. It was however observed that lecturers had not yet fully integrated them into the modules. This notwithstanding, some lecturers used the books for teaching some modules notably statistical techniques. On the other hand, students' feedback was positive, noting that the books enlighten principles and techniques they had previously found hard. They found the electronic exercises useful, despite there being some technical difficulties related to internet access.

### **Text box 1: Student views on the electronic Learning Management System**

- 'The LMS was very useful. It ensured adequate access to resource materials. You can access any materials from anywhere in the world.'
- 'The LMS enabled access to e-books and journals.'
- 'It is your capacity to read and internalise which may limit you otherwise the materials are available.'
- 'The LMS was vital for cultivating the self learning skills. You read on your own to discover, then share with colleagues in class who critique together with the facilitators.'

#### 2.2.4 Compilation of other resources for teaching.

The project compiled and provided extensive description of further resources for teaching whose relevance transcends the MSc Research Methods. These materials include:-

- i. A set of 50 Case Studies that could be used in teaching, coupled with a guide on how to use them in teaching. A guide on how to identify good case studies for subsequent use by university teachers in the region to contribute further case studies;
- ii. A series of games for teaching statistics research design principles;
- iii. Statistical software guides;
- iv. Technical guides on research methods.

These were availed to the resource persons via the website, and also distributed by DVD.

It was observed that RUFORUM made a considerable investment in the resource materials notably the CAST electronic books, case studies, games and various guides.

### ***2.3 Developing, strengthening and institutionalising regional and national capacities for enhancing research quality***

Project interventions in this result area focused on conducting a Training of Trainers (ToT) workshop; establishing a mentoring process for trainers in research methodology; piloting a blended learning course for RUFORUM post graduate students in Research Methods; rolling out the Research Methods course; availing and conducting a refresher statistics course for university faculty staff, NARES and potential facilitators; conducting a short re-tooling course for staff and NARES; conducting course work based MSc research methodology training; attachments to

on-going research activities; and offering web-based post training support to enrolled students, alumni, faculty and NARES. These interventions were expected to result into:- i) a graduate training program in research methodology built on a strong foundation of theoretical and practical norms and standards geared towards meeting the current developmental concerns and; ii) conducting research methodology short courses for university and NARES staff and selected graduates.

Findings reveal that the project conducted TOT workshops, piloted the blended course in research methods, established the course work based MSc research Methodology training, and conducted short courses for university staff, NARs staff and students. The project surpassed its design targets in two out of the four performance indicators under this result area, while it achieved above 50% on one indicator (Table 2.2).

**Table 2.2: Physical delivery of targets on strengthening and institutionalising regional and national capacities for enhancing research quality as at November 2011**

Planned			Performance target	Cumulative physical achievement	Cumulative percentage achievement
Output indicator	Unit of measure				
Short courses training for university lecturers and NARES scientists	University teaching staff retooled in research methodology	No of staff	80	41	51
	NARES staff retooled in research methodology	Number of staff	50	20	40
Conduct short courses for graduate students		Number trained	120	148	123
Masters course based training		No of students trained	60	63	105

### 2.3.1 Capacity strengthening of staff through Training of trainers and short courses

The project set out to undertake Training of Trainers (ToT) workshop to re-tool lecturers and upgrade their skills for teaching the MSc Research Methods course; retooling of 80 teachers and 50 NARs staff to enhance their skills of in research methodology through the short courses.

Key achievements include:-

- Training of 41 teaching staff and 20 NARs staff through two TOT workshops. The first ToT and Research Methods MSc workshop attended by 33 university teachers, administrators, biometricians and other resource personnel was held from 9–13 March 2009 at Jomo Kenyatta University, Kenya. The second was Scientific Data Management ToT<sup>3</sup> for ESA NARs lecturers and Scientists held from 16th-27th August 2010 at Imperial Resort Beach Entebbe, Uganda, was attended by 28 people (8 university lecturers, and 20 staff from National Research Organisations).

<sup>3</sup> The 10 day workshop was organised and supported by RUFORUM-ERESA project and CTA

- Conducting three retooling workshops for facilitators (one held at AICAD in October 2009 16 RM lecturers; and second one held in Entebbe Uganda and a third which was internal coordinated by JKUAT in preparation for second cohort intake) with an overall aim of giving the lecturers new skills in teaching and learning, including online learning, and module preparation.
- Organising three writing retreats for development of E-content for regional training programs (one held in Ethiopia from 7-16 January 2011 and attended by 14 participants; the second held in Kampala, Uganda 26-28 April 2011 and attended by 19 participants; and the third held in Naivasha, Kenya from 12-16 September 2011 and attended by 13 participants). Useful collaborations took place and this resulted in provision of elaborate feedback to the content writers. From this feedback RUFORUM developed best practices for the development of e-content. Electronic content for six modules under the MSc Research Methods were developed and submitted in the offline Moodle format called Poodle and also submitted in Acrobat Adobe format.

The retooling workshops were noted to have helped in refinement of the MSc course objectives, style and content; definition of the job description and requirements of jobs which graduates of the course are expected to be able to fill; familiarisation with teaching methods and resources; familiarisation with Moodle site; development and use of a Module peer-review tool; development of draft module outlines for some modules; and agreement of joint performance standards with students. Discussions with lecturers who facilitated modules reveal that retooling workshops were appreciated and noted to have been very beneficial in exposing the facilitators to the teaching methods, learner-based teaching and use of the LMS. The retooling workshops were also applauded for having contributed to development of course content and enabling facilitators to know each other thereby facilitating networking.

### **Text box 2: Staff anecdotal views on retooling facilitators**

- The retooling workshop was very effective, it exposed module resource persons on utilisation of resources on the LMS. It by bringing facilitators together to harmonise their understanding of how the program is to be taught. Sharing of experiences among facilitators coupled with getting hands on exposure on mode of delivery helped to enrich the program.
- The program offered an opportunity to learn use of the LMS tools for delivery of courses. However other work pressures did not allow for adequate time to learn and fully utilise the LMS. Making time to put together the materials for uploading was a challenge. Hence used the platform for about 70% and 30% of the time he used traditional approach.
- The retooling was very beneficial. It helped to impart skills in problem based learning which is more oriented towards the students while the facilitator guides them to learn. The way we organise materials for teaching has changed even for the other courses we teach which are not related to the MSc RM. However retooling of staff should be done for a longer duration, preferably 2 weeks.

The University of Reading's Statistical Support Centre initially provided support with the training and electronic infrastructure, as e-learning was not yet widespread within the university. The process was challenging, as wary lecturers had to be guided in designing their own online course content. Short duration during which lecturers were introduced to the teaching platform coupled with limited past exposure and experience on use of e-learning platforms were noted to have impaired effective lecturers' utilisation of the Moodle site. It was also noted that although benchmarks were set in terms of the preparing the content of the modules to be deposited at the platform; matching timelines were not set hence individual lecturers uploaded content as and when their modules were due. Some lecturers who were brought on board as replacements had not participated in the retooling process hence had inadequate knowledge on how to develop e-content.

It was noted that there was no strategy to follow up on universities to ensure that electronic content (e-content) was updated regularly. Other pertinent challenges which undermined the effective utilisation of the platform included:

- Uploading of incomplete and low quality module content;
- Lack of a standardised presentation format across all modules;
- Lack of adequate experience and knowledge on how to design online assessments;
- Compensation for the time taken by facilitators to prepare the online content was not provided for to enable facilitators to devote the necessary time to such preparation; and
- Power outages and unstable internet connectivity which disrupted the students' and facilitators' resource access from the platform.

With regards to the short-courses for staff, a course outline for a preparatory course in Biostatistics and Research Methods for PhD students and an enhanced course outline in six modules for SDM were developed. The course was evaluated positively and participants were adequately empowered to conduct similar programmes in their institutions and countries. The short courses on SDM were applauded as having been an effective way of contributing to the harmonisation of statistics training in the region. A respondent from Bunda College acknowledged that he was able to incorporate the skills acquired in a course at the college.

### 2.3.2 Conducting short courses for graduate students

The project set out to train at least 120 graduate students so as to enhance their skills in research methods. Findings reveal that short courses were conducted and a total of 148 students participated in the trainings. A total of 62 PhD students were trained in Scientific Data Management<sup>4</sup>; 38 PhD students participated in the E-learning Research Methods short course, while 48 MSc students were trained in

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<sup>4</sup> SDM for young scientists in ESA countries, Imperial Botanical Beach Entebbe Uganda 16<sup>th</sup>-18<sup>th</sup> September 2010 was attended by 22 students; Regional SDM and learning workshop for PhD students and staff held 14<sup>th</sup>-18<sup>th</sup> November 2011, Lilongwe Malawi was organised with support from NEPAD, Fish Mode, IDRC and the EDULINK project. It was attended by 40 students

proposal and scientific writing<sup>5</sup>. The findings reveal that project achievements surpassed its design target with respect giving postgraduate students remedial courses in research methodology. The short courses were deemed beneficial and relevant by the participants. The participants reported having learnt new concepts and acquired useful skills to apply in their future research. For instance, participants in the SDM training indicated that they acquired practical skills and knowledge on the use of Genstat, got hands on experience in practical data management and analysis, and improved their presentation skills. Consequently majority of the participants noted that their abilities in key elements of research (Table 2.3) were good: -

- Comfortably use Genstat Software for effective data management;
- Ably handle data analysis for PhD or research work;
- Effectively communicate statistical findings;
- Publish research findings in peer-reviewed journals;
- Share ideas that enhance application of statistics in agricultural production systems.

**Table 2.3: Participant rating of their ability to perform certain research tasks following the SDM training**

Research aspect	Percent of participants reporting			
	Excellent	Good	Moderate	Poor
Handle data analysis for your PhD or research work and to complete writing of dissertation/paper in time	28	39	33	0
Communicate statistical findings effectively	17	56	28	0
Share ideas that enhance application of statistics in agricultural production systems	23	54	23	0
Publish research findings in peer-reviewed journals	26	54	20	0
Comfortably use Genstat Software for effective data management	17	43	37	3

The short course on research methods was piloted with PhD students at Bunda College-UNIMA (16 in the regional PhD programme on Aquaculture and Fisheries Science and 22 in the PhD Agricultural Resource Economics). This was done virtually on the Moodle site. Although project design had a strategy for scaling up this course by rolling it out to other regional postgraduate programs, it was noted that this was not done due to financial flow problems as RUFORUM Secretariat had reached the limit for pre-financing activities.

Poor timing of the courses, too short a period for the SDM course and lack of effective demand to participate in the short training courses were cited as key factors that impaired their effectiveness. For instance, only 22 out of the expected 40 participants attended the SDM training workshop for young researchers. It was reported that some institutions were unable to send representatives as the students

<sup>5</sup> Enhancing proposal and scientific writing competencies in the SADC region for postgraduate students, held at Protea Hotel Lusaka Zambia from 17th-25th May 2010 with funding from EU and SADC. It was attended by 48 students.

were busy with data collection at the time the course was mounted. It was also highlighted that in the case of the blended short course on research methods, the students on the two regional PhD training programs at Bunda did not request that this additional module be added to their workload. Although they indicated they were interested, laxity in participating in all aspects of the online course by some students seems to have suggested few were really excited about the course. It was observed that a more productive approach would have been to open the e-RM course to any suitably qualified PhD students in RUFORUM member universities, taking the 20 best qualified.

### 2.3.3 Conducting course based masters training in research methodology.

The project set out to train at least 60 Masters level graduates in research methodology. Findings reveal that objectives of the MSc Research Methods were articulated through an elaborate stakeholder engagement process within and outside the ESA region. Curricular for the MSc Programme in Research Methods was therefore developed at a regional level and a decision was undertaken for JKUAT to pilot it, and to learn from the implementation experiences before scaling out to other universities. The programme was approved by the University Senate of the Jomo Kenyatta University of Agriculture and Technology (JKUAT) and thereafter the MSc Research Methods course was launched in 2009.

The MSc RM was established as a response to the findings of several studies which highlighted missing links within agricultural research systems, such as African universities not producing graduates equipped with the skills necessary for working with industry and agricultural extension systems. Hence, the MSc Programme aims to produce research methods specialists who will be able to work across social, economic and bio-physical sciences and who will be able to make solid contributions to enhancing the effectiveness of modern, integrative research. The programme is equipping a new generation of agricultural scientists from across the region with expertise in the production of high quality, demand-driven research.

The two-year curriculum is comprised of a series of modules, which are taught by a wide range of experts not only from JKUAT, but also from other universities within the RUFORUM network, and other institutions across the region, such as the Consultative Group on International Agricultural Research (CGIAR), an international organisation supporting research for development. However contracts were given to individuals, with no involvement of their mother institution. Due to work pressures from the mother institutions, some resource persons did not turn up at the last minute. As a stop gap, JKUAT tried to exploit competencies within the university. But even in this case the staff from other faculties were engaged in their individual capacities as part-timers for the MSc Research Methods course. Consequently their time inputs in this course were not recognised as part of their normal work load.

The Statistical Services Center (SSC) of the University of Reading in the UK was on board to support the delivery and technical backstopping of the modules. Support from SSC among others included reviewing plans for module delivery, assisting with design of activities, helping prepare online sites, advice on assessment and exams,

and assisting in running sessions. In addition, SSC helped to organise anonymous feedback from students on some modules; contributed to online discussions on module content initiated by students; initiated further online discussion including technical discussions related to module content. Key informants acknowledged receiving this support. Both lecturers and students greatly appreciated the support in the classroom and the follow up online.

This course was unique in its regional nature, its use of a modular approach and use of e-learning facilities, as well as its focus on applied research for agricultural development in Africa. The course provides a strong foundation in research design, data collection, data management and statistical analysis. While it is built on the traditions of statistics and biometrics, it extends these by placing them in the context of research for development.

An introductory week was organised for MSc RM students, with an overall aim of preparing students to begin the MSc. Students met the teachers, were introduced to the purpose and background to the course; and were prepared for the style and content of the course. The introductory week was noted to have been vital in enabling students to meet each other, share backgrounds on who can do what - build a team spirit; understand the structure and logic of the MSc course; kick start self-teaching Genstat; and orienting them on web based LMS- Moodle.

Lecturers' performance agreement with students detailing their commitment to meet the required standards of teaching, consistent use of Moodle, among other obligations was developed. Furthermore, a manifesto stipulating what was expected of the students, staff, institution and RUFORUM was prepared at JKUAT in 2009. These agreements presented a means of assuring quality course delivery.

**Mode of delivery.** A very important aspect of this course is the mode for delivering courses which is through facilitation and not lectures. It also takes the form of problem based approach to learning. Both lecturers and students noted that the approach used is unmistakably dynamic and interactive. "*The way students learn is through group discussions, presentations, and the learning platform*". Students noted that mode of delivery was participatory and interactive involving group discussions, assignments, presentations and discussions in class. Interaction with facilitators (practical delivery methods that permits students to follow) and use of real world examples and case studies based on their experience enhanced student learning. To eliminate passengers in the group, lecturers would tell all members of the group to always be prepared and ready to present. Hence during presentation of group work, the lecturer would choose any member to represent the group.

**Number of students trained.** A total of 63 students were registered and trained in the MSc Research Methods during the project life span. Students in the programme were drawn from the Eastern Africa region in the spirit of attaining the goals of the project. In the first year, 29 students (18 males and 11 females) were enrolled for the course from across the region, including 1 student from Nigeria. All students in the first cohort finished the course and are reported to have graduated.

The second cohort comprised 34 students of which 25 were awarded scholarships under the ERESA project while 8 were funded under Bill and Melinda Gates Foundation support to RUFORUM. Students in the second cohort finished their course work and had embarked on their field attachments by the time of this study and they are expected to graduate at the end of 2012. JKUAT was in the process of selecting students for the third cohort. Findings reveal that the project surpassed its design target of registering and training at least 60 students in research methods.

***Impact on student knowledge and skills.*** Findings from key informant discussions with students reveal that they acknowledged having acquired both hard science analysis skills as well softer skills in areas such as social research methods. Students acknowledge having acquired the following skills:-

- Creative thinking, thinking outside the box to solve problems;
- Negotiation skills;
- Communication skills;
- Presentation skills (discovery and would present every day);
- Monitoring and evaluation skills;
- Time keeping learning through experience of having to adhere to deadlines for submission of assignment;
- Team work skills. Consistent use of group assignments instilled team spirit and supported acquisition of team work skills;
- Self learning triggered by better understanding of how to source for information, having to read on your own so as to discover, internalise and share with the class where facilitators and fellow students critique;
- Statistical analysis using various software.

The interviewed students observed that the course was very useful and it gave them the necessary skills as research methods professionals. Apel Raymond and Justine Nalukuma, students in the second cohort who had finished their course work and embarked on the field attachment, noted that the course had made them better researchers and enhanced their confidence levels. *"We have become better researchers with practical understanding of the whole research process from problem identification and justification of its relevancy, stating good research objectives, research implementation skills; data management, statistical analysis, reporting and presenting the findings. We can ably conduct surveys, undertake data entry, management and analysis, produce reports and communicate the findings. I am more conversant with what to do as a researcher."*

Mr. Richard Wamalwa a graduate of the programme who was in the first cohort of students, noted that the course greatly improved his statistical analysis and M&E skills among others. The acquired skills have enabled him to better perform his duties in the Quality Assurance unit where he has to manage, analyse and report data from student evaluation of lecturer's delivery of training courses. He has used his skills to improve the course evaluation instrument with a view to harness ICT and automate data collection and management. Changes have also been done to the reporting format for the Quality Assurance bulletin.

***Impact on Institutions:*** The MSc Research Methods course was noted to have induced changes in the teaching delivery methods for other courses in the host faculty as well as other faculties at JKUAT. The e-learning approach piloted under the programme provided an opportunity for JKUAT to learn and improve. It was noted that this has helped to spur adoption of e-learning across the university. It inspired a new campus-wide e-learning policy.

The regional focus of the programme was noted to have contributed to increased visibility of JKUAT and boosted the university's internationalization efforts, "*Now the university is known outside of Kenya. As a marker of JKUAT's reknown, the university has been selected as a science and technology hub of the Pan African University, a project of the African Union*".

Facilitators from other countries and universities enriched the capacity building experience and learning for staff. It brought about a common understanding during the retooling exercise. This also enhanced contacts and networking among staff in the region.

### **Text box 3: Staff views on changes in teaching delivery**

- Using the experience gained in the MSc RM programme, we have shared with other staff in the faculty to encourage them to turn to e-learning.
- Application of the learner based teaching is gradually being integrated into other training programmes.
- The way we organise materials for teaching has changed even for the other courses we teach which are not related to the MSc RM.
- Was able to integrate the e-text books into the training. Each unit has a link to e-content.
- A lecturer in the statistics noted that he had already uploaded materials for two courses on the Moodle site, one at MSc level for another programme and one at under graduate undergraduates).

RUFORUM paid for a 3-year licence of GENSTAT software. As a result, both staff and students have benefitted from access to up-to date software. A respondent in Malawi pointed out that prior to this; students were only exposed to outdated software. Access to the software coupled with training in scientific data management was noted to have increased capacity for research in the universities. Quality of data handling and analysis has improved.

E-learning also holds promise for addressing many of the larger transitions and challenges that face the university, such as the rapid, intense growth of its student body. In the year 2000, the university had just 3,000 students, but in response to Kenya's rapid population growth and rising demand for higher education, student numbers have mushroomed to some 22,500 today.

Maseno University adopted the web-based Learning Management System (LMS), and offers Master of Science in Research Methods along similar lines to those pioneered at JKUAT. The taught part of this course consists of a series of modules, each of which is the equivalent of 2 weeks full-time teaching or 48 contact hours. There are plans for Makerere and Haramaya University to also adopt the MSc Research Methods course.

#### 2.3.4 Field research by students

Attachments are a key element of the programme intended to impart practical learning in the field and to consolidate the technical and professional skills learned during their course work. Findings reveal that during their second year, students are attached to institutions for them to gain practical work experience and at the same time have a chance to demonstrate the usefulness of their skills to prospective employers.

A guide for the attachments was developed and provides guidelines on choice of institutions, student conduct and expectations from students. The students are prepared for the attachments through the module ARM 3107 which gives definitive guidance on getting started and writing proposals. Students are taken through each of the tasks they need to complete on attachment, suggesting approaches, means of getting started and insights on ways of tackling likely obstacles are provided.

Through the office of the Dean, contacts for attachment places were made with national, regional and international research organisations. The students were attached in 5 countries; Kenya, Uganda, Tanzania, Malawi, Ethiopia and Mozambique. Students prepare and submit to the host institutions monthly progress reports which also specify the workplan for the following month. During the attachment the student has a university supervisor and also a supervisor in the host institution. The university supervisors monitor progress of the students through the LMS, email follow-up and physical visits in the field. It was however noted that inadequate resources limit the number of physical visits to only one.

The students complete a field attachment report. Project design deemed this report to suffice as a fulfilment for the award on a Masters degree. However, JKUAT procedures require a thesis. This presented challenges for students in the first cohort as they had to later improve their reports so as to fulfil the university's requirement of a thesis report. Changes were introduced hence the second cohort have to produce a field attachment report and a thesis. It has been proposed that the duration of the field attachment be changed from 8 months to 4 months to allow students produce a research proposal, conduct research and write a thesis. At the time of this evaluation, it was noted that JKUAT was making a proposal to revisit and formalise these issues. This notwithstanding, students noted that the field attachment boosted internalisation of the issues learnt during the course work. They have to show the value they add as research methods specialists to the host institution.

#### **Text box 4: Staff and student views on field attachment**

- 'The way the field attachment was designed did not allow for students to produce tangible research. Students focused on ongoing research.'
- Students were not prepared to write a thesis or dissertation, this came after they had produced their field attachment report. To avoid this conflict, the second cohort students have to produce a field attachment report and a dissertation.
- 'Supervisors (notably those who were not facilitators of module) were not clear on how to assess the field attachment report.'
- 'As a student you are given six task areas on which you have to produce a report after the internship but this was not a researchable topic to enable you produce a thesis.'
- 'Good guidance from the university supervisor is critical for the students to keep watch on what they have to get from the attachment otherwise you can get wasted.'
- 'Some institutions did not understand the purpose of the field attachment; hence students may not get what you expected from the learning experience.'
- 'Students in the first cohort left JKUAT for attachment without knowing who their university supervisor is, and the supervisors were not able to attend the preparatory week to learn more about the attachment. This impairs effective supervision and mentoring of students.'

#### ***Challenges in implementation of the MSc Research Methods Programme.***

Some resource persons declining to facilitate modules at the last hour which compelled JKUAT to use lecturers who had not been retooled; slow internet and interruptions; limited resources for monitoring coupled with physical distance which restricted supervisors' visits during field attachment were cited as key challenges in implementation of the MSc RM programme. Financial flow problems resulted into operational delays and undermined smooth execution of activities in the partner universities. Limited finances were also noted to have curtailed use of resource persons from other universities in the region.

In addition, the duration of the bridging course was not adequate for non-English speaking students to improve their proficiency in English language. Consequently, language barrier affected their performance. Also the 2 weeks duration of some modules was noted to be too intensive and strenuous for resource persons and students. This did not allow resource persons enough time to ably cover the entire content for the modules notably Statistical Methods, Climate Change and Vulnerability, GIS, Spatial and Environmental Statistics. The tight duration of modules was in some respects noted to have impaired internalisation of skills.

*The modules were relevant but challenging. Two weeks of learning with exams following in the third was a challenge. You do not have time to waste, every day you are on your toes. The course work was developed with an assumption that a student*

*will be healthy for the entire duration of all modules, which is not always the case. It was too straining and brings on fatigue on both the staff and students.*

The “Statistics Made Simple” course for students with limited statistical knowledge, which was supported by University of Reading, was not offered throughout the life of the project and yet it was deemed valuable by students.

#### **2.4 Establishing, developing and promoting knowledge management and communication systems for joint learning, sharing and scaling up**

Project interventions focused on holding learning platforms to share lessons and experiences; developing an e-learning platform as a repository and support to research and lesson sharing and production of communication products. Key achievements include: production of the MSc Research Methods facilitators’ guide to developing and teaching course modules; establishment of a project blog on the RUFORUM website; establishment of the RUFORUM Moodle learning management system; production of articles in the *RUFORUM monthly* newsletter; production and distribution of 2000 copies of project summary brochure; production and distribution of over 500 copies of an MSc program prospectus; and project pull up stands.

Findings reveal that over eight meetings and workshops were held and used as the main avenues for review of project activities, discussion of achievements, lessons learned, challenges and solutions. In addition, 3 writing retreats were organised for staff to share experiences and lessons for development of e-content. The project blog was established in year one and was subsequently updated although activity was low. The web based Moodle LMS offered students and lecturers an effective platform for communicating, managing teaching resources, lesson sharing, sharing of experiences and consulting on issues relating to research and coursework. Findings suggest that the project achieved its design performance target requiring that ***at least 3 Networking/joint learning forums are held and documented by December 2011.***

The communication products notably brochure, pull up stands, MSc program prospectus were displayed and distributed in various conferences and meetings:-

- RUFORUM networking events such as the Annual General Meeting, Biennial Conference, Ministerial meeting on Higher Education in Agriculture (CHEA).
- Events organised by other entities for instance the FARA conference in July 2010 in Burkina Faso and the three ACP-EDULINK stakeholder workshops.

Other communication products produced during the project include: the Research Methods DVD of teaching and other resources which was distributed to all resource persons and students in the first cohort; DVD on case studies; presentation of papers on the Research Methods MSc at the 11th Scientific Conference of the Sub-Saharan Network of the International Biometrics Conference, Nakuru, 24-28 August 2009; a conference paper on the MSc Research Methods to the 8th International Conference on Teaching Statistics, Ljubljana, 11-16 July 2010. In addition, 29 theses were produced by the graduates of the MSc Research Methods in the first cohort.

Findings suggest that the project achieved its design performance target requiring that ***at least 30 communication products are developed and shared by December 2011.***

### **3 Assessment of project relevancy and sustainability**

#### ***3.1 Project relevance***

Small-scale agriculture forms the backbone of economies throughout Sub-Saharan Africa. The sector is pivotal for improving livelihoods of many people. Limited capacity to generate the needed innovations for transformation of the sector and to build competencies to realign research for development (R4D) to cope with change, was identified as a constraint to research for development in the East and South Africa region. The project was developed to enhance the capacity of Higher Education Institutions (HEIs) in Eastern and Southern Africa (ESA) to contribute effectively to development and socio-economic transformation of society.

Project objectives respond to existing capacity challenges which include: very few research methodology specialists in NARES institutions in ESA, limited skills and competencies among researchers to conceptualise, plan and implement effective research as well as appropriately communicate research results. The limited capacities culminate into research agenda that is not relevant to the needs of the society, weakened quality of research and progress towards increasing food and nutritional security and alleviating poverty. African universities recognised the need to educate a new generation of well-rounded, interdisciplinary researchers who are not just specialists in a single area, but are well-versed in many different research methodologies, and understand the broad emerging trends, in order to ensure that research from the region is mounting an effective response to these challenges.

At the University level, the project was in line with strategic objective of Makerere University that focuses on strengthening research capacity for staff and students. It was also consistent with JKUAT's strategic goal of striving to maintain her reputation as an institution where research and innovation meet global standards as well as its strategic objective of strengthening impact oriented research for development. The action was consistent with UNIMA strategic objectives of developing partnerships with other universities to benefit from their already trained staff; disseminate and promote utilization of UNIMA research results with stakeholders.

The action supported on-going efforts by RUFORUM to strengthen adaptive capacity for agricultural research and enhance relevance of member universities. It is consistent with RUFORUM's strategic objective of strengthening impact oriented research for development at all levels.

ERESA supported continental efforts to revitalise agriculture to support economic recovery and help the continent achieve the Millennium Development Goals (MDGs). It is consistent with African Union's Comprehensive Africa Agriculture Development Programme (CAADP) Framework for African Agricultural Productivity (FAAP) which targets enhancing agricultural research, technology dissemination and adoption by developing capacities of African National Agricultural Research and Extension

Systems (NARES) and increasing investments by African governments in technology development and dissemination.

The project objectives were in line with EDULINK theme of capacity building in research and technology to improve academic and teaching excellence in HEIs as well as the EDULINK programme objective of fostering capacity building and supporting higher education systems to contribute to socioeconomic development in the ACP countries. It also fits well into the purpose of EDULINK which is to strengthen academic and research capacity and technology development in HEIs.

### **3.2 Project sustainability**

Assessment of prospects for continuation of project activities during the post-EU EDULINK financing period; and durability of changes brought about by the programme; has been undertaken in light of the following critical factors that influence sustainability of programme operations.

#### 3.2.1 Political sustainability

Political stability within the Eastern and Southern Africa (ESA) region coupled with on-going efforts to strengthen regional groupings offers a favourable environment for the continued undertaking of ERESA related activities. The implementation strategy of ERESA was designed to operate within the framework of the universities.

#### 3.2.2 Social Sustainability and ownership

It is likely that stakeholder ownership is sufficient to allow for project outcomes/benefits to be sustained. ERESA had a number of strategies for fostering ownership of project outputs by engaging with relevant organs in the universities. Staff retooling in mode of delivery coupled with pedagogical shifts in universities towards facilitated and self-driven learning as opposed to traditional lectures, provide a strong foundation for use of these delivery methods. Social support for project is reflected in JKUAT providing a dedicated room connected with internet, improving its internal environment for e-learning, partially funding the second retooling workshop as well as fully organising and funding the third retooling workshop.

Likewise, resource persons adopting use of the learner based approach as well as developing e-content for other courses on top of the MSc Research Methods points to social sustainability. In addition e-learning which has been spearheaded in the programme also holds promise for addressing many of the larger transitions and challenges that face the universities, such as the rapid, intense growth of student body.

Commitment of partner university management to support research for development provides a strong foundation for sustainability of project activities. Up-grading research skills of university academic staff and NARES scientists coupled with the field attachment which provides practical learning to the students lays a strong foundation for continued utilisation of knowledge and skills. However, inadequate creation of awareness among managers and staff of institutions which host students

on the purpose of field attachments and the added value of research methods specialists to their institutions is a threat which should be addressed by the universities.

### 3.2.3 Institutional Sustainability

It is our view that it is likely that institutions will be available to carry on activities that result in the continuation of project benefits. The MSc Research Methodology training programme at JKUAT was approved at all levels in the university. The Masters course presented a good model for other universities to follow, evidence of which has been its adoption and high levels of student enrolment in Maseno University; and plans exist to start it in Makerere and Haramaya University (Ethiopia) among others even outside the RUFORUM network. Therefore, university governance and management structures provide institutions which will support continued existence of the MSc Research Methods training program.

JKUAT developed an e-learning policy, has a functional e-learning office, with a designated programme's e-learning manager and established a web based LMS. Likewise, Bunda College of Agriculture (UNIMA) is in the process of installing the web based LMS. Development of policies as well as improvement in infrastructure provides a strong base for continued utilisation of e-learning in the universities. However, inadequate ICT infrastructure coupled with unstable power supply pose threats.

### 3.2.4 Economic and financial sustainability

It is our view that it is moderately likely that financial resources will be available to carry on the activities that result in the continuation of benefits. This is attributed to universities prioritisation of building, sustaining and strengthening regional capacity for impact oriented research for development in their strategic plans coupled with RUFORUM's commitment to support universities in mobilizing resources for ERESA initiatives. RUFORUM will also continuously broker information and provide feedback on sources of funding and capacity for impact oriented research for development.

## **4. Conclusions, lessons and recommendations**

### **4.1 Conclusions**

Results indicate that the project registered significant progress in strengthening capacity of university academic staff as well as NAREs staff, it retooled graduate students in research methods, established MSc Research Methodology training program in the region and trained over 60 Masters level students. It can therefore be inferred that the project made significant progress towards achievement of its specific objective of strengthening institutional competencies of East and Southern Africa HEIs in impact oriented research for development.

**Project relevance:** Project relevance is rated satisfactory, score one. Project objectives and interventions fully addressed gaps in generating well-trained research methods specialists and were consistent with university, regional and continental strategic goals and objectives.

**Project Effectiveness.** On a six rating scale (presented in Annex 3), project effectiveness is rated satisfactory, “five”. The assessment is based on the fact that the project fully achieved its design targets on six out of the ten performance indicators while it attained above 50% on two others. It achieved its concrete outputs with regards to training Masters level graduates in research methodology, and retooling graduate students through short courses. Shortcomings were in the area of training NAREs staff.

**Project sustainability:** In light of the existing political environment, RUFORUM Secretariat and partner universities’ commitment to support research that impacts societal transformation, and existence of institutions to support continued utilisation of project results, we assign a composite rating for sustainability as ‘four’ (likely).

#### **4.2 Emerging issues and lessons**

The following emerging issues were elicited from the implementing partners, lecturers and students:

- i. Conducting an introductory week for students is vital for preparing them for what to expect. It helps to create students self awareness of weakness, enable them to recognise some of the limitations of earlier training; demonstrate the value of having training and education specialists; and instils commitment to trying to achieve ambitious goals.
- ii. Developing quality e-content requires an iterative process with feedback loops involving a combination of skills. It is vital to follow a structured process to ensure that quality assurance is observed in development and subsequent updating of e-content. This should involve interaction and feedback between content writers, content peer reviewers, instructional designers to as content with respect to pedagogy, objectives; and training facilitators.
- iii. Buy-in from partners is essential for successful implementation and adoption of new approaches such as the use of the e-learning platform.
- iv. Formalising relationships between the resource persons, their mother institutions or departments and the university/faculty hosting the regional training program is critical for fostering availability of staff to teach the MSc programme. It was noted that contracts were given to the individuals with no involvement of their institutions/departments. Even staff from the same university but different faculties were accessed as part-time lecturers to the programme, their inputs were not reflected in the workload in the mother departments, hence exerting more pressure and conflict of allegiance. This impairs commitment to the programme.
- v. Clear procedures for tracking adherence to set standards are vital for institutionalising the practices in the university. It was observed that very high

standards of what was expected from lecturers and students were set and agreed upon. However no clear processes for follow-up were established to track attainment of the standards.

- vi. Clearer documentation on the aims of attachments and subsequent creation of awareness are prerequisites for cultivating buy in among potential host institutions for students on field attachments. Many research institutions that were contacted assumed that this attachment was for a typical MSc research project and hence gave inappropriate responses, guidance and mentoring to the students.
- vii. There is need for a change in mindset among universities' administration to fully accommodate the Masters course which is run in a non-traditional manner in that it draws many students from diverse backgrounds. This requires that supportive regional and institutional mechanisms be established to entrench it within the universities.
- viii. The project has advanced Research Methods as a discipline. However, much has to be done in changing perceptions that it is a unit rather than a course and discipline in its own right.
- ix. There is high demand for the MSc Research Methods course and its students with increasingly higher demand for the course by those who have completed PhDs as well. This has illustrated the high perceived value of the course in supporting research management and coordination.
- x. Access to some relevant databases, e-books and other related resources require subscription and initiative from the lecturers to articulate their needs to library management.

#### **4.3 Recommendations:**

- i. RUFORUM Secretariat should proactively undertake measures to increase access to some of the project outputs.
  - a. RUFORUM Secretariat should ensure that such resource materials produced during the project notably the CAST electronic books, case studies, games and various guides are distributed more widely and accessed by both students and staff from other member universities beyond the ERESA implementing partners.
  - b. Scale out the e-learning short course on research methods. Participants should apply to take part in the course rather than be invited by virtue of being on a regional training program. Open the e-RM course to any suitably qualified PhD students as well as staff in RUFORUM member universities. Once a critical number is obtained, the course should be conducted for that group.
- ii. RUFORUM Secretariat in collaboration with its member universities should support further capacity strengthening of the resource persons in problem

- solving approach, e-content development and use of LMS to sustain gains and improve effectiveness. Consider delivery of periodic and targeted refresher trainings.
- a. Forge partnerships and engage other institutions to support subsequent retooling.
  - b. Retooling should target institutions that need it the most and such training should be offered to more staff within each of the selected universities rather than selecting a few staff representatives from numerous universities.
  - c. Given that the e-learning platform is used by staff and students at different levels, the capacity development initiatives should be tailored appropriately to address their skills gaps and equip them with the necessary skills that go beyond traditional course delivery.
- iii. Universities should improve the organisational environment for effective harnessing of ICT in training and research programmes.
- a. Supportive institutional policies and strategies should be established so as to sustain the gains made by the application of the e-learning platform. This could entail the development and implementation of e-learning/ICT policies in universities which lack them and the application of these policies in those that have them such as Egerton University and UNIMA.
  - b. Universities should increase investments in infrastructure so as to improve on internet speeds, space, and power supply. These improvements will boost sustainable access to and usage of the invaluable web based Learning Management System.
  - c. Provide incentives for lecturers who develop e-content. Relevant teaching staff in the universities implementing the course should take lead in content development/module preparation as opposed to placing this responsibility on an external institution. This would ensure that content is relevant to the respective contexts and that the universities own the process and results.
  - d. Institute measures to ensure quality in development and updating of e-content.
- iv. RUFORUM Secretariat in collaboration with its member universities should cultivate stakeholder buy in to facilitate student field placements.
- a. Forge formal partnerships with NARES to facilitate student field placements.
  - b. Produce a brief document spelling out key attributes of MSc Research Methods program, the purpose of the field attachment and the added value of the student to host institutions. Thereafter, efforts should be made to create awareness of the partners in order for them to understand the intention and nature of support expected from them.
- v. Universities hosting the MSc Research Methods and admitting students from the region who may not be conversant in the language of instruction should provide ample time for the language bridging course and assess student proficiency. This is critical for eliminating language barrier which was noted to

have affected performance of the non-English speaking students in the course.

- vi. RUFORUM Secretariat should make provision for a moderator or facilitator for the project website and online blogs so that he/she may raise interest among the website's audience and encourage online discussions, among other project related web-based interactions.
- vii. Universities should formalise relationship with the mother institutions of the resource persons. This would enhance availability of the resource persons but also help to access resources like equipment which may be resident in other departments.
  - a. Planning for the course should consider where the required resources for running the course will be got, whether within the universities or outside.
  - b. In case there are resource persons from the same university but different departments, relationships with the mother departments should be formalised and resource use should also be rationalised such that time inputs of the resource persons in the special programs are also recognised as part of their workload in their respective universities. This way, their time inputs would be reflected in their performance contracts and minimise the issue of divided loyalties.

## 5. Annexes

### **Annex 1: Roles of University of Reading (Statistical Service Centre, SSC) as a partner**

Statistical Services Centre, University of Reading, UK, was contracted to provide services to the project in the following areas:

*Result Area 1: Partnerships and institutional arrangements established, developed and strengthened.*

The activities in this area included the inception meeting, a gap analysis, contributions to a workshop for directors and managers, and linkages to other ACP areas.

*Result Area 2: Modules approaches and tools for capacity development in research methodology, developed, tested, verified and shared.*

The activities here were to provide and update the resource materials. The project team was of the view that the initial priority would be to provide and update existing materials. The gap analysis and reactions to these materials would identify if new materials needed to be produced.

*Result Area 3: Regional and national capacities for enhancing research quality developed, strengthened and institutionalised.*

Three groups were proposed for this result.

- MSc/PhD students, who would be starting their research career. The first input for them would be a blended course (mixture of e-learning and face-to-face) in June/July 2009. This would be a pilot run for the two groups of students who would be on the programmes at Nairobi and Makerere University.
- Lecturers and NARS researchers, who need refresher and other training courses. The first course for them would be a one-week face-to-face refresher course, towards the end of 2009. More substantial courses would be provided in years 2 and 3 of the project.
- Existing and new (from the MSc course that is part of this project) staff who would support the above two groups in their research. The main activity would be a new-style MSc programme in Research Methods, which would start in 2009. This would be at JKUAT, and two cohorts of at least 15 students each were envisaged within the project period.

## Annex 2: Resource persons who conducted short courses for retooling staff and young scientists

JKUAT Code	Module	Resource person
ARM 3001	Algebra Calculus and Matrices for Statistics	Dr. John Kihoro
ARM 3003	Descriptive Statistics	Dr. Albert Chiteka
ARM 3004	Statistical Modelling	Dr. Margaret Nabasiye
ARM 3005	Principles of Agriculture	Dr. Elijah Ateka
ARM 3006	Socio Economics and Development	Dr. Jane Stack
ARM 3101	Research Methods I	Dr. Gilbert Oboyer Obati
ARM 3102	Research Methods II	Mr. Vincent Oeba
ARM 3103	Data and Information Management	Dr. Edward Mamati
ARM 3104	Research Implementation Skills.	Parin Kurji (U Nairobi)
ARM 3105	Statistical Methods I	Ms. Carol Mugo
ARM 3106	Statistical Methods II.	<ul style="list-style-type: none"> <li>• Daisy Salifu (ICIPE) – GLMs</li> <li>• Jane Poole (ILRI) – HGLMs</li> <li>• Samuel Mwalili (JKUAT) – Bayesian</li> </ul>
ARM 3107	Research Methodology Consultancy	<ul style="list-style-type: none"> <li>• Roger Stern (U Reading)</li> <li>• Ric Coe (U Reading)</li> </ul>
ARM 3108	Statistical Computing	Dr. Anthony Waititu Gichui
ARM 3110	Environmental and spatial statistics.	Dr. Tom Achia (U Nairobi/Capetown)
ARM 3111	Epidemiology	Brigid McDermott (SSC/U Nairobi)
ARM 3112	Public Health and Epidemiology	<ul style="list-style-type: none"> <li>• Brigid McDermott</li> <li>• Dr. Florence Kanini Mutua</li> </ul>
ARM 3114	Research issues in measuring development goals.	Parin Kurji (U Nairobi)
ARM 3117	Climate change and variability	Joyce Otieno (Maseno)

## Annex 3: Performance ratings

Based on information from the data collection processes and critical analysis, the team used ratings to assess project performance with regards to the evaluation criteria of relevance, effectiveness, and sustainability.

Relevance, was rated on a binary scale: 'satisfactory' or 'unsatisfactory'

1. Satisfactory
2. Unsatisfactory

Effectiveness was rated on a six level scale ranging from highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, and highly unsatisfactory.

1. Highly unsatisfactory: The project has severe shortcomings.
2. Unsatisfactory: The project has major shortcomings.
3. Moderately unsatisfactory: The project has significant shortcomings.
4. Moderately satisfactory: The project has moderate shortcomings.
5. Satisfactory: The project has minor shortcomings.
6. Highly satisfactory: The project has no shortcomings.

The likelihood of sustainability of project outcomes was judged based on results of the assessment of risks that can undermine continuation of benefits:- political factors, availability of adequate financial resources, social factors; and conducive institutional framework. A score has been provided for each risk factor using the following scale:

1. Unlikely. There are severe risks affecting that criterion of sustainability.
2. Moderately unlikely. There are significant risks that affect that criterion of sustainability.
3. Moderately likely. There are moderate risks that affect that criterion of sustainability.
4. Likely. There are no risks affecting that criterion of sustainability.

The composite rating was then computed by adding up the individual ratings and dividing by number of risk factors.