

# RUFORUM MONTHLY

The Monthly Brief of the Regional Universities Forum for Capacity Building in Agriculture

## Special Monthly Edition Focusing on SCARDA

Agricultural research and education institutes in sub-Saharan Africa are making an important contribution to agricultural development on the continent. However, most of these organizations have a range of capacity needs which combine to limit their overall effectiveness. Training activities in these organizations are usually designed to address a particular constraint, such as a low success rate in winning new research projects or limited expertise in maintaining laboratory equipment. Sometimes, support is directed towards strengthening a specific department or programme, often with external donor support. Although these interventions are helpful, they will not significantly enhance the performance of the organizations unless other capacity gaps are also filled.

The recently completed project on Strengthening Capacity for Agricultural Research for Development in Africa (SCARDA) took a different approach. SCARDA worked with agricultural research and education institutes and their key partners in ten countries. In each institute a comprehensive analysis of capacity needs was undertaken. This was done through a participatory process involving a cross-section of staff and stakeholders. The analysis formed the basis for an action plan which aimed to strengthen the management of research and improve technical skills in priority areas. The action plan included a set of targeted capacity strengthening interventions, ranging from short courses and workshops to longer term training of individual staff. The capacity strengthening activities were underpinned by a change management strategy which was implemented with mentoring support from external specialists.



Some of the SCARDA students and their supervisors at graduation in Makerere University. From the left: Patrick Ongom, Mrs. Pauline Gibson, Maurice Mogga , Prof. Paul Gibson (visiting lecturer), Jimmy Obala, Dr. Richard Edema (lecturer) & Mayada Mamoun Beshir

- *RUFORUM Monthly* provides information on activities of the Regional Universities Forum for Capacity Building in Agriculture.
- This *Monthly Brief* is available on the last week of every month ■

## ANNOUNCEMENTS

**Proposal Development and African University Climate Change Capacity Meeting. Addis Ababa, Ethiopia.** 8-12 August, 2011

**Information Literacy Training Workshop, University of Zambia.** 8—12 August 2011

**E-content Writing Retreat for Jomo Kenyatta University of Agriculture and Technology.** Naivasha Kenya. 25-26 August, 2011

**RUFORUM Annual General Meeting (AGM).** Lilongwe, Malawi. 29 - 30 August 2011

**3rd RUFORUM Biennial Conference, Dar es Salaam, Tanzania.** 24 – 28 September 2012

More information on RUFORUM activities can be accessed on the RUFORUM BLOG at <http://ruforum.wordpress.com>

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For more information about the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), Contact: The **Newsletter Editor**, RUFORUM Secretariat, Plot 151 Garden Hill, Makerere University Main Campus, P.O. Box 7062, Kampala, Uganda. Fax: +256 414 534153; Tel: +256 414 535939; E-mail: [secretariat@ruforum.org](mailto:secretariat@ruforum.org); or visit RUFORUM Website at [www.ruforum.org](http://www.ruforum.org).



## Moving Forward with the SCARDA activities with the SCAIN project

Postgraduate training was a key element of the capacity strengthening support in most of the agricultural research and education institutes in SCARDA. During the analysis of capacity needs, areas were identified where it was considered that the acquisition of new skills would bring clear benefits to the institutes. The most suitable candidates were then identified, whilst ensuring that there was strong representation of women and younger staff. Most students registered on Masters programmes in countries in Africa and a small number enrolled at the University of Greenwich in the United Kingdom. Care was taken to ensure that the research topics chosen by students were directly relevant to the priorities of their institutes, although this was not possible in a small number of cases.

The identification, placement and support for the Masters students was coordinated by organizations with relevant experience in this area. These were RUFORUM for Eastern and Central Africa; the African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE) for Southern Africa; and the Centre Régional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle (AGRHYMET) for West and Central Africa. The Masters students were given additional training on soft skills such as communication, negotiation and conflict resolution. They also participated in proposal writing workshops as part of a wider process of supporting them to re-integrate into their home institutes. This will increase their chances of winning funding to conduct further research in which they can apply their new skills and contribute to the success of their institutes.

Many of the students have now returned to their own countries and have taken up demanding roles within their national agricultural research systems. For example, after completing her MSc in Plant Breeding and Seed Systems at Makerere University, Micheline Inamahoro has been appointed Head of the Biotechnology Unit at the Institut des Sciences Agronomique du Burundi (ISABU). For her MSc research project, Micheline identified root traits of banana that can be targeted in breeding for resistance to burrowing nematode, *Radopholus similis*. Since her return to Burundi she has submitted three research proposals, one of which builds on her project research on nematodes. Meanwhile, as part of her efforts to strengthen capacity in the Biotechnology Unit, Micheline is using tissue culture to produce breeder seed for potato. This will make it easier for farmers in Burundi to obtain high

quality, disease-free potato seed and increase their opportunities to earn extra income.

Details of the research carried out by Micheline and five other Masters students through the SCARDA project are shown below. More detailed information is now available on a new platform on the RUFORUM website which will be available for access in by the end of August 2011. This platform has been set up under an initiative called Strengthening Capacity for Agricultural Research for Innovation (SCAIN). One of the main aims of SCAIN is to document and disseminate approaches, methodologies and lessons from capacity strengthening initiatives such as SCARDA. SCAIN is also developing and testing tools and methods for identifying and addressing capacity gaps in agricultural research for development initiatives that involve several different types of organization. Finally, SCAIN will identify and collate information which shows how capacity strengthening for agricultural research leads to measurable and sustainable impact.

The SCAIN electronic platform includes a section on SCARDA alumni in which the abstracts of all the students' research theses are shown as well as information on their current interests and activities. An online forum provides a means for students to interact and to connect to other researchers in their field.

*SCARDA was coordinated by the Forum for Agricultural Research in Africa (FARA) and implemented by the three sub-regional organizations (ASARECA, CORAF/WECARD and SADC-FANR), with support from RUFORUM, ANAFE, AGRHYMET and the Natural Resources Institute of the University of Greenwich. Funding was provided by the Department of International Development (DFID) of the United Kingdom. Activities were carried out in Botswana, Burundi, Gambia, Ghana, Lesotho, Mali, Republic of Congo, Rwanda, Sudan and Zambia. The project ran from February 2007 to June 2010 and was subsequently extended to March 2011 to enable specific activities to be completed. The SCAIN initiative, which is also funded by DFID, builds on the work done under SCARDA.*

*RUFORUM on its part is now Scaling up some of the SCARDA approaches and using the lessons to design new initiatives, including strengthening university leadership and management project (9-ACP-RPR-118#5).*

*RUFORUM recognises contribution from Tim Chancellor, Natural Resources Institute (NRI) . He can be contacted at T.C.B.Chancellor@greenwich.ac.uk*

## Profiling Some of the SCARDA Students Abstracts—ASARECA



**Name:** Micheline Inamahoro  
**Gender:** Female  
**Nationality:** Burundian  
**Email address:** inamicheline@yahoo.fr  
**University:** Makerere University  
**Program:** Plant Breeding and Seed Systems

**Funding Agency:** SCARDA – ECA

**Year of Graduation:** 2011

**MSc Thesis Title:** Genetic mapping of root development and Resistance to *Radopholus similis* in a segregating diploid Banana population

**Key Words:** Bananas, root parameters, *Radopholus similis*, marker association

### **MSc Thesis abstract:**

*Radopholus similis* (and other nematodes) cause significant damage on banana worldwide. Genetic resistance to nematodes provides a more sustainable management option in resource poor farming systems. New evidence indicates that there is an effect of root growth characteristics on resistance observations. The main goal of the study was to identify root traits of banana that can be targeted in breeding for resistance to burrowing nematode, *Radopholus similis*. To do this, an early screening of a segregating population derived from a cross conducted between TMB2x 6142 -1 (2x), a diploid genotype susceptible to nematodes, and TMB2x 8075-7 (2x), a diploid genotype resistant to nematodes was done. Root growth and development of 51 clonal genotypes was evaluated in minirhizotron boxes where observations were recorded starting two weeks after planting and after every 2 weeks for six weeks (3 times). Diversity in root architecture for these genotypes was revealed, with tertiary roots contributing the highest proportion of the total roots length (81 %) and surface area (52%) while primary roots contributed the highest proportion of roots volume (61%). Single roots of the 51 macro-propagated genotypes were inoculated with *R. similis* and observed after eight weeks in a screen-house. One resistant genotype (Yangambi km-5) and one susceptible (Valery) were included as controls in this experiment. Significant differences ( $P<0.05$ ) in final nematode population and reproduction were observed among the genotypes tested. Twenty-one (21) clones were identified as resistant, 17 susceptible and 15 partially resistant. Important root parameters

were identified as root length, surface area and root volume and these were subjected to marker-trait association analyses. One hundred (100) SSR markers were analyzed for association with variables of interest using simple regression analysis. Twenty-three (23) heterozygous markers were identified in the female parent, twenty-five (25) in the male parent, while fifty-two (52) heterozygote markers appeared in both parents. Close associations were observed between marker BaPt780639 and root growth rate ( $R^2=50.3\%$ ,  $P=0.0001$ ); between root surface area and marker BaPt-784290 ( $R^2 =40.5\%$ ,  $P=0.0001$ ), and between root volume and marker BaPt-784290 ( $R^2 =41.1\%$ ,  $P=0.0001$ ). Two markers were closely linked with the final population of nematodes. However, only marker BaPt786236 showed close linkage to both root size and resistance to *R. similis* ( $R^2=20.4\%$  for length,  $R^2=14.9\%$  for nematodes population. This marker can, therefore, be a good candidate for selecting for root length trait and resistance to *R. similis*. This study identified two hybrid genotypes (25539S\_26 and 25540S\_149) to have important root traits that confer tolerance to *R. similis* and should be targeted in breeding programs.

### **Describe what you are doing/ have done after the MSc study?**

Soon after completion of my MSc. study at Makerere University in Uganda I was appointed the Head of Biotechnology Unit of ISABU (Institut des Sciences Agronomique du Burundi). I am currently engaged in developing proposals to support research at our Unit. So far I have developed two proposals one on banana tissue culture and the second on banana and potato nematodes isolation. As a researcher in the potato program and Head of biotechnology laboratory, I am developing a proposal on potato breeding against late blight to improve resistance in local adapted varieties. Currently, I am doing potato tissue culture multiplication in order to produce breeder seed which is the start of potato chain upstream in Burundi. Also, in collaboration with other researchers at ISABU, we are carrying out an ASARECA (Association for Strengthening Agricultural Research in Eastern and Central Africa) project on Harnessing crop – livestock integration to build livelihoods resilience in East and Central Africa (ECA).

### **What are your current and future interests and how you do you plan to pursue this path?**

My interest is to strengthen the banana biotechnology laboratory in Burundi and to link our activities to other labs in the sub-region. Also, I plan to work on banana/potato nematodes isolation in order to restart activities in nematology laboratory, which stopped in 1993.



**Name:** Nada Siddig Abdalla

Musa

**Gender:** Female

**Nationality:** Sudanese

**Email address:**

nada.musa@hotmail.com

**University:** Egerton University

**Program:** Agricultural Information and Communication Management (AICM)

**Funding Agency:** SCARDA – ECA

**Year of Graduation:** 2011

**MSc Thesis Title:** Challenges of using information and communication technologies to disseminate agricultural information to farmers in Sudan

**Key Words:** agricultural information, ICTs, Gezira, Sudan, dissemination,

#### **MSc Thesis abstract:**

Dissemination of agricultural information is important to ensure farmers have adequate knowledge and skills to address their needs and sustain production. Although research has been done to improve agricultural productivity in Sudan, performance of the agriculture sector continues to decline. Inadequate dissemination of agricultural information is thought to have contributed to the reduction of agricultural productivity, economic performance, food security and loss of bio-diversity in Sudan. The purpose of this study was to determine the challenges of using ICTs to disseminate agricultural information. The study used an ex-post facto research design. The research was conducted in Gezira State which is the most agriculturally productive state in Sudan. The state of Gezira has an estimated population of about 60,952 farmers. Data was obtained from a random sample of 120 farmers attained through proportionate stratified random sampling. Data was analysed using Statistical Package for Social Sciences (SPSS) software version11.5. Frequencies, means and percentages were used for descriptive statistics, while Chi-Square test was used as an inferential statistic at 5% level of significance. The study findings indicated that ICTs used to disseminate agricultural information by researchers in Gezira state are radio, TV, mobile phone, print media, Internet and other types including field days, Farmers School, seminars, training, workshops, meetings, extension convoys and personal contacts. The results also indicated that cost of transmission, poor infrastructure, illiteracy, culture and limited technical skills are the challenges hindering transmission of agricultural infor-

mation. The study established that socio economic and cultural challenges significantly affected the use of ICTs in dissemination of agricultural information as indicated by significance levels of 0.013 and 0.028 respectively. The findings further indicated that technical constraints affected the use of ICTs for disseminating agricultural information as indicated by a significance level of 0.003 that is less than the alpha level. In conclusion, among the ICTs the most appropriate for dissemination of agricultural information in Gezira state is the radio. However, the dissemination processes faced cultural, technical and socio economic challenges.

#### **Describe what you are doing/ have done after the M.Sc. study?**

The MSc study strengthened my various knowledge base and skills. It also helped me to have a better appreciation of the initial diminution role for development in agricultural information and the benefit of having up-to-date databases to support agricultural research Eastern and Central Africa, and specifically in Sudan.

During my study I drafted two manuscripts on Challenges facing research institutions in using Information and Communication Technologies to disseminate agricultural information to farmers in Gezira State, Sudan and Effectiveness of Information and Communication Technologies in disseminating Agricultural Information: Case Study of Gezira State, Sudan and I am drafting a third one on (the Role of infrastructural support in disseminating agricultural information.

I plan to trace the flow of agricultural information from Agricultural Research Corporation (ARC) to other stakeholders and find a way to make it more accessible and updated to support the agriculture sector in Sudan. I will also be engaged in ensuring that research information generated in Sudan is shared globally.

#### **What are your current and future interests and how you do you plan to pursue this path?**

My current interest, is to create opportunities to link the researchers in ARC with farmers in the Sudan via a very simple participatory communication system to share and exchange knowledge.

I also plan in the near future to apply for PhD degree in Agricultural and Rural Innovations Studies (ARIS). I applied to study this course at Egerton University and I am waiting for the admission letter. To meet my finance and funding challenges, I will apply for scholarships and support from the possible funding agencies.

## Profiling Some of the SCARDA Students Abstracts—CORAF



**Gender:** Female  
**Nationality:** Ghanaian  
**Email address:** lawdon-kor@ymail.com  
**University:** University of Ghana  
**Program:** MA in Library Studies  
**Funding Agency:** CORAF/SCARDA  
**Year of Graduation:** 2009

### MSc Thesis Title:

Access to and use of information centres among scientists at Council for Scientific and Industrial Research, Crops Research Institute, Kumasi, Ghana

**Key Words:** Information centre, scientists, scientific information, dissemination, Ghana

### MSc Thesis abstract:

The study investigated the access to and use of information centres among scientists at Council for Scientific and Industrial Research, Crops Research Institute (CSIR-CRI), Kumasi.

The Institute is one of the agricultural research institutions under the Council for Scientific and Industrial Research (CSIR), Ghana. Its mandate is to develop and disseminate appropriate technologies for high and sustainable food and industrial crop production in Ghana.

The study aimed at ascertaining the level of access to and use of information centres among scientists; their attitude towards the policy of depositing copies of their publications at CSIR-CRI Information Centre and also assessed their information seeking behaviour. The study also examined the performance of staff at the information centre and information services provided for the scientists.

The UNIST Model of Scientific Information Dissemination was adopted as the theoretical framework for the study. The research design for the study was a study case. Questionnaire and interview schedule were used to collect data from 73 and 3 respondents, respectively.

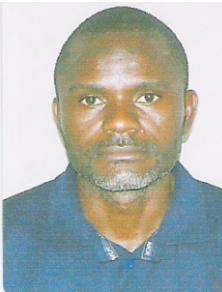
The study revealed that scientists used information centres but at a minimal rate, accessibility was unlimited. They would however use it more if the centre is well resourced with competent personnel, equipment and current and relevant materials. In addition, scientists use the centre for research purposes and prefer to use journals to other type of materials. Also, few scientists deposit their publications at the Centre. The study recommended that scientific information centres should subscribe to current electronic journals, procure modern equipment and also train the staff of the information centres to encourage high patronages of the centres. In addition, networking of information centres should be encouraged since no library or information centre can solely cater for the information needs of scientists.

### Describe what you are doing/ have done after the MSc study?

- Soon after completing my MSc study I was appointed the Head of CSIR-CRI Library
- I am reorganizing of the Institute's Library. The CSIR-CRI Library had been under-sourced for over ten years. There were no qualified personnel to man the library. Therefore the materials at the library were not organized (nor processed). The following are the activities being undertaken to re-organize the library:
  - Creating, capturing, accessing and disseminating of information and knowledge concerning agriculture and rural development.
  - Bringing together all the information generated in the Institutes. These include, staff theses, technical reports, conference/workshop/seminar papers, referred journal articles, etc.
  - Digitizing these information (Scanning these information into PDF).
  - Creating a database for this information.
  - Binding of old books and newspapers for future reference.
  - Processing of library materials (Accession, cataloguing and classification of materials at the library).
  - Stock taking of the library materials.
  - Subscribing to current and relevant electronic and print journals.
  - Publishing of new arrivals through notice boards and e-mail system (Current Awareness Services).
  - Searching for information and disseminating to scientists (Selective Dissemination of Information).
- I have submitted one manuscript developed from my MA thesis for publication (Access to and use of information centres among scientists at CSIR-Crops Research Institute).
- I am preparing another manuscript for submission (Information seeking behavior of CSIR-CRI scientists).

### What are your current and future interests and how do you plan to pursue this path?

- Sourcing for funds to stock the CSIR-CRI Library.
- Developing winnable proposals for funding to stock the library.
- Sourcing funding for the creation of database for internally generated materials (Institutional repository). These include, staff publications, staff theses, technical reports, referred journal papers, edited and unedited conference/workshop/seminar papers.
- Attend seminars/conferences/workshop related to information and knowledge sharing, database and digital library management to enhance my field of work.
- Pursue PhD. in Information technology (Management Information System).



**Name:** KOMBO Guy Romain Aimé  
**Gender:** Homme  
**Nationality:** Congolaise  
**Email address:** kombo\_guyro@yahoo.fr  
**University:**  
**Program:** Ressources Phylogénétiques et Protection des Cultures  
**Funding Agency:** SCARDA

**Year of Graduation:** 2010

**MSc Thesis Title:**

Dynamique évolutive et critères de préférence des variétés de manioc cultivées dans le département de la Bouenza (République du CONGO): Implications pour l'Utilisation et la Conservation des ressources génétiques

**Key Words:** diversité variétale, manioc, critères de préférence, perte de diversité, Congo

#### **MSc Thesis abstract:**

Cassava is an important crop in the Republic of Congo. It serves as alimentary and cash provider. To evaluate varietal diversity and understand its management on-farm in Bouenza department, 21 villages were surveyed in two agro-ecological zones (forest- savannah). Individual survey on 411 house works revealed great varietal diversity. A total of 86 cultivated varieties were found. The mean by village was about 13 varieties. Most households grew 2 – 5 varieties and diversity maintained by household was more important in the forest zone than in the savannah. The mean value of diversity loss was 37, 04%. Finding indicated that 66 varieties had disappeared. Varietal preference criteria for farmers varied between groups but high productivity was the most common. Farmer's management of pests and diseases helped to maintain or minimize diversity loss. Except for the varieties introduction and exchange, the others sources of diversity are not promoted. Knowledge of diversity will facilitate the implementation of participatory breeding program.

#### **Résumé:**

Le manioc est une plante alimentaire de grande importance en République du Congo. Il sert comme source alimentaire et de revenu. Pour évaluer la diversité variétale et comprendre sa gestion à la ferme dans la Bouenza, vingt et un villages ont été prospectés dans deux zones agro écologiques (forêt-savane). Les enquêtes réalisées sur 411 ménages ont révélé une grande diversité variétale. Sous réserve de synonymie, 86 variétés cultivées ont été inventoriées. On compte en moyenne 13 variétés par village. La majorité des ménages utilisent 2 à 5 variétés et la diversité par ménage est plus forte en zone de forêt qu'en zone de savane. La perte de diversité est en moyenne de 37,04%. Sous réserve de synonymie, 66 variétés ont été déclarées disparues. Les critères paysans de préférence variétale diffèrent d'un groupe à un autre et la productivité élevée constitue le critère le plus exigé et commun à tous. La gestion paysanne des maladies et ravageurs est favorable à leur maintien, voire leur expansion et à la per-

te de diversité. Les sources de diversification autres que les échanges et introductions ne sont pas valorisées en milieu paysan. Une meilleure connaissance de la diversité par sa caractérisation facilitera la mise en œuvre d'un programme de sélection participative.

#### **Describe what you are doing/ have done after the MSc study?**

Depuis l'obtention du Master je m'occupe à reconstituer la collection de variétés locales de manioc et d'ignames, mais également de l'introduction, l'évaluation et la diffusion de nouvelles variétés de haricot dans le cadre des activités du Pan African Bean Research Alliance (PABRA) au Congo Brazzaville.

Dans le cadre des activités sur le manioc, j'ai pris part à deux ateliers organisés par le Pôle régional de recherche appliquée au développement des systèmes agricoles d'Afrique centrale (PRASAC) à Douala au Cameroun et un atelier organisé par la FAO à Brazzaville:

- Novembre- décembre 2010, atelier de programmation du projet FSTP MANIOC ;
- Avril 2011, Atelier méthodologique du projet FSTP MANIOC ;
- Mai 2011, Atelier de lancement du projet TCP/ PRC/3302 « Appui à l'élaboration d'une stratégie de développement de la filière manioc au Congo »

Dans le cadre des activités sur le haricot commun, 103 nouvelles variétés de haricot ont été introduites en avril 2010. Leur évaluation avait été lancée sur deux sites Boko-Songho et Madingou. Ces évaluations sont toujours en cours dans d'autres localités. Pour la campagne 2010- 2011, quatre nouveaux sites font l'objet d'évaluation de ces variétés. Tandis que sur les deux premiers sites, 11 variétés reconnues performantes sont actuellement en multiplication au près des producteurs. J'ai pris part à deux ateliers organisés par PABRA :

- Octobre- novembre 2010, Atelier pour la revue des activités 2010 et de planification des activités de recherche 2011.
- Mars 2011, Atelier de Sensibilisation à l'importance du genre en zone WECABREN.

#### **What are your current and future interests and how you do you plan to pursue this path?**

Je souhaite poursuivre mes activités de recherche dans le cadre d'une thèse de doctorat. Cependant mes recherches de bourse restent pour l'instant sans suite. Je profite de l'occasion présente pour formuler ma demande de bourse pouvant me permettre de réaliser les travaux en vue d'une thèse. Je joins à ce formulaire mon accord d'encadrement en thèse par le Professeur Alexandre DANSI ANAGONOU à la Faculté des Sciences de l'Université d'Abomey Calavi (Cotonou, Bénin).

## Profiling Some of the SCARDA Students Abstracts—SADC



**Name:** Blackson Phiri Jeke  
**Gender:** Male  
**Nationality:** Zambian  
**Email address:** b\_jeke@ymail.com or bjeke@nrdc.biz  
**University:** University of Malawi  
**Program:** Horticulture  
**Funding Agency:** SCARDA

**Year of Graduation:** 2011

**MSc Thesis Title:**

Analysis of tomato (*Lycopersicon esculentum* L.) value chain in Chipata district, Zambia

**Key Words:** Value chain, supply and market, extension and training, capital, infrastructure, Zambia

**MSc Thesis abstract:**

The Ministry of Agriculture and Cooperatives in Chipata district in Zambia reported that tomato industry was facing challenges in relation to supply and marketing. This was so despite the favourable weather and environmental conditions for production of tomato in the district. Therefore, analysis of the tomato value chain was conducted between October 2010 and March 2011. The purpose of the study was to assess the source of the challenges and determine possible solutions. The study analyzed the value chain by assessing the players and their roles, post harvest handling practices, production costs in dry and wet seasons, and constraints along the chain. The study was important because tomato is very important in the diets of Zambians in general and Chipata community in particular, and because of the developmental plans of government to elevate Chipata to the status of a city, which will lead to increased population of the town and that will result in increased demand for tomato. Primary data was collected from 180 smallholder farmers, 38 marketeers, 13 staff of the Ministry of Agriculture and Cooperatives at provincial, district and field levels, and farmers' association representative. Other key informants included institutions such as prisons, colleges, boarding schools, and hospitality industry operators (hotels/lodges and restaurants). Two questionnaires were used for farmers and marketeers interviews respectively and checklists for the others. Secondary data was obtained from literature. The study found that: (a) Players in the tomato value chain are agro-input dealers, smallholder farmers, marketeers, transporters, government institutions such as prisons and colleges, Shoprite supermarket, extension service and training providers, financial institutions, and consumers. Their roles are as follows: agro-input dealers import inputs, tools and equipment into Chipata and avail them to tomato growers; smallholder farmers produce tomato while marketeers buy tomato from farmers and avail it to consumers. Transporters move tomato for farmers and marketeers from villages to markets in town. Institutions such as prisons and colleges produce tomato, sell some, consume some and buy some to meet their consumption requirements. Extension and training providers train and advise farmers on tomato production while financial institutions provide soft loans to marketeers. Shoprite brings into Chipata tomato for sale to consumers and consumers provide final market for all tomato. (b) Tomato goes to waste in the

dry season due to over-supply, and it is scarce and expensive in the wet season due to inadequate supply. The low supply is attributed to low production partly due to inadequate accessibility to inputs caused by inadequate financial resources. (c) Inadequate knowledge and skills with farmers due to inadequate access to training and extension services which contributes to low production, about 5.5 ton/ha. (d) Tomato has potential to contribute to poverty reduction and wealth creation in Chipata because it is a high value crop and environmental conditions are suitable for its production. (e) The only supermarket selling tomato is Shoprite, but it does not buy the tomato it sells from Chipata farmers and there is no tomato processing and export in Chipata. (f) Uncompetitive value chain due to inefficient production of tomato by farmers partly because of inadequate knowledge and skills farmers have in tomato production. (g) Postharvest practices limited to cleaning and grading because of limited knowledge by both farmers and marketeers. (h) Production costs of tomato are generally low (about ZMK5 million) in Chipata probably because of low input quantities used by farmers. Since tomato can be beneficial to players in the value chain, it is recommended that: (i) Players in the tomato value chain organize themselves into a formal group (cooperative or association) to improve coordination, lobbying power (voice), and quality of tomato in the chain. Most challenges the value chain faces can be solved by players themselves once organized into a formal organization. (ii) Accessibility to training and extension services be improved by MACO to improve farmers' knowledge and skills so as to increase tomato production to meet the demand in both dry and wet seasons. This will also address the postharvest handling practices. (iii) Financial institutions should create a credit facility for smallholder farmers, which will solve the inadequate inputs problem. (iv) Private sector should organize export trade and establish a processing plant market for tomato from farmers. (v) Government should lobby Shoprite management to buy tomato from local producers without compromising on quality.

**Describe what you are doing/ have done after the MSc study?**

I am still compiling my Thesis. I submitted my second draft and have received some comments and I'm working on my third draft. I have not completed my MSc study but I expect to complete soon.

**What are your current and future interests and how do you plan to pursue this path?**

Since I work at a training institution in Zambia, I hope to contribute to strengthening research and development at my institution (NRDC) both with our students and with Zambia Agricultural Research Institute (ZARI). I am very interested in continuing with the kind of study I have undertaken during my MSc study, so that if chance (opportunities and resources) allows, I can do more studies of similar nature.

## Profiling Some of the SCARDA Students Abstracts—SADC



**Name:** Retselisitsoe Khoalenyane  
**Gender:** Male  
**Nationality:** Lesotho  
**Email address:** ureng2004@yahoo.co.uk  
**University:** The University of Greenwich  
**Program:** Natural Resources (Sustainable Environmental Management)  
**Funding Agency:** SCARDA

### Thesis Title:

Smallholder farmers' response capacity to climate change and variability in Lesotho

**Key Words:** Agriculture, climate change, Lesotho

### Thesis abstract:

Agriculture is one of the most vulnerable sectors to challenges posed by changing climatic conditions, particularly in areas where adaptive capacity is limited. Agriculture supports the livelihoods of about 70% of Lesotho's population and adaptation to the impact of climate change and variability (CC&V) is critical. Maize the key staple output per capita has been on the decline in Lesotho since the 1970s and the projected climatic scenarios indicate a reduction in rainfall. In this study a vulnerability approach was used to assess farmers' adaptation to climate change and variability, including an exploration of farmers' perceptions and adaptation strategies with respect to maize. This framework together with the innovation systems approach were used to explore adaptive capacity at two levels: farmer and national agricultural innovation system (i.e., the stakeholder linkages and institutions relevant to supporting maize producing smallholder farmer's adaptive capacity in the context of CC&V. A semi structured questionnaire survey of 60 smallholder farmers and Rapid Rural Appraisal tools were used to gather data at three locations in Leribe district. Key informants were interviewed through a semi structured questionnaire and a group discussion undertaken with stakeholders in the maize innovation system. A high proportion of farmers (66% of responses to what has changed) perceived a negative trend in rainfall since the 1970s, reporting reduced, delayed and unreliable as key terms to define this. Official rainfall data did not indicate a declining trend in annual rainfall, but showed great variability between years and other commentators have similarly reported changes in rainfall patterns. Twelve percent of responses said that it was getting colder which was in line with official weather data. The combination of later onset of and

unreliability of rains (together with lower temperatures in some instances) was perceived by farmers to have delayed planting and shortened the maize growing season. Farmers mostly used shorter maturity period Open Pollen Varieties, where local varieties dominated (although 47% of farmers do not know their major variety's name). Thirty three percent of farmers substituted their main variety with hybrids when there were good rains, while 42% of farmers always used the same variety all the time. Forty one percent of farmers reported that they always ran out of the maize they produce themselves for food before the next harvest. All those who ran out of maize substituted with purchases from the shops and suggested that they used funds such as those from remittances and other sources. More than 90% ran out of maize following a bad year but to counter this 62% of farmers did not do anything, while winter ploughing was the strategy of 12% of farmers. The majority of farmers were not willing to diversify out of maize by growing a different crop. The vulnerability approach showed that smallholder farmers producing maize had low adaptive capacity to withstand anticipated future conditions. Lesotho's innovation systems in the context of enhancing farmer adaptation to CC&V when producing maize was weak (for example, key stakeholders were not sufficiently included in the planning of research priorities, and resource sharing was done on a limited scale) and this had negative implications for future smallholder maize producers.

### Describe what you are doing/ have done after the MSc study?

I am currently a Research Officer for the Department of Agricultural Research, Lesotho. I have completed a study entitled "Farmers preferences of maize seed and attitudes towards maize production in Lesotho". I have also undertaken a cost benefit analysis assessment of the Sufficiency Economy Philosophy, which is a farming system approach adopted in Thailand. The preliminary report has been submitted. I am also working on training farmers on issues around seed business management and marketing.

What are your current and future interests and how do you plan to pursue this path?

I hope to continue in this research field, and improve my skills further by pursuing PhD study which I hope to start next year.

## RUFORUM GRADUATE RESEARCH GRANTS – 4th CALL FOR PROPOSALS

Call ID: [RU/CGS/GRG/30/9/11](#)

PROPOSAL DEADLINE: 30 September 2011

For selection in: February 2012

### BACKGROUND

This is to announce the **Fourth Call for Proposals** of the RUFORUM Graduate Research Grants (GRG). The purpose of the Call is to support capacity building at graduate level and to link universities more closely with rural communities and with research, extension and development agencies. Please refer to the Competitive Grants Manual (visit [http://www.ruforum.org/sites/default/files/\\_file/\\_Grants/RUFORUM%20CGS%20Manual.pdf](http://www.ruforum.org/sites/default/files/_file/_Grants/RUFORUM%20CGS%20Manual.pdf)) for further information and guide on the Graduate Research Grants. The Manual provides guidelines and other details on how to respond to the Call for Proposals.

This is an open call for participatory action research proposals that meet identified demand. The lead applicant must be from a RUFORUM Member University (except where a member university is not eligible). Other Universities not eligible for the award of grants are encouraged to participate by twinning with eligible member institutions.

### TIME FRAME for Call ID [RU/CGS/GRG/30/9/11](#)

Deadline for Proposal submission to RUFORUM Secretariat by **30<sup>th</sup> September, 2011**

Compliance Review and send to External Reviewers by **20<sup>th</sup> October, 2011**

External Reviewers to return proposals with comments to Secretariat by latest **1<sup>st</sup> December 2011**

Secretariat to compile proposals for review by Technical Committee by **28<sup>th</sup> February 2012**

Results from the selection will be communicated to PIs by **Mid March, 2012**.

### Proposal Submission

A soft copy of the complete application package must be submitted by email (all supporting documents, including from collaborators must be included in the same email from the PI). Where an applicant submits more than one proposal, each must be sent separately. Applications should be addressed to:

#### The Grants Manager

RUFORUM Secretariat,

[Call ID: specify]

Plot 151 Garden Hill, Makerere University

P.O. Box 7062, Kampala, Uganda.

Tel.: +256-414-535939; Fax: +256-414-543153

Email: [cgs@ruforum.org](mailto:cgs@ruforum.org); with copies to [secretariat@ruforum.org](mailto:secretariat@ruforum.org)

## ANNOUNCEMENT

### 3RD RUFORUM BIENNIAL CONFERENCE, 24 – 28 SEPTEMBER 2012

We are pleased to inform you that the Third RUFORUM Biennial Conference will be held in Dar es Salaam, Tanzania in conjunction with the RUFORUM Annual General Meeting. Please note these dates and block them to schedule your attendance to this important event. The 3rd Biennial conference will be hosted by Sokoine University of Agriculture in partnership with RUFORUM

#### **IMPORTANT DATES: DEADLINES**

Extended Abstracts	– 30th April 2012
Registration	– 30th July 2012

#### **BACKGROUND**

The RUFORUM Biennial Conference provides an opportunity for young and seasoned scientists to network and learn lessons towards increasing problem solving on the African continent.

#### **CONFERENCE SUB-THEMES**

1. Risk and vulnerability in agriculture
2. Value chains and innovation platforms
3. Innovations in agricultural information, communication & knowledge management
4. Natural resource management
5. Animal and plant breeding and biotechnology
6. Partnerships and networking
7. Strengthening innovation capacity
8. Agricultural Marketing, trade and policy
9. Monitoring and impact assessment
10. Plant and animal health management

#### **FOR MORE INFORMATION PLEASE CONTACT:**

##### **Conference Coordinator**

Ms Nodumo Dhlamini: [n.dhlamini@ruforum.org](mailto:n.dhlamini@ruforum.org),  
Tel: +256414535939

##### **Team Members**

Dr. Wellington Ekaya: [w.ekaya@ruforum.org](mailto:w.ekaya@ruforum.org)  
Mrs. Sylvia Mkandawire: [s.chindime@ruforum.org](mailto:s.chindime@ruforum.org)  
Mrs. Claire Akun-Ntwali: [c.ntwali@ruforum.org](mailto:c.ntwali@ruforum.org)  
Prof. B. Tiisekwa: [btiisekwa@yahoo.co.uk](mailto:btiisekwa@yahoo.co.uk) or [tiisekwa@suanet.ac.tz](mailto:tiisekwa@suanet.ac.tz)  
Tel: +255232604649/ +255232603511/ +255754476410  
Blog: <http://ruforum.wordpress.com/>