

RUFORUM granting mechanisms and implementation pathways

Rukarwa, R.J., Egeru, A., Waswa, M. & Adipala, E.

Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), P.O. Box 16811,
Wandegeya, Kampala, Uganda

Corresponding author: r.rukarwa@ruforum.org

Abstract

The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), a network of 126 universities in 38 African countries, uses grants to fund research and training in agriculture and non-research programs that advance the organization's mission across the continent to strengthen the capacities of universities to foster innovations responsive to the demands of small-holder farmers. RUFORUM achieves this through the training of high quality researchers, the output of impact-oriented research, and the maintenance of collaborative working relations among researchers, farmers, national agricultural research institutions, and governments. Since its inception, RUFORUM has run a suite of grants through a competitive and direct commissioning process to provide research funding to its member universities. The granting system has grown overtime to accommodate the network's growth both in number of members as well as thematic focus. Over the years, RUFORUM has supported 489 grant awards in various thematic areas including crop improvement, livestock management, agribusiness, climate change, and Gender in agriculture, amongst several others. These awards have generated over 300 technologies across the continent.

Key words: African Universities, Granting mechanisms, RUFORUM, small-holder farmers, students training

Résumé

Le Forum Régional des universités pour le renforcement des capacités en agriculture (RUFORUM), un réseau de 126 universités dans 38 pays africains, subventionne la recherche et la formation en agriculture et des programmes pour renforcer la mission de l'organisation sur le continent, notamment, celle de consolider les capacités des universités pour promouvoir des innovations qui répondent aux demandes des petits exploitants agricoles. RUFORUM facilite ceci à travers la formation de chercheurs de qualité, les résultats de recherche axée sur l'impact et le maintien de relations de travail collaboratives entre chercheurs, agriculteurs, institutions nationales de recherche agricole et gouvernements. Depuis sa création, RUFORUM a géré une série de subventions grâce à un processus compétitif d'octroi des subventions de recherche à ses universités membres. Toutefois, le système de subventions a évolué avec le temps pour s'adapter à la croissance du réseau, tant en nombre de membres qu'en orientation thématique. Au fil des années, RUFORUM a octroyé 489 subventions dans divers domaines thématiques, notamment l'amélioration des cultures, la production animale, l'agro-industrie, le changement

climatique et l'approche genre en agriculture, entre autres. Ces subventions ont généré plus de 300 technologies à travers le continent.

Mots-clés: universités africaines, mécanismes de subvention, RUFORUM, petits exploitants agricoles, formation des étudiants

Background

Knowledge production, scientific output and innovation on the continent remains low compared to other developed and emerging regions. These limitations affect the delivery of higher education in Africa. No wonder the continent is considered to be lagging in terms of knowledge production, publications and innovations. Very few researchers have recorded patents and other intellectual property products. Additionally, recent bibliometric analysis of research output in Africa indicate a relative decline of research and scholarship at many African universities (Beaudry *et al.*, 2018). Numerous case studies also demonstrate quite convincingly that research at former well-resourced and supported institutions, deteriorated; that research infrastructure and the general state of laboratories at many institutions has suffered from a lack of maintenance and timely replacement of old equipment (Sawyerr, 2004; Beaudry *et al.*, 2018). In addition, the generally poor quality of library resources has not improved significantly, some university libraries do not have automated management systems in place; and the demand for sufficient funding for ongoing research and scholarship continues, as does the need for proper research management and support at most of these institutions (Swartz *et al.*, 2019). The cumulative effect of the funding policies, the huge growth in student enrolments in higher education institutions, combined with continuing political instability in many African countries has created a state of affairs known as the 'de-institutionalization' of science as previously described by Mouton (2008).

In addition, investment in education in Africa remains low by international standards (UNCTAD, 2018), Government investment in research and development as proportion of gross domestic product across Africa averages between 0.3% and 0.4% (UNESCO, 2019). This is way lower than the agreed 1.5% committed by most ministers of science and technology in Africa in 2005. The low investments in science and research by African governments also mean that many countries are heavily dependent on foreign funding for research. Studies have shown that better-funded scientists are more frequently cited and are more productive than less-funded scientists (Beaudry and Allaoui, 2012). The granting of research money further acts as a signal that attracts additional funding in subsequent years in many institutions. Providentially, investments by international governments, donors and development agencies in research have increased significantly over the past two decades. Many organizations in Africa including RUFORUM have received funding from donors to support human capacity building in Agriculture and related sciences in Africa. The organization has received funding and has been sub-granting to its member universities over the past 15 years.

Rationale and Context of the RUFORUM sub granting system

RUFORUM's mission is to strengthen the capacities of universities to foster innovations responsive to the demands of small-holder farmers through the training of high quality

researchers, the output of impact-oriented research, and the maintenance of collaborative working relations among researchers, farmers, national agricultural research institutions, and governments. RUFORUM implements its mission through a range of activities but at its core is the Competitive Grants System (CGS) that is directed at the increased contribution of graduates and research products from RUFORUM member universities to smallholder livelihoods and rural development. The objective is to produce high-quality innovative and entrepreneurial graduates and dynamic universities that are strong actors in national innovation systems and that champion the production of quality graduates, research outputs and policy information that underpin poverty alleviation and economic growth. As part of implementing the Competitive Grants System, a sub-granting funding mechanism has been instituted by RUFORUM to support research in its member universities across Africa. It is a financing mechanism to implement research projects that address issues highlighted in RUFORUM's strategic plan and the continental research priorities. The sub-granting mechanism is demand driven, performance based, transparent, open and competitive. It is intended to improve the performance of production systems and to stimulate all dimensions of agricultural development in the continent.

RUFORUM is currently operationalizing its Vision 2030 strategy (Waswa *et al.*, 2018) through a range of activities but at its core is the CGS and Direct Commissioning System. The CGS serves as an important way of focusing existing research capacities in the member universities on identified issues, ensuring scientific excellence and raising the level of preparation and implementation of research projects and, through eligibility criteria, fostering new partnerships. Direct commissioning system is used where institutions are identified on the basis of their needs or professional expertise and technical competence for direct engagement to design and undertake research and training.

A) Competitive Grants System

The RUFORUM Competitive Grants System is directed at increasing the contribution of graduates and research products from RUFORUM member universities to smallholder livelihoods and rural development. The RUFORUM's competitive grant system involves a publicly posted request for proposal (RFP) that provides details of specific area of interest and sets timelines for review and approval. Universities are invited to submit applications addressing the specific gaps in research, practice or care as outlined in the specific RFP. The grant requester (and ultimately the grantee) is responsible for the design and implementation of the independent initiative supported by the grant, including compliance with any regulatory requirements (Fig. 1).

The CGS incorporates a number of different competitively awarded grant programmes including:

- 1. Graduate Research Grants (GRG)** for projects which must include training of at least 2 M.Sc. students and is valued at \$60,000-\$80,000. The GRG provides opportunity for quality research; it solves bottlenecks to quality research; provides consumables and basic laboratory equipment, supports field research costs and student tuition and stipend. Students focus when their basic needs can be met, which helps to ensure the graduate student is able to stay on the programme and complete his/her research on time. The GRGs

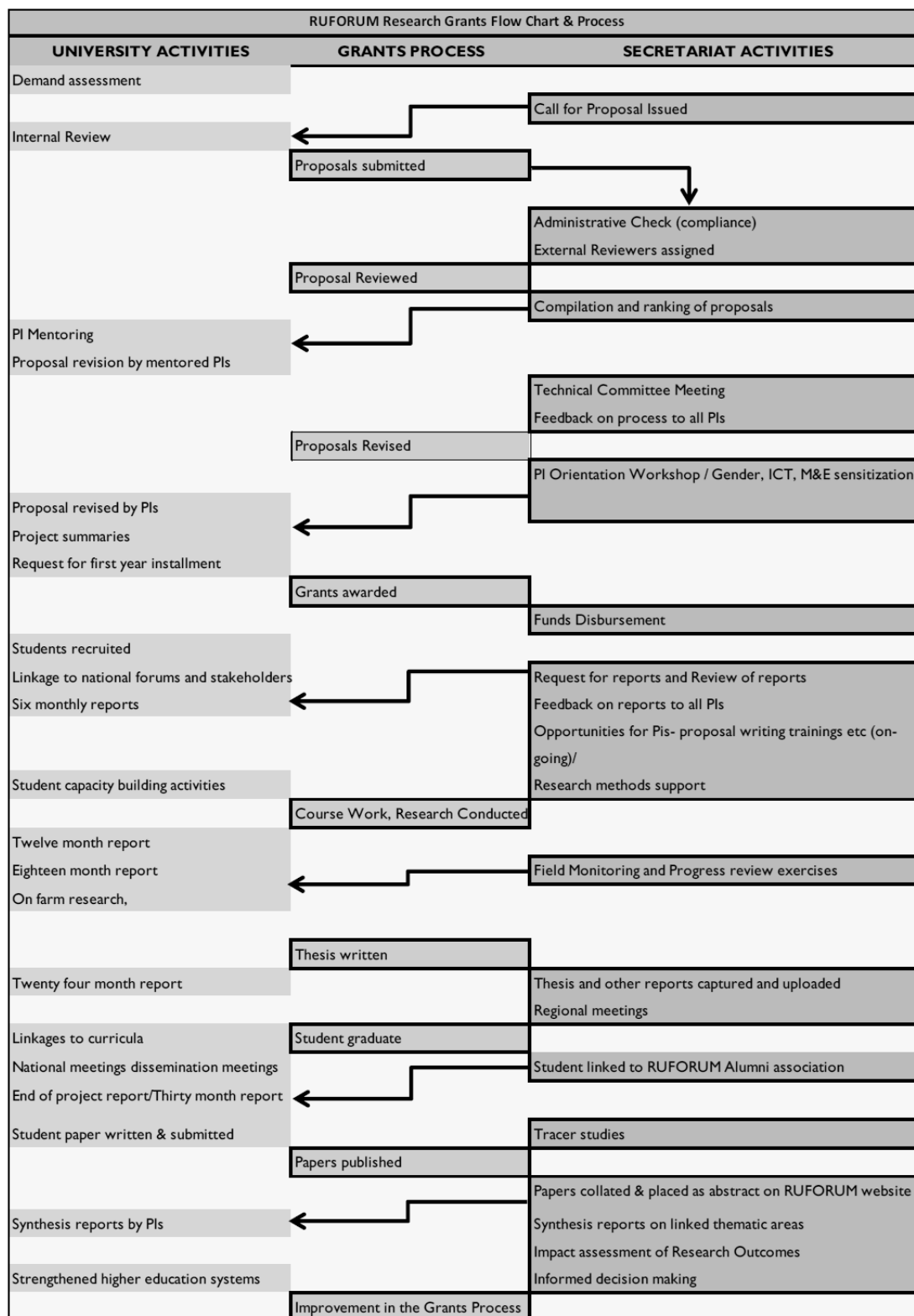


Figure 1. The RUFORUM Competitive Grant Award System and Implementation Process

are the primary focus of the RUFORUM CGS and studies have shown a high completion rate of students, over 97% remaining in Africa, high employment rates, and significant impact of their research on rural livelihoods (RUFORUM, 2014).

2. Community Action Research Programme (CARP/CARP+) grants to establish a platform for universities to link with communities and other stakeholders in action research. Each grant supports training of at least 1 PhD and 2 M.Sc. students and involves attachment of at least 4 undergraduate students, all working with communities and downstream actors such as extension agents and community-based organizations, along a selected agricultural value chain. Through this process, researchers become facilitators of the development process that co-create, co-design, and co-develop knowledge and knowledge systems with the communities, and industry. The CARP projects take an inter-disciplinary problem solving approach and are rooted within a value-chain, or innovative systems framework recognizing the environment and gender issues. The CARP grants aims at catalyzing universities to develop and invest in more comprehensive and sustained action research into a particular geographical area or in a selected commodity along the full value chain. The commodity value chains selected and prioritised by the respondents and/or applicants from universities are often required to be those prioritised in the National Development Programmes and/or listed as neglected commodities of importance.

To enhance the CARP, RUFORUM in partnership with Mastercard Foundation implemented a new programme known as *“Transforming African Agricultural Universities to meaningfully contribute to Africa’s growth and development (TAGDev)”*. The Programme seeks to transform African agricultural universities and their graduates to better respond to developmental challenges through enhanced application of science, technology, business and innovation for rural agricultural transformation. Under TAGDev, there has been a specific focus to include Technical and Vocational Education and Training (TVET) institutions within the implementation of the CARP so as to enhance on-farm and Community University led impact as well as strengthen the educational value chain connectivity between universities and TVET institutions. This led to the advent of the Community Action Research Programme PLUS (CARP+).

3. Field Attachment Programme Awards (FAPA) enables 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 for period of 3-6 months. They have to do this in partnership with agricultural research institutes, civil society organizations and/or non-governmental organizations in those areas of their research. The Award, providing only for a living stipend and limited travel is designed to link students closely with the farmers and to a service provider in the area, to give them work exposure.

4. RUFORUM Entrepreneurship Challenge Programme (RECAP). The RECAP is an accelerator program that is institutionalized at an applicant member university to facilitate student’s innovation and business incubation. Through the RECAP, agricultural universities will have the opportunity to establish Agribusiness incubation Centers (AIC) as part of operationalizing the Entrepreneurship Challenge Program to foster the further development of innovative business ideas leading to products and/or services on national to

regional scale. The AIC will then serve as a hub that will provide opportunity to students and other innovators and entrepreneurs to design and validate their business models and products and test their viability for success in the real world.

5. Doctoral Grants that provide a range of scholarships and grants. The Doctoral Grants vary in amounts and depend on the source of funding.

- a. The Doctoral Regional Scholarship (DRS) is a scholarship awarded competitively to candidates undertaking PhD training. Normally a DRS covers a 3- year doctoral scholarship funding.
- b. The Doctoral Regional Research Grant (DRRG) is a competitive research grant made directly to students who have completed their first year of coursework at a RUFORUM supported Regional PhD program.
- c. The Doctoral Finalization Support (DFS) is a competitive grant awarded to students needing funding support to finalize their doctoral research, publish their theses, papers and for the effective dissemination of their results. These awards are made to students who have completed all coursework and fieldwork.
- d. The RUFORUM Post-Doctoral Fellowship is intended to provide an opportunity for the Fellows to establish their credentials and develop connections and skills to raise research resources and improve career prospects in the future. It is also aimed at building their capacity so that they in turn are able to guide and create a new generation of scientists for the continent through supervising and mentoring Masters and PhD students. The Fellowship run for a maximum period of 24 months. In the case of RUFORUM, there is special emphasis in building inter-disciplinary skills of the Fellows, often requiring that they serve as Mentors to students outside their core disciplines of PhD studies.

Through these grants, RUFORUM contributes to improving the quality and relevance of its research and students, to university outreach, and to its potential as an impartial national and regional platform for all stakeholders to engage in the value chain. Some of the awards also require working with undergraduate research assistants to expose them to the opportunities and issues to be addressed in further studies. The CGS usually emphasizes participatory action research, linking faculty and students with rural communities, promoting inter-disciplinary research and encouraging multi-agency teams to create impact across the region. The CGS provides the opportunity for universities to encourage participatory research by faculty and students working in partnerships with the farmers and other agencies involved in research and development.

All project proposals under the CGS are reviewed by a Technical Review Team comprising of RUFORUM Secretariat and external specialists. Final approval for the grant award is given by the RUFORUM Technical Committee, an expert group of 7 individuals (3 from within and 4 from outside university system) and a grant award letter is given to the institution before project implementation.

B) Direct Commissioning System

RUFORUM may provide research grants based on direct negotiations with a particular member university or Technical and Vocational Education Training (TVET) associated with a member university. This direct award must conform to the following general principles:

i) Nurturing Grants

The RUFORUM competitive grants scheme through the CGS usually has a skewed response among academia. Response rates vary by university because of limitations in capacity and ability to write competitive grants, and cultural tendencies. There are also institutions and countries that are/were emerging out of conflict and require special support for rebuilding their human capital and teaching and research capacity. Accordingly, RUFORUM addresses these need by providing special grants to member universities on a case by case basis.

ii) Technical Skills Development Programme (TESDEP)

The TESDEP programme is designed as an interface for Universities to directly engage with the Technical and Vocational Education Training (TVET) institutions including ATVETs. Its focus is to enhance the educational value chain whilst allowing the university academics, graduates and TVET trainers and students to co-learn, co-innovate, and co-skill each other as well as co-design at the same time. Further, a special focus is paid to Competence Based Training (CBET) at development and delivery. Within the TESDEP, the Out of School Youth Training Programme was launched as part of ensuring effective community engagement. The out of school youth is a branch-out programme that supports effective transitions for youth in practical agripreneurship. Youth that are progressive and committed to agriculture, or belong to youth farmer groups, are identified and skilled in agripreneurship through a Competence Based Curriculum. They acquire skills in specific commodity value chains that they have prioritised as a group or as an individual. This training is delivered at a TVET institution with collaborative facilitation involving University academics, TVET trainers and often community lead trainers and guest speakers/facilitators from the private sector. Upon finalization of this training, the trainees receive a package of inputs such as seeds, agro-chemicals, among others.

iii) Short skills enhancement courses

The short skills enhancement trainings for staff and students funded by RUFORUM are in three categories. 1) Soft skills enhancement training focusing on developing the 21st Century skills with the aim of enhancing creativity and critical thinking among graduates. The targeted skills include; leadership trainings, personal mastery, discovering one's talent, business negotiation, personnel management, among others; 2) Technical short skills enhancement training; which involves bridging the gaps in the areas of professional expertise for the students; they include Bridger training programmes provided to students with limited technical background in particular fields of study, statistics, data analysis, data management, scholarly writing, enterprise development, community engagement, among others; 3) RUFORUM Secretariat routinely coordinates competitive projects development and implementation skills training for academic staff and early career researchers as part of ensuring that when they have completed studies, they are able to mobilize resources as well as work in research teams; and 4) Project proposal preparation skills for university researchers and partners to enhance development of competitive proposals to funding agencies. There are also targeted skill training programmes such as on curriculum development, monitoring and evaluation, human resource management, etc. The Secretariat engages experts from different fields from within and outside the university system to

deliver these skill enhancement trainings

iv) African Universities Leadership and Management Training Programme (AFRI-Lead)

The AFRI-Lead Programme has been designed with the purpose to facilitate internal and regional capacities of university managers to undertake relevant and effective transformations in African universities. AFRI-Lead further believes that the training opportunity will enhance thought leadership capacity within African Universities and thus facilitate their growth to become powerhouses of proactive graduates, innovations and research which can transform Africa to a knowledge based economy driven by science, technology and innovations. Within AFRI-Lead, Vice Chancellors, Deputy Vice Chancellors, Senior Managers, Deans and Principals receive leadership training and capacity building. This leadership training programme thus provides an opportunity and environment for university managers to dialogue on some of the bottlenecks in the universities such as inadequate funding, particularly for research, increasing demand for higher education, with little parallel increase in infrastructure or human resources, limited autonomy and academic freedom and limited leadership training and systematic entry into leadership, management of existing human resources including attracting and retaining high quality faculty; quality and relevance of research; capacity for resource mobilization and financial management; and intermittent strikes from both academics and students among others. Through this forum, University managers are able to forge working groups and alliances, share lessons and explore partnerships for addressing challenges within their institutions. This leadership training is based on a six module curriculum that has been developed for university managers. It also responds to popular needs and topical issues as raised by the Vice Chancellors for example, engagement with policy and decision leaders.

All project proposals under the Direct Commissioning System are reviewed by a Technical Review Team at the RUFORUM Secretariat. Final approval for the grant award is given by the RUFORUM Executive Secretary and a grant award letter/contract is given to the institution before project/training implementation.

Governance and administration of grants

The RUFORUM Granting System is governed through the overall oversight of the RUFORU Board Technical Committee. The Technical Committee approves all competitive proposals except those that are less than US\$ 6,000, where approval shall be granted by the Executive Secretary.

Key lessons from the RUFORUM CGS

- i. Timely accountability for funds received continues to be a challenge. Linking disbursement of funds to achievement of key indicators is a potential solution
- ii. The proportion of female Principal Investigators continue to be lower. This has been challenged by equally lower numbers of female university faculty at the respective universities. Designing granting systems targeting female researchers has potential to encourage women take up leadership positions of various projects

- iii. Reporting on grants implementation has mainly been through the RUFORUM Information Management System (RIMS). However, most Principal Investigators have faced challenges reporting through the platform and preferred sending reports through email. Adequate retooling of new Principle Investigators in using the RIMS platform remains critical.

Conclusions

Through the various granting mechanisms, RUFORUM has facilitated university researchers, students and partners to build human capital for the continent, develop technologies and innovation, and impact on the livelihoods of several farming communities. The grants have also enhanced university-community linkages and linkages of universities with the private sector. RUFORUM has also used the granting systems to foster collaboration amongst its member universities, to build capacity in key gap areas and to strengthen research capacity in merging universities and institutions emerging out of conflict. Over the years the granting system has also built the capacity of the Member universities to develop competitive proposals, and to increase the pool of women undertaking graduate studies. Concerted effort has been paramount over the years to ensure that the granting system and projects supported were fully and appropriately implemented. The RUFORUM Secretariat has awarded over 489 grants since 2004 mainly focusing on agricultural research, training and education through the development of institutional and organizational partnerships among universities and public-private sector organizations.

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References

- Beaudry, C., Mouton, J. and Prozesky, H. 2018. The Next Generation of Scientists in Africa. African Minds. ISBN eBook 978-1-928331-94-0. 204pp
- Beaudry, C. and Allaoui, S. 2012. Impact of public and private research funding on scientific production: the case of nanotechnology. *Research Policy* 41 (9): 1589-1606; DOI: 10.1017/S0002020600026986
- Mouton, J. (2008). Africa's science decline: The challenge of building scientific institutions. *Harvard International Review* 30 (3): 46-51.
- RUFORUM. 2014. Tracer study of RUFORUM Alumni. Retrieved from https://www.ruforum.org/sites/default/files/Final_Ruforum_TRACER%20STUDY%20Report_June14.pdf
- Sawyerr, A. 2004. Challenges facing African Universities: Selected issues. *African Studies*

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- Swartz, R., Ivancheva, M., Czerniewicz, L. and Morris, N. P. 2019. Between a rock and a hard place: dilemmas regarding the purpose of public universities in South Africa. *Higher Education* 77: 567-583. <https://doi.org/10.1007/s10734-018-0291-9>
- UNESCO Institute for Statistics (2019) Research and development expenditure (% of GDP) – Africa. <http://uis.unesco.org/>
- United Nations. 2018. Conference on Trade and Development: Economic Development in Africa, Report 2018.
- Waswa, M., Owuor, C., Osiru, M. and Adipala, E. 2018. The RUFORUM VISION 2030: The role of strategic partners in the quest to transform Africa's Agricultural Sector. *RUFORUM Working Document Series* 15: 159-171.