

Small Grants: Delivering innovations, research leaders and engaging communities

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Abstract

In a rapidly transforming world and knowledge based economies, research has become an important component in universities and other higher education institutions. Accordingly, many African universities have set a focus and vision towards becoming research led universities contributing innovations for the prosperity of society. In doing so, staff and students research capacities need to be consistently built at various levels. A steady flow of financial resources to realise these visions is required. As such, most African universities rely on external funding support through competitive grants of different magnitudes. The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) since its inception in 2004 has run a suite of small grants through a competitive process to provide research funding to its network members. The suite of these small grants has grown overtime to accommodate network growth both in number of members as well as thematic focus. The graduate research grants, institutional strengthening grants, field attachment programme awards and the entrepreneurship challenge programme are some of the small grants packages provided. This blend of small grants serves a diverse network with diverse levels of funding and capacity needs. A growth to evolve into larger grants without losing the small grants especially for emerging universities and for pilots is envisioned.

Key words: Africa, research funding, RUFORUM, small grants, students, universities

Résumé

Dans un contexte d'évolution rapide et d'économies fondées sur la connaissance, la recherche est devenue une composante importante dans les universités et autres établissements d'enseignement supérieur. En conséquence, de nombreuses universités africaines se sont fixées comme objectif et vision de devenir des universités axées sur la recherche afin de contribuer aux innovations pour la prospérité de la société. Ce faisant, les capacités de recherche du personnel et des étudiants doivent être constamment renforcées à différents niveaux. Un flux constant de ressources financières est nécessaire pour réaliser ces visions. Ainsi, la plupart des universités africaines dépendent des financements extérieurs provenant de subventions compétitives. Depuis sa création, le Forum des Régional des Universités pour le Renforcement des Capacités en Agriculture (RUFORUM) offre une série de petites subventions par le biais d'une compétition pour le financement de la recherche aux membres de son réseau. Ces petites subventions ont augmenté au fil du temps pour répondre à la croissance du réseau, tant en nombre de membres que de l'objet thématique central. Les bourses de recherche aux étudiants, allocations au renforcement institutionnel, les bourses

au programme de stages et les prix des challenges d'entrepreneuriat sont quelques-unes des petites subventions proposées. Ces petites subventions servent un réseau diversifié avec des niveaux de financement et des besoins en capacités variés. Une croissance pour évoluer vers des subventions plus importantes sans perdre les petites subventions, en particulier pour les universités émergentes et les projets pilotes est envisagée.

Mots clés: Afrique, financement de la recherche, RUFORUM, étudiants, universités

Introduction

Globally, universities remain pivotal to society aspirations. Universities have traditionally been known for three primary roles; teaching, research and outreach. As universities undergo transition in the current information age and knowledge-based economy, research has become an important imperative driving competitiveness (Goransson and Brundenius, 2011). Higher education institutions and research institutions across the global divide are thus under immense pressure to show relevance to their respective national innovation systems and to society. In order to achieve this, universities are increasingly fostering partnerships with governments and communities as part of moving the agenda beyond the traditional tenets of the university beyond education and research but to achieving societal impact through engaged universities (El-Jardali *et al.*, 2018).

Achieving renewed missions of universities requires funding to be delivered. Universities and other research institutions are routinely seeking for research funding. Accordingly, funding has remained one of the vital determinants of scientific activities and securing funding remains an important undertaking for researchers (Ebadi and Schiffauerova, 2015). Several research funding models exist with increasingly a switch to larger grant sizes underpinned by the arguments for economies of scale in research and redistribution of resources towards top researchers in order to increase scientific productivity and pathbreaking research (Bloch and Sørensen, 2015). However, in resource constrained environments especially in developing countries where research funding is limited and where there is need to continuously build capacity of researchers as well as the next generation of researchers, small size grants are important and catalytic in function (Jones *et al.*, 2007).

The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) adopted a small grants approach for supporting research across its network universities. At the founding of RUFORUM in 2004 were 10 universities committed to building a vibrant research culture, impact oriented universities, vibrant faculties of agriculture and promoting partnership and learning from each other. Like a close family, they had grown together from the Forum on Agricultural Resource Husbandry (FORUM), a Rockefeller Foundation programme, with enviable success of training 250 young graduates at masters' level (Blackie and Muir-Leresche, 2012). These lessons from the FORUM granting process had to be continued with modifications to serve the new and expanding network.

Accordingly, the RUFORUM Competitive Grants Scheme (CGS) was borne with a focus on sharing limited resources among its members to support research progress and innovation. The

formula was simple; competitive small grants. The rationale behind the small grants was equally simple, they work, they empower students and farmers, and they provide a unique and effective mechanism for enabling students and their professors to work in the field with farmers. This direct engagement with the farmers during the research process was shifting the focus of how universities engaged; rather than researching on farmers, they were now being tuned to researching with farmers. Today, the RUFORUM network has grown from the initial 10 universities from five African countries to 126 universities in 38 African countries. RUFORUM still maintains a suit of small grants and has expanded on the range of these small grants as the network demands and interests expand. This article documents the type of the small grants, their successes and lessons learnt during implementations.

Graduate Research Grants

One of the carry forward grant type from the FORUM was the Graduate Research Grants (GRGs) with a grant value of US\$60,000-75,000. This small grant was attractive to both junior and senior academics that qualified and soon became a signature brand of the RUFORUM network that university researchers always looked towards. The GRGs were simple in design and focus; they bring together bring a faculty member with PhD to train at least two master students, one of whom who ought to be female. The success of this was not always outright to find females to recruit in some disciplines. Nonetheless, the GRG bore seven unique attributes; (i) a simple to respond to competitive grant call; (ii) opportunity for building a research team; (iii) a deliberate focus to increase the pool of women graduate students and researchers; (iv) mentoring and networking with researchers from elsewhere in the African continent; (v) direct linkage with the communities through farmer field based research and trials; (vi) opportunity to generate technologies and innovations and management practices of relevance to smallholder farmers; and (vii) all graduate students had their introduction to scholarly writing through the development of research application summaries (extended abstracts) published in the RUFORUM Working Document series. Indeed, the networking provides a support mechanism to both academics and students by drawing experiences from others and developing necessary solutions to problem areas, research or otherwise.

Through the GRGs, RUFORUM has been able to mobilise the dispersed capacities in African universities to train over 1,919 master students from across Africa of whom 44% are females. These masters students have all had the opportunity to travel, present papers at international conferences, meet and interact with other African students and build a coalition of young Africans that know and appreciate Africa. Many of the academics in the universities that have implemented the GRG projects led by the 489 Principal Investigators in various thematic areas (Figure 1) in part owe their progress in academic ranks to these grants. This academic progress was due to three reasons; first, they were able to supervise students, many of whom completed in time, secondly, they were able to engage with communities, and thirdly, they were able to publish as part of a research team (at least 600 peer reviewed publications have emerged from the GRG process). These three factors are important promotion criteria in many African universities. The GRG small grant provides opportunity for quality research; it solves bottlenecks to quality research undertakings; provides consumables and basic laboratory equipment; supports field research costs; and provides for a student stipend, research cost and university tuition. Students focus when

their basic needs are met, a stipend for 24 months ensures that the graduate student is able to stay on the programme and deliver on his/her research within the agreed time. Further, some of the GRG processes require timely completion and this has influenced how universities organise their graduate training processes to realise timely completion in graduate programmes. Timely completion remains one of the short comings that university managers need to address in African higher education.

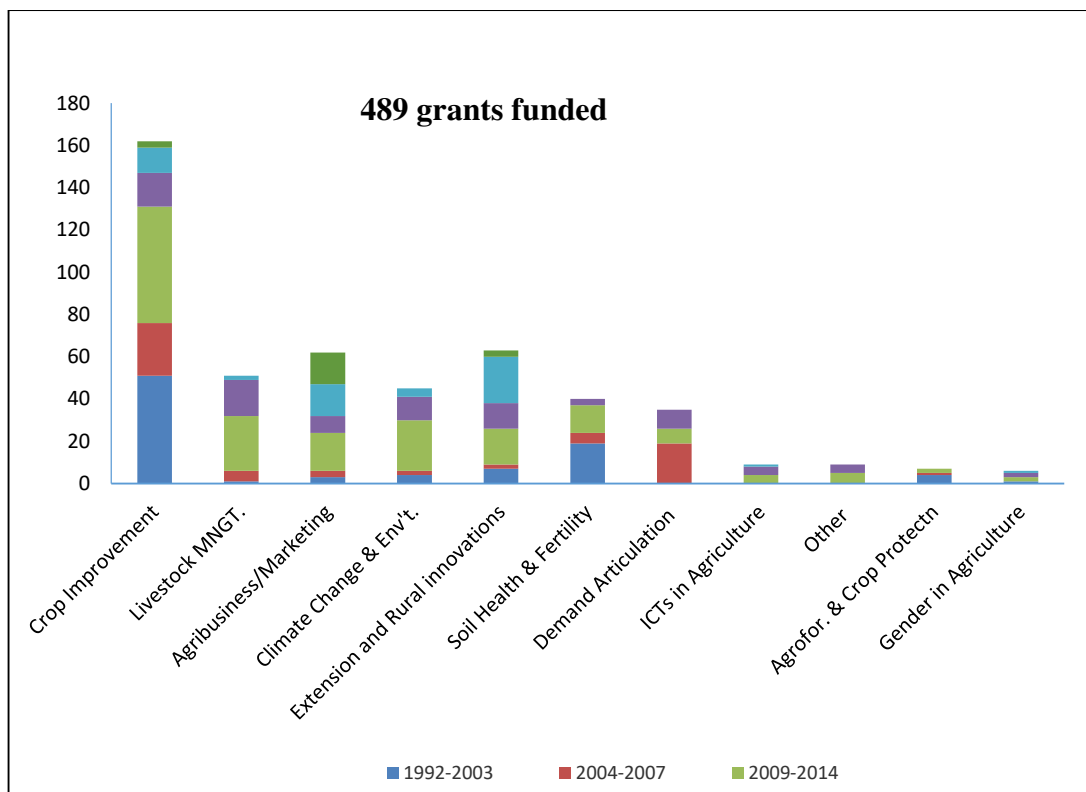


Figure 1. Number of GRG small grants awarded and thematic areas

Through the GRGs, seeds of research focus among academics and faculties of agriculture were sown. From these small grants, many universities were able to progressively demonstrate their reputation as a source of innovation and resources, both human and capital, to undertake more ambitious work. A virtuous circle is thus developed. Through this high quality research, Universities such as Makerere University started their soybean breeding agendam releasing six varieties Maksoy 2N, Maksoy 3N, Maksoy 4N, Maksoy 5N, Namsoy 4M and MAKSO6 under the leadership of Professor Phinehas Tukamuhabwa. This effort also built on the earlier research efforts of Professor Adipala Ekwamu that had released two soybean varieties (MAKSOY 1 and NAMSOY) through the small grants funding under FORUM. These soybean varieties have been released by the Uganda Ministry of Agriculture Animal Industry and Fisheries to farmers. These efforts have helped revitalise soybean production in Uganda. Today, the crop is estimated to contribute US\$45 million to the GDP of Uganda and directly benefiting 66,718 smallholder farmer households (over 400,000 rural lives) who earn on average UGX 1,185,600 (US\$520) per hectare per season (compared to an estimate of US\$131 per hectare earned

by smallholder maize farmers). Technologies, innovations and management practices generated through these GRG grants are estimated to be 300 in total with varying levels of uptake in various parts of Africa.

In Southern Africa in Botswana and Namibia, institutional capacity development were triggered and greater linkages with the Ministries of Agriculture and Forestry created. For example in Botswana, following on the success of the Strengthening Capacity in Agricultural Research for Development in Africa (SCARDA) programme that trained six master students from the Department of Agricultural Research, an Innovation Platform for small livestock was launched. It thus became apparent that researchers had to continue providing relevant innovations to rural communities and particularly to the extension agents to support livestock production improvements at household level. Under the leadership of Dr. Mpapho, a young passionate female goat researcher, a GRG small grant funding on dairy goats to support smallholder farmers whose livestock was being dissipated by drought was provided. Unfortunately, Dr. Mpapho passed on in August 2015 but the research agenda continued to benefit several smallholder farmers in terms of improving their flocks through breeding and fodder production. This has formed an important research agenda at the now Botswana University of Agriculture and Natural Resources (BUAN). Because drought remains an important challenge in Southern Africa, another researcher in Botswana, Prof. Vallantino Emongor focused his attention on a rare drought, heat, cold and salt tolerant crop-safflower. This multi-purpose crop has a number of uses and therefore has high economic returns to producers. Through this small grants research funding an innovation platform to support safflower value chain development was launched in Botswana. The gains have been phenomenal and his work has now been further supported by RUFORUM through the Community Action Research Programme (CARP) with support funding from the Mastercard Foundation to fully develop the safflower value chain and increase the number of smallholder farmers growing safflower. Further, in Namibia two MSc students from the Ministry of Agriculture and Forestry were supported to tackle climate change adaptation in livestock sector by developing alternative indigenous feeds.

In Benin (West Africa), a young illustrious researcher, Dr. Achille Ephrem Assogbadjo proposed a unique research on African baobab. He had interest to reduce the growing period to harvest baobab leaves to just three months. Through the GRG small grant, his research team besides training two masters' students, proved the possibilities of their techniques. Today, smallholder farmers in Benin are growing and selling baobab leaves with ease. The research team has further received additional support from RUFORUM to extend the research processes, engage with TVET institutions and reach more smallholder farmers with these technologies as well support further value addition innovations. What we see from the RUFORUM perspective is that these small grants have equally been useful in launching the resource mobilization capacity especially among many early career researchers. For most to them, the GRG research grant was their first grant to be awarded. From then, they have become phenomenal researchers, fundraising for their universities and building broader research teams. Many of the trained students moved on from masters to PhD, 39% work in universities, 27% in research organisations, 10% in industry and 10% in non-governmental organisations, 9% and 5% work in Government Departments and extension services, respectively. We thus see that the GRG small grants have served as key

pillar in ramping-up the training and progression of early career academics and technicians in African universities.

Institutional Strengthening Grants-Nurturing Grants

Growth is a unique opportunity that enables the opening of new horizons. This is also the story of RUFORUM's expansion in membership both in terms of universities and countries of operation. As the network expanded from the initial 10 universities and five countries, new members brought new opportunities and unique challenges. Universities were at varying levels of capacities in terms of research as well as research focus. A number of the new universities were emerging universities and required nurturing from the established universities. At the same time, the RUFORUM competitive grants scheme through the GRGs had a skewed response among researchers with strong response focus on crop based research especially crop improvement. Response varied across the universities because of limitations in capacity and ability to write competitive grants, and cultural tendencies. There were also institutions and countries (e.g. Burundi, DR. Congo, and Rwanda) that were emerging out of conflict and required special support for rebuilding human capital. Accordingly, RUFORUM needed to address these emerging needs, as well as address new emerging and pressing issues such as climate change, gender and ICTs issues in agriculture, natural resources management and, the need to strengthen research capacity through post-graduate training. Post-graduate training was an important emerging area because not all member universities that were joining RUFORUM had masters and PhD graduate programmes, they in fact joined with the need to be supported to develop these academic programmes. Further, there were new areas that required urgent capacity building at graduate level such as agricultural risk management and agro-meteorology, and our universities did not have taught-based PhD programmes. We thus created the Institutional Strengthening Grants (also popularly referred to as Nurturing Grants) to respond to these emerging needs, neglected areas in the network and to promote wider participation in RUFORUM Network activities.

At a time when the world did not believe that Africa was ready for doctoral training, RUFORUM through the institutional strengthening grants supported a selected group of African Universities to launch taught Doctoral training programmes in its network universities based on comparative advantage that each university had at that time. Through this effort 17 regional graduate training programmes were launched with the earlier ones being PhD in Dryland Resources Management (University of Nairobi, Kenya), PhD in Soil and Water Management (Sokoine University of Agriculture, Tanzania), PhD in Fisheries and Aquaculture and PhD in Agricultural and Resource Economics (Lilongwe University of Agriculture and Natural Resources, Malawi), PhD in Plant Breeding and Biotechnology, PhD in Agriculture and Rural Innovations, and Master of Science in Plant Breeding and Biotechnology (Makerere University, Uganda), Master of Science in Agro-meteorology and Natural Risk Management (Haramaya University, Ethiopia), Masters in Agricultural Information and Communication Management (Egerton University, Haramaya University and University of Nairobi). These regional programmes have supported Africa's mobility initiatives, provided learning points for hosting taught based PhD programmes within Africa and ignited a basis for taught PhD Programmes in the continent. The support for these institutional strengthening grants came from the Rockefeller Foundation, International Development Research Centre (IDRC),

Carnegie Cooperation of New York, and Bill and Melinda Gates Foundation (BMGF). The success achieved with these initial pilots of regional programmes has drawn attention from other universities within the network to seek support for developing masters and taught based PhD programmes. Some of the most recent programmes developed through institutional strengthening grants include: Masters in Monitoring and Evaluation and PhD in Agro-ecology and food systems (Uganda Martyrs University), PhD in Petroleum Studies (Makerere University), and PhD in Agriculture and Applied Biosciences (Gulu University). Both the regional and non-regional training programmes today provide training opportunities to African students and are supporting internationalisation efforts of the host universities.

Institutional Strengthening Grants also focused at both re-building research and human resource capacity of institutions in Burundi, DR. Congo, Rwanda, South Sudan and Sudan as part of strengthening human and research capacity in conflict and post-conflict countries. Through these nurturing grants, over 100 students from these countries had the opportunity to study in various universities (Figure 2) in Uganda, Sudan, Kenya, Ethiopia, Malawi, and South Africa. These students were drawn from universities and agricultural research divisions such as Rwanda Agricultural Board (RAB), Institut des Sciences Agronomiques du Burundi (ISABU), Catholic University of Bukavu and Centre de Recherche en Sciences Naturelles de Lwiro in DR. Congo, University of Kordofon and University of Gezira in Sudan. Since completing their studies, the alumni are now leading research efforts and rural transformation through agricultural extension services delivery and supporting university teaching and research in their respective institutions and countries.

Another important component that these institutional strengthening grants have played a role in is supporting innovations in training approaches. Following a visit to EARTH University in Costa Rica with a team of Vice Chancellors, we had pressure to adopt and adapt the unique model of training that EARTH University was implementing. Two University Vice Chancellors committed to pilot these models in an adapted manner. Gulu University and Egerton University teamed up to pilot the Students Community Outreach Model (SCOM) and Students Enterprise Scheme (SES) of training with a nurturing grant from RUFORUM. These models strengthened Gulu University's focus on community transformation, endeared it to the rural communities and demonstrated the value of university-community engagement (Kalule *et al.*, 2016). On the other hand, Egerton University's farm attachment evolved to be well structured, a strategy was developed and the practice rolled out to the whole university rather than it being confined to the Faculty of Agriculture alone (Mungai *et al.*, 2018). From these initial pilots, RUFORUM demonstrated the transformative power of universities. It was from these pilots of the nurturing grants that when Mastercard Foundation was undertaking institutional assessments of institutions to implement the TAGDev programme, these two universities were found fit to be early adopter universities. Within this umbrella, RUFORUM received significant investment from the Mastercard Foundation that currently is in its fourth year of implementation and is supporting the training of 392 students (undergraduate 181, Master 198 and PhD 18) from 27 African countries.

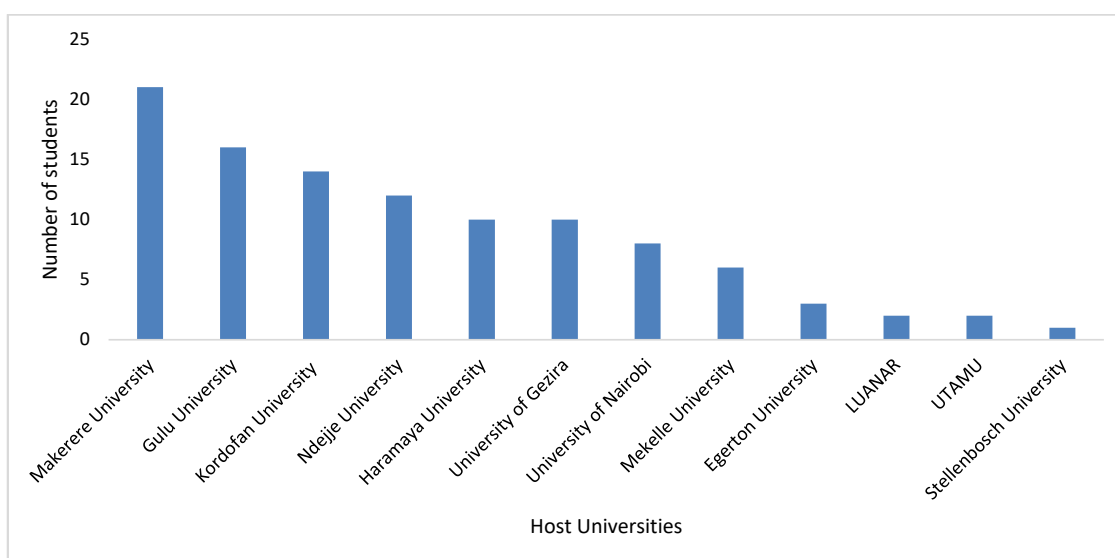


Figure 2. Number of students trained by various host universities under institutional strengthening grants

Students Enterprise Scheme: Developing a foundation for practical oriented entrepreneurship training

As the Forum on Agricultural Resource Husbandry (FORUM) was wounding up in the early 2000s, conversations on the need for a transformation of university level agricultural education had commenced in various spheres and among university leaders, government, farmers and private sector (Sherrard, 2017). In 2003, a convening of these actors took place in Jinja, Uganda (a town in Eastern Uganda at the source of the River Nile). In these conversations, were some of the leaders from EARTH University, a university in Costa Rica that had managed to start a unique model of training agricultural graduates, focused primarily on training leaders rather agricultural engineers or agronomists. Consensus from this meeting (The 2003 Jinja Consensus) urged for a creation of a new African agricultural university and training models for developing a unique cadre of graduates who would become entrepreneurs and wealth creators rather than cogs in the wheels of existing public agricultural education, research and extension organisations (Blackie, 2016).

Sooner than later, some of the participants in the Jinja Consensus were strongly involved in the creation of a new institution: RUFORUM. Thus, as RUFORUM took shape as an institution, it was time to rethink and reshape how agricultural education in African universities especially the Faculties of Agriculture was delivered. It was time to pilot unique models, the preaching of change and transformation had gone for some time but limited action had taken place. Through RUFORUM's leadership, the old contacts with EARTH University were reactivated through a visit with a few Vice Chancellors to EARTH University. One striking observation from the EARTH University's education was its mission centered on "preparing leaders with ethical

values to contribute to sustainable development and to construct a prosperous society”. EARTH University’s educational model is depicted in the Figure 3.



Figure 3. EARTH University Educational model based on formative areas

Listening to students and academics from EARTH University, one of the captivating components that was unique was the entrepreneurship training. The students had a real life experience in conceptualizing business ideas, registering companies and running companies on limited resources invested to them by the University but for which they had to pay back to the university with interest. The students had learned in practical terms, risk taking and the students enterprises were promising, some profitable while others had failed. While EARTH University was fairly resourced, it was a model that could perhaps be piloted in African Universities with relevant modifications and adaptations to the resource envelopes as well as to the cultural and social contexts.

RUFORUM accordingly launched a competitive grant to pilot a Students Enterprise Scheme, building on the EARTH Model. Two pilot universities, Egerton in Kenya and Gulu in Uganda, were each awarded \$100,000 to establish a Students Enterprise Scheme, with flexibility for each university to adapt it to its context. Collaboratively, the two universities with the institutional strengthening grant from RUFORUM Secretariat developed the

Students Entrepreneurship Scheme (SES); an agribusiness innovation and entrepreneurship model (Figure 4). The purpose of the SES was to provide a framework for transformative training of graduates in entrepreneurship. Prior to this, entrepreneurship was taught rather theoretically with anticipation that the graduates would have an opportunity upon graduation to translate their theoretical knowledge in practice. This had not produced the anticipated effects. However, with the new model, students had the opportunity to conceptualise their business, develop business plans, implement the business plans, be assessed and have the opportunity to transition with operational business upon graduation. Students interested would receive 'a study loan' to set-up their enterprises for which they had to pay back during the course of their study. Through a competitive process teams of 4-6 students, were each to conceptualise and develop a bankable enterprise project that they had to run over a 2-3 year period. Their project proposals were evaluated by a team of experts from universities, private sector and a financial institution. Winning teams qualified to borrow \$2000-\$5000.

This experiment was certainly unique and in the eyes of many, it was taking the university into uncharted waters and driving the university away from its core mission; teaching, research and outreach. But, the two universities especially its leadership were committed to seeing innovative programmes that would distinguish the training processes in their universities and this was a vital opportunity. Early pilot students that chose to pursue enterprise development are today successful business personalities in Kenya and Uganda. Through this entrepreneurship training, students engaged with communities as they underwent business ideation, sourced inputs into their enterprises and others opened their businesses in close collaboration with communities in Uganda and Kenya. This model strengthened Gulu University's focus on community transformation, endeared it to the rural communities and demonstrated the value of university-community engagement (Kalule *et al.*, 2017). On the other hand, Egerton University has seen an expansion of interventions beyond entrepreneurship to innovating how the farm attachment program at the university is structured to advance experiential learning at the University (Mungai *et al.*, 2016). Efforts are ongoing to scale up the SES to other universities in Africa, albeit with modifications as needed.

The Student Enterprise Scheme based on evidence of success was later transformed into the RUFORUM Entrepreneurship Challenge Programme (RECAP). The RUFORUM Entrepreneurship Challenge Programme (RECAP) is an innovative program that supports incubation of student business ideas with technical assistance and financial capitation through a revolving fund. It also supports the establishment of incubation hubs in RUFORUM network universities as platforms for business incubation. The RECAPs are currently being implemented by 16 Universities: Université Catholique de Bukavu (DR. Congo), University of Burundi (Burundi), University of Juba (South Sudan), Ndejje University, Uganda Christian University, Busitema University, Muni University, Makerere University, and Gulu University (Uganda), Egerton University and South Eastern Kenya University (Kenya), Haramaya University (Ethiopia), University of Eswatini (Eswatini), University of Cape Coast (Ghana) and University of Abomey Calavi (Benin). These incubation hubs are supporting some 616 students to pilot their enterprise development in practice (Runyararo *et al.*, 2018). Commendable success from these student enterprises are being recorded from six incubation hubs at Abomey Calavi University, Bishop Stuart University, Uganda Christian University, and Gulu University,

Egerton University and Catholic University of Bukavu; where the students businesses have created 240 directs besides and 223 job offerings for the student proprietors bringing the total job count to 463 opportunities created within a period of two years. These business are being operated at. This demonstrates that these seeds sawn through small grants have potential to be taken to scale.

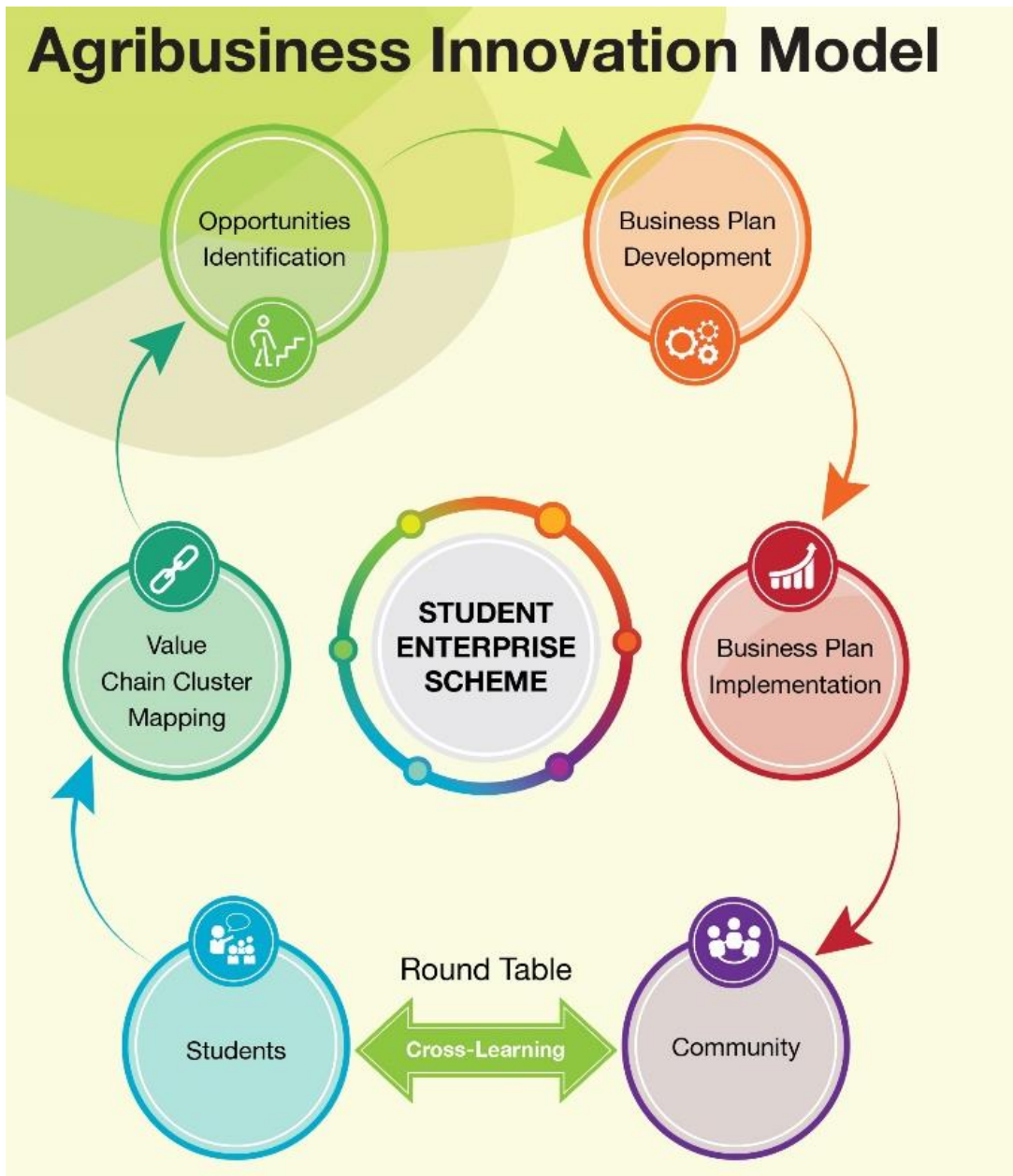


Figure 4. Students enterprise scheme-agribusiness innovation model

Field Attachment Programme Awards

RUFORUM's implementation of both GRGs, Doctoral Research Grants, and Nurturing grants produced phenomenal successes in generation diverse technologies, innovations and management practices. However, there were concerns that researchers and universities in one way or the other were being extractive and the students at the time of their research focused on getting their research completed in time. As such, they generally had limited interactions with the farmers. The Field Attachment Programme Award (FAPA) was thus conceived as small grant to enable students who have submitted their dissertation for examination to go back to the communities to share their research findings with the communities from where they collected data. They had to do this in partnership with agricultural research institutes, civil society organisations and/or non-governmental organisations in those areas of their research. The FAPAs are competitive in nature with a grant award between US\$2000-US\$6000 for period of 3-6 months. This is partly undertaken for two reasons; first, there is often limited funding available for this effort and secondly, some of the masters students often secure employment opportunities and/or return to their places of employment immediately upon submitting their dissertations thus become too occupied. Since 2010, we have awarded 199 FAPAs to students from 19 countries (Figure 5). These students have on average been able to directly engage an estimated 35,000 smallholder farmers during technologies, innovations and management practices dissemination (TIMPs) activities.

Lessons from the implementation of the FAPAs have shaped some interventions as well as modifications in the nature of the FAPAs. Presently, there is a distinction between Community Field Attachment Programme Award (CFAPA) primarily focused on Technologies, Innovations and Management Practices (TIMPs) dissemination and engagement with communities and Business Development Field Attachment Programme Award (BDFAPA) focused on supporting students to translate their research innovations into business enterprises. This was partly a result of feedback from previous periods of implementation in which students identified business opportunities from their research and wished to undertake startups by moving research to business. In the current cohort of attachments, there are seven students from Benin, Ghana, Zimbabwe, and Kenya that are moving in this direction. In Ghana, Ms. Smith Oforiwaah from the University of Cape Coast is undertaking value addition on pineapple producing packaged juices and providing farmers in the Pineapple Community Action Research Programme (CARP) direct market access for their produce. In Zimbabwe, Mr. Farai Desire Marongwe is commercialising sesame and groundnut fortified porridge. This is responding to one of the discourse that has gone for far too long around African universities leaving their research innovations on the shelves and hoping that someone someday will pick-it up for commercialisation. Further, as the demand for the students to remain longer in the communities has been growing, we are now piloting the Community Based Agricultural Advisors (CBAA) model in which willing students can extend their attachments beyond the tradition 4-6 months to at least one year and with funding available for upto 24 months. During this period, they will be engaged with the local level extension agents and universities in delivery of complementary agricultural extension services to farmers using innovative technologies and processes.

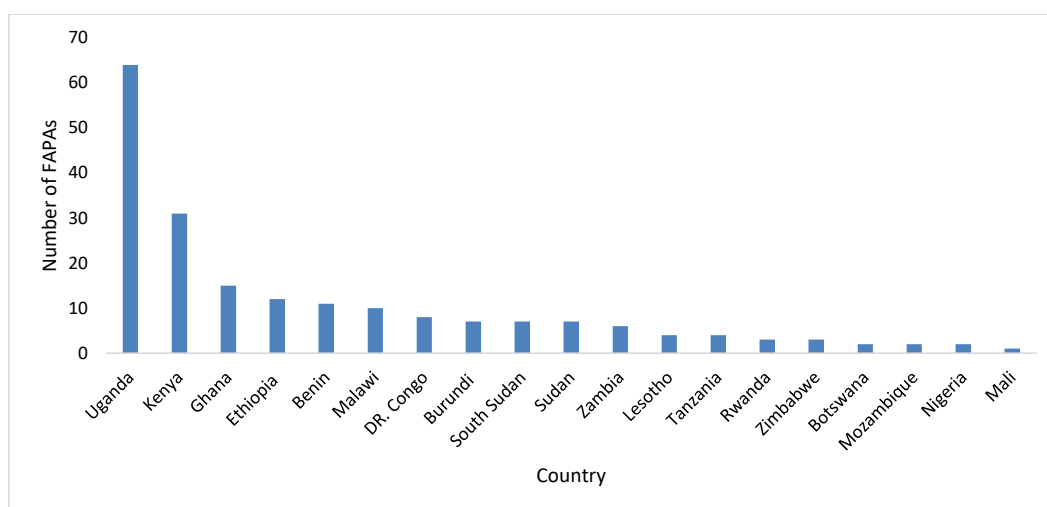


Figure 5. Field Attachment Programme Awards (FAPAs) by student country of origin

Conclusions and reflections for the future

Over the past 15 years of implementing a suite of small grants, success and progress has been made in the RUFORUM network in utilizing these grants to play a catalytic function for research and innovation as well as keeping faculty engaged and re-integrating those returning from overseas studies. The RUFORUM network has certainly grown and so have the demands and new areas of interest are emerging owing to the diversity of network members. As seen in the description in this article, the RUFORUM Secretariat has continued to innovate new small grants avenues to respond to these emerging needs. Three important lessons can be discerned from these small grants. First, the small grants are important for shaping research agenda, providing training opportunities and engaging a diverse network with varying capacities and limitations. Second, small grants are effective, they empower students and farmers, and they provide a unique and effective mechanism for enabling students and their professors to work in the field with farmers and other actors. Third, small grants are an important pillar for piloting innovations and innovative approaches prior to taking to them scale, and as such, they offer opportunity for developing reference points. Based on the lessons from the small grants, RUFORUM Secretariat has successfully run medium-level grants under the Community Action Research Programmes (CARPs). This grant type is part of RUFORUM's effort to grow the grant value and moving towards larger grant size package whilst maintaining the small grants package. In looking ahead, RUFORUM network will over the next decade see well-structured and diverse larger grant packages (US\$500,000-1,000,000) that will increase the partnership and collaboration across network institutions from central, eastern, north, southern, and west Africa. Further, expansion of the incubation hubs to assume both the role of incubation and accelerators will be required and at the same time, a distinction between technology driven incubators and accelerators and the social-enterprise incubators and accelerators will need to be made.

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