

FINAL REPORT

EXTERNAL REVIEW OF IMPLEMENTATION PROGRESS AND OUTCOMES OF THE *RUFORUM* OPERATIONAL PLAN, 2018 - 2022

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Godfrey Kayobyo BSc, MSc
Daniel Nkoola Kisauzi BVM, PhD
Sanyu Kazibwe BSc, BSc (Hons) MSc



Nkoola
Institutional Development Associates Ltd
Plot 731 Mawanda Rd.
P. O. Box 22130
Kampala, Uganda.

Cell Phone: +256 772-408 593
Email: dankisauzi@nida.or.ug

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LIST OF ACRONYMS

| | |
|------------|--|
| AAU | Association of African Universities |
| AfriDAP | Africa Digital Agriculture Programme |
| AGM | Annual General Meeting |
| AGRA | Alliance for a Green Revolution in Africa |
| AHESTI | Agricultural Higher Education, Science, Technology and Innovation |
| AIS | Agricultural Innovation Systems |
| APLU | American Public and Land Grant Universities |
| ATVET | Agricultural Technical and Vocational Education and Training |
| AU | African Union |
| AU-C10 | African Union Committee of Ten Heads of State and Government Championing Education, Science, Technology and Innovation |
| BADEA | Arab Bank for Economic Development |
| BASTIC | Build Africa's Science, Technology and Innovation Capacity |
| BMGF | Bill and Melinda Gates Foundation |
| BTVET | Business Technical Vocational Education and Training |
| CARP/CARP+ | Community Action Research Programme |
| CBP | Centres of Best Practices |
| CoL | Commonwealth of Learning |
| CREATE | Cultivating Research and Teaching Excellence |
| DFS | Doctoral Finalisation Support |
| DRRG | Doctoral Regional Research Grant |
| DRS | Doctoral Regional Scholarship |
| ES | Executive Secretary |
| FAO | Food and Agriculture Organisation of the United Nations |
| FAPA | Field Attachment Programme Award |
| FAWoVC | Forum for Women Vice Chancellors in Africa |
| FNSSA | Food, Nutrition Security and Sustainable Agriculture |
| GODAN | Global Open Data for Agriculture and Nutrition |
| GRG | Graduate Research Grants |
| GTA | Graduate Teaching Assistantship Programme |
| HAE | Higher Agricultural Education |
| HAECI | Higher Agricultural Education Capacity Indicators |
| HEST | Higher Education, Science and Technology |
| IFPRI | International Food Policy Research Institute |
| K-HUB | Knowledge Hub for University Networking, Partnership and Advocacy |
| KII | Key Informant Interviews |
| KPI | Key Performance Indicator |
| LUANAR | Lilongwe University of Agriculture and Natural Resources |
| MEL | Monitoring Evaluation and Learning |
| MEST | Ministries of Agriculture and the Education, Science and Technology |
| MOOC | Massive Open Online Course |
| MOU | Memorandum of Understanding |
| NARO | National Agricultural Research Organisation |
| NGO | Non-Governmental Organisation |
| NIDA | Nkoola Institutional Development Associates Limited |

| | |
|---------|--|
| OH | Outcome Harvesting |
| OP | Operational Plan |
| PBL | Problem-Based Learning |
| PI | Project Implementer |
| PMEL | Planning, Monitoring, Evaluation and Learning |
| R&D | Research and Development |
| RAU | Regional Anchor University |
| RECAP | RUFORUM Entrepreneurship Challenge Programme |
| RANCH | Regional Anchor Universities for Higher Agricultural Education |
| RIMS | RUFORUM Institutional Knowledge Repository |
| RISSCAW | Regional Initiative to Strengthen Staff Capacity in African Universities and Increase the Pool of Women Scientists |
| RQ+ | Research Quality plus |
| RUFORUM | Regional Universities Forum for Capacity Building in Agriculture |
| SASTIE | Strengthen Africa's Innovation and Entrepreneurship Capacity |
| SHAEA | Strengthen Higher Agricultural Education in Africa |
| STI | Science, Technology and Innovation |
| STISA | Science, Technology and Innovation Strategy for Africa (2014-2024) |
| TAGDev | Transform African Agricultural Universities for Africa's Growth and Development |
| TESDEP | Technical Skills Development Programme |
| ToC | Theory of Change |
| TORs | Terms of Reference |
| TVET | Technical and Vocational Education Training |
| UM6P | Mohammed VI Polytechnic University |

EXECUTIVE SUMMARY

BACKGROUND

In 2018, The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) developed its Vision 2030 Strategy and the associated 2018 - 2022 Operational Plan (hereinafter referred to as the OP). As the period of implementation of the OP was coming to an end, RUFORUM commissioned this evaluation to: (1) Assess progress of implementation of the OP as well as approaches and developments in the further evolution of the RUFORUM network; (2) Help to provide guidance on how to improve implementation of the programmes and projects initiated and/or coordinated by the Network; (3) Measure success of the activities implemented in the 2018-2022 period; and Capture lessons and make recommendations for future implementation. Specific evaluation questions were spelt out and they provided the background for the evaluation based on the [OECD evaluation criteria](#) of efficiency, effectiveness, coherence, relevance, impact and sustainability. The evaluation was undertaken within the framework of the three strategic objectives (SO) under which the OP interventions were clustered, and the action areas and objectives that were operationalised through five Flagships. These are outlined below alongside the conclusions.

METHODOLOGY

The assessment was undertaken using a mixed methods approach involving both qualitative and quantitative data collection and analysis methods and incorporated both secondary and primary research data. Systematic triangulation embedded in the multiple data collection approaches assisted in strengthening the evaluation findings. Data collection was conducted between February and June 2022. It was achieved through a desk study, KIIs and meetings with 307 RUFORUM stakeholders from 45 member universities in 21 countries; and self-administered on-line surveys with 112 alumni/graduate students as well as 20 Deans/Pis. Stakeholders engaged in the KIIs and meetings included (including 25 members of governance organs, 27 university top managers; 19 Principals/Deans; 14 HODs/Directors of Research/Graduate Studies; 14 PIs, 34 staff of focus faculties; 10 Post Doc Fellows; 100 students; and 41 non- university actors).

Thematic analysis was employed to analyse the qualitative data while descriptive statistics were used for the quantitative data. Findings from quantitative data were merged with results from qualitative techniques for triangulation as well as providing interpretation/ explanations for the convergence/ divergence. The findings were comprehensively analysed against the background of the activities and outputs discerned from the RUFORUM progress reports and interviews with the staff of the Secretariat. The outcomes were synthesised from the findings from the data collection. The overall conclusions are presented in this Executive Summary within the framework of the outcomes attained for each strategic objective, while the key recommendations are framed within the Flagships with a forward-looking intention of informing the next operational plan.

FINDINGS

Strategic objective 1:

| Vision 2030 Strategic Objectives | Vision 2030 Strategic Action Area and Objectives |
|--|--|
| Strategic objective 1: To build synergy from networks of specialisation to develop quality human resources and capacity required to intensify and increase Africa's agricultural productivity and competitiveness | <i>Flagship 2: RANCH - Regional Anchor Universities for Higher Agricultural Education:</i> To facilitate and escalate setting up networks of linked universities with relevant high-level skills and standards of conduct in a field of agricultural and STI education, research, innovation and learning. <i>Flagship 3: CREATE - Cultivating Research and Teaching Excellence:</i> To realign universities' research and teaching functions into a more |

| Vision 2030 Strategic Objectives | Vision 2030 Strategic Action Area and Objectives |
|----------------------------------|---|
| | integrated model with a focus on problem solving and enhancing the capacity of the entire university academic practice and outreach system. |

Impactful results realign universities’ research and teaching functions into a more integrated model by fostering adoption of innovative teaching approaches in the member universities coupled with developing the requisite academic and professional staff through the skills enhancement and exposure events. Universities have generated research outputs that address development challenges, and produced graduates who strengthen not only national HAE systems but also catalyse community level development. Outcomes are beginning to emerge evidencing that member universities are achieving impacts at multiple scales and shaping higher agricultural education (HAE) management in positive ways as well as increasing synergies in resource use - especially the use of expertise.

Mechanisms for developing and reforming curricula to promote continuous response to stakeholder needs (**coherence**) as well as the adoption of innovative teaching approaches are beginning to be institutionalised (**sustainability**). The capacities of some universities to undertake development-oriented research through addressing real-life development challenges for the countries and small-holder farmers have been strengthened in ways that simultaneously position the universities on the frontiers of international scientific research (**impact**). However, the National Forums which were expected to foster demand articulation and stronger communication between universities and the national stakeholders have not taken off effectively in most of the countries.

The RUFORUM grants have enabled recipient universities to improve some research facilities (**effectiveness**) but a lot more needs to be. This was an outcome envisaged to materialise from the support for developing Higher Education Centres of Excellence by the RANCH Flagship. However, the Flagship did not take off in a timely way as the support for the five inaugural Centres of Excellence in Malawi and Mozambique only came on stream less than a year to the end of the OP period. One apparent oversight is that of training for technicians. This is essential if they are to match the changing requirements that researchers will be putting on them as the latter respond to new scientific challenges.

Strategic objective 2

| Vision 2030 Strategic Objectives | Vision 2030 Strategic Action Area and Objectives |
|--|---|
| <p>Strategic objective 2: To ensure the products, processes and knowledge developed through university research directly respond to and are used by value chain actors in the agri-food system to catalyse transformation</p> | <p><i>Flagship 1: TAGDev - Transforming African Agricultural Universities for Africa’s Growth and Development:</i> 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</p> <p><i>Flagship 4: K-HUB - Knowledge Hub for University Networking, Partnership and Advocacy:</i> To facilitate collaboration amongst RUFORUM member institutions and affiliates using up to date information to make substantial structural changes in the way HAE is organised and operated</p> |

There is tangible and verifiable evidence that universities are producing relevant innovations, products and services that are traceable to the qualitative features of the new curricular. Uptake and continued use of the research outputs, knowledge and technologies by value chain actors and smallholder farmers were observed. This indicates that the focus on participatory farm-level action-oriented research has positioned universities and their graduates to apply science, technology and innovation to better respond to client-felt needs and priorities as well as positioning research for use. The start-up agribusinesses are particularly notable in this regard for generating products and services that

innovatively address societal challenges, create jobs for other young people, as well as wealth for community members. The engagement of the private sector at the early stages of research and innovation processes by students is taking place but the efforts to take forward/ link research products from the various RUFORUM research grants into the agribusiness incubation centres and beyond were still in nascent stages. However, what has been achieved in these areas is eye-opening and much appreciated by RUFORUM stakeholders. What is needed is scaling out the approaches used for the integration of the components of the agricultural education value chain and its cross-sectoral linkages with other components of the agricultural innovation systems.

The K-Hub activities and outputs were expected to contribute to *“RUFORUM member institutions and affiliates collaborating, using up to date information to make substantial structural changes in the way HAE is organised and operated.* The K-Hub operated with a budget that was 66% below what the OP estimated would be needed to deliver the expected outputs. In spite of this limitation there was a commendable effort to develop and enhance online platforms for enabling the K-Hub to be in control of the flow of information within the network. The RUFORUM institutional repository, information management System and the website were the lynchpins in this regard. What was weak in the platforms were comprehensive social/community tools and intuitive functionalities to enable network members to initiate and manage the way they communicate with each other, or to enhance the flow of content to them. The OP envisaged that this would be achieved by developing an *“Open access portal with multiple functionalities and systems that support and improve knowledge generation, management and sharing”.* This expectation was not realised. Likewise, the OP expectation that the K-Hub would facilitate universities to create knowledge platforms, knowledge hubs and knowledge management units so as to best respond to the knowledge demand by their stakeholders and partners was not realised. Nevertheless, the Flagship contributed to enhancing awareness on the use of ITs for teaching and for initiating the development of the capacities for teachers and learners to use the ITs for teaching. Use of ITs for outreach appears not to have been on the radar.

Popular social media platforms were deployed in knowledge management by the K-Hub. The emphasis appeared to be on disseminating information from the Secretariat and the members. They are not being used very effectively for strategic communication and engagement targeting specific audiences and influencers. Therefore, the resulting outcomes from their use for advancing the RUFORUM agenda - especially advocacy and resource mobilisation - are not easily tangible.

The convening of the RUFORUM Triennial Conference is a very high-profile activity that is acclaimed by stakeholders as having enhanced the visibility and influence of RUFORUM and one they feel should be sustained. Through the side events and networking opportunities it is beginning to crystallise out thematic groupings and communities of practice/ interest. The OP envisaged this and proposed that, as a catalyst, there should be knowledge sharing incentives. This aspect does not appear to have been addressed significantly.

Strategic objective 3

| Vision 2030 Strategic Objectives | Vision 2030 Strategic Action Area and Objectives |
|---|---|
| <p>Strategic objective 3: To marshal resources and strategically allocate them to enable Africa’s universities to transform into viable institutional entities responsive to national aspirations and conditions through intensive knowledge-sharing and collective action</p> | <p><i>Flagship 4: K-HUB - Knowledge Hub for University Networking, Partnership and Advocacy:</i> To facilitate collaboration amongst RUFORUM member institutions and affiliates using up to date information to make substantial structural changes in the way HAE is organised and operated</p> <hr/> <p><i>PROGRAMME SUPPORT – Technical, administrative and logistical support:</i> To enhance the relevance, legitimacy and viability of RUFORUM as a continental HAE network and effectiveness of its members to collaborate for implementing its programmes and be held accountable for results</p> |

The activities undertaken by the Support and K-Hub Flagships have boosted the global, regional and national profile of RUFORUM especially by projecting ground-truthed transformative innovations in teaching and research. High visibility in a positive light is a precondition for attracting more investment for promoting transformative agricultural training and research. Progress has been made in marshalling resources for HAE through fostering networking systems that are beginning to trigger the spontaneous emergence of communities of common interest and practice. Collective action has been fostered through the inter-university linkages for resource mobilisation and supporting post-graduate training and research. RUFORUM has continued to demonstrate that it is possible to create synergies in these areas. Universities are sharing staff and teaching resources. This is proving to be very significant where RUFORUM funding instruments are enabling young universities to get support from more established or better endowed universities as well as enabling partnerships to emerge in implementing training and research programmes. The RUFORUM Secretariat is gradually developing into a *de facto* fund mobilisation and management service for member universities. It is not farfetched to imagine that, over time, this will become a core element of its value proposition.

The OP recognised that shortening the path from university training and research to development impact is not possible if HAE remains in a silo. The initial steps of piloting innovations that integrate the agricultural education value chains by supporting universities to embrace and share resources with TVET institutions and - through them - reach out to the communities especially the youth, are considered by stakeholders to be generating important lessons. It is therefore important to ensure that the knowledge that has been gained from this institutional innovation is capitalised and scaled up and out.

One challenge that has been exposed is that national policies for public funding of university teaching and research are not tailored for enabling sharing of resources. Actors interacted with from private universities agreed that sharing resources is very desirable but not plausible from their perspective. They expressed the view that further pursuit of this aspect will require strong advocacy for donors to continue enabling RUFORUM to sustain the funding instruments that catalyse the leveraging of the limited in-kind resources that they may have.

There is an emerging opinion among stakeholders who have followed RUFORUM growth, that it needs to enhance the linkages with the global HAE universe - without compromising the commendable emphasis it has hitherto put in strengthening African HAE. The two are not mutually exclusive and can be creatively pursued in mutually beneficial ways. The convenings that RUFORUM has supported for member universities to partner with institutions from other parts of the world to write grant proposals is beginning to initiate this next phase of RUFORUM growth.

RECOMMENDATIONS

TAGDev Flagship

1. Put in place mechanisms for responding to member universities' needs for support and technical facilitation for adopting the TAGDev model of teaching and research
2. Ensure that the students' engagement with the communities and/or entrepreneurs is rooted in the long-term visions and strategies of the latter and that the monitoring, evaluation and learning linked to the engagements is sustained beyond the period of engagement so that the development impacts can be tracked over a longer time;
3. Establish a community of practice to provide foresight and thought leadership in the approaches that transform university teaching and research from being predominantly academic and scientific pursuits to being more directly linked to development processes;
4. Plug the university entrepreneurship hubs being established into both public and private intercontinental networks that can synergise the scaling up and out of the business enterprises from the hubs.

CREATE Flagship

1. Build/ strengthen partnerships with other actors involved in capacity development for human resources in the national, regional and continental agricultural innovation systems;
2. Institute measures to catalyze member universities to improve graduate student management processes
3. Foster institutionalization of GTA in member universities.
4. Institutionalise the discretionary nurturing grant system for supporting capacity development at young universities;

RANCH Flagship

1. Ensure that Regional Anchor Universities (RAUs) and Centres of Best Practices (CBPs) are firmly anchored into the needs of the member universities so that methods and approaches developed are easily scalable;
2. Develop partnerships and alliances that can enable the RAUs and CBPs to be integrated into the global networks promoting higher agricultural education and research for development;
3. Support the universities in advocating for counterpart funding for the establishment of RAUs and/or CBPs from the foundation bodies of the universities - whether public or private;
4. Provide leadership in and champion the narrowing of the schisms that exist at all levels between agricultural education and research in national agricultural innovation systems.

K-Hub Flagship

1. Strengthen information and knowledge governance by obtaining certification for the [ISO 30401:2018](#) Standard for knowledge management systems and for [ISO 27001](#) Standard for information security management;
2. Implement the general expectation of the 2018 - 2022 Operational Plan to develop smarter methods to activate existing platforms including developing an open access portal with multiple functionalities and systems that would improve knowledge generation, management and sharing as well as easing access to information and virtual social networking;
3. Facilitate universities to create knowledge platforms, knowledge hubs and knowledge management units so as to best respond to the knowledge demand by their stakeholders and partners;
4. Develop and implement a social media aligned with the pursuit of the RUFORUM 2030 Vision;
5. Develop processes and mechanisms for tracking the use of disseminated/ broadcasted documents;
6. Broaden the scope of capacity development for use of online platforms for communication and engagement to embrace research and outreach needs;
7. Devise incentives to catalyse knowledge-sharing.

Support Flagship

Governance, stewardship and management

1. Develop standard policies and processes for affirmative actions in targeting interventions to universities based on their organizational and institutional statuses;
2. Identify the common services that all member universities equally benefit from and put in place policies and strategies that prioritise these as the core services that RUFORUM provides to members;
3. Avoid a mission creep by articulating a value proposition that sharply focuses few manageable areas that are directly related to improving African higher education and research in the areas that can have wide systemic impacts on agricultural innovation and development in a relatively short time;

4. Commission a study on [networked governance](#) approaches to identify ones that can be piloted to increase the efficiency of governance processes, especially ensuring that all voices from the diverse members can be heard;
5. Operationalise the regional nodes and Country Chapters as a priority;

Program management

1. Put in place measures to improve efficiency and harmonisation of student management processes at member universities;
2. Given the exponential growth of the RUFORUM membership undertake a functional analysis of the Secretariat with a view to making qualitative and quantitative adjustments in resources to ensure management efficiency and effectiveness;
3. Enhance the functionalities of the RUFORUM Information Management System (RIMS) for enabling managers and project implementers to easily monitoring progress of students and projects;
4. The Secretariat should formally try out a [matrix management](#) organisational arrangement to better deal with overlaps in the management of the Flagships;
5. Create communities of practice and institutionalise them as fallback mechanisms for supporting programme management in technical areas;
6. Make more concerted efforts to develop the capacities of member universities in critical management and operational areas in which they interface with RUFORUM;
7. Make efforts to understand the diverse causes of non-career related dissatisfaction in engaging in RUFORUM activities and take possible remedial measures to address them;
8. Sustain efforts for making RUFORUM an attractive employer not only in terms of remuneration but also through improving the work-life balance of staff;

Resource mobilisation & sustainability

1. Place more emphasis on facilitating and brokering relationships between groups of universities and donors so that the universities are the ones that directly mobilise resources for the regional initiatives that they desire;
2. Member universities should make more efforts to have some of their activities integrated in national public and private projects and programmes;
3. Commission a study on [social innovation](#) and crowdfunding in the higher education sector to develop a bespoke platform or link to existing platforms for resource mobilisation;
4. Spearhead action research on institutional and organisational innovations for sustainability and resource mobilisation in networks.
5. More efforts to mobilise resources for the RUFORUM Trust Fund

Monitoring Learning and Evaluation

1. Undertake skills enhancement for all managers in undertaking monitoring, evaluation and learning using rigorous protocols of the RUFORUM Performance Framework;
2. Review the human capacity and ICT resource needs for implementing the PMF to ensure that they are quantitatively and qualitatively adequate to cope with the workload that the growth of the network will precipitate.

1 INTRODUCTION

1.1 ABOUT RUFORUM

The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), is an African owned and managed consortium of African Universities that was established in 2004 by ten Vice Chancellors from five African countries. It has since grown into a consortium of 157 African universities operating within 40 countries spanning all the sub-regions of the African continent. Membership of RUFORUM is open to African postgraduate degree-awarding institutions with faculties, schools, institutes or equivalent units in the field of agriculture and related sciences and those offering science, technology and innovation (STI) programmes. RUFORUM is coordinated by a Secretariat hosted by Makerere University in Kampala, Uganda. It is registered as an International Non-Governmental Organisation (NGO) whose Vision is: *“Vibrant, transformative universities catalysing sustainable, inclusive agricultural development to feed and create prosperity for Africa”*. It derives its agenda from the expressed needs of its members but aligns them with continent wide policy frameworks especially of the African Union-New Partnership for African Development (NEPAD) Comprehensive African Agricultural Development Programme (CAADP), The African Union Science, Technology Innovation Strategy for Africa (STISA 2024); The African Union Policy Framework on Revitalising Higher Education in Africa; the Sub regional Multi-Country Agricultural Productivity Programmes; The National Development Plans (NDPs), and constant review of global trends and foresight planning to ensure Africa has the required capacity for global competitiveness. Overall its interventions are framed within its mission that is stated as: *“To strengthen the capacities of universities to foster innovations responsive to 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”*. Currently, the Mission is pursued through the following Strategic Objectives:

1. To build synergy from networks of specialisation to develop quality human resources and capacity required to intensify and increase Africa’s agricultural productivity and competitiveness;
2. To ensure the products, processes and knowledge developed through university research directly respond to and are used by value chain actors in the agri-food system to catalyse transformation; and,
3. To marshal resources and strategically allocate them to enable African universities to transform into viable institutional entities responsive to national aspirations and conditions through intensive knowledge-sharing and collective action.

RUFORUM interventions are underpinned by principles of inclusiveness (balancing the gender of researchers active at all levels of HAE and ensuring inclusion of a gender perspectives in teaching and research; social responsibility, systemic change and capacity building, ensuring contribution HAE and research to environmental sustainability; human, cultural and social diversity; creativity in developing innovative solutions for teaching and research with a focus on the needs of by smallholder farmers including those in remote areas; multi-agency collaboration; excellence in teaching and research; equity in addressing members’ needs; and Africa development-centric human capacity building.

1.2 RUFORUM GROWTH

Waswa et al. (2020)¹ comprehensively described the genesis, evolution and strategic thrusts of RUFORUM. Their paper is the basis for this outline of the growth of RUFORUM. The outline covers the

¹ Waswa, M., Okori, P., Mweetwa, A. and Adipala, E. 2020. Genesis, evolution and strategic thrusts of RUFORUM. *African Journal of Rural Development* 5 (1): 39-62.

foundation for institutional and organisational growth, the strategic growth, the institutional growth, programmatic growth, network growth, organisational capacity growth and reputational growth. For this assessment particular interest was paid to understanding RUFORUM’s reputational growth. This concern is rooted into the belief that as much as the accomplishments of RUFORUM are the foundation for its future, the “qualitative” reputation it has built will be the engine that will propel and determine the speed and traction going forward. The reputational growth was assessed from information collected from key informants who were interviewed during this assignment. They included people who championed its creation, those who were instrumental in its conceptualization, those who were involved in its governance and operationalization - including alumni - prior to 2018. According to these key informants RUFORUM’s reputational growth can only be summed up as having been phenomenal in respect of its being a respected beacon, voice and advocate for HAE in Africa. The anecdotes in Text Box 1.1 are highlight some of the of stakeholders’ views.

Text Box 1.1

SOME ANECDOTES THAT SUM UP RUFORUM’S REPUTATION

“At continent or regional level RUFORUM may be one of the most important voices in HAE.”

(Member of the International Advisory panel)

“RUFORUM has made an amazing contribution to the development of staff e.g. at universities in Ghana such as the University of Cape Coast where there are 2 staff members who have completed their PhDs at Makerere University and are back in Ghana contributing to teaching and research and community work. Other faculties dealing with agriculture related sciences have staff who have benefitted by getting their PhDs through RUFORUM support. My Faculty also received some staff who have benefited from waived fees. Some students have benefited from grants to support their enterprises. Conferences serve as a great avenue for collaboration and linkages amongst researchers which have led to other opportunities. I do not know any other continental body that can bring as many universities together. Countries have also benefited from opportunities to host these conferences which bring people from all over the world. In so doing, it has supported their branding and allowed them to showcase themselves and their universities.”

(Member RUFORUM Technical Committee)

1.3 BACKGROUND TO THE EVALUATION

In 2018, RUFORUM developed its Vision 2030 Strategy (hereinafter referred to as the Strategy) termed: “*The African Universities’ Agenda for Agricultural Higher Education, Science, Technology and Innovation - AHESTI*”) to build on the achievements it had made and lessons it had learnt since its inception. The Strategy hones the RUFORUM Vision and Mission on the needs for transforming Agriculture in Africa through innovative scientific research, educational and training approaches that are more connected to the new challenges facing rural communities - including building capacity of young people to be part of the process. Essentially, this means a paradigm shift to *creative* models of agricultural higher education and research that make farming and associated value chains intellectually stimulating and economically sustainable/lucrative business and career options that attract young graduates from African universities while simultaneously creating impact in rural communities and serving the needs for agro-industrialisation.

To translate the Strategy into action, RUFORUM developed the 2018 - 2022 Operational Plan (hereinafter referred to as the OP) that clustered interventions in four strategic Flagship programmes and elaborated the priority areas of action for each Flagship as well as the expected outputs, outcomes and key performance indicators (KPIs). The KPIs in the OP were used to articulate a detailed Performance Monitoring Framework that, for some KPIs, set annual targets. The implementation of the Flagships was guided by annual work-plans that also set more granular targets. As the period of implementation of the OP was coming to an end, RUFORUM wished to evaluate the way the Flagships were implemented and

the outputs and outcomes against the background of the OP expectations. To this end, it contracted *Nkoola Institutional Development Associates Limited (NIDA)* to undertake the evaluation against Terms of Reference (ToRs) attached as Annex 1.

1.4 OBJECTIVES OF THE EVALUATION

The main objective of the evaluation was to provide a factual evidence-based assessment and appraisal of the implementation modalities, level of outputs, achievements and outcomes over the five-year RUFORUM's implementation of the OP 2018-2022. Additionally, to assess the outcomes the revised OECD DAC evaluation criteria were applied. Specific evaluation questions spelt out for each OECD DAC criteria are presented in Annex 2.

1.5 ORGANISATION OF THE REPORT

After this Introduction Section, follows the Methodology section that outlines the study approach, data collection and analysis methods and how the report was generated. To set the general context for the assessment, the Methodology section is followed by a section on contextual analysis that lays out the pertinent general external environment to which the OP implementation had to be relevant and the risks that could have derailed implementation. The main body of the report follows and it is broadly structured to address the OECD evaluation criteria that were outlined in the Inception Report and the evaluation questions set out in the ToRs. The final sections of the report give brief overviews of the identified good practices that have emerged during implementation and the lessons learnt. The final section deals with the conclusions and recommendations for future action.

2 METHODOLOGY

2.1 Study Approach

A mixed methods approach involving both qualitative and quantitative methods and incorporating both secondary and primary research data was adopted in undertaking this evaluation. The qualitative and quantitative data were integrated with the aim of triangulating and achieving complementarity of data from both approaches. Qualitative approaches enable researchers to understand specific contexts, phenomena, or experiences in a great level of detail (Leckenby & Hesse-Biber, 2011²). The qualitative methods provided insights into the lived experiences and interpretations of various RUFORUM stakeholders on the mechanisms and engagement strategies used in implementation of RUFORUM interventions during the OP 2018-2022 period, outcomes, changes at individual and institutional levels as a result of interfacing with RUFORUM. This enabled the team to gain a deeper understanding of what change(s) have occurred, and how the change(s) was facilitated (Mentz, 2017³). Qualitative methods also helped to furnish information on stakeholder views on factors which influenced performance, real and perceived threats/risks to RUFORUM's realisation of its outcomes as well as suggestions on what RUFORUM needs to do to address shortcomings, mitigate challenges, and sustain gains.

Quantitative methods allowed for understanding and quantitatively establishing alumni/graduates students' countries of work; sector they were employed in; contribution of the skills enhancement and exposure events to their skillsets. Quantitative data also helped the team to capture the Deans and Principal Investigators rating of the extent to which RUFORUM has influenced undertaking of research

² Leckenby, D., and Hesse-Biber, S.N. 2011. *Feminist Approaches to Mixed Methods Research*.pdf

³ Mentz, M. 2017. The benefits of both worlds: Towards an integrated mixed-methods approach for evaluating women's empowerment. *Journal of Gender, Agriculture and Food Security (Agri-Gender)*, Africa Centre for Gender, Social Research and Impact Assessment, vol. 2(1), April.

that address development priorities and needs of the countries and small holder farmers. It also helped to understand their rating of how RUFORUM has impacted on capacities at individual and institutional levels as well as satisfaction with RUFORUM services. Systematic triangulation embedded in the multiple data collection approaches assisted us in strengthening the evaluation findings.

Elements of the Capacity Centered Impact Pathway Analysis (CciPA) model⁴ were used to assess changes in capacity of RUFORUM, its deliverables and outcomes. The model incorporates three interrelated elements. Assessment of RUFORUM deliverables as a direct result of OP 2018-2022 interventions addressed the evaluation questions focusing on *progress made towards achieving outputs and outcomes under each Flagship Programme, and effectiveness of RUFORUM in delivering the desired results.*

Assessment of effects of RUFORUM OP interventions was conducted with the understanding that outcomes and impacts can be intended or unintended, tangible or intangible, progressive or regressive, immediate or long-term, and subject to complex pathways to impact. We thus adopted elements of Outcome Harvesting (OH)⁵ complemented by Most Significant Change (MSC)⁶ technique to capture information on achievements, outcomes and impacts at different levels as well as understanding how RUFORUM interventions and outputs contributed to those changes. The impact categorisation template which groups possible impacts into five types: material/wealth creation; empowerment/political capital; social capital; human capital/technical empowerment; and environmental/ sustainable use of natural resources was used in analysis of outcomes/impacts of the program interventions.

2.2 Data collection

Data collection was conducted between February and June 2022. Data was collected from both secondary and primary data sources. It was achieved through a desk study, key informant interviews and meetings with selected RUFORUM stakeholders, as well as self-administered online surveys with graduate students/alumni from the target OP years and one for Deans and PIs. The different data collection methods will be collectively used to contribute to furnishing information to address the various evaluation parameters and evaluation questions.

2.2.1 Primary Data collection

Primary data was collected through face-to-face and virtual meetings. Respondents came from 45-member universities and 21 countries. Key informant interviews and meetings were held with a total of 307 stakeholders including 25 members of RUFORUM governance organs, 27 members of university top management, 19 Principals/Deans and Deputy Deans, 14 Heads of Academic Departments and Directors of Research and or Graduate Studies, 14 PIs of projects & research team, 34 staff of focus faculties, 3 non-University RUFORUM champions, 4 Alumni, 10 Post-docs fellows, 100 students, 16 young entrepreneurs, 41 non-university actors (14 TVETs, 2 Local governments, and 25 farmers). The full list of stakeholders met are provided in Annex 3.

Survey questionnaires were developed and administered on-line via the SurveyMonkey platform. One questionnaire targeted Deans/PIs and the other was for RUFORUM alumni who graduated in the last four

⁴ Developed by CTA in partnership with 15 partners institutions from Africa, Caribbean and Pacific

⁵ <http://www.betterevaluation.org/plan/approach/outcomeharvesting>

⁶ The Most Significant Change technique is story-based participatory approach to monitoring and evaluation which facilitates program/project improvement by focusing the direction of work towards explicitly valued directions and away from less valued directions. MSC involves a form of continuous values inquiry whereby designated groups of stakeholders search for significant program outcomes and then deliberate on the value of these outcomes in a systematic and transparent manner. MSC techniques will be instrumental in identifying expected and unexpected impacts of the RUFORUM OP-2018-2022; changes that people at different levels value most; and why people find these changes valuable.

years and final year graduate students in the supported/catalysed training programs surveys. A total of 112 alumni/graduate students and 20 Deans/PIs responded to the surveys.

2.2.2 Secondary data

Secondary data was collected through review of relevant documents. Documents reviewed included strategic direction documents, annual work plans and budget, quarterly and annual progress reports; reports from previous commissioned studies for the flagship programs, RUFORUM governance and management policies; summary reports of RUFORUM convenings; progress reports of RUFORUM grantees; as well as overarching global and continent-wide documents. The full list of documents reviewed is provided in Annex 4. Literature review helped to get a documented understanding of the governance and management structures for the implementation of RUFORUM OP programs; implementation mechanisms; activities, results and shortcomings of the various flagship programs; alignment of RUFORUM OP objectives with RUFORUM Vision 2030 and overarching global and continental agenda, and the context within which RUFORUM is operating.

2.3 Data analysis

Both qualitative and quantitative methods were used in data analysis. Qualitative data obtained from the key informant interviews, focus group meetings and literature review were subjected to **thematic analysis** of the salient issues. This helped generate core themes and sub-themes on the main subject of study. This involved going through all interview transcripts with a view of identifying analytic patterns or themes, then filtering for non-repetitive and non-overlapping meanings that could aid interpretation. This information has been used to explain the outcomes and impacts, factors that influenced achievements, sustainability of outcomes, risks, and areas for improvement and implications for future action from the perspective of RUFORUM stakeholders.

Quantitative data was analysed using Statistical Package for Social Scientists (SPSS) version 16. The quantitative data were analysed to generate simple descriptive statistics (percentages and means). The study tools used ordinal scales to establish alumni/graduate, and Dean/PI rating of various aspects such as the extent to which RUFORUM influences conceptualisation and implementation of research addressing development priorities of the country and needs of small-holder farmers; and satisfaction with services of RUFORUM. The ratings were assigned scores and, subsequently, the proportions of alumni/graduate students; and Deans/PI that gave the various ratings were then multiplied with the score to establish the weighted averages for each aspect. The weighted averages were computed and used to give a better representation of where the entire group fell on the Likert scale and to allow easier ranking of issues/aspects under consideration.

Some descriptive statistics were further processed or transformed into graphs/figures using Microsoft Excel. Tabulations and graphs were used in presenting the findings. Findings from quantitative data were merged with results from qualitative techniques for triangulation as well as providing interpretation/explanations for the convergence/divergence.

2.4 Report Production

A draft main report presenting the deliverables of the assignment as expressed in the terms of reference has been prepared and submitted to RUFORUM Secretariat for review. The main report will subsequently be used to generate a popular version/executive summary to be shared with stakeholders. Any written comments on the draft from RUFORUM will be addressed and used to refine the draft into a final report for submission to the client.

3 RELEVANCE

3.1 Strategic orientation

The strategic orientation of RUFORUM is the foundation for its relevance. It is defined by its mission that defines the reasons for its existence, the vision that is the beacon for the pursuit of the mission), and the impact that is the desired change that will define the path for attaining the mission and vision. These are outlined in Text Box 3.1.

Text Box 3.1.

Mission:

“To strengthen the capacities of universities to foster innovations responsive to 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.”

Vision:

“Vibrant, transformative universities catalysing sustainable, inclusive agricultural development to feed and create prosperity for Africa.”

Impacts

“High performing African universities that produce skilled, proactive graduates, demand driven research output and innovations in response to national and regional agricultural development priorities.”

Ref.: RUFORUM Performance Monitoring, Evaluation and Learning Framework

Within the myriad of institutions that are also focusing on contributing to agricultural higher education (HAE) research, development and innovation, RUFORUM has defined the **niche** that it wants to occupy and the stakeholders that it will embrace. The key elements of the niche are listed in Text Box 3.2. and the stakeholders that RUFORUM wants to impact on in terms of changes in their behaviours and benefits are graphically presented in Figure 3.1.

Text Box 3.2

The RUFORUM Niche

1. Providing a unique graduate training packages that ensure that the graduate is better equipped to manage the changing agricultural development context;
2. Facilitating changes in curricula to ensure responsiveness to market demands and opportunities;
3. Supporting participatory/action research through linking universities to ultimate users (farmers, traders, primary processors etc.);
4. Supporting the capacity of staff in relation to pedagogy and leadership and management skills to ensure that staff are better equipped to train the next generation of agricultural professionals;
5. Working with member universities to support their efforts to leverage investment for agricultural higher education in Africa and for supporting more applied teaching and research;
6. Linking universities to each other to frame and lesson learn on university engagement in agricultural research for development, and for agricultural higher education;
7. Linking universities to policy sphere for policy influence;
8. Conducting high level advocacy for higher education sector;
9. Supporting translation of research knowledge into products and services required for transformation of African agriculture enterprise.

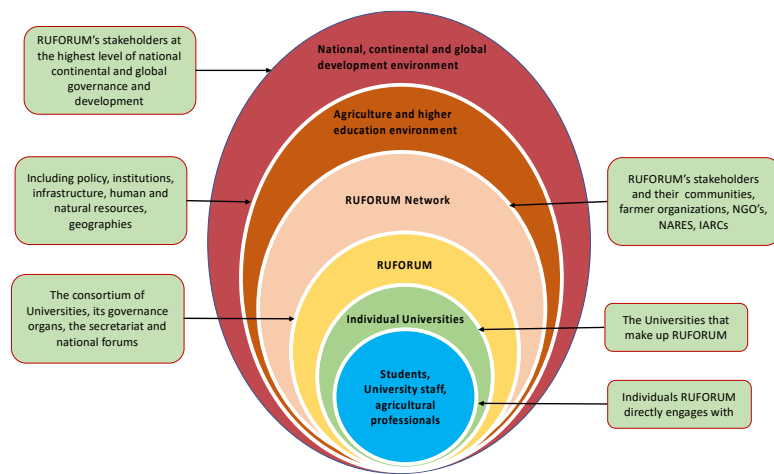
Ref.: RUFORUM Performance Monitoring, Evaluation and Learning Framework

The overall assessment of the strategic orientation is that it is pointing RUFORUM in a direction of triggering enhancement of the development impact through the HAE value chain at national regional and

continental levels. The stakeholders as defined are all relevant for a cascading effect leading to enhancement of the development impacts. The rapid gravitation of universities to RUFORUM is an indicator that the niche that RUFORUM has identified is in the void for which the universities have a felt need to address.

3.2 The strategic objectives and theory of change

Figure 3.1: The RUFORUM stakeholders



Ref.: RUFORUM Performance Monitoring, Evaluation and Learning Framework

The OP was designed as an instrument to launch the RUFORUM Vision 2030 Strategy. As such it was expected to attain milestones/ outcomes driven by general strategic objectives within a Theory of Change (ToC) framework rooted in the action areas that are within the realm of what RUFORUM can control but that can trigger the cascading changes in the behaviours of stakeholders along the HAE value chain. The stakeholders embraced by the ToC are graphically presented in Figure 3.1. The strategic objectives and the action areas are presented in Table 3.1.

Table 3.1: The objectives and the strategic action areas for driving the 2018 - 2022 OP

| Vision 2030 Strategic Objectives | Vision 2030 Strategic Action Area and Objectives |
|--|---|
| Strategic objective 1: To build synergy from networks of specialisation to develop quality human resources and capacity ⁷ required to intensify and increase Africa’s agricultural productivity and competitiveness | Flagship 2: RANCH - Regional Anchor Universities for Higher Agricultural Education: To facilitate and escalate setting up networks of linked universities with relevant high-level skills and standards of conduct in a field of agricultural and STI education, research, innovation and learning. |
| | Flagship 3: CREATE - Cultivating Research and Teaching Excellence: To realign universities’ research and teaching functions into a more integrated model with a focus on problem solving and enhancing the capacity of the entire university academic practice and outreach system. |
| Strategic objective 2: To ensure the products, processes and knowledge developed through university research directly respond to and are used by value chain actors in the agri-food system to catalyse transformation | Flagship 1: TAGDev - Transforming African Agricultural Universities for Africa’s Growth and Development: 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 |
| | Flagship 4: K-HUB - Knowledge Hub for University Networking, Partnership and Advocacy: To facilitate collaboration amongst RUFORUM member institutions and affiliates using up to date information to make substantial structural changes in the way HAE is organised and operated |
| Strategic objective 3: To marshal resources and strategically allocate them to enable Africa’s universities to transform into viable institutional entities responsive to national aspirations and conditions through intensive knowledge-sharing and collective action | PROGRAMME SUPPORT – Technical, administrative and logistical support: To enhance the relevance, legitimacy and viability of RUFORUM as a continental |

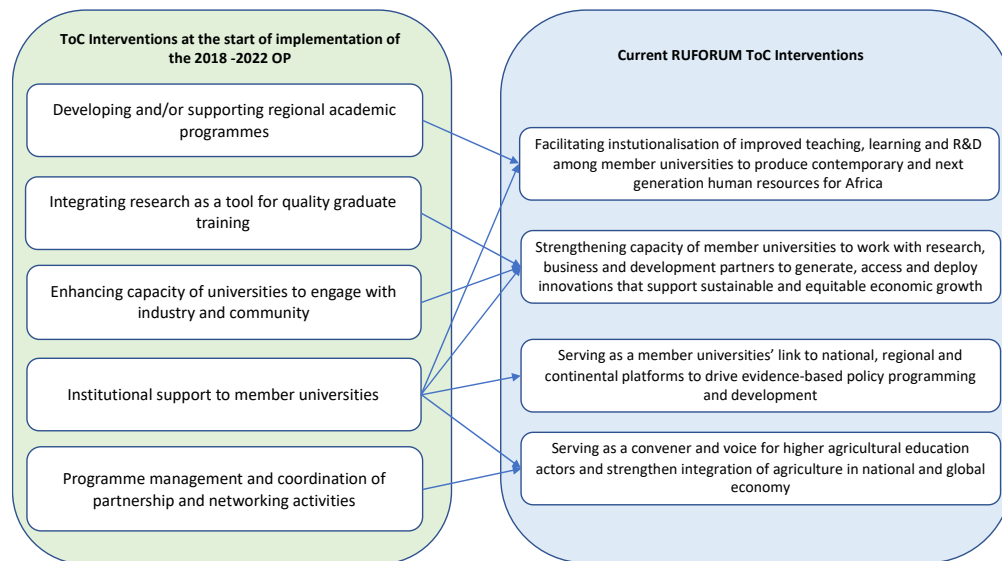
⁷ including capacities at the three levels of the **enabling environment** - the broader system in which organisations and individuals function; the **institutional and organisational** capacities of all public, private, and civil society AEAS organisations and providers, including AEAS networks and fora; and, the **individual** capacities of actors involved in AEAS governance, management and delivery.

Table 3.1: The objectives and the strategic action areas for driving the 2018 - 2022 OP

| Vision 2030 Strategic Objectives | Vision 2030 Strategic Action Area and Objectives |
|----------------------------------|---|
| | HAE network and effectiveness of its members to collaborate for implementing its programmes and be held accountable for results |

The OP was implemented under two ToCs, namely: the pre-existing one carried over from the 2004 - 2018 RUFORUM Strategy and a new one that came into force in 2021. The analysis of the two ToCs for purposes of this assessment focused on the metamorphosis of the outputs of the Secretariat that are the triggers of the changes. This analysis is diagrammatically represented in Figure 3.2. Fundamentally there appears to have been a gradual change of emphasis from developing human capacities centred on research programmes at member universities while simultaneously fostering linkages with industry and community, to doing these same things in ways that are overtly intended to bring about lasting systemic and scalable institutional changes not only in member universities but also the RUFORUM network as a whole and the HAE agendas in general.

Figure 3.2: EVOLUTION OF RUFORUM'S THEORY OF CHANGE INTERVENTIONS



From the perspective of this assessment, the above change in emphasis appears to be the pragmatic thing for RUFORUM to do in pursuit of its 2030 Vision. This is for two main reasons. Firstly, the expanded membership of the network from an original 10 members in 5 countries within the Eastern and Southern Africa Region to 157 African universities operating within 40 countries spanning the African continent requires interventions that can - to the maximum extent possible - benefit all the members. With such a big, diverse and growing number, it becomes increasingly difficult to have network interventions that are targeted to the unique quantitative and qualitative needs of individual universities at a point in time. Interventions that have scalable systemic benefits provide ways in which all members can plug into - and benefit from - the RUFORUM interventions to address their needs in an ad hoc way. The ways that the OP addresses this are through: (i) the K-Hub Flagship that provides the knowledge management that energises the whole system; (ii) the RANCH Flagship that provides “crucibles” in which best practices that can benefit all members can be developed; (iii) the TAGDev Flagship that provided “laboratories” for action research to generate innovative and transformative approaches that members can adopt and adapt

for enhancing development impact; and (iv) the CREATE Flagship that sustains the original RUFORUM focus on capacity development of universities.

Secondly, in the period from its establishment to the initiation of the 2018 - 2022 OP, RUFORUM has provided adequate proofs of concept on how capacity development in the network can be pursued and also demonstrated its power to convene and advocate for member universities at national, regional and continental levels. This is a crucial dimension to bringing about systemic institutional changes at universities. It is addressed through the interaction between the K-Hub and Support Flagships that provide channels for advocacy for influencing - and being influenced by - national, regional and continental HAE and development agendas.

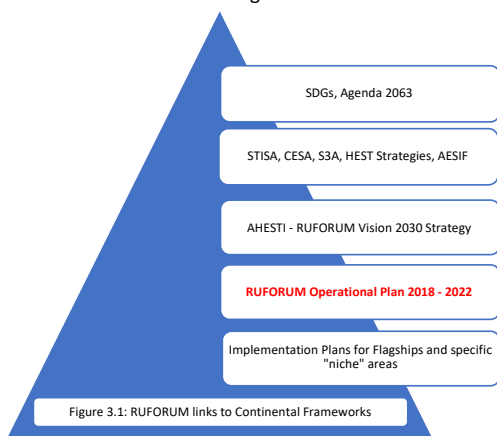
3.3 Relevance to Africa’s development agendas

The design of the OP was underpinned by the Situation Analysis of Africa’s Higher Education Landscape for the RUFORUM 2018 - 2030 Strategy. Analysis of the hindrances that are precipitating the low contribution of HAE to addressing Africa’s development challenge zeroed down on four key factors that had to be tackled, namely: (i) Low quality related to the low levels of transferable skills; (ii) Increased demand and enrolment amid restricted and inequitable access; (iii) Reduced public financing, and inadequacies in key inputs and infrastructure; and (iv) Limited university engagement with communities and the business sector in research, development and training. These factor provided the rationale for

the focus of RUFORUM’s Strategy and OP on institutional reforms that would make universities more accountable for how the graduates and research outputs contribute to development objectives, by adopting approaches that would accelerate attainment of impact through engaging more directly with their clients (direct users of their graduates and research outputs) and beneficiaries (the general public engaged in agricultural value chain endeavours) in the design and implementation of their curricula and research.

The OP was designed to deliberately contribute to Africa’s transformation agenda embodied most significantly in the following mutually reinforcing frameworks (represented in Figure 3.3) that have been sustained as the beacons for the Flagships throughout the OP implementation period:

Figure 3.3: How the OP contributes contribute to Africa’s transformation agenda



Ref: RUFORUM 2018 – 2022 Operational Plan

- **Agenda 2063 – The Africa We Want:** A Shared Strategic Framework for Inclusive Growth and Sustainable Development and A Global Strategy to Optimise the Use of Africa’s Resources for the Benefit of all Africans;
- **The Comprehensive Africa Agriculture Development Program (CAADP)** - RUFORUM promotes the integration of member universities into CAADP processes and aligns them with the aspiration of African Heads of State and Government defined in the Malabo Declaration on sustaining CAADP;
- **The Science Agenda for Agriculture in Africa (S3A)** - RUFORUM contributes more directly to the S3A strategic thrusts on the implementation of CAADP; increasing domestic public and private sector investment; creating the enabling environment for sustainable application of science for agriculture; and doubling current level of Agricultural Total Factor Productivity by 2025 through application of science for agriculture;

- **The Science, Technology and Innovation Strategy for Africa (STISA – 2024)** - RUFORUM is the lead institution for the implementation of the STISA and its interventions relate most directly with STISA's Priority Area 1 focusing on food security and poverty reduction as well as its pillars of enhancing professional and technical competencies; promoting entrepreneurship and innovation; and providing an enabling environment for STI development in the African continent;
- **The Agricultural Education and Skills Improvement Framework (AESIF)**- Through its flagships, it mainly contributes to reform and updating of curricula and teaching methods, improvement of training methods, and facilitation of ATVET and TAE systems;
- **The Higher Education, Science and Technology (HEST)** strategies of development partners and multilateral agencies. RUFORUM's flagships bolster its strategic pillars on supporting national and regional centres of excellence in agriculture, building and/or rehabilitating the existing STI infrastructure, and linking HEST and the productive sector;
- **The Continental Education Strategy for Africa (CESA)** - RUFORUM Flagships contribute to its strategic objectives at the TVET and tertiary education levels;
- **The Continental Strategy for Technical and Vocational Educational and Training (TVET)**- RUFORUM contributes to ensuring the relevance of training and employability; developing creativity, innovation and entrepreneurship, and promoting continuing apprenticeship;
- **The global United Nations Sustainable Development Goals** - RUFORUM contributes to SDGs 1, 2,3,4 and 5.

3.4 Relevance of OP program objectives and interventions to needs of members

Given the potential diversity in the priority needs of member universities based on their countries' HAE development objectives, RUFORUM ensured relevance to the diverse objectives by ensuring that the OP objectives were anchored on common continental policy frameworks that the countries had already agreed upon (Section 3.1.2). Any fine-tuning that would be needed would take place through the inclusion of all the Vice Chancellors of the member universities in the governance processes. In the period of the OP implementation, there is no indication that there was any change of the members' priorities from what was in the OP. Again, the most profound indicator of relevance of the objectives is the explosive increase in the number of universities that, on their own volition applied and were admitted to the network. Furthermore, the alignment with the priorities was reinforced by RUFORUM being assigned to implement an Action Plan to deliver on the commitments made in 2018 by the Committee of Ten Heads of State (C10) championing Education, Science, Technology and innovation. Also, significantly, RUFORUM was the channel for championing the interests of the members in the United Nations Food Systems Summit 2021. It also sustained direct engagements with Ministers of Higher Education, Science and Technology. The only apparent negative indicator of possible low rating of RUFORUM's objectives in the member countries is the inability to get substantial traction in getting the governments to sign the RUFORUM Charter - the mechanism that would entrench RUFORUM's objectives into national development processes and become the ultimate proof of relevance.

4 EFFECTIVENESS OF RUFORUM PROGRAMS

4.1 EFFECTIVENESS OF THE TAGDEV FLAGSHIP

4.1.1 Background

The TAGDev Flagship 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. Universities and their partners are expected to promote inclusive opportunities in agriculture for an intellectually stimulating and economically sustainable career. The operationalisation of the TAGDev flagship was to be through universities and their partners engaging in: (i) “student-centred” teaching and learning that addresses employment market needs and especially the needs of the communities as well as the needs for students themselves to become knowledgeable and active citizens; and (ii) action research that can contribute to improvements in educational and community outcomes and to economic growth.

The TAGDev Flagship was based on a vision of education that combines acquisition of knowledge and skills with elements that enhance employability, innovation, entrepreneurship, socially responsible living, and creation of long-lasting social and cultural capital. The Flagship widened its student catchment to directly or indirectly embrace students from all segments of the education value chain right from out-of-school youth all the way to the PhD level. There were special interventions to attract and supporting youth - especially those from disadvantaged backgrounds - into agricultural education.

The Flagship activities were most intensely implemented at Gulu University and Egerton Universities that were the focus universities under the Mastercard Foundation support to RUFORUM. The priority action areas of focus given in the OP are the basis of the subsequent subsections describing the outputs generated and the outcomes that have emerged so far. These included:

- i. Strengthen capacity of universities and BTVET institutions to develop, deliver and scale innovative training curricula and new models of agricultural education.
- ii. Facilitate universities and BTVET institutions to attract, recruit, train and skill Africa’s new age of development practitioners and cadres.
- iii. Support the design and scaling of effective models for agribusiness and entrepreneurship training at selected universities and BTVET institutions to attract, recruit, engage and retain Africa’s youth in innovation and investments in agriculture, leverage university competencies to improve quality of BTVET programmes, create synergy between BTVET and university graduates, and link higher education, science and technology (HEST) to the productive sector.
- iv. Support and scale out university-community engagement and field/industry attachment models that engage students in experiential learning while also delivering complimentary agricultural advisory services.
- v. Support Community Action Research to strengthen agri-food systems.

4.1.2 Capacity of universities and BTVET institutions strengthened

Through TAGDev, RUFORUM has supported short courses to address skills and competence gaps in the staff and students. A total of 10,298 people (1,307 staff⁸ and 8,991 students) were trained through 93

⁸ 393 staff were trained on entrepreneurship, 377 trained on grant proposal development; 343 trained on development and management of research and capacity development programs that incorporate action research and community engagement models for community transformation and 177+ staff trained on innovative pedagogy.

events supported by TAGDev between 2018 and 2022. Staff retooling covered a wide range of thematic areas that embraced pedagogic aspects related to the curriculum changes oriented towards innovation, entrepreneurship, community engagement and action research, experiential learning in teaching and use of e-learning. Consequently, a total of 9 academic programmes (Four at Gulu and five at Egerton Universities) were converted for online delivery while 220 course units (172 at Egerton University and 48 at Gulu University) were digitised.

TAGDev supported training of students in specific technical areas associated with the research processes (e.g. thesis proposal development, research methods, data analysis, and scholarly writing and presentations) application of research (e.g. agribusiness and entrepreneurship, business plan development, marketing and brand image management) and soft skills needed for career development (e.g. personal mastery and job search-related skills) and continuous professional development (e.g. e-resource use, competitive grants development, research project management, use of social media/digital literacy, networking and leadership).

4.1.3 Transformative education and training programs piloted at early adopter universities and scaled to other agricultural universities and TVET institutions

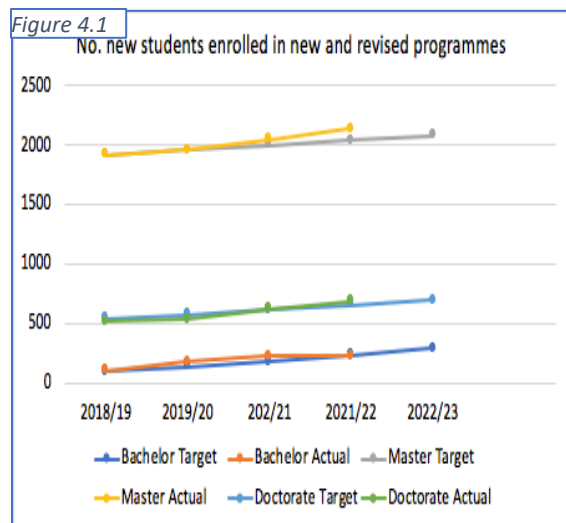
The TAGDev program supported Gulu and Egerton Universities to develop and pilot a new model for agricultural education centred on three pillars, namely: experiential learning, community engagement and agri-entrepreneurship. This was done through supporting the two universities to develop/review, deliver and scale training curriculum; customization of the student farm attachment model connecting tertiary agricultural education to rural communities, and promoting student agri-enterprise development.

4.1.3.1 *Innovative training curriculum developed/ reviewed and implemented*

The review of curriculum was expected to respond to national needs assessments; establish student learning expectations in each curriculum area; respond to student needs; provide a process for continual improvement of the curriculum to meet changing educational demands; establish consistency and progression within, between, and across grade levels and subjects. Overall, curricular for a total of 25 new/existing programs were revised towards increasing relevance to the job market. This surpassed the performance indicator of 20 new and existing programmes or courses in TAE institutions with revised curriculum or course materials by 2022. This was achieved through nurturing grants that predominantly went to the two focus universities. Key informants noted that RUFORUM influenced curriculum review processes strongly bringing in the private sector who convey labour market needs and pinpoint the required skills and competencies to focus on.

Furthermore, findings reveal that the TAGDev focus universities supported development of curriculum for use in partner TVET institutions⁹. These curriculums are used by the partner TVETs for training students in their institutions as well as other farmers and out of school youth who enroll for short courses.

⁹ For instance, Gulu University in collaboration with Northern Uganda Youth Development Centre (NUYDC) developed curriculum on Indigenous Micro-Organisms (IMOs) and Artificial Insemination (AI) in pigs. Likewise, Egerton University together with Barak Agricultural College developed curriculum for seed potato training courses.



The outputs from the curriculum development/ review activities are the implementation of the developed/ reviewed courses at the universities and colleges, and the numbers of students enrolled in both existing and developed/ reviewed courses. By 2022 the number of universities that had transformed their entrepreneurship and agribusiness courses to adopt an experiential learning approach had doubled to 18. Enrolment on these programmes at BSc, MSc and doctoral levels was more than 2000 of which 516 were directly supported by TAGDev (Fig 4.1)

University staff at Gulu and Egerton universities indicated that their competencies were enhanced for incorporating experiential learning¹⁰. This was corroborated by key informants and students. There

was increased appreciation and internalisation that delivering more interactive and engaging lecturers does not have to be a costly endeavour. The students noted that the model of delivery improved the learning experience by enhancing their search for information as well as interaction with lecturers and other learners. They credited this approach for having built their capacities for personal-level intellectual socialisation.

Text Box 4.1

Testimonial of students on outcomes of participating in courses with the innovative curricula

“Before classes were boring. You would sit and the lecturer teaches as if s/he is a pastor giving a sermon. But now they ask students what do you know about this topic or issue. This compels us as students to research information on it because we know that in class it is no longer lecturing but knowledge sharing. Also, as a student before you graduate you have to try out to develop and run a business enterprise. So, we are trained to be job creators and not job seekers”. (Source: *Student Focus Group Discussion participants at Gulu University*)

4.1.3.2 Community engagement model promoted

RUFORUM support was noted to have helped Gulu University and Egerton University to customise the community engagement model through which the universities attach students to medium and small-scale farms/ firms not only for purposes of learning but also for service provision. The university staff identify the potential host farms/firms and assess their suitability for placement of students as well as unique needs and profile of students they want. The selected farms/firms are then invited in a stakeholder forum to discuss what is expected of them, their roles and what they need to prepare to effectively host and support student hands-on learning.

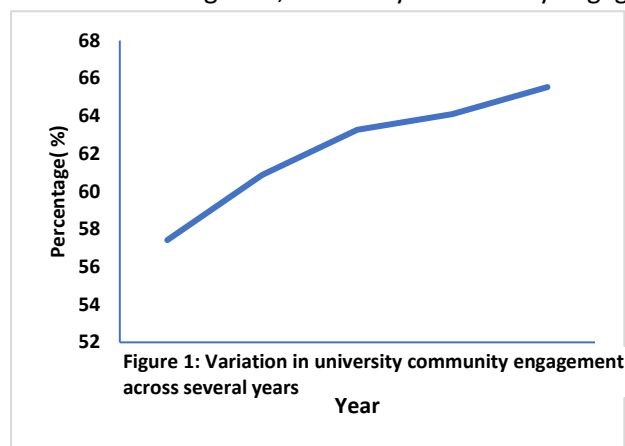
The students are taken through an induction training before going for the attachment. The induction prepares them on how to interact with the farmers; guides them on how to conduct the farm/firm situation analysis and development of a customized action plan for the farm/firm; provides them with tools to use in undertaking these steps; and educates them on the sources of available knowledge content for basic agricultural information including fact sheets and links to useful websites. The students are then placed in the selected farms/firms and use the knowledge acquired through the induction process to come up with a comprehensive implementation plan to address host’s knowledge gaps for profitable production and management of the enterprises. Students use the host enterprise as the spring board for engaging with other farmers and entrepreneurs in the community. The students produce a field attachment report

¹⁰ Examples of experiential learning that staff have engaged students in include use of case studies, practicals, field trips, visits to successful agri-sector farms/firms, participation in exhibitions and multi-stakeholder.

articulating what they did and achievements against the developed action plan for the host farm. Subsequent cohorts of students attached to the same farm are expected to build on the initial implementation plan and carry forward the required actions. The university sends 3-4 cohorts of students to same farm to ensure that the implementation plan is achieved.

The immediate outcomes for students were noted to be learning community extension and training methods, how to interact with community members, and an attitudinal orientation towards “giving back” to the communities as a responsibility that starts while undertaking university courses. The latter was profoundly exemplified by a group of students at Egerton University who initiated a project - [4-Pillar Give Back](#) - to improve the state of agripreneurship and promote social responsibility in the vegetable value chain in Nakuru village in Kenya. The students contributed part of their stipend towards interventions for a food secure and transformative community which was noted to have led to a positive feedback effect on promoting research with the farming communities and providing a smooth pathway for knowledge dissemination. Over a five-year period, the university community engagement increased from 57 % in 2018 to 65.5 % in 2022, however it falls short of the performance target of 100%.

As indicated in figure 3, university-community engagement has been increasing steadily. This is attributed,



firstly, to university outreach being openly valued and explicitly used to promote civic engagement and community building activities on and off campus; secondly, to Universities institutionalizing a centralized office that effectively coordinates community-based activities across academic, co-curricular, and non-academic programs; and, thirdly, to practicum(a), service internships, practical training, field attachment, field-based learning, community based courses, entrepreneurial projects opportunities to students which are mandatory and assessed as part of the course structure.

One weakness in the community engagement approach was that reporting and accountability processes were heavily skewed towards the university and not so much to the host farmer/firm. This should be addressed in future refinements of the approach in recognition of the fact that, ultimately, community transformation will come from sustained efforts of the farmers with or without continued engagement with universities.

4.1.3.3 Innovative agricultural education model scaled out to other universities and TVETs

RUFORUM supported scaling out of the innovative training models piloted at Egerton and Gulu Universities to other member universities. This involved experience sharing during RUFORUM convenings such as the 2021 triennial conference; early adopter universities hosting, sharing and mentoring visiting teams from other universities that come to benchmark and learn from them; peer-to-peer support for development of agri-enterprise related curriculum for programs in other universities; facilitating cross learning through other collaborative capacity development projects; and short training courses geared at strengthening university staff capacity for development and management of R4D programs and projects that can transform universities and communities. In this regard, the following outputs had been achieved by the time of undertaking this assessment:

- i. Community Action Research Projects implemented in 12 additional universities;

- ii. Capacity building completed for 48 scholars from 4 Sudanese Universities¹¹; including other students under nurturing;
- iii. Forty (40) staff from University of Bamenda in Cameroon were retooled on pedagogy for learner centered delivery, and curriculum development for enhancing employability of graduates;
- iv. Development of 2 Graduate Programs¹² facilitated at Nugaal University in Somalia - through peer support from Egerton University and Gulu University. This has enabled RUFORUM to support capacity building for five¹³ other emerging universities in Somalia whose staff were enrolled in the two programmes.

Text Box 4.2

Testimonial of innovative teaching and learning models being scaled out

“The University of Bamenda benefited from benchmarking, learning and mentorship from the experiences of Egerton University on how to institutionalise the community engagement model and agri-entrepreneurship training. With support of the RUFORUM nurturing grant we conducted the tracer study of students to inform curriculum development of new training programs in the School of Agriculture, Food Science and Nutrition, in College of Technology such that they are demand driven with a focus on community engagement, and entrepreneurship geared at solving societal problems notably at small holder farm level and production of graduates who are critical thinkers, problem solvers and job creators. We established the agribusiness incubation Centre, through which student business ideas are vented by a panel with representation from the university and private sector and students are mentored on agri-entrepreneurship. The manuals on standard operations procedures for agri-business incubators and agri-entrepreneurship training accessed from RUFORUM have been handy in providing guidance towards operationalisation of the agri-business incubation center at our university. The nurturing grant enabled establishment of a revolving fund used by incubation Centre to support students implement their business ideas and plans. The support to students to start enterprises that address development challenges of society in their context is a real game changer. Other units in the university are now also coming on board to strengthen the aspect of business plan development, while the Ministry of Higher Education will provide seed grants for students to further develop their prototypes for possible commercialisation. The University of Bamenda is going to mentor 8 other public universities in Cameroon, four of which are RUFORUM member universities.” (Source: Key informants from University of Bamenda).

Scaling out of the innovative curricular was also promoted through training of staff and through developing proposals for funding. For instance, twenty-seven staff from eight universities African Universities were trained in entrepreneurship and community engagement curriculum development and review – two each from Benin, Kenya, Morocco and Uganda under AgriEngage. Over 340 senior academic staff from across the African continent were trained on preparation and management of capacity development programs that adopt action research and community engagement models for university and community transformation. The training capacitated university teams to successfully win grants which are supporting further scaling out of entrepreneurship curricular, the community engagement model and learner centered delivery approaches to the wider African continent under the RUFORUM umbrella. The notable projects are:

- “Strengthening Agri-Entrepreneurship and Community Engagement Training in East, West and North Africa Project ([AgriEngage](#))”,
- “Train Agribusiness and Food Systems Scientists for African Agriculture ([TAFSA](#))”
- “Reforming agri-entrepreneurship education in sub-Saharan Africa [AgriScale](#)”,
- “21st century skills for bioeconomy graduates ([PBL BioAfrica](#))”.

¹¹ University of Gezira; University of Khartoum; University of Kordofan; and, Peace University.

¹² Masters in Agribusiness and Value Chains Management and Masters in Business Administration build on the unique model of training adapted in the TAGDev programme of RUFORUM.

¹³ Adan University, Amud University, Burco University, Horn International University and Ilays University.

4.1.4 Universities and TVETs supported to recruit, train and skill a new age of Africa's development practitioners and cadres

Through the TAGDev program RUFORUM has supported the training of 516 (253 women and 263 men) students to undertake their studies at various degree levels in Africa, 21 at PhD, 301 at MSC and 194 at BSc (Table 4.1) of which 236 including 6 PhD, 144 Masters and 86 (101 women and 135 men) had completed their studies while 280 (152 women and 128 men) were still in the pipeline. Under the University-TVET partnership, 593 TVET students from 17 TVET¹⁴ institutions were engaged in collaborative research with university students. Preliminary findings from a recent follow-up study indicate that 39.4 % are employed, 14.4 % self-employed, 6 % pursuing further study, 20 % are undertaking internships and 20 % have not yet secured employment. Self-employed graduates established several ventures to scale-out science solutions, amongst which included Eco-Farms Liberia, an enterprise specialized in the production and marketing of high-quality chicken in Liberia; vocational and technical training institutions; production of clean seed for farmers; and, digital technologies such as drone and smartphones for precision agriculture.

Table 4.1: Students supported under RUFORUM TAGDEV programme

| TAGDev Instrument | Numbers by qualification level | | | | | |
|--------------------|--------------------------------|------------|------------|------------|-----------|------------|
| | Undergraduate | | Masters | | Doctorate | |
| | Completed | Continuing | Completed | Continuing | Completed | Continuing |
| Scholarship | 29 | 81 | 45 | 89 | | |
| Nurturing grant | 57 | 27 | 36 | 32 | 3 | 0 |
| CARP+ | | | 34 | 17 | 3 | 15 |
| CARP | | | 29 | 19 | | |
| Grand Total | 86 | 108 | 144 | 157 | 6 | 15 |

In addition to the training leading to award of degrees, a wide range of development practitioners and cadres were trained. For example:

- A total of 2,886 people were trained through the Technical Skills Development Programme (TESDEP) grants (that were awarded in Kenya, Uganda and Zimbabwe). These grants catered for integration of out-of-school youth (51%) students (36%) farmers (3%) and TVET Instructors (10%);
- Under the University-TVET partnerships, the TAGDev supported Gulu and Egerton universities strengthen the capacity of 275 instructors at TVETs in delivering training and learning in technical and vocational studies that stimulate entrepreneurial spirit amongst youth - including out-of-school youth. The TVETs, students and the entities they are associated with - such as NGOs - were supported and mentored to start agri-enterprises. The TVETs continue to use such enterprises in training of subsequent cohorts of students as well as generating revenue for the institution. Furthermore, the TVETs trained community-based agriculture advisors in their catchment areas on entrepreneurship, sustainable agriculture and agricultural extension to support agricultural transformation and income generation of smallholder farmers as well as business approaches to delivery of advisory services;
- The CARP+ projects at Gulu university trained community service providers to provide new/innovative pig artificial insemination, feeding and husbandry practices to the communities;

¹⁴ Agricultural College of Natitingou, Asuansi Farm Institute, Baraka Agricultural College, Bobi Polytechnic Bukalasa Agricultural College, Ejura Farm Institute, GLEN, Kagtleng Brigades, Lycée Agricole Mendji de Sékou, Lycée Technique Agricole de Natitingou (LTA-Nati), Magamba Training Centre, Medji Agricultural College of Sekou, Northern Uganda Youth Development Centre, Okakarara Vocational Training Centre, Rift Valley Institute of Technology (Agriculture) and TAITA TAVETA.

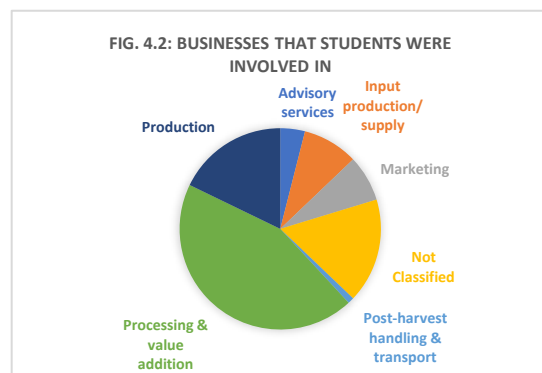
- The Baobab CARP in Benin trained and linked actors involved in the baobab value chain to boost the baobab products chain including value addition.

4.1.5 Models for agribusiness and entrepreneurship training developed and scaled out

The development of training models for agribusiness and entrepreneurship at Gulu and Egerton universities is inextricably linked to other aspects of transformative education and training programs that were piloted and outlined in Sections 4.1.3. The development of the agri-entrepreneurship training models involved introduction of modules on entrepreneurship, mentorship and coaching. The innovative features of these modules are that the students are trained and encouraged to identify business ideas, develop a business plan around their idea and defend it. The successful ideas are given soft loans to bootstrap the enterprise. Mentorship and coaching are subsequently provided through incubation centers - another innovation for aiding in kick-starting the enterprises. Other interventions to support entrenchment of these models in the curricular included supporting universities to develop/review curriculum to embrace the new modules, supporting joint development of entrepreneurship training content and supporting establishment of agri-business incubation centres through the RUFORUM Entrepreneurship Challenge Program (RECAP) and nurturing grants. Another intervention was to give grants to young entrepreneurs nurtured in the incubation centres to support their start-up businesses. The instrument for this was the special field attachment focusing on entrepreneurship code-named 'Innovation Products to Market Field Attachment Program Award' (IPM-FAPA). University staff were trained on entrepreneurship¹⁵. Manuals for guiding operations and the entrepreneurial training were also developed - including Manuals on Standard Operations Procedures for the incubation centres.

The outputs of the design and scaling of models for agribusiness and entrepreneurship training are:

- Entrepreneurial students who have conceptualised, designed and initiated implementation of enterprises in the hubs or through attachments to private sector businesses.* From a total of 812 students supported under RECAP projects in various universities, a total of 225 start-up agribusiness enterprises nurtured through the RUFORUM supported incubators were in operation by time of this evaluation. These were employing 1,333 young people (785 through self-employment as proprietors and 548 others). The types of business that the budding entrepreneurs were involved in are in different fields including input supply/ production, agricultural production, post-harvest handling and storage, food processing & value addition, marketing & market access and advisory/knowledge services, hospitality, agri-tourism, technology & ICT, agribusiness consultancy. The distribution of the businesses among these value chain categories is illustrated in Figure 4.2. Case studies of businesses that were developed by students through the agribusiness incubators are depicted graphically in Chart 4.1.



- Incubation hubs established and functional:* In the period 2018-2022, 14 member universities from nine countries were supported to establish agri-business incubation hubs with capabilities for nurturing student development of agribusiness innovations. At the time of this evaluation, 13

¹⁵ Including entrepreneurship leadership, Entrepreneur mindset, financial literacy and management, incubator Standard Operating Procedures.

universities¹⁶ had established functional incubational centres. Incubatees greatly appreciated the business coaches who offer tailored guidance and mentorship. The incubation process also has an in-built mechanism of brokering emergence of partnerships between incubatees and private sector actors through the field attachments. The incubation hubs maintain a database/inventory of the private sector actors they work with and keep growing/updating this list as start-up come up.

- iii. *Training models being scaled out to other universities:* This was happening through the RECAPs and nurturing grants. Amongst the additional RECAP projects scaled-out included three supported under the Sharing Innovations and Experiences from Korea for Higher Education Transformation in Africa (SIKET) project with support from the African Development Bank (AfDB). Universities supported under SIKET included Mbarara University of Science and Technology in Uganda, Université du Sine Saloum El Hadj Ibrahima NIASS (USSEIN) and Institut Polytechnique Rural de Formation et de Recherche Appliquée (IPR/IFRA). Amongst the nurturing grants included support to Bugema University in Uganda, Nugaal University in Somalia and University of Bamenda in Cameroon. Furthermore, these models were an underlying influence to the feasibility study that was undertaken in Uganda on youth employment, entrepreneurship and agricultural sector development Uganda and the accruing project proposal on: *“Youth Entrepreneurship and Employability Development in the Agricultural Sector (YEED)”* that was finalised by September 2021 and was under consideration for support by both the Government of Uganda and BADEA at the time of this evaluation.

The views expressed by key informants and incubates attest to a number of experiences. First that the advice and mentoring given to incubates is very effective in helping them to develop partnerships with private sector and market actors. This speeds up their penetration into the markets and growth through business-to-business networking. Secondly, that from the experiences they had, the RECAP grants have pioneered training that goes beyond theoretical training of students on entrepreneurship to support product development and set up of real-life enterprises as the following testimony from an incubate from the University of Abomey Calavi in Benin affirms: *“The RECAP enabled us to move the business idea to reality. Before the startup, we did not have something to be responsible for. Now I have to think and plan for this enterprise people know us as producers of the products. As youth we may think that we are useless to society, but now we are valued members of the community as we provide jobs to others and supply products to the community.”* Thirdly, the incubated businesses tend to be firmly rooted in the realities of the communities especially by using local materials, creating jobs and responding in a timely way to emerging challenges. The latter aspect is exemplified by the enterprise that was primarily established for producing natural lemon-based aftershave but immediately diversified into production of sanitizers, liquid hand wash, liquid soap and toilet cleaners which were in high local demand during the period of the COVID-19 pandemic lockdowns in Uganda. Fourthly, there is a very high consciousness of the need for protecting the environment and addressing climate change issues in the innovation processes.

While the use of local materials for innovation is commendable, future mentoring for enterprise development by students should not narrow their focus to looking for solutions for local problems from local technological sources. Instead, they should be encouraged to look more at how high “high tech” components that are becoming increasingly more affordable and available from elsewhere, can be integrated in local solutions. This is not to say that it is not happening but, rather, that it should happen more so as to embed the young innovators in ongoing global technological revolutions.

¹⁶ Gulu University, Uganda Christian University, Bishop Stuart University, Muni University, Ndejje University, Egerton university, South Eastern Kenya University, Catholic University of Bukavu, University of Abome Calavi; University of Burundi, Haramaya University; University of eSwatini, StartUP Villa

Chart 4.1: Examples of businesses that were developed by students through the agribusiness incubators

Mr. Hillary Nahurira from Bishop Stuart University in Uganda produced a natural lemon-based aftershave that is marketed under the trade mark of Hilaos Aftershave.

Anita Atuhairwe a graduate of Laws at Bishop Stuart University started a company that makes beehive briquettes. Also fabricates energy saving charcoal stoves and chick brooders.

Malkia Incubrooder is a company founded by former students of Egerton University in Kenya manufactures an automatic incubator and brooder for the chicks. A soft loan from the RECAP at Egerton bootstrapped the enterprise. A RUFORUM IPM-FAPA grant of USD 5000 as well as a grant of USD 5,000 from Kenya National Innovation Agency provided further support

Under the African Development Bank (AfDB)-supported incubation hub under the Sharing innovations and experiences from Korea for Higher Education Transformation in Africa (SIKET) project, Incubatees at Mbarara University of Science and Technology established enterprises that manufactured affordable and accessible innovations including high quality skin care products gency provided further support

Some of the products from the 14 enterprises incubated at the start-up valley at University of Abomey Calavi. The incubation centres alert the incubatees about the funding opportunities while the business coaches mentored them to write the grant proposals. Four enterprises won grants of USD 5000 each from the Tony Elumelu Foundation while 8 others got the RUFORUM IPM- FAPA grant of USD 5000 each.

With support of the IMP-FAPA, students at the Catholic University of Bukavu established *Volaille d'Or*, an agribusiness enterprise engaged in processing poultry into a diversity of products The company has been able to penetrate the market and established several branches as well as a company website. This has created employment opportunities youth

4.1.6 Community action research that strengthens commodity value chains for small holder farmers supported

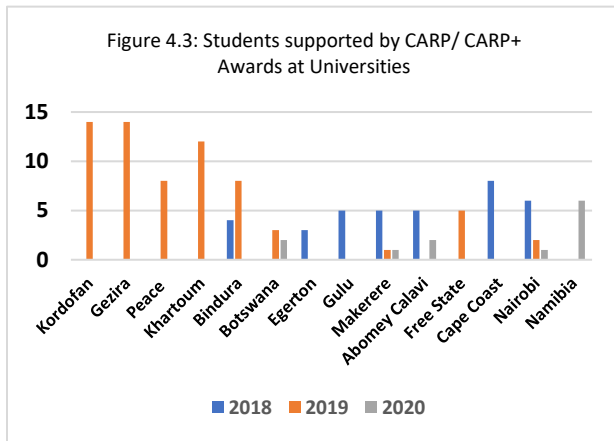
Community Action Research Programme (CARP) is implemented as a mechanism for strengthening agri-food systems in real-time while continuously adding to the body of knowledge and technologies. Through engaged action research, universities contribute to improvements in educational and community outcomes and to economic growth. The CARP as delivery vehicle is illustrated in Chart 4.2. As can be seen, the CARP is comprehensive and includes both university and community engagements.

Chart 4.2: The CARP Model (Source: key Informant from RUFORUM Secretariat)



At the time of undertaking this assessment, the TAGDev Flagship had supported Sixteen (16) community action research projects (CARPs) in Fourteen (14) universities in nine countries, namely:-Benin (Baobab), Botswana (Sunflower), Ghana (Pineapples), Kenya (Cassava & Potato), Namibia (Encroacher bushes), South Africa (Wool), Sudan (Bees and Honey, Vegetables, Natural Resources Management-Millet, Drought-famine), Uganda (Potatoes, Rice & Pigs) and Zimbabwe (Rainwater harvesting).

From the RUFORUM ToC perspective the main results of giving CARP/CARP+ grants to universities is the numbers of students who were supported to engage in action research with communities and businesses thus promote uptake of new knowledge and innovations from their research. In the universities that



received CARP awards during the 2018-2022 OP, a total of 117 students were supported to undertake their training and research (Figure 4.3). Forty-eight (48) students were supported in 2019 by the CARP awards to universities in Sudan. The rest of the students (69) were supported under the CARP+. This implies that in the period of implementation of the 2018 – 2022 Operational Plan, relatively more sustained emphasis was on the CARP+. The majority of the supported students (99 out of 117) were on MSc programmes and the rest (18) were Doctorate students. Fifty-one (51%) of the 117 recipients were female.

The action research supported under the CARPs was appreciated for having enabled the universities and TVETs to reach out to the community enabling the knowledge to get out of the university gate, and providing opportunities for increased student exposure to experiential learning. CARPs were credited for having boosted community engagement of the faculty as both students and their lecturers would spend time with farmers on their farms.

Testimonies on the value of the CARPs to universities

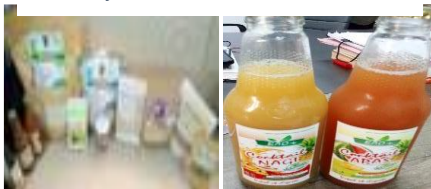
“CAPR+ project enabled the university to go to the community and the community to come to the university. Before, I would just inform the stakeholders as a way of notifying them that I would be working in their areas and also to guide me in selecting the sites but they would not be engaged in actual implementation of the research. Now we worked with the community members they helped us identify the prospective students to support for formal TVET training, farmers were involved in the establishment and management of technology evaluation sites, and we explained the different practices hence they would also share the knowledge with others who would visit the sites. This facilitated two way learning with the researchers also learning from the farmers. This engagement fostered our realization that researchers can learn from the farmers if you give them the platform.” (Source: Key informant from Bindura University of science education Zimbabwe).

“We have been laboratory researchers; the CARP has enabled us to meaningfully engage with the communities.” (Source: Key informant from Egerton University in Kenya).

Research teams implementing the 16 CARPs have generated technologies, innovations and management practices addressing community challenges. Some of these technologies and products have been adopted by farmers or taken up by both private and public sector entities while others need further research to move the innovations into products for commercialisation. The following outputs encountered during the visits undertaken during this assessment are illustrative of the solutions that the CARPs can deliver:

Chart 4.3: Examples of commercialized products from CARP projects

Products from the Baobab CARP in Benin



Products from the Potato CARP at Makerere University



- The Baobab CARP+ in Benin developed up to 10 products variously integrating Baobab into commercial products five of which were already on the market and others were well on their way there. The infant food supplement that was produced to ameliorate anaemia in children stands out. The PhD student who developed the business idea for this product has already established a start-up enterprise - *Biscuit Complimentary Food (BICOF)* - with support from the RUFORUM IPM FAPA.
- The Potato CARP in Uganda produced a potato-sweet potato-cereal composite flour which is subsequently used for making assorted waffles, cookies, and biscuits.
- The Cassava CARP at Egerton University developed: 11 different value-added products from cassava. These include fritters, “*chinchin*”¹⁷, pancakes, cassava regular cake, cassava grates cake, cassava made with coconut as a meal, cassava biscuits which can be fortified with groundnuts; chipping technologies to enable production of clean chips which can dry fast; a light-weight oven insulated with glass fibre for higher energy efficiency;
- Students under the CARP+ project at Bindura University of Science Education developed product prototypes for three products: fortified Sesame peanut butter, honey fortified butter, blended sorghum porridge, and managing oil separation in simsim fortified peanut butter for enhanced shelf life;
- The Pig CARP at Gulu University developed and tested a local way of extending pig semen; two Indigenous Micro-Organism solutions to sprinkle on litter and eliminate odour in pig houses; two pig feed formulae based on cassava tubers, potato vines, rice bran; and a fermented feed to address the issue of sustainable access during times of scarcity for some of the raw materials;

¹⁷ These are like lunch bars made from cassava flour fortified with groundnuts or macadamia nuts.

- The Rice CARP at Gulu University developed prototypes of: a simple planter for minimising drudgery associated with line planting of small seeded crops; a parboiled rice product focusing on identifying the suitable varieties for the parboiled rice product; as well as different ways of processing to preserve nutrients; utilization of rice stover for animal feeds; utilizing of the rice husks to produce briquettes; and diversified products from broken rice grain;

The CARP records show that community action research teams engaged 78,499 farmers thereby improving their (farmers’) knowledge on various commodity production technologies as well as skills in making of value-added products using locally available materials. The CARPs cited above also illustrate some other generic features in implementation. To the maximum extent possible, they not only work with the communities and students, but also bring on board TVET institutions, research institutes and artisans. Local and international NGOs have also been engaged in collaborative research with universities. The general consensus from key informants and focus group discussions is that this mode of working makes the CARPs an effective approach for enabling universities to engage with farmers and other value chain actors in research. This makes the uptake of knowledge and research products an intrinsic element of the university teaching and research process.

4.1.7 Support and scale out university-community and field/ industry engagement models

The instrument used for supporting field engagement of universities with communities and industry was the Field Attachment Program Awards (FAPA) given directly to students who were previous recipients of RUFORUM research support and the aforementioned IPM-FAPA given to students from the business incubation system. The supported engagements were for disseminating research findings back to the communities as well as developing a brand identity and scaling-out respective enterprises. Seventy-two (72) awards were made (29 under FAPA and 43 under IPM-FAPA), through which 3517 stakeholders were engaged (FAPA) as well as the generation of 289 jobs (IPM FAPA). A wide range of innovations were disseminated and promoted for businesses by the students. They included innovations for improved crop and livestock production practices, post-harvest management practices for crop and animal products, produce marketing, business management, value addition and processing of fruits, institutional building for collective agri-businesses, improving the nutrition of children, public health practices, market access and competitiveness including use of ICTs. The FAPAs were appreciated for enabling students to put into practice the innovations with the communities thus helping community members and other resource persons to access the knowledge from the research.

4.1.8 TAGDEV Outcomes

4.1.8.1 Human capital/technical competence outcomes

Enhancing human capital for university teaching and research that contributes to development processes in the countries has always been at the core of RUFORUM’s mission. The TAGDev has contributed to this in various ways along the education value chain. At the university level the support under the TAGDEV scholarships, nurturing grants and CARPs provided opportunities for academic staff in the focus faculties to supervise graduate students. Likewise, RUFORUM CARP and CARP+ projects were noted to have provided a platform for staff to do research, supervise students and produce publications. In this way, the TAGDev put the staff involved in its funded activities on a trajectory for vertical career progression. This attribution was explicitly made by some of the staff interacted with in this assessment. For instance, two staff who participated in the Water harvesting CARP at the Bindura University of Science Education gained promotion to Professor level, the PIs for the Pig CARP and Rice CARP at Gulu university were also promoted to Associate Professor level. A deeper survey of this aspect would be useful to concretely affirm these observations.

Another outcome that is significant for the RUFORUM-desired human capital outcomes is the adoption of innovative teaching approaches that release graduates that are well-grounded in real-life needs into the pool for supporting development. A key informant indicated that the focus of RUFORUM at its creation was on producing MSc graduates who, at the time, were seen as the cadre that was most needed to provide leadership in agricultural development processes - especially influencing agricultural development policies, strategies and programmes. It was acknowledged that the TAGDev sustained this but widened the focus to embrace cadres at lower levels going all the way down to out-of-school youth.

Key informants who expressed a view on this issue agreed that the way in which this transformation was attained was very innovative i.e. simultaneously connecting the different cadre levels in university-driven training programmes - effectively removing the silo mentality along the education value chains. In particular, strengthening the functional linkages with TVETs was considered to have the potential for high development impact. Already, there was evidence that the TVET staff, students as well as other community service providers and farmers were using the knowledge and skills acquired through TAGDev-supported engagements with universities.

The TVET instructors who participated in the CARP+ acquired new knowledge and were continuing to pass it on to new cohorts of students that join their institutions as well as promoting the technologies and innovations. The curricula developed through the CARP+ projects were still being used in the TVET institutions. TVET staff were also continuing to engage with communities and in this regard, they pointed out the significant changes as being increased awareness of community members (not just the TVET students and education stakeholders) as clients of their services. They also noted that the project had exposed their institutions to community members as consumers of their services hence they were beginning to have outreach and service provision initiatives for providing services to community members which was not the case before. For example, a TVET associated with Egerton University in Kenya used to organize Farmer Field Days that would only attract people from the sub-county in which it is located but after the trade fairs organized in 2018 and 2019 under the Potato Seed CARP farmers were coming from four other distant sub-counties to learn about seed potato production. There were many examples of services that originated from CARP+ continuing to be provided by the TVETs associated with the TAGDev focus universities.

Text Box 4.4

Testimony of changes attitude of Universities towards TVETs

“Previously we have operated in silos as universities and TVETs. There was some kind of mistrust, it was like we are competing with each other. Breaking the silo mentality has been a key outcome of this engagement which has facilitated mutual learning. We now reach out with an open mind that we can learn from each other.”

(Key informant, at Egerton University)

The outcomes from the university level transformation is beginning to accrue from the convincing proof of concept by the TAGDev-supported interventions on how qualitative changes can be brought about in graduates - from academically oriented careers to development and entrepreneurial careers. Proof of this outcome is the peer-to-peer learning on the transformative approaches piloted by the TAGDev focus universities and other RUFORUM member universities. On the side of the lecturers there is evident realization that context, content and delivery methods are all very important in pedagogy aimed at the objective of supporting agricultural development.

4.1.8.2 Social capital outcomes for universities

Social capital outcomes from the TAGDev are manifesting within universities that received support and, through them, they are radiating into the whole network and the external environment in the following ways that were highlighted by stakeholders that were interacted with in this assessment:

(i) **Enhanced visibility** is accruing from staff and students of the university publishing papers in refereed Journals. RUFORUM actively promotes this through its association with the African Journal of Rural Development (AfJRD) and also through the K-Hub knowledge management mechanisms.

Text Box 4.5

Testimony on enhanced visibility

“We have been put on a pedestal and now we are known in the entire continent and beyond. RUFORUM has given us the opportunity to publish, present findings in international conferences and interact with people from other parts of Africa.” *(Key informant from Bishop Stuart University, Uganda).*

(ii) **Becoming attractive to students:** Leaders from Gulu University and Egerton University noted that RUFORUM made their universities more attractive to potential students and enhanced the demand for their training programmes. This was attributed to - among other things - the qualitative changes that RUFORUM scholarships and the new training models/approaches introduced, more efficient student management systems (especially enabling timely completion of training programmes), and increased number of impactful publications from action and applied research addressing immediate developmental concerns. In a Focus Group Discussion at Gulu University, students testified to having been attracted to the university by the unique features of the course offerings.

(iii) **Internationalisation of the universities:** The TAGDEV scholarships helped Gulu and Egerton universities to attract students from other countries thus enhancing their internationalisation efforts. For instance, students under TAGDev scholarships at Egerton University came from 14 African countries¹⁸. It is particularly notable that Gulu University has acquired such recognition though it is still relatively new. Key informants from that university noted that the exposure enhanced the ability of the university as an institution and staff to work with international students. *“Now the university has ambassadors in different countries”.*

(iv) **International and continental recognition:** Universities that are adopting the community transformation and entrepreneurial curricular are gradually carving out a niche in the continental and international networks of advocates and sponsors of HAE as the “go to” universities for graduates and researchers who are attitudinally inclined to rural agricultural development that is conducted in a business-oriented way. This recognition is beginning to bear results in the form of the high success that RUFORUM has had in getting political recognition as the voice of HAE on the African continent and the willingness of external donors to sustain it thus far. Ultimate proof of this outcome shall be the support that RUFORUM will garner for the follow-on OP.

(v) **Unique attributes of graduates:** One of the outcomes noted by key informants and through the survey is that graduates from universities that implement the transformational RUFORUM-promoted curricular have a head-start as development-focused entrepreneurs and innovators compared to graduates from other universities. The students themselves considered that this attribute was due to the practical entrepreneurship elements in the curriculum and the support through the RECAP projects.

Text Box 4.6

“Previously we were doing it theoretically but now there is a focus on doing it proactively to produce students who can think innovatively to come up with business solutions to contextual problems in the communities.” *(FGD participants, Gulu university).*

“When I finished my graduate studies, I had to look for a job, but now we have to think differently to transform our graduates to be innovative to develop products and services which can be marketed for their own employment and that of others. Now we train people for job creation in their fields of interest. RUFORUM has helped us to succeed through the start-up grants to the students.” *(PI for CARP+ project in Benin).*

¹⁸ Ghana, Uganda, Cameroon, Nigeria, Ethiopia, Tanzania, Malawi, Kenya, Lesotho, Rwanda, Somalia, Liberia, Zimbabwe and Benin.

“Before participation in the incubation hub, I was not thinking about business, I was just thinking about searching for employment in the line of my profession. Becoming an incubate changed my attitude towards business, we discovered our inner capabilities to do things differently than what we were thinking before. Coaching, mentoring and supporting us to develop prototypes brought hope to pursue our dreams further. It built self confidence in doing my work as business person and capacity to manage the business, improved my verbal communication notably ability to do business pitching, and tuned my mind to be a quick thinker.”
(Former incubate of Bishop Stuart University, Mbarara, Uganda)

(vi) **Thought leadership in HAE:** RUFORUM interventions have provided evidence that teaching and research can be implemented in ways that integrate communities, and that the transformative curricular promoted by the TAGDev was appreciated by top university managers as elements that could be adopted in other courses. Key informants at the TAGDev focus universities noted that leaders from other universities are visiting their institutions to benchmark and learn from their experiences. They also noted that the citations of the publications they make on experiences and lessons from implementing the curricular are progressively increasing.

(vii) **Enhanced integration of the universities in the communities:** The community engagement elements in the curriculum have enhanced the social integration of the universities into the communities. The feedback loop from the students through the farm attachment within the community engagement has helped the universities to recognize need to revise and update its curricular as well as integration of additional course units into some programs to make them more relevant to the communities. For instance, at Egerton University programs in applied community development studies integrated course units that require students to engage with community members through community “[barazas](#)” to discuss service needs and priorities of the communities as well as possible solutions. This program has been very impactful and well appreciated by the community members. The BSc in Community Development introduced additional agriculture-based course units which were not there before, while the curriculum of the BSc Agribusiness Management course was reviewed leading to integration of course units on crop production, soil science and animal production. This was done to enable students taking these programs to have basic grounding to be able to advise community members or manage an agricultural enterprise. Previously, focus was on management of the business with no emphasis on basic production issues. The Department of horticulture adopted a field practical course in all its programs. Students are allocated a plot of land to grow the crop. Agricultural education and extension have also adopted the practical experience course.

Text Box 4.7

“A small grant from RUFORUM enabled our Faculty of Agriculture to support students to engage with communities. The students work with farmers to grow crops and in the process provide advisory services and trigger the universities to provide some direct support to the farmers - such a tractor service for the farmer to open land, and provide a direct market for their produce. Activities like these, have enhanced our Faculty of Agriculture’s relevance in the immediate community. The university is no longer a remote “*Ivory Tower*”! I further appreciated this approach during discussions at the RUFORUM Triennial conference in 2021 in Benin. We have subsequently intensified and adopted this approach in other programs. For instance, students doing guidance and counselling, those offering business courses now have to go to the communities so that people around us know how they can benefit from the university.” (Source: VC of RUFORUM member university in Uganda)

(viii) **Building and strengthening partnerships between the university researchers and local actors:** The CARP+ projects provided the foundation for member universities to strengthen and build on the local partnerships for subsequent joint activities and cross-learning. Key informants noted that the established relationships make it easy to place students to the farmer groups, NGOs and other institutions they have worked with during the research. These relationships are likely to continue to exist well after

the project and be used to facilitate student experiential learning, knowledge sharing as well as other collaborative projects in future.

4.1.8.3 *Infrastructural capacity outcome for universities and partners*

The TAGDev support to research and teaching programmes at universities has enabled universities and some of the partner institutions to acquire some equipment and/or renovate facilities to support research, product development and training of students beyond those directly involved in RUFORUM projects. Examples of such facilities that were found to still be in effective use include:

- i. **Egerton University in Kenya** - a facility for development of early generation seed potato epicot root cuttings and use of hydroponics to produce mini-tubers as clones; greenhouses and lab equipment for cassava research; renovation of some student halls of residence; licenses for Zoom accounts. The teaching infrastructure and renovation of student halls was applauded for providing a better environment for students thus giving the university traction to get international students
- ii. **Gulu University** – Widening access to higher education through licenses for four (4) Zoom accounts and a small-value addition Incubation Centre at the university: This enhanced university resilience to ensure continuity of learning amidst the COVID 19 pandemic
- iii. **Bindura University in Zimbabwe:** Office equipment such as printers and laptops for researchers;
- iv. **Bishop Stuart University** in Uganda: Furnishing the space and acquisition of equipment/ machines (Freezer, cooker, oven, crusher, juice makers, sauce pans, polythene sealers, heat guns, industrial weighing scales, projector and screen) in the incubation Centre;
- v. **TVETs:** Magamba TVET in Zimbabwe acquired a mechanised grain sheller which they say will be used in training other cohorts of students. Northern Uganda Youth Development Centre (NUYDC) got a stand for three (3) boars for collecting semen and associated equipment for testing viability of semen prior to extending it for subsequent Artificial Insemination (AI), established a pig rearing enterprise which had grown to 20 sows at the time of the evaluation and had plans to raise their own boars to collect semen. Its Fashion and Garment Design Department acquired 3 industrial sewing machines, 1 knitting machine and 1 cutting machine. Key informants noted that the acquired equipment enabled them to expand on production of garments for business but also for training of students using relatively modern equipment. The machines are also used for industrial training of students from other institutions.

Chart 4.4: Infrastructure developed at Gulu University



4.1.8.4 *Resource mobilisation outcomes at universities*

The success in generating innovations and technologies by the action research teams has been cited as a major factor for enabling the teams to leverage additional funding amounting to US\$ 1.9 Million from various agencies including the Government of Uganda, Japan International Cooperation Agency, International Foundation of Sciences, World Bank, Agripreneurship Alliance and the Social Entrepreneurship Fund of the Mastercard Foundation, amongst several others. For instance, Project Implementer (PI) for the potato CARP in Uganda won a grant worth USD 67000 (UGX 244,028,000) for a project: "Enhancing Value addition on Potato-Sorghum enterprises for Improved Livelihoods in Uganda (EVaPoSIL)" to scale up the work initiated in the CARP. The PI for Potato Seed CARP at Egerton University Developed a proposal and got funding from the World Bank under the project: "Kenya Climate Smart

Agriculture Productivity” to implement a spin-off project entitled: “*Developing seed potato in three other counties in Kenya*”. Likewise, the PI for the Water harvesting CARP at Bindura University of Science Education trained other staff in the university on grant proposal writing - with two of them going on to write proposals that won a grant for a project on Combating Human trafficking, a collaborative project with University of Nottingham.

4.1.8.5 Institutional outcomes at universities

The far-reaching outcomes of the TAGDev for the universities will come from the institutional changes that it has sparked. These institutional-level outcomes provide a foundation for sustaining and scaling out the transformative innovations that the TAGDev has engendered through the faculties of agriculture. They are manifesting themselves at policy, strategy and programme levels.

i. Policies: Gulu University developed a community engagement policy, and put in place more formalised processes to implement community engagement activities. University leaders acknowledge that the engagement of the university with RUFORUM was a major influence for this. The policy includes a clear implementation framework, and it requires each faculty to assign a focal person to coordinate the activities. These individuals are recognised in this capacity during the faculty board meetings.

ii. Strategies: The community engagement policy has influenced the new Gulu University strategic plan which now embraced community engagement as a university wide approach. Likewise, TAGDev interventions at Egerton University underpinned the development of the university’s Community Engagement Strategy (2019). The strategy was subsequently approved by the university top management and it was submitted to the University Senate. Community engagement is now part of the university’s performance contract, and the Research and Extension Division is required to report on achievements in this area. Furthermore, Egerton University developed a Field Attachment Strategy (2019) and submitted it to the Faculty Board and Directorate of Undergraduate Studies for consideration.

iii. Management: TAGDev was also credited for having influenced revision of the post graduate student management processes and procedures at Gulu and Egerton universities. Management at both universities realised that the point at which major delays occurred in the process of managing the MSc was in the period between submitting and defending their research proposal before commencing the research. Previously an MSc student had to wait to get the results of all course work, before s/he would be eligible to defend their research proposal, and a supervisor was only appointed after the student’s proposal had reached the Graduate School. Application for research permit, and ethical clearance could only be done after the student proposal got to the Graduate School. On the prompting and lobbying of spearheaded by RUFORUM, this has changed. Now once the department approves the student research proposal, s/he can proceed to processes these permits and clearance. The changes were approved by the relevant university structures. Their implementation is credited with contributing to timely completion of students from 3-4 years in case of MSc courses to 2 years, and from 5+ years for PhD to 3-4 years.

4.1.8.6 Outcomes at the national agricultural innovation systems levels

There is evidence of TAGDev outcomes at the national agricultural innovation systems level. A vivid example is the change brought about by the seed potato CARP in Kenya which heightened focus on seed potato production differentiating the value chains for seed potato growers and that for ware potato. This led to the promulgation of the National Level Seed Potato Regulations 2019 which were put in place to guide production and marketing of seed potato. The regulations delineated where and by who potato can be sold and bought. Potato is now sold by weight and not just bags. The maximum size is set at 50kg. Nakuru county developed a potato strategy as part of the seed potato CARP+.

The CARPs have catalysed formation or rejuvenation of local institutions that amplify voice of farmers to champion for their rights and demand for increased access to government programs and services as well as support collective action in output marketing. For instance, the Pig CARP in Gulu University was the

catalyst for the formation of the Northern Uganda Pig Farmers Association; the seed potato CARP in Kenya enhanced development of seed potato platforms in the country and contributed to enhanced support from the Government of Kenya (to the tune of KSh100 million for construction a cold storage facility) to the Nakuru Potato Union which promotes and safeguarding potato farmers' interests; The Cassava CARP in Kenya rejuvenated the *Subukia* Cassava Farmers' Cooperative Society that is already directly working with 653 farmers .

4.1.8.7 Wealth creation for beneficiaries

The ultimate proof that RUFORUM in general and the TAGDev specifically are contributing to expected outcome stipulated in the OP 2018-2022 of '**Agricultural universities and their graduates respond to developmental challenges through enhanced application of science, technology, business and innovation for rural agricultural transformation**' will come from evidence that beneficiaries are using results of RUFORUM for improving their livelihoods and wealth creation. Most of these changes will come after the end of OP implementation. However, there are some outcomes that were already surfacing - mainly for the students and communities. Some of these are outlined below:

i. **Students:** The approach of embedding enterprise development and nurturing in the research projects and training programmes has visibly led to some of the students beginning to generate their own incomes from their start-up business enterprises. For instance, *Malkia Incubrooder* - which started production of poultry chick incubators and brooders in Kenya in May 2020 - had generated revenue amounting to USD 80,000 (Kshs 8 million) by April 2022. The business is ready to fill gaps related to their core business such as fabricating plastic blocks that would enable it to migrate from metallic casing for the incubrooder to use of plastic casings. The plastic brooders are envisaged to reduce the price of each unit e.g. reduce the price for the 350 chick capacity brooder from USD 800 to USD 500.

Desktop Lunches Café which was started by Egerton incubates as a business for delivering food to offices and social events has generated wealth for its proprietors to the extent that they have acquired space to operate a restaurant and constructed a business building at a cost of USD 20,000 (KShs 2 million). The funds for constructing the building came from the RUFORUM IPM-FAPA grant (USD 5000), a two-year loan from Kenya Commercial Bank (USD 10,000) and re-investment of business profits (USD 5000). The enterprise officially opened their new restaurant outside the University Main Gate with a sitting capacity of at 100 clients at any serving time.

Text Box 4.8

Testimonies of students creating wealth for themselves

"The training, mentorship and financial support we got from RUFORUM through AGLEAD gave us the foundation to start the business. We have grown and in 2 years-time we want to move to Nakuru Central Business Centre and establish a business outlet there." (*Joseph Karisa and Milcah Wambua, proprietors of Desktop Lunches Café*)
"We have built a strong market base; we now supply companies and 5 hotels 60 liters of sanitiser and 500 liters of toiler cleaners per week thus earning revenue and income for our company." (*Hillary, Active Living Uganda*)

ii. **Communities:** The student enterprises have a spill-over effect on wealth creation by creating employment in the communities in which they are embedded. The aforementioned *Malkia Incubrooder* company in Kenya is directly employing 5 people and it engages out of school youth to gather aluminium scrap which the business melts for making the metallic casing for the brooders. It is also notable that the business is training students (thirty students so far) from different polytechnic institutions and also offering internships to students of engineering. Evidence was found of community members who had engaged in RUFORUM supported research projects utilising the skills and knowledge they acquired to engage in alternative income streams including vending of home-produced value-added food products, production and selling of clean planting materials in case of cassava and Irish potatoes, Local Seed Businesses (LSB) that produce Quality Declared Seed; and tractor hire services. Through these services

they have been able to link to development initiatives of local governments and NGOs. This will enhance sustainability. Images of some examples of enterprises by community members are shown in Chart 4.5.

Text Box 4.9

Testimonies of livelihood and wealth creation outcomes in communities through engagement with universities

“I worked with the students of Gulu University to grow 1 acre of tomatoes. They supported me in opening the land weeding staking and spraying the crop. The engagement improved my knowledge on how to stake the tomatoes as well as the when to spray and which chemicals to use. Previously I was growing tomatoes just for home consumption but now I have ventured into engaging in the enterprise to also earn income. I was able to earn revenue of UGX 5.2 million from the tomatoes. I also gave plots of land for the students to also established nursery beds of other vegetables such as green paper green amarathus carrots and used the seedlings to grow their own crops.” *(Source: A male host farmer for Gulu University students).*

“We started working with researchers from Egerton University in 2018. We were trained on producing potato seed using tissue culture technology how to produce quality potato seed soil testing to guide the correct type and amount of fertilizer to use good agronomic practices (proper spacing; pest and disease control) dehauling seed sorting and grading and storage in a Diffuse Light Store. Previously, we noticed reducing yields but we could not understand the cause of the problem. But the demonstration garden where we compared certified seed and farmer saved seed as well as other production technologies made our member to appreciate the value of using certified potato seed. We realized that whatever you invest in the certified seed you get back through the higher yields unlike the one who uses home saved seed. Most of our members now use certified seed. We engage in seed potato production both as a group but also as individual households. My household adopted the practices and this has increased yields from 4 tonnes per acre to 10 tonnes per acre. Previously, we would put aside the tiny potatoes and used them as seed while the big and medium sized ones would be sold. The small/ tiny potatoes would not sprout well and give enough eyes. In 2021 we harvested 2200 Kgs of potatoes in two seasons from 1 acre of land my family consumed 200kgs while we sold the 2000kg earning KShs 300000/=. I used the proceeds to construct a new house and I plan to invest in production of mini tubers.” *(Source: A male farmer from Bagon Ward, Molo Nakuru County, Kenya).*

“From the proceeds of seed multiplication, our group has bought equipment for drip irrigation. We will be accessing water from my shallow well and the tank. We want to engage in production of potato seed through min-tubers. We have thus visited the National Youth Service to learn more about the enterprise.” *(Source: Female leader of a Farmers Group in Kenya)*

“The Cassava CARP at Egerton introduced cassava in non-traditional cassava growing areas of Mt Kenya which are prone to erratic rains and hence frequent failure of the maize crop which is considered key for household food security. A total of 11 high performing varieties were selected by the farmers, and these are now grown by various households in the communities. People now have food in their homes, our communities no longer rely on relief food as we get own cassava. It is reported that the CARP generated interest among politicians in other non-traditional cassava growing areas with the Governor of Turkana expressing interest to introduce the crop in that county.” *(Source: Farmer Leaders from Subukia and Solai, Nakuru county, Kenya)*

Chart 4.5: Some enterprises of community members



“TIC RYEMO CAN Tractor GROUP” in Uganda: Tractor received (left), rice field (centre) and bulking store (right)

Mr Richard Mbaria from Kenya in front of the screen house (left) where he plans to produce min-potato tubers; the Diffuse Light Store (middle), in front of new family house (right).



Mrs Mbaria from Kenya drawing water from the shallow well (left & centre) and the group garden where her Group had established a drip irrigation system for supporting production of irish potato seed



Pig sty with indigenous micro-organism (IMO) floor litter at farmers site in Omoro district Uganda

4.2 EFFECTIVENESS OF THE RANCH FLAGSHIP

4.2.1 Background

The RUFORUM network comprises universities at different levels of maturity and are also on varying development trajectories. The RANCH Flagship aimed at facilitating the setting up of networks of universities with different capabilities so that they can use the resources of better endowed ones to collectively converge on mutually beneficial academic and socio-economic goals. The Regional Anchor Universities (RAUs) would become hubs of excellence and academic leadership in Higher Agricultural Education (HAE). The key action areas of focus for the RANCH Flagships were stated in the Operational Plan (OP) as follows:

1. Identify and support transformation of selected universities into regional anchors to provide leadership in HAE and research.
2. Facilitate universities to design and deliver strong and relevant research-inspired training and skilling programs for generating the next generation of science leaders for Africa’s agriculture.
3. Facilitate universities to design and deliver impactful research, and to strategically pursue opportunities, partnerships and industry linkages to scale out and commercialise research innovations.

The outputs of the RANCH Flagship are described below against a brief outline of the activities through which they were generated.

4.2.2 Universities identified and supported to transformation of into regional anchors

The focus of activities for the RANCH Flagship in the Operational Plan period was on identification of Regional Anchor universities (RAUs). The process was initiated prior to the commencement of the OP implementation through RUFORUM’s participation in the: “Strengthen Higher Agricultural Education in Africa” (SHA EA) initiative in partnership with the World Bank. The Development Objective of the initiative

was set as: *“To strengthen linkages between selected African universities and regional agricultural sector needs for developing required human resources to accelerate agri-food systems transformation in Africa”*. The initiative targeted universities in six countries, namely: Cameroon, Côte d’Ivoire, Ghana, Kenya, Malawi and Mozambique. The SHAEA project did not take off due to restructuring processes at the World Bank.

However, efforts were made to establish other Regional Anchors. Currently the RAUs include Haramaya University in Ethiopia; Makerere University and Uganda Martyrs University in Uganda; and, Lilongwe University of Agriculture and Natural Resources (LUANAR) in Malawi. These universities are running various Centers of Excellence including Climate-Smart Agriculture and Biodiversity Conservation in Haramaya University; Makerere University Regional Centre for Crop Improvement (MaRCCI); The African Centre of Excellence in Agro-ecology and Livelihood Systems (ACALISE) at Uganda Martyrs University; and, Aquafish ACE at Lilongwe University of Agriculture and Natural Resources.

The RANCH Flagship participated actively in the Ministerial Roundtable meeting on Higher Agricultural Education, Science, Technology and Innovation held at the University of Cape Coast, Ghana in December 2019. The output of this meeting was a [Communiqué](#) that was explicit on establishing Higher Education Centres of Excellence for Building Africa’s Science, Technology and Innovation Capacity. This [Communiqué](#) provides a key rationale for identifying RAU. This is reinforced by other aspects of the communiqué that open the door for resource mobilisation for establishing new RAUs.

Specifically, in Uganda, the Secretariat sustained mediation of RAU-related dialogue between the Uganda Government with the Arab Bank for Economic Development in Africa (BADEA) on the possibility of supporting a programme for youth employment, entrepreneurship and agricultural sector development (YEED) in Uganda. A feasibility study for this programme was undertaken and a full proposal was developed and submitted to BADEA but no decision had been made on it by the time of undertaking this assessment.

In 2018, activities were undertaken to move the SHAEA initiative forward. These mainly included undertaking sensitisation campaigns and consultations to enhance the awareness and ownership of the SHAEA Programme among stakeholders¹⁹. A [call](#) for interested universities in the six participating countries to submit concept notes for becoming a RAU was issued. All these activities were undertaken by the end of 2018 after which time the activities stalled due to factors outside RUFORUM’s control.

In 2019, frameworks for discussion of the *“Build Africa’s Science, Technology and Innovation Capacity”* (BASTIC) and *“Regional Initiative to strengthen staff capacity and Increase the pool of Women Scientists in African Universities (RISSCAW)”* endorsed by the Ministerial Meetings mentioned previously, were developed for discussion between the member university countries, RUFORUM and funding agencies. The Secretariat continued dialogue with partners including the Mastercard Foundation, EARTH University, World Bank, African Development Bank and Mohamed VI Polytechnique University (UM6P) to design transformational learning institutions and approaches. Also In 2019, the RUFORUM Secretariat developed draft concept notes for establishment of regional centres of excellence. In 2020, the Uganda Minister of Higher Education and the President of the Republic of Malawi wrote to the World Bank to request for the reactivation of the SHAEA initiative. In response, in 2021, the World Bank responded and proposed to provide additional financing to the East and Southern Africa Higher Education Centers of Excellence (ACE II) project with the goal of strengthening agriculture higher education in countries across Africa. This initiative is coordinated by the Inter-University Council of East Africa (IUCEA) with technical support from

¹⁹ Countries covered: South Africa, Morocco, the Dutch Government and Government representatives in Benin, Ghana, Cameroon, Côte D’Ivoire, Kenya, Malawi, Mozambique and Uganda.

RUFORUM. Two countries (Malawi and Mozambique) out of the four²⁰ which were targeted, committed their IDA funds for this initiative. A series of dialogues between The World Bank, RUFORUM and IUCEA and the different Governments involved took place from October 2021 to February 2022 to validate the prior identified priority areas under SHAEA. The six SHAEA priority areas were confirmed to be valid and the call for proposals was launched in March 2022. A total of 12 proposals (9 from Malawi and 3 from Mozambique) were submitted and evaluated by a team of 19 independent evaluators, both for desk and on-site review.

The outputs of the above activities were:

1. Six “Key Gap Areas” that will form the basis for RAU establishment agreed;
2. Eight proposals and concept notes developed and submitted and being used to engage with donors;
3. Dialogues initiated with different development partners on support for establishment of RAUs
4. Enhanced awareness of the need and potential value of RAUs (manifested most profoundly by the [Communiqué](#) of the 2019 Ministerial Roundtable meeting on Higher Agricultural Education, Science, Technology and Innovation);
5. Emerging partnerships among universities;
6. Six centres of Excellence (five in Malawi and one in Mozambique) were competitively identified from four universities²¹ under the [ACE II AF Project](#). These universities will build capacity for research and training in agriculture to meet the needs of highly-skilled personnel and knowledge transfer for the agri-food sector on the Continent.

4.2.3 Universities facilitated to design & deliver relevant research, training & skilling programs

The RANCH Flagship participated in RUFORUM’s efforts for enhancing the visibility of innovative training and skilling approaches being implemented with RUFORUM support. These included the exhibitions during the [First](#) Extraordinary Summit of African Union Committee of Ten Heads of State and Government Championing Education, Science, Technology and Innovation (AU-C10) in November, 2018 in Lilongwe-Malawi; and the [Second](#) Joint Scientific Conference of the National Agricultural Research Organisation (NARO) and Makerere University. In addition, RUFORUM held a meeting at its Secretariat to engage media practitioners - including professional journalists and bloggers – in promoting the visibility of universities’ role in development processes through their knowledge, innovation and training.

With regards to promoting the design of research inspired training and skilling approaches in RAUs, the RANCH Flagship participated in a regional partnerships meeting that brought together 62 participants from 39 institutions and 23 countries to deliberate on human capacity development, research and innovation – including the design of innovative curricula. In a more direct way, the RANCH Flagship supported development and establishment of three PhD Programmes implemented collaboratively by universities in the DR Congo, South Sudan and Sudan. The implementation of the TAGDev Flagship Programme at Gulu University in Uganda and Egerton University in Kenya is arming the RANCH Flagship with “proofs of concept” for underpinning the facilitation of the design and delivery of impactful research-inspired training and skilling approaches at universities.

²⁰ Ghana, Mozambique, Malawi and Cote d’Ivoire.

²¹University of Eduardo Mondlane in Mozambique, Lilongwe University of Agriculture and Natural Resources, Mzuzu University and University of Malawi

Research Chairs established

RUFORUM in partnership with member universities developed and submitted 2 grant proposals to support establishment of Research Chairs, and conducted a benchmarking exercise to enable lesson learning from experiences of the University of Pretoria in this area. These interventions culminated in the conceptualisation of two research chairs, one at Makerere University focusing on Natural Resources and Disaster Risk Reduction and another at Gulu University focusing on Community Engagement. At the time of this evaluation negotiations were still ongoing with BADEA to support the research chairs.

The outputs of the RANCH Flagship were attained largely with the support of the other Flagships and are therefore shared with them. They include:

1. A PhD Programme in the DR Congo in Agroecology and Climate Science hosted at *Université Evangélique en Afrique* and enrolled 18 PhD students.
2. A PhD Programme in Natural Resource Management and Environment Studies at Peace University in Sudan and at University of Juba. The PhD Programme at Peace University has already recruited 20 students.
3. Online course delivery support of the developed PhD Programmes.
4. Enhanced stakeholder awareness of innovative training and skilling approaches being implemented with RUFORUM support.
5. A stake in a multi-country and multi-university partnerships on human capacity development, research and innovation.

4.2.4 Undertaking scaling out and commercialising innovations from impactful research

The RANCH Flagship expects to facilitate innovators to commercialise their research by helping them in the processes of getting their innovations protected commercially through obtaining trademarks. It will also facilitate them to bootstrap the start-ups and negotiate partnerships with private sector actors – including community-based organisations.

4.3 EFFECTIVENESS OF THE CREATE FLAGSHIP

4.3.1 Background

The aim of the “*Cultivating Research and Teaching Excellence (CREATE)*” Flagship is to realign universities’ research and teaching functions into a more integrated model with a focus on problem solving and enhancing the capacity of the entire university academic practice and outreach system to contribute to inclusive, sustainable development. Its interventions are geared at strengthening graduate training to be more relevant to local, national and regional stakeholder needs. It also sets out to strengthen the creative and entrepreneurial skills of faculty and the ability of faculty to facilitate life-long learning. The CREATE interventions fall under three priority focus areas that are also catered for in the Operational Plan budget-lines, namely:

- i. Regional MSc and PhD Training Programmes to realign research, education and outreach functions into a more integrated model that enhances the capacity of the entire university system to produce high calibre agricultural scholars and researchers, and create superior learning outcomes for students, faculty and community;

- ii. Academic mobility and staff development schemes engaging universities and partners to create and reconfigure human capital, physical and virtual spaces to provide more capacity for research and teaching, and,
- iii. Establishing and supporting thematic research to strengthen agri-food systems, inclusivity and environmental sustainability.

4.3.2 Regional MSc and PhD Training Programmes for research, education & outreach realigned

4.3.2.1 Doctoral and Masters training to increase the pool of science leaders in Africa escalated

RUFORUM employed the doctoral research grants, doctoral scholarships, and GTA scheme as the key mechanisms to accelerate PhD training in the member universities. In addition, RUFORUM continued to support training of MSc and also embraced mentorship of some BSc students as part of its strategy of maintaining the education pipeline. It established and operationalised the Bharati K Patel Scholarship Fund by awarding a grant to University of West Kordofan in Sudan to support the training of the next generation of scientists for Sudan. The Doctoral research grants ranged from US\$ 12,000 for those starting their training and US\$ 3000 as supplementary funding to support research completion and writing. However, the stipend under the PhD scholarship grants was noted by key informants to be too small to effectively support PhD candidates.

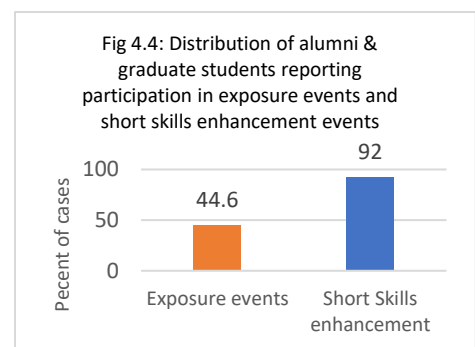
By May 2022, the CREATE Flagship had generated the following outputs in this focus area:

- i. Contributed to the RUFORUM effort that has overall supported the training of 716 PhDs, 2,173 MSc and 229 BSc students. A total of 314 PhDs have been trained while 79 have completed during the current operational plan. The number of PhDs trained surpass the RUFORUM target of 703 PhDs to be trained by the end of 2022;
- ii. Total of six in-country/in-region scholarships awarded for training programs geared at strengthening food and nutrition security in Africa being funded by DAAD in three member universities in Uganda, Kenya and Tanzania.

4.3.2.2 Opportunities provided for graduate students and young career researchers

RUFORUM supported 800+ students to participate in the scientific events during its AGMs and Triennial conferences. It organised 27+ short skills enhancement events for students, post-Doctoral researchers and staff in member universities covering 15+ thematic areas including: leadership and management, scientific research proposal development, and scientific writing skills, scientific data management using [R programming language](#) and data analysis using AMOS and STATA; financial literacy training; [competitive grants project proposal development](#) among others. The following outputs materialised:

1. RUFORUM-funded students in the scientific events during its AGMs and Triennial conferences, submitted 321 extended abstracts and 551+ posters, and made 125 oral/poster presentations.
2. Over 11,504 individuals including students, post-doctoral researchers and staff from member universities trained in a total of 15 thematic areas training events which have created a pool of resource persons in the region to train other scientists. Nine (92%) in every ten alumni/graduate students who responded to the on-line survey reported that they had



participated in at least one short skills enhancement events while 45% had engaged in RUFORUM organized exposure events (Figure 4.4).

The short skills enhancement events are appreciated for addressing both technical and soft skills which are not adequately handled by the general training curricula. These include aspects that are vital for success of the graduates such as emotional intelligence, empathy and critical/ innovative thinking. However, scheduling of the short skills courses was noted to be ad hoc and not well aligned with activities in the member university calendars, hence some would-be participants end-up missing the on-line course due to conflict of time with commitments in their degree programs. Skill-sets that were reported as being needed for future training include scientific writing, e-content development, and on-line pedagogy for interactive sessions, learner centred pedagogy (how to teach) as this would improve quality of training delivery in light of large class sizes.

4.3.3 Academic mobility and staff development schemes supported

Academic mobility for staff was achieved through facilitating regional academic staff exchanges and academic staff development under the Graduate Teaching Assistantship (GTA) scheme; supporting teams from member universities to write grant proposals for academic mobility projects; and increasing the participation of scholars and especially women from small and/or fragile in RUFORUM training events.

4.3.3.1 Academic Mobility and Staff Development facilitated

Academic staff exchanges between member universities were undertaken with support from the Carnegie Corporation of New York. The supported staff contributed to teaching, mentoring and research supervision of graduate students at the different Centers of Excellence (COE) thus enhancing faculty-teaching, research and collaboration amongst member universities. Makerere University supported the University of Zimbabwe in the delivery of Applied Research Methods and Applied Statistics and Computer Application Graduate courses. Student exchanges were also supported under the Collaborative Action for Strengthening Training Capacities in Climate Risk and Natural Resource management (CoSTClim) project.

4.3.3.2 Proposals for academic staff mobility developed

RUFORUM in collaboration with member universities submitted 4 grant proposals to DAAD for in-region/ in-country scholarships which have supported PhD student training in different RUFORUM catalysed regional training programs addressing the following four thematic areas: Regional PhD Academic Mobility in Agricultural Sciences; Food Technology, Post-Harvest Handling and Value Addition; Soil and Water Management; and Mathematics, Statistics and Data Management. Sixty-two (62) teams from 65-member universities were mobilised to respond to the European Union Agency Intra-Africa Mobility Schemes.

4.3.3.3 Staff mobility supported

Staff mobility was supported under the following projects:- Train Agribusiness and Food Systems Scientists for African Agriculture (TAFSA); Ecosystem Management Capacity Building for Africa project coordinated by University of Dakar (Senegal); the Fisheries and Aquaculture in Africa project led by University of Eldoret; Training Scientist in Crop Improvement for Food Security in Africa (SCIFSA); Mobility of African Scholars for Transformative Engineering Training (MASTET); Mobility for Innovative Renewable Energy Technologies (MIRET); and, Partnering for Health Professional Training in African Universities. Strengthening Agri-Entrepreneurship and Community Engagement Training in East, West and North Africa (AgriENGAGE) and Scaling Agro-Entrepreneurship through Problem Based Learning (Agri-scale) focus on business management and entrepreneurship. Overall, the following outputs materialised:

1. One hundred and four academic staff exchanges from Eastern, Western and Central Africa;

2. Six students (4 Masters and 2 PhD) from Makerere University were competitively selected to undertake a three-months academic mobility at the Norwegian University of Science and Technology (NTNU) under the CoSTClim Project. Likewise, three students (2 Masters, 1 PhD) from Norwegian University of Science and Technology (NTNU) undertook academic mobility at Makerere University.
3. A total of 232 MSc and PhD students and 32 staff exchanges will be supported through Agri-engage, Agri-Scale, MASTET, MIRET and TAFSA Intra-Africa Academic Mobility supported projects. Four additional staff exchanges were supported under the CoSTClim Project.

However, lack of orientation for post graduate students, PhD students sitting in the same class with MSc students for course units which they may have done at MSc level; and wide variation in the number of years' students take to complete post graduate studies in various universities were noted as issues that impair the student academic mobility. With regards to PhDs sitting in the same class with MSc students for course units they did at MSc level, they noted that if a student did their MSc in the same university, then this becomes repetitive when you go for your PhD program. They recommended that course credits should be transferable such that students who have already done these course units at MSc level are not forced to undertake the course again.

Wide variation in years to completion of graduate degrees was attributed to systemic challenges which result in slow management processes for graduate students' research proposal approval and examination of thesis in some member universities culminating in delayed student completion of graduate training programs. Both students on academic mobility programs as well as key informants from GTA student sending universities noted that delayed completion of students is posing a serious challenge to these initiatives. *'PhDs in some universities take 3-4 years, but in others it takes more than 5 years yet we want these staff who go for training to come back and serve in our universities. We cannot afford that kind of situation when they take too long due to slow processes in the university they study from'* (Participants in an FGD with Vice Chancellors in Uganda).

Encourage universities to improve the management processes for foreign students. RUFORUM should consider utilising the on-line platforms to offer language lessons for the students admitted in foreign universities before they travel for their study programs or identify institutions where they can be advised to enroll to learn the language of instruction in the countries where they are admitted to study. RUFORUM should work with the member universities to improve graduate student management processes. Strategies should blend lobbying, compliance and provision of incentives. Research grants for post graduate students should also provide for short-term incentives to the supervisors in form of supervisor fees beyond the intrinsic incentive of co-authorship of publications and potential promotion. This is in light of the low salaries for lecturers in most African universities. RUFORUM Secretariat should establish a central system for monitoring progress of students on academic mobility scholarships and GTA schemes, ascertain why some students are taking too long to complete, then use this information to lobby top management in the particular member university to act to resolve the impasse.

4.3.3.4 *Academic Staff Development facilitated through Graduate Teaching Assistantship and other fellowships*

The Graduate Teaching Assistantship (GTA) approach - which is another form of staff exchange - was launched by RUFORUM Vice-Chancellors in July, 2014. GTA is geared at improving the quality of higher education at African Universities by increasing the pool of academic staff with PhDs qualifications required to teach and supervise postgraduate programs. The following outputs were generated:

1. The number of member universities that have endorsed the MOU on GTA increased from 35 in 2015 to 89 in May 2022;

2. A total of 529 staff in member universities were nominated for placement under GTAs;
3. By June 2022, a cumulative total of 212 GTA placements had been made. The number of GTAs placed since inception of the GTA scheme in 2015 represents 65% achievement of the performance target of placing 325 GTAs by the December 2022;
4. Forty (40²²) GTAs completed studies and returned to their respective institutions.

Information from Key Informants and the survey indicated that there were challenges to the GTA scheme mainly arising from varied institutionalisation of the GTA approach in member universities. Enthusiasm and responsiveness to requests to support GTA applicants shifts with changes in office bearers, delays in getting all parties to sign contracts, and host universities taking long to respond to requests for placement.

Operationalisation challenges have also been encountered once the GTA students are placed. These include situations where sending universities fail to give upkeep to their staff; receiving universities finding difficulties to provide office space and accommodation to the GTA student; GTA students not having funds to support research; and lack provisions for remuneration/incentivisation of supervisors and external examiners for the PhD dissertation. The unique policies for funds flow and financial management in universities can also be constraining. For example, in Uganda, students in public universities are required to pay application fees and tuition fees to the country's central accounts through the agencies responsible for revenue collection before the students can be registered. This requirement implies that the receiving university has to find funds to pay for the GTA students' fees before the students can be registered.

Although the MOU under which GTAs operate require the GTA student to work as a teaching assistant in the host department, some of the training programs they undertake are so intense that they do not get time to effectively teach and also pursue their degree programs. In addition, in some RUFORUM member universities, people without a PhD are not eligible to teach. Due to limited office space and other facilities, receiving universities also find difficulty in providing office space and accommodation to the GTA student. The following anecdote from a key informant vividly illustrates this dilemma: *"If the university has no capacity to provide accommodation to its own staff, how do you expect management to provide accommodation to staff of another university?"*

Although RUFORUM has supported over 46 GTA students with research grants, key informants noted that departments that host GTA student oftentimes find difficulty in financing supervision of the GTA students research due to lack of supervisor fees/ incentives. This is particularly the case when it comes to managing examination processes and engaging external examiners. Some key informants intimated that when RUFORUM Secretariat does not share information with the receiving university on GTA students who are awarded research grants the students may disingenuously make their department heads believe that they do not have funds for research. In attempts to assist them, the heads resort to drawing on resources from the few tuition-paying graduate students to meet such costs. Consequently, some universities cannot sustain regular enrolment of GTA students. This is summed up by the anecdote in Text Box 4.10.

Text Box 4.10

Challenge in hosting GTA students

"If we could enrol more students with scholarships at the same time as we take on the GTA, the former would subsidise the later but as it is now, enrolling GTA students financially stresses the department."

(Head of Department hosting GTA students, at LUARNA)

²² Nine (9) females and 31 males

4.3.3.5 *Participation of scholars from small and/or fragile states in agricultural, science and technology-related training increased*

To boost higher education and research systems across the member universities, RUFORUM has given special focus to countries experiencing or emerging from conflict. It supported undergraduate, masters and PhD training of 279 students from forty-three member universities that were in 11 states²³ that were considered as fragile in the period of OP implementation. As already mentioned under the TAGDev Flagship, a total of 68 students from fragile states completed their studies and returned to their countries while 271 students continue to undertake studies with RUFORUM support.

4.3.3.6 *Increase the participation of women in science and technology-related training and research activities in all institutions benefiting from RUFORUM schemes*

Interventions geared at increasing participation of women in science technology and innovation culminated into RUFORUM cumulatively training 45.8% female students at Masters and PhD levels; and development of guidelines for ensuring that least at 50% of the opportunities in scholarships, fellowships and research grants go to women. Nine studies were completed on the status and participation of women in ST&I in 9 African countries²⁴ while Regional Initiative to Strengthen Staff Capacity and Increase the pool of Women Scientists in African Universities (RISSCAW) was adopted by the Ministerial Round Table during the 15th RUFORUM Annual General Meeting.

Three convenings of the Forum for Women Vice Chancellors in Africa (FAWoVC) were held during the OP period. The women VCs deliberated on leadership, mentorship, intellectual property rights and patents; promoting inclusive agricultural development and, addressing challenges that limit females from pursuing ST&I for development. A total of 150 upcoming women scientists were mentored by 45 women leaders from across Africa. In addition, RUFORUM in collaboration with FAWoVC developed and submitted two grant proposals and also supported 4-member universities to write and submit proposals to the Islamic Development Bank call on increasing participation of women in ST&I. Consequently, Busitema University won US\$ 150,000 from the Islamic Development Bank to strengthen the capacity of FAWoVC to champion programs that support gender inclusive participation in ST&I in Mozambique, Sudan and Uganda.

4.3.4 *Thematic research on agri-food systems, inclusivity and environmental sustainability supported*

With support from the Global Research Alliance on Agricultural Greenhouse Gases (GRA), RUFORUM awarded eight Graduate Research Grants (GRGs) thus enabling Principal Investigators and their research teams from six-member universities²⁵ to conduct applied research related to the measurement and management of greenhouse gas emissions and removals in pastoral and agro-pastoral ruminant livestock farming systems in Africa. The GRA-GRGs projects supported training of 24 MSc graduates in the field of greenhouse gas emissions in Africa. Through a session on *'Delivering Research and Innovations in Agricultural Greenhouse Gases'* RUFORUM, in partnership with GRA, facilitated experience sharing and exploration of opportunities to support research and innovation in agricultural greenhouse gas emissions. The GRA-GRG students were supported to share research findings at the 8th International Greenhouse Gas and Animal Agriculture Conference (GGAA), held 5 – 10 June 2022, Orlando, Florida, USA and online.

²³ Burkina Faso, Burundi, Cameroon, DR Congo, Ethiopia, Mozambique, Nigeria, Somalia, South Sudan, Sudan and Zimbabwe

²⁴ Democratic Republic of Congo, Ethiopia, Ghana, Liberia, Mali, Mozambique, South Sudan, Sudan and Uganda

²⁵ Makerere University in Uganda, University of Eldoret & Maseno University in Kenya, University of Abomey Calavi in Benin, University of Free State in South Africa, and Evangelical University in Africa in DRC.

A study on the agricultural innovations accessed by family farmers in East and Southern Africa as well as the challenges they face in accessing such innovations was conducted in partnership with the Food and Agricultural Organization of the United Nations (FAO). In addition, RUFORUM established partnerships with Alliance Bioversity and CIAT to implement the project: “Accelerating the Impact of CGIAR Climate Research for Africa (AICCRA)” in which RUFORUM will lead the climate-smart agriculture (CSA) and climate services capacity assessment at university level across Africa and will support capacity development through institution and curriculum review, training of faculty and students and support internships for students to enhance capacity for CSA. It also held dialogue with various CGIAR centers to explore opportunities for collaboration beyond the AICCRA project.

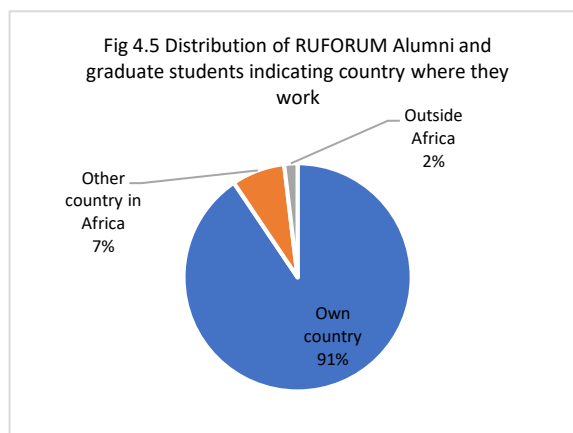
RUFORUM in partnership with West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL) and AKADEMIYA2063 issued a [call](#) for proposals focusing on responsible Artificial Intelligence and Climate Change. This process will culminate in awarding of eight grants each worth USD 60000 to research teams as part of the Artificial Intelligence for Development Africa Programme, funded by Canada’s International Development Research Centre (IDRC) and the Swedish International Development Agency (SIDA).

The RUFORUM Post-Doctoral fellowship program commenced in January 2018 with support from the Carnegie Corporation of New York. It is geared at increasing and ensuring retention of qualified and skilled graduates in Africa to support the strengthening of African universities and research institutions thus spur the advancement of quality training as well as basic and applied research to meet the growing demand for creating knowledge and prosperity in the continent. RUFORUM supported 39 post-doctoral Fellows, and trained 174 students (MSc 94, and 80 PhD) as part of research teams composed of mentees, supervisors and mentors from 18 universities and research institutions in nine African countries²⁶. The Fellowships have been applauded for kick-starting the research careers of PhD graduates.

4.3.5 Outcomes of the CREATE Flagship

4.3.5.1 Human capital/technical competence enhancement

- i. **High retention rate of graduates within countries and Africa:** The scholarships that RUFORUM has given out through the CREATE Flagship have been vital for training of both postgraduate students at universities within Africa. The trained MSc and PhD graduates have remained in Africa (Figure 4.5). A key informant who was among the early champions of emphasised that the RUFORUM “experiment” was designed to actively encourage students to return to their home countries after training through imparting on them pride from being members of an expanding network of home-grown and owned African stable of development practitioners. There was indeed consensus from other informants that the passion that the RUFORUM alumni have for contributing to the development of their countries - and of African in general - is rooted in this pride. This underscores the importance of addressing attitudinal change in HAE. It is not acquired through teaching and research but, rather, through inspirational leadership.



²⁶ Uganda, Ghana, Kenya, Benin, Malawi, Zimbabwe

The RUFORUM Executive Director's leadership qualities were consistently cited as having this quality - particularly that of "giving back" to society.

- ii. **Enhanced agency of the research grant beneficiaries in their institutions:** Beneficiaries of RUFORUM grants such as the Post-Doctoral fellowships, and GRG grants are actively contributing to their institutions' efforts to undertake development-oriented teaching and/or research as well as direct development interventions. The capacities they acquired through the research process they went through put them in very good stead as leaders in areas critical to enhancing use of science in development such as supervision of students at all levels of tertiary education (MSc, PhD and Post-Doctoral), research proposal writing, conducting research, scientific writing and networking (See Text box 4.11).

Text Box 4.11

Testimonies of how RUFORUM alumni are contributing to research and development

- "The Post-Doctoral enhanced my ability to supervise students at different levels, and gaining confidence of my mentor who has eventually engaged me to teach some of the courses in breeding and biotechnology. The fellowship supported training of 2 PhDs, 3 MScs and 7 BSc. I was involved in supervising their work and all them of completed their studies. We published 27 Journal articles which has increased my professional credibility and visibility." (*RUFORUM Post-Doctoral fellow, from Benin*).
- See another testimony here: [My Personal Experience as Post-Doctoral Fellow at the Lilongwe University of Agriculture and Natural Resources in Malawi by Dr Ruth Magreta](#).

- iii. **Enhancement of multi-disciplinarity:** Key informants highlighted the enhancement of multi-disciplinarity in research as an outcome that is sustained from the training and research supported by RUFORUM grants. Alumni of Post-Doctoral Fellowships concurred with this view. They noted that the fellowships improved their ability to lead, navigate and fit in multi-disciplinary research teams. Participation in the collaborative intra-Africa mobility partnership projects was noted to have helped to expose university staff and students to different work cultures and ethics. The exposure to research management processes in multi-institutional projects funded by donors through RUFORUM was also considered to have contributed to the enhancement of multi-disciplinarity by requiring researchers to comply with internationally recognised research management process - particularly proposal development, reporting, quality assurance and financial management. The projects funded by the EU through RUFORUM were given as examples of exposure to these requirements.

Text Box 4.12

"The Post-Doctoral research grant opens you up for scientific collaboration. You work with people from different disciplines and geographical diversity. Working with supervisors and supporting students from different disciplines helped me to appreciate these different disciplines, how to engage with them as a co-supervisor, learning to appreciate the different angles of reasoning and discussion related to the research phenomena. You develop new ideas." (*RUFORUM Post-Doctoral fellow, a female from Uganda*).

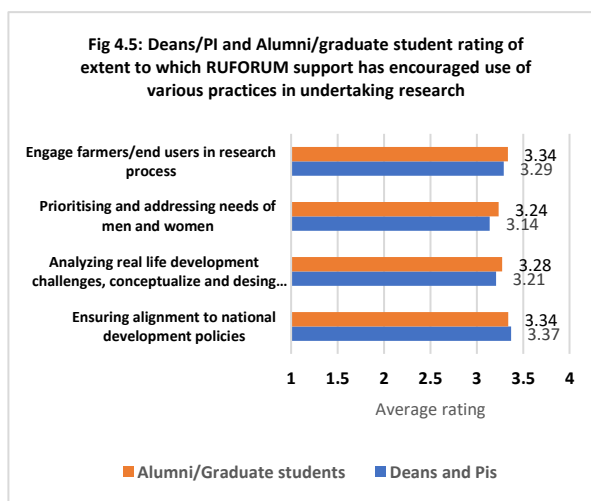
- iv. **Upward career progression:** The increased research and academic outputs of graduates from RUFORUM-funded interventions is enabling them to progress in their careers. It is notable that this is not only attributed to technical skills and competencies but also to the soft managerial skills acquired through the short courses. University staff interacted with noted that participation in the RUFORUM short skills and exposure events had strengthened their capacity on using innovative teaching delivery approaches notably Problem Based Learning (PBL); experiential learning and on-line mediated learning. These have helped them to develop professionally as lecturers.

Text Box 4.13

Testimonies of drivers of upward career mobility

- “Increasingly more young staff are breaking the glass ceiling to professorship through aggressive publication of academic and research papers. They recognize that publications are a way of enhancing participation in events and professional advancement.” (*Key informant from University of Zambia, a male*).
- “You cannot learn all of these skills through the normal degree programs. Although research proposal writing and scientific writing are included in the curricular of graduate programs, they are not taught well hence this is a gap. The RUFORUM short skills enhancement events give you tips build your competence and confidence to apply the knowledge in the focus thematic areas.” (*Young career researcher from Benin, a male*).
- “I participated in short skills enhancement courses including grant proposal development personal mastery management and leadership which greatly improved my competencies in these areas. The Leadership course changed the way I think and develop relationships with other people and manage research teams. Now I have developed empathy for other team members. Before, I was just research oriented not paying attention on the people I was working with. I realized that was not the way to manage team. I learnt how to deal with people.” (*Post-Doctoral fellow from Benin - a male*).
- “I acquired skills on scholarly writing and publishing as well as presentation skills. I use these skills to support other students and this has greatly enhanced my ability to supervise students as well as publishing with them as a co-author. I have been able to co-author many papers, for instance 3 already since start of 2022. The Post-Doctoral research gave us a platform to engage with the media thus enhancing skills of engaging and communicating with different audiences.” (*Post-Doctoral fellow, a female from Uganda*)
- See story of Dr. Emmanuel Masabo, University of Rwanda [here](#)

- v. **Research output:** RUFORUM support is attributed to have improved graduate student skills in conducting research in the labs and in the field, how to manage experiments, data analysis and making sense of the analysed data. It enhanced their ability to apply technical content /knowledge acquired from university including working online, searching for information and opportunities, networking, leadership, and productive use of social media thus becoming more adaptable with greater awareness of different ways of doing things. Ninety-five (95%) of the deans and PIs who responded to the only survey noted that support provided by RUFORUM has had a significant positive difference in the capacity of their university to deliver impact-oriented research. Both alumni/graduate students, as well as deans/Pis, concur that RUFORUM has encouraged the undertaking of research that is relevant to national development priorities, addresses real-life needs and priorities of both men and women; and engaging of smallholder farmers and or clients in the research process. RUFORUM has indirectly built capacity in the national research systems through its alumni who get employed and conduct research in these organizations as well as mentors for Post-Doctoral fellows (Figure 4.5).



Text Box 4.14

Testimonies of outcomes on research output

- “With the knowledge and skills I acquired during my MSc on Plant Breeding and Seed systems I was able to conduct crosses in my research program under ISABU in Burundi and develop two maize varieties which were released to the farmers. Previously breeding work under the maize program in Burundi was restricted to just evaluating candidate lines that we would receive from CYMMIT with no crosses being made to improve on their traits as there was no in-house capacity to conduct such work.” (*RUFORUM alumni at MSc level, and current PhD student, a male from Burundi*).

- “Through the process of mentoring PhD/Post-Doctoral students, mentors have reinforced their learning and benefitted from the mutual learning because they have been compelled to invest time and resources in developing/updating their skills and technical knowledge in order to be relevant and effective.” (*Mentor for RUFORUM Post-Doctoral fellow, a male from NARS Uganda*).

- vi. **Enhanced participation of women in HAE and ST&I.** Key informants noted that the increase in number of women with PhDs or those pursuing PhDs is more pronounced in the RUFORUM focus faculties compared to others.

Text Box 4.15

Testimony on enhanced women participation in HAE and STI

“The affirmative action to women gave us the confidence to apply, helped us to also come to the table as women researchers which we might not have been able to do due to self-doubt whether we would be able to ably compete with the more aggressive men.” (*Alumni and Post-Doctoral fellow, a female*)

- vii. **Institutionalisation of curriculum review/development.** There is evidence of member universities institutionalising mechanisms for developing and reviewing curricula to continuously adapt and respond to changes in the environment and emerging issues/trends as well as stakeholder and labour market needs. For example, key informants highlighted the influence that RUFORUM is having training programs to impart skills on climate change and agroecology. Collaborative development/review of curricula has been adopted for regional training programs catalysed by RUFORUM as well as those by other organisations. For instance, the curriculum for the MSc in Aquatic animal system and ecosystem management was developed by LUANAR in collaboration with 5 other universities to respond to emergence of fish diseases in the region. This program is sponsored by NORAD and has provided for 20 full scholarships with students enrolled from different countries.

Text Box 4.16

“Changes in curriculum have been made based on lessons learned from other universities during convenings, we have thus incorporated a lot of ideas from other universities such as the inclusion of entrepreneurial aspects to the curriculum.” (*Key informant from Makerere University*).

4.3.5.2 Social capital

- Enhanced visibility of member universities:** The academic mobility schemes which enable students from different countries to apply for training programs in member universities in another country coupled with graduates of the training programs getting employment in various organizations were noted to be contributing to enhanced visibility of the universities. Likewise, the regional MSc and PhD training programs with international students enhanced visibility and recognition of the host universities. Visibility at individual and institutional level was fostered by the increased number of staff and students producing publications in referenced journals as well as the RUFORUM Information Management System (RIMS).
- Facilitating access to expertise.** The network has enhanced access to expertise by facilitating universities to share/ exchange personnel for training and research. This has allowed universities to take advantage of a broader set of expertise and rationalize use of resources for training through the regional academic mobility scheme, collaborative supervision of graduates, and made it easy to find external examiners as well experts to provide peer-to-peer support for development of training programs. This is noted to have greatly augmented the capacity of young universities to support graduate programs which they would not have managed on their own.
- Networking:** Students and staff who had participated in RUFORUM convenings and who had been funded for Post-Doctorate research highlighted networking as a major and impactful outcome that

sustains their knowledge sharing and learning and harnessing of resources that support research. It also positions them to enter and have a stake in the markets in which beneficial relationships essential for career development are brokered. It was notable that the key informants highlighted the opportunities that the convenings create for students and researchers to interact with top university managers and national policymakers as having very significant impacts. In many cases, these are the only opportunities that the students and researchers get this opportunity which enhances their visibility and bonding with senior people. The social events organised by RUFORUM (such as the regular dinner for foreign students at a university research station in Uganda) help to further catalyse networking among students undertaking different training programs.

Text Box 4.17

Testimonies of networking outcomes

- “Participation in RUFORUM convening’s, notably AGM in South Africa, and Ghana as well as the Biennial Conference in Nairobi and the 2021 Triennial in Benin coupled with engaging with other actors in the course of implementing the Post-Doctoral research has greatly widened my network. I have established contacts and relationships with other Scientists in CSIR-Ghana, IFDC, INERA, IRA in Niger and IITA in Ibadan Nigeria. The network has helped me to easily access facilities that support my research. For instance, the cowpea germplasm I collected is kept in the IITA gene-bank, and these actors also help me to access sites for hosting multi-location variety evaluation trials. I have associated with teams that have written 7 grant proposals, 2 of which were successful. Outputs of the Post-Doctoral research enhanced my professional credibility hence able to get more grant awards’. I received a grant from World Academy of Sciences, 2 grants from Kirkhouse Trust Foundation (KHTF). I became a One Planet Fellowship Laurent of AWARD in 2021, I was integrated in the 2022-2023 cycle of African Plant Breeding Academy, at ICRAF Nairobi, and Member of Western Africa Cowpea consortium for which I organized its annual meeting in 2021.” *(Source: Post-Doctoral Fellow, from Benin (a man)).*
- “The Post-Doctoral mentors coupled with the leadership training taught me how to lead. I appreciated how to become an education leader irrespective of my position in the university. I had never known who I was, but this leadership course, helped me to discover myself. My conflict management skills were greatly sharpened. My networks greatly expanded to include the other Post Docs, my mentors from diverse fields and other peers I have met during RUFORUM convenings. We have used these networks to write 17 grant proposals 2 of which have been funded.” *(Source: Post- Doctoral Fellow from Uganda - a man).*
- “RUFORUM brought us together as post-docs from different countries and disciplines. This facilitated expanding my networks thereby helping to know who to call on if you need advice/expertize in a particular specialty area, we can also mobilize resources together and have opportunity to work together on collaborative projects. My department at my university did not have graduate programs, so after drafting the graduate program for courses in my department, RUFORUM linked us to the people who reviewed the programs for us at no cost. This is something which would have costed us a lot of money, if we were to seek the reviewers’ inputs on our own as a university, but we were able to exploit synergy through the RUFORUM network.” *(Source: Alumni and post-Doctoral Fellow from Uganda, a woman)*

4.3.5.3 Enhancements in university capacities beyond human resources

- University infrastructure:** The research grants have supported universities to establish facilities that facilitate research and training of students. For instance, two Post-Doctoral fellowship awardees from the University of Abomey Calavi in Benin used funds from the grant to construct a screen house at University for collection of Cow Pea germplasm. These resources are used for hands on training of other students in genetics and molecular techniques. Other students also use them to conduct their crosses from there.
- Resource mobilisation and revenue generation by universities:** Capacity of departments/ faculties/ colleges to mobilise funds through the scholarships and grants was enhanced and is appreciated as continuing to be of value for enabling the training of more students at PhD and MSc level, conducting

research as well as influencing further improvements in teaching tools. Key informants noted that RUFORUM has played a key role in linking their university teams to others to write grant proposals. This, they say, would not have been possible on their own. For instance, the Faculty of Agriculture and Environment at Gulu University had more than ten (10) projects that were running at the time of this evaluation compared to three in 2018.

Text Box 4.18

Testimony on resource mobilization outcomes

- “We as a young university we were able to join a team that won a collaborative research project though we did not have capacity at the time to have a Principal Investigator from our faculty. Having the network is critical if you are to be competitive it has facilitated us engaging in a number of collaborative projects.” (*Key informant from Uganda*).
- “Running the PhD programs coupled with retooling university staff in writing grant proposals positioned us to compete with other well established and richer institutions and finally winning the Fish ACE grant. The increased capacity to write grant proposals enabled us to win grants for the DAAD in region/in country scholarships and EU supported Intra-Academic Mobility projects. For instance, the DAAD in-country in region scholarships program gave us 6 PhD Scholarships in 2018, and another 54 scholarships (24 PhDs and 30 MSc) for 3 years in 2021.” (*Key informant, LUANAR, Malawi*)

PIs have leveraged resources from other sources to support the activities initiated under RUFORUM research grants. For instance, a post-Doctoral fellow in Benin leveraged resources from *Kirkhouse Trust Foundation* which enabled taking forward work started under the research fellowship. This culminated in the development and release of six (6) Cow pea varieties, four (4) of which are resistant to *striga* and two (2) are resistant to aphids key biotic stresses limiting cowpea production in West Africa.

4.3.5.4 Wealth creation in communities

There was evidence of RUFORUM PhD and Post-Doctoral fellows supporting interventions that give back and create community level impact. The following examples were encountered during the field visits undertaken in this assessment:

- A PhD graduate in Uganda supported community members in a community where she conducted her PhD research to source for 200,000 tree seedlings of assorted species to support restoration degraded watershed in the area. Activities being undertaken by the community are illustrated in Chart 4.6 below:



Chart 4.6: Community members of Mukura and Kapir sub counties in Ngora district who received over tree seedlings to restore degraded watershed

- A RUFORUM Post-Doctoral fellow reported that she had used the grant proposal writing skills acquired through the RUFORUM short courses, to support a Community Based Organization (CBO) - *Jane_Kidi Memorial Tree Planting Group* - in Nebbi district of West Nile Uganda to write and win a grant of USD 8000 from UNDP. The community used part of these funds to build a greenhouse with a capacity of over

20,000 clonal eucalyptus tree seedlings and start the *only certified tree nursery* in Nebbi, Pakwach and Zombo districts for raising eucalyptus clones (as shown in Chart 4.7).



Chart 4.7: Certified Nursery of Jane_Kidi Memorial and Greenhouse for raising Eucalyptus clones

The Post -Doctoral fellow subsequently brokered two partnerships that would help it to sustain its activities. One partnership was with the European Union-funded and FAO-supported “*Sawlog Production Grant Scheme*” to supply 10,000 seedlings of assorted species that would be used **to sustain** the activities of the organisation. The other partnership is with the local government in its area through which it has accessed supplies of inputs, farm equipment and training.

4.4 EFFECTIVENESS OF THE K-HUB FLAGSHIP

The K-Hub Flagship was conceptualised on the rationale that it can be difficult, time-consuming, and costly for decision-makers to access information that they need to enhance their knowledge for purposes of their work. The K-Hub was to be a dynamic and adaptive platform for remedying this problem by accelerating and intensifying the networking and partnerships among the wide spectrum of RUFORUM stakeholders. It would thus bring about the emergence and sustenance of communities of practice and also foster opportunities for the wider sharing and dissemination of knowledge products for agricultural transformation. The K-Hub was also expected to drive the intra-connectivity between all the Flagships and the inter-connectivity between stakeholder institutions. ICT tools and platforms were to be used as the K-Hub backbone. The priority action areas of focus that were articulated in the Operational Plan form the framework for reviewing activities and results in the following subsections. The overall outcomes are then discussed in a standalone sub-section.

4.4.1 Develop, host, maintain and integrate the RUFORUM platforms

4.4.1.1 Online tools and platforms for enhancing access to information expanded

The K-Hub undertook activities to expand the capabilities of the Secretariat’s website and the online portal on African Agricultural Higher Education Capacities that it had recently launched and was piloting with data collected from 66-member universities. The following outputs were generated:

- i. The RUFORUM SME Hub was developed to handle applications for young innovators, enable learning from experienced mentors, facilitate access to free business tools, and showcase businesses as a way of finding investors for business ventures;

- ii. The RUFORUM [e-Learning Platform](#) was developed through a collaborative venture with the FAO e-Learning Academy that offers free courses and has functionalities that can support some user content generation;
- iii. The [On-Line Impact Platform](#) was developed. It contains impact stories by country/ university/ topic as well as information on numbers and gender of people trained at different levels, funds mobilised, research grants awarded, technologies developed, network events held, and the status of alumni;
- iv. The Higher Agricultural Education Capacity Indicators ([HAECI](#)) portal was developed. It provides access to detailed time series data on demographic characteristics of teaching staff and student populations in member universities as well information on degree programs offered, research focus by major commodity area, and number of peer-reviewed publications;
- v. The [Institutional Knowledge Repository](#) was developed. It provides free-to-download access to the intellectual output of the RUFORUM network as well as from other sources;
- vi. The RUFORUM Information Management System ([RIMS](#)) was continuously upgraded to embrace the requirements for implementing and tracking the implementation of the 2018-2022 Operational Plan.

4.4.1.2 *Websites and social media platforms for enhancing communication and engagement developed*

To enhance communication and engagement across the network and with stakeholders, the K-Hub put in place/expanded functionalities of the [RUFORUM website](#), [RUFORUM Blog](#), and RUFORUM pages on popular social media platforms most notably [Facebook](#), [Twitter](#), [LinkedIn](#), [YouTube](#) and [D-Group](#).

Additional platforms developed included: [RUFORUM MCF](#), [RUFORUM Biennial 2018](#), [RUFORUM AGM 2019](#), [AGM 2020](#), [RUFORUM Triennial 2021](#), [RUFORUM AGM 2022](#) and projects websites: [AgrieEngage](#), [Native Chicken](#) and [Aflatesa](#). It also established a mailing list for sending out newsletters and other communications via the [Mailchimp](#) mass-dissemination platform. It established a licensed conferencing facility and also supported Egerton University and Gulu University to do the same for both conferencing and conducting online classes, meetings and webinars.

4.4.1.3 *Capacity developed for content generation*

In the context of this action area, the K-Hub supported **content generation** via the content generation functionalities of the platforms described above. The Website, eLearning Platform and the Online Impact Platform offered possibilities for members' content to be surfaced and shared by the platform managers. Network members could generate social content on the RUFORUM Blog and the social media platforms.

4.4.1.4 *Capacity developed for enhancing use of online tools and platforms*

Capacity development for accessing information by the Secretariat staff was continuously undertaken for utilising new tools and platforms. In this regard, the activities that stand out, are the capacity development for holding virtual conferences and events by deploying multiple online tools and platforms; the training of Secretariat staff on basic cyber security; and the development (through a Hackathon) of an open online platform bringing together academicians, private companies and other actors in the agricultural sector to co-innovate. At the level of the member universities, capacity development was initiated by undertaking [ICT Gap Analysis](#) and online review of eLearning platforms. In addition, the K-Hub initiated discussions for partnering with the *Global Open Data for Agriculture and Nutrition* ([GODAN](#)) and the *Open Source Geospatial Foundation* ([OSGeo](#)) for establishing an Open GIS software for students and staff. At the students' level, training of 879 students in social media for Academia with focus on videography and communicating for impact was undertaken. While at the general stakeholder level, training was

undertaken for retooling of 21 Public Relations Officers from RUFORUM member universities on use of ICT platforms.

4.4.1.5 Sustaining the platforms as a service to network members

The K-Hub staff recognise that **sustaining the platforms as a service to network members** is a challenge and will continue to be so. Efforts have been made to mobilise funding for the operationalisation of Africa Digital Agriculture Program (AfriDAP) - a RUFORUM Continental initiative to harness the pivotal role of digital technologies in agricultural value chain transformation. However, such efforts have not resulted into the desired results. In the years 2020 to 2022, limited funding was secured from Commonwealth of Learning (CoL) and the Arab Bank for Economic Development in Africa (BADEA) to implement the first pillar of AfriDAP focusing on capacity building on online learning within the RUFORUM Network. In order to ensure sustainability of the platforms to service the network, RUFORUM needs to develop a mechanism to innovatively monetise some of the services offered to member universities through the online platforms.

Six regional data hubs with eLearning centres as one of the components in the regional data hubs were initiated. There appeared to have been no efforts to initiate a process of innovatively monetising some of the services offered to members through the platforms. In the case of RUFORUM it could be argued that the membership subscriptions cover the services provided. However, premium fee-charging services can still be conceptualised not only for members of universities but also for outsiders. This is a mechanism that social networking platforms use for generating revenue.

4.4.1.6 Governance systems developed for use of online tools and platforms

Beyond the existence of some policies for communication, there were apparently no activities undertaken to develop and rollout a system of [knowledge management governance](#)²⁷ for ensuring and enforcing policies, standards and regulations for the development and use of online platforms for accessing information.

4.4.2 Use of ICT for teaching research & community outreach facilitated at universities

4.4.2.1 Use of ICTs for university teaching, research and outreach enhanced

The K-Hub sustained the support for using the e-Learning Platform already referred to above. During the Operational Plan period, the platform was rolled out for use by all RUFORUM Member Universities. The roll-out was accelerated during the period of the COVID-19 pandemic lockdowns in many countries. It was considered to have been a “game changer” in sustaining teaching during this period. In 2019, the K-Hub spearheaded the RUFORUM discussions with Mohammed VI Polytechnic University (UM6P) to collaboratively develop an e-learning platform through the proposed Africa Digital Agriculture Programme (AfriDAP). The discussions resulted into establishment of ten (eight Masters and two PhD) [priority programmes](#). The AfriDAP seeks to achieve the goal of digitalisation of the agriculture ecosystem in Africa by focusing on digital learning and sharing technologies for agriculture, data science development, and incubation and innovations for digital agriculture entrepreneurship and start-ups. In 2020, the K-Hub participated²⁸ in the development of a Knowledge Management System composed of a database of projects and a machine learning based Knowledge Extractor Pipeline System (KEOPS).

²⁷ More about knowledge management governance can be seen here: <https://www.knoco.com/knowledge-management-governance.htm#:~:text=A%20set%20of%20clear%20corporate,by%20the%20Knowledge%20Management%20Plan>

²⁸This was part of the Long-term European Union-African Union Research and Innovation Partnership for Food and Nutrition Security and Sustainable Agriculture (LEAP4FNSSA). The K-Hub was supported to populate the database by the Swedish University of Agricultural Sciences, Wageningen University and Centre for International Development (CIRAD).

4.4.2.2 *Capacity building for use of ITs for improving university teaching, research and outreach*

The K-Hub undertook an [ICT and e-Learning readiness survey](#) of member universities as part of the process to revive the RUFORUM Moodle platform. Furthermore, it collaborated with the Mohammed VI Polytechnic University to undertake another survey to identify possible courses for online content development and delivery and to [identify ten courses](#) to serve as pilots for development of African tailored Masters courses to be delivered as Massive Open Online Courses (MOOCs). Consequently, the Secretariat issued the ICT capacity and knowledge priorities as the basis for providing technical support to universities in establishing e-Learning infrastructure and generating information to guide training support on basic ICT skills and e-learning platforms. This was further elaborated in an e-Learning strategy that was drafted to guide development of an e-learning platform. The staff were trained on basic cyber security.

From an **ICT governance** perspective, RUFORUM entered into an agreement with FAO to publicise their open access policy. This may have a slight impact on governance of use of ICTs for enhancing learning, research and outreach but the question remains of whether the K-Hub has developed an ICT governance system²⁹ that is robust enough to match international standards in the use of ICTs in university teaching, research and outreach.

With a focus on **sustainability of use of ICTs in teaching**, in 2021, RUFORUM invited proposals for developing a Regional e-Learning Platform (REP) that the K-Hub would use to facilitate establishment of customised user-friendly Virtual Learning Environments built for students to attend real-time lectures, access learning materials, post assignments, enter discussions with their peers, check their university email accounts, search, download, and read in the RUFORUM and various universities e-libraries, and keep in constant contact with their course tutors. The call for proposals resulted into receipt of proposals from six firms of which one was selected, and accomplished the task.

4.4.2.3 *Capacity development for digitisation and digitalisation*

The emphasis on capacity development for digitisation and digitalisation for enhancing teaching, research and outreach was put on enhancing the competencies of course developers and on e-learning. The areas covered included development and implementation of Agricultural Massive Open Online Courses (AgMOOCs), e-learning resource use, academic communication, and Open Data Management in Agriculture and Nutrition. Overall, the capacity development attracted 5962 participants.

4.4.3 **Facilitate synthesis, documentation & dissemination of lessons, best practices & innovations**

4.4.3.1 *Information documented and disseminated*

The K-Hub undertook activities to directly document and disseminate content within the network and to external stakeholders. This included publication of a weekly digest of news, events and opportunities. There was an intention to publish and disseminate a RUFORUM African Higher Education Insights Quarterly Newsletter but this did not materialise. As a matter of routine, the K-Hub published - on its various platforms - internal network news, announcements, opportunities as well as updates on policies, strategies, technical & managerial performance reports and other corporate outputs including profiles of students, graduates and alumni. Timely publications of reports and proceedings of the events organised by RUFORUM is particularly emphasised. Media monitoring reports for enhancing members' awareness of external events pertinent to the RUFORUM objectives are routinely produced. Also published in

²⁹ ICT governance system is a framework that (in this case) universities should use to guide and align their IT goals with their business goals. This framework can help them to perform more efficient ICT-enabled operations by giving them measuring units of success, setting quality standards and retaining data.

multimedia formats are conference and promotional materials showcasing examples and stories of outstanding/ exemplary/ innovative work and achievements of any of the members. Articles are also published in national and international mainstream media focusing on university news – most notably the *Universities World News-Africa Edition*.

In the 2018 – 2022 period, the K-Hub synthesised emerging lessons and best practices but, in the main, universities' stakeholders and key partners were facilitated to do this through: Direct commissioning of (or volunteered) thought pieces in the form of papers, book chapters, books, policy briefs, research briefs, case studies, stories, fact sheets, open education resources, press releases; supporting the publication of [three](#) Volumes of the African Journal of Rural Development (AfJRD) for publication of peer-reviewed scientific and technical papers; Publication of Volumes 16 and 17 of the [RUFORUM Working Document series](#) to keep network members abreast of developments and opportunities relevant to agricultural higher education in Africa; and [Publication](#) of the proceedings of the scientific and technical events held during the African Higher Education Week and RUFORUM Biennial Conferences.

4.4.3.2 Capacity developed for information documentation and dissemination

Review of RUFORUM quarterly reports did not reveal any capacity skills development courses for documentation and dissemination of emerging lessons, best practices and innovations. Nor were there any apparent events that were held physically or virtually to synthesise, document emerging lessons, best practices and innovations. The Institutional Repository appears to be the major RUFORUM online platform for enabling members to access information that they may need to integrate in documents that they may wish to synthesise and disseminate. A lot of effort has gone into continuously upgrading it. The quarterly reports indicate that terms of reference were developed for revamping it and also transforming it from a hub for storing and accessing documents from RUFORUM-funded research into an interactive knowledge portal. The Repository was indexed by Google Scholar to enhance visibility of the content in it and it was also linked to Google Analytics.

4.4.3.3 Tools and platforms for aiding information documentation and dissemination developed

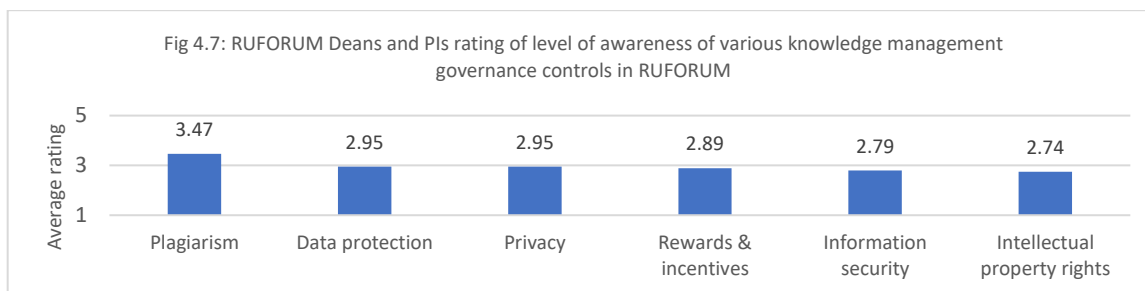
The K-Hub utilises the [Mailchimp](#) platform for generating the newsletters but it has not promoted it widely as a general tool for use within the network. Reports indicate that the Secretariat staff were trained on the use of the latest collaborative platforms. The [Zoom](#) platform appears to have taken root in terms of usage at the Secretariat. The Secretariat also facilitated the rolling it out to some universities - especially during the COVID19 pandemic. In general, the online tools and platforms in place do not have online publishing functionalities for facilitating generation of publications and for doing so collaboratively.

4.4.3.4 Sustainability of information documentation and dissemination enhanced

The concerns for sustainability of initiatives for facilitating synthesis, documentation and dissemination of emerging lessons and best practices appeared to have been centred on sustaining the RUFORUM Institutional Knowledge Repository. In this regard, the K-Hub, in 2019, had dialogue with representatives of the *AgriKnowledge Consortium* to explore how the content in the RUFORUM repository and *AgriKnowledge* can be merged, the collection expanded and the functionality enhanced. A concept note to guide preparation of a funding proposal for the activity was prepared. RUFORUM also submitted a proposal for funding to the World Bank on *“Collaborative Data Innovations for Sustainable Development”*. Additionally, the K-Hub in collaboration with partners submitted a proposal for funding to the Carnegie Corporation of New York to enhance the visibility of African agricultural research and enhance the functionality – and hence sustainability - of the repository.

4.4.3.5 Governance of information documentation and dissemination enhanced

Synthesis, documentation and dissemination of emerging lessons, best practices and innovations falls squarely in the knowledge management domain. It requires a robust governance framework. There does not appear to have been activities to enhance the governance of KM. With the exception of plagiarism whose awareness was rated high, awareness of the various KM governance controls was low to moderate levels (Figure 4.7).



4.4.4 RUFORUM triennial conference and thematic dialogues convened

The K-Hub and the Support Flagships spearheaded the **organisation and implementation of the [Seventh Africa Higher Education Week and RUFORUM Triennial Conference](#)** that ran for five days from 6th to 10th December 2021 under the theme: *“Operationalising Higher Education for Innovation, Industrialisation, Inclusion and Sustainable Economic Development in Africa: A Call for Action”* in Benin. As is the tradition, the Conference was held alongside the RUFORUM Annual General Meeting (AGM) and it was preceded by Pre-Conference events that ran from 13th August to 26th November 2021. The Pre-Conference and Conference events were conducted using a blend of physical platforms (plenary meeting, thematic side events, training events, etc) and virtual tools and platforms that enabled remote participants to participate in the proceedings. The K-Hub provided and managed the virtual capabilities.

The K-Hub reports include activities relating to **preparing and submitting proposals for university-based research teams and the Secretariat**. This is a cross-cutting theme that is triggered by the other flagships. The RIMS platform comes into play at the tail-end of the proposal management process by providing the mechanisms that are used to expedite submission and review of applications of proposals. The quarterly reports attribute a wide range of proposals as having been contributed to by the RIMS.

In 2020, with the participation of the K-Hub, **National Forum meetings** were held in Kenya, Benin and Morocco. In 2021, further National Forum meetings were facilitated in Burundi, Somalia, Benin, DRC, Sudan, Namibia and Zambia as part of the United Nations Food Systems Summit dialogues.

The second **tracer study of RUFORUM supported graduates** was undertaken in 2019. It extensively used the K-Hub platforms especially for sharing information. Indeed, the platforms are being used to sustain tracer studies on the contribution of RUFORUM supported graduates to agricultural transformation in the respective countries of their deployment.

The K-Hub has played a central role in enabling **virtual dialog between universities in many countries that were closed due to the COVID-19 pandemic**. In 2020, it facilitated the convening of a series of webinars that were focused only on responding to the crisis but also on capitalising on the COVID19-induced pause for university leaders, policymakers and development actors to reflect and anticipate the needs that will require repositioning the universities. The webinars also dealt with health issues,

agriculture & food security, environment & livelihoods, and online learning and teaching. All the webinars were streamed on the RUFORUM social media platforms and were recorded for future viewing [here](#)³⁰.

4.4.5 K-Hub outcomes

The overarching expected K-Hub outcome as stated in the Operational Plan was: “RUFORUM member institutions and affiliates collaborating, using up-to-date information to make substantial structural changes in the way HAE is organised and operated”. This outcome was expected to manifest itself in the form of utilisation of the outputs that were generated in the priority areas of action described above. Based on the findings of this assessment, the outcomes that have started to emerge are outlined below. The areas in which outcomes can reasonably be expected to start surfacing but had not done so to a significant extent are also pointed out to aid further planning for impact.

1. **Use of the introduced ICT for teaching, research, community outreach and meetings:** The following outcomes in this area were found in this assessment:

- Developing capacity for online mediated learning being sustained: Key informants noted that RUFORUM support and emphasis on Strengthening capacity of on-line learning - catalysed serendipitously by the unfortunate COVID-19 lock downs - is being sustained in member universities³¹. Many specific factors were noted as having contributed to this outcome. Among these are: the capacity building for the technical teams that run the Learning Management Systems in the universities, the support to the development of courses on designing and facilitating e-learning courses; the creation of user guides/resources in different formants (videos, PDF manuals, instruction guide, FAQ) for both students and staff on how to navigate various aspects of the university online learning management systems, enabling some universities to acquire equipment for supporting online learning³². The capacity development of staff was also mentioned as having been very impactful in areas including how to develop and deliver online materials and courses/ modules, online pedagogy, how to manage an e-class, conducting on-line examinations, and using different platforms for delivery. Some university staff highlighted the positive contribution that the development of their capacity will have on their career advancement.
- Deployment of e-learning in Open Distance Learning (ODL) courses: There is evidence that some universities are integrating online delivery in their ODL courses and are being accredited for doing this by the relevant national bodies. It was not possible in this study to quantify the number of universities that have moved in this direction. However, key informants noted that programs delivered through ODL increased during the COVID-19 lockdown. Although some have gone back to face-to-face delivery, some universities have adopted blended learning as a modus operandi.

Text Box 4.19

Testimony sustained use of e-learning

“Now you cannot teach in this university, if you do not deliver parts of your course units on-line.” (Key informants from Kabale University, Uganda).

³⁰ Videos of RUFORUM webinars can be viewed here: <https://www.ruforum.org/webinar-videos>

³¹ Lilongwe University of Agriculture and Natural Resources, Makerere University, Malawi University of Science & Technology, Mzuzu University, Uganda Christian University, Bugema University, Bishop Stuart University, Nkumba University, Ndejje University, Muni University, Soroti University, Kabale University, and Uganda Martyrs University.

³² Examples of support for acquisition of equipment and accessories: Kabale University acquired 3 high end-user computers which can hold heavy applications, software used for video editing and media creation for e-learning content; and external storage drives of 8 Terabyte capacity. LUANAR equipped one of the recording studios for producing e-learning content and materials, plus licenses for accessing the needed software.

“Once COVID-19 lockdown came we had to shift to on-line learning and the courses delivered through ODL have increased. Consequently, the number of LMS users increased from 2,000 prior to COVID-19 to 10,000 users in 2022.” (Key informants, LUANAR, Malawi).

- **University institutional policy changes:** RUFORUM support was credited for contributing to introduction and/ or revising policies related to e-learning at some universities. For instance, e-learning policy was developed at Kabale University while the one at LUANAR was updated. The Open Distance Learning (ODL) policy at LUANAR had gaps when it comes to e-learning notably student assessment and examination. It had no provision for on-line examinations. RUFORUM support is attributed with enabling the university to revise this policy with the attendant gaps being addressed - most notably in the area of online examinations. At the time of making this assessment, the new policy was going through the various university management and governance organs for approval.

2. **Use of RUFORUM websites and online platforms by general audiences.** All the key informants interacted with were aware of the RUFORUM website. Many were aware of the repository and RIMS but relatively few were aware of the SME Hub, e-Learning Platform, On-Line Impact Platform, and HAECI. Chart 4.9 illustrates the use of the websites and repository in period between January 2018 and September 2022. Website use appears to have kicked in during the middle of 2019. The real-time users of both website and repository tend to hover around a peak of 50 but the trend appears to be going up from 2021. There also appears to be surges in use suggesting that there are triggers to use. These triggers could not be identified in the time available for this assignment but it would be useful for the K-Hub to do so. The countries of origin of the users suggest that the website and repository have a relatively global audience with the usage in the USA appearing to be highest - though this may be lower if use per unit of population is considered. The bounce rate of around 60% appears to be high. However, [one report](#)³³ states that: “Nonprofits average a 60-70% bounce rate. A good bounce rate is between 41-55%.” What is important, therefore, is for the K-Hub to realise that there is room for improvement with regards to getting visitors to engage more with the website and repository. Current statistics show that, respectively the average session durations for the website and repository are 2.03 and 2.09 minutes. And the return rates (i.e. users who come back more than once) are 14% and 11%. In general, though, all stakeholders interviewed in this study acknowledged that RUFORUM website and repository have become key resources for them to access knowledge and communication products that they use variously not only for enhancing their knowledge on what RUFORUM is doing and the outputs it is generating, but also as an easy gateway into the wider universe of agricultural education and research.

The use of the RIMS has taken off and it had a total of 10,023 users of whom 75%, 18%, 5% and 2% were respectively applicants, students, PIs and others. Key informants at the Secretariat indicated that: “*The e-Learning Platform is still a new thing being operationalised and we might not have what to show as impact*”. Data on utilization of other RUFORUM platforms was not available.

3. **Use of social media platforms:** The only indicator for social media influence and engagement given in the RUFORUM PMEL Framework is Facebook Likes but no targets were set. The baseline at the beginning of OP implementation was 22,254 and the figure of 22,513 likes recorded in the PMEL suggests that the engagement via this platform had not changed substantially. The Facebook account had 28,000 followers. The use of other social media platforms, namely the accounts of RUFORUM on Twitter, YouTube, RUFORUM Blog and LinkedIn is also presented graphically in Chart 4.9. The views on the Twitter and RUFORUM Blog have decreased steeply while that of the YouTube channel has increased exponentially. The use of the LinkedIn account appears to fluctuate but not in a trend that shows steady

³³ <https://blog.dotorgsolutions.com/blog/digital-metrics-nonprofits-should-know>

increase or decrease. Evidently, there did not appear to be a social-media engagement strategy - especially one for strategic engagement with influencers relevant to pursuit of the RUFORUM vision.

4. **Use of the documented and disseminated information:** The outcomes of the documented and disseminated information/ knowledge products is measured in terms of their utilisation (not just access) by the targeted audiences. A key informant from the K-Hub Flagship indicated that there are no systematic processes and mechanisms to track the utilisation of disseminated documents and a proxy for getting an indication of utilisation could not be identified in this assessment. This has to be remedied in the future by articulating and tracking KPIs for usage of all the documents generated and disseminated. The information from key informants and focus group discussions gives some indicators of what documents are used by different categories. The product that appears to be utilised universally by the stakeholders interacted with in this assessment is the *RUFORUM Weekly Newsletter*. With its mailing list of 18,000, the newsletter proactively sustains RUFORUM on the minds of its stakeholders. It is acknowledged as being easily readable and as having the scope of content that embraces the quick information needs of different categories of stakeholders. The students and the researchers interacted with particularly appreciated it as a source of information about opportunities for their diverse interests such as scholarships, grants and awards, relevant conferences, new publications, among others.

5. **Impact of the convenings of the RUFORUM Triennial conference and thematic dialogues:** The most outstanding outcome attested to by stakeholders with regards to holding meetings and convenings is the shift in means of engagement from face-to-face to blended approaches. Increasingly, this is becoming the preferred mode. All governance meetings were successfully held virtually even during times of COVID-19 enforced travel restrictions. The capacity invested in integrating technology to support running of a hybrid conference is commended highly by stakeholders and has further demonstrated RUFORUM's convening power. RUFORUM K-hub interventions were credited for having kept the network active and vibrant through webinars³⁴ on various themes. RUFORUM strengthened capacity of panellists from various universities on how to use the platforms. Subsequently those from some member universities such as Gulu University, Egerton University, Moi University and University of Pretoria started hosting their own webinars. The centrally organised as well as specific university-based webinars are noted to have fostered and sustained engagement of network members even during the COVID-19 pandemic restrictions on travel and face-to-face meetings.

6. **Creation of communities and networks of practice:** RUFORUM interventions have heightened appreciation of the National Research and Education Networks as affordable and reliable service providers to the education institutions. The RUFORUM convenings are highly appreciated by stakeholders, and credited for fostering knowledge sharing, co-creation and learning from others in the network, facilitating expansion of contacts among academicians in the continent and those from other parts of the world as well as other actors including policy makers, private sector, donors and development partners. The convening power that RUFORUM has earned over the years gives it ability to broker relationships between academics, researchers, university managers, and donors. These relationships form the nucleus for socialisation around which communities of common interest and practice gradually emerge. As vividly put by a former Dean of a member university in Zimbabwe, this is one of the greatest values that comes with belonging to the network. Many others concur.

Text Box 4.20

"RUFORUM convenings provide us with opportunity to interface with other university leaders and policy makers. It gives us a very wide network in Africa and beyond which facilitates learning from peers." (*Views of a Vice Chancellor from a member university in Zimbabwe*)

³⁴ A total of 13 webinars were held in 2020.

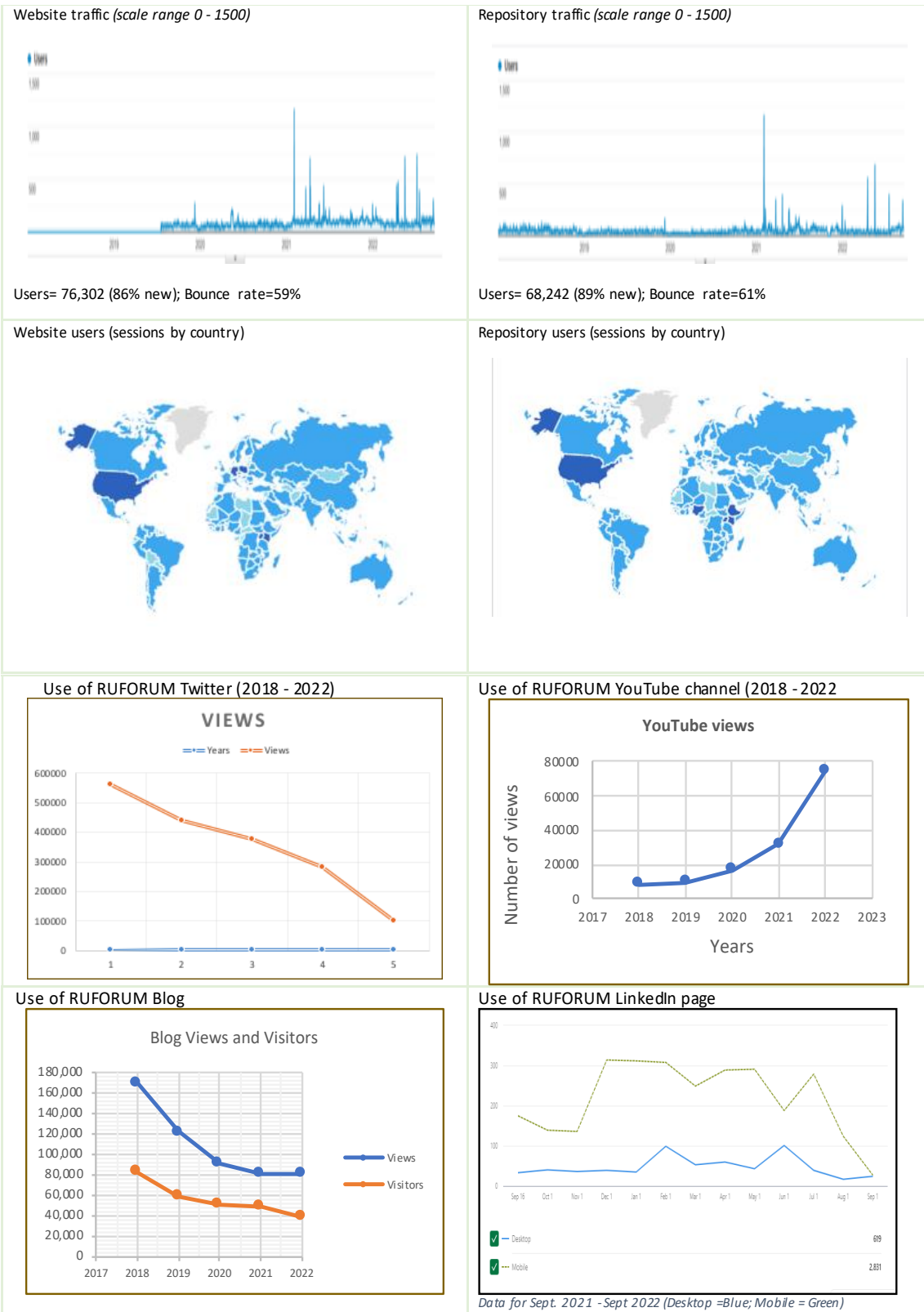
“As an academician and someone who works in the industry the opportunities to expand networks is very important. Even for people who I work with in the same university but different faculties I have met them during RUFORUM events. You meet a lot of people from different countries, disciplines and walks of life including professors, donors and high-ranking policy makers such as ministers during the RUFORUM convenings. What starts as humble beginnings increases the odds of further developing the one-to-one relationships. Personally, a lot of career growth has come through this networking.” *(Views of a former RUFORUM PI and service provider)*

Overall, the K-Hub outcomes are heavily rooted in the focus that it appears to have had on developing and enhancing websites and online platforms for enabling the Secretariat to manage and be in control of the flow of information within the network. As such, the platforms are weak on supporting social networking within the network i.e. they do not have comprehensive social/ community tools to enable network members to initiate and manage the way they communicate with other members, or to enable them to generate content (such as newsletters, training courses, standard publications, video and audio presentations). The use of social networks does not appear to have an underlying strategy to evoke outcomes that can be used to enhance the performance of RUFORUM. Furthermore, the OP did not expect the K-Hub to **necessarily** create new online tools and platforms. Rather, the expectation was that the K-Hub would develop smarter methods to activate existing ones. At the core of facilitating systematic enhancement of access to information, the K-Hub was to develop an open access portal with multiple functionalities and systems that would improve knowledge generation, management and sharing. The outcomes that can be expected to accrue from this output - most notably ease of access of information and virtual social networking - are not evident. One constraining factor being that users have to log into multiple portals – in some cases requiring registration and authentication for each one. Essentially, therefore, there is no “hub” that integrates all platforms.

Even though the envisaged integrated open access portal was not realised, the tools and platforms that were put in place are facilitating access to information within the limitation of their functionalities. The OP expectation for this Action Area was that the K-Hub would facilitate universities to create knowledge platforms, knowledge hubs and knowledge management units so as to best respond to the knowledge demand by their stakeholders and partners. A lot was done but outputs from the reported activities do not convincingly bring out this outcome as emerging. This is especially so for the expected results relating to building member universities’ capacities.

One area in which there were no evident outcomes relating to capacity development for use of online platforms for communication and engagement was in the use of ICTs in the research and - especially - outreach processes. The K-Hub bias appeared to have been on teaching, general communication and engagement.

Chart 4.9: Use of websites, online platforms and social media



4.5 EFFECTIVENESS OF THE SUPPORT FLAGSHIP

4.5.1 Background

The Programme Support Flagship was expected to enhance coordination and coherence, but also to develop mechanisms for leveraging financial resources for the network by becoming an adaptive coordination system that supports member universities to work together and ultimately become more capable of supporting their transformative agendas individually or in partnership with others. The priority action areas of focus outlined for the Flagship are the basis for the sub-sections outlining the activities and results undertaken in the OP period. They are: (i) Governance, stewardship and oversight; (ii) Advocacy; (iii) Programme Management; (iv) Partnerships and Alliances; (v) Resource diversification and investments; and (vi) Secretariat Capacity.

4.5.2 Stewardship and oversight undertaken by the governance structures

4.5.2.1 Outputs

i. Annual General Meetings held

The OP stipulates that: “Guidance will be provided through the Annual General Meeting (AGM), meetings of the Board and its committees, the International Advisory Panel (IAP), and the Committees of Principals and Deans”. The RUFORUM Constitution - approved and endorsed by the 20th RUFORUM Annual General Meeting of 10th December 2021 - expands these organs by adding on the Secretariat, the National Chapters, the Principals and Deans Sub-Committee, The Board Audit Committee as well as the International Advisory panel (IAP). The Constitution does not provide for a Board of Trustees as a governance organ but it is provided for in the RUFORUM Governance Manual. Table 4.2 shows the number of annual statutory meetings stipulated in the Constitution and the number of meetings held during the 2018 – 2022 period. As is evident there was high compliance with the statutory requirements.

Table 4.2: Statutory governance meeting held

| | # statutory meetings/ year | No. Meetings held | | | |
|------------------------------------|----------------------------|-------------------|------|------|------|
| | | 2018 | 2019 | 2020 | 2021 |
| AGM | 1 | 1 | 1 | 1 | 1 |
| Board Meeting | 1 | 1 | 1 | 1 | 1 |
| Board Executive Committee | 2 | 1 | 2 | 1 | 1 |
| Finance & Admin. Committee | N/S | 2 | 2 | 1 | 2 |
| Audit Committee | N/S | - | - | 1 | 1 |
| Technical Committee | 1 | 3 | 1 | 1 | 1 |
| Principals & Deans Committee | 1 | 1 | 1 | 1 | 1 |
| Principals and Deans Sub-Committee | 2 | - | - | 1 | 1 |
| International Advisory Panel | N/S | 1 | 1 | 1 | 1 |
| Board of Trustees | | 1 | 2 | 1 | 1 |

Source: RUFORUM Quarterly reports

ii. Governance directives implemented

The main processes through which stewardship and oversight are mediated is policy guidance that is given by the AGM. This guidance is given in the form of “Issues and Actions arising from the AGM”. All the Minutes of the AGM meetings held in 2018, 2019, 2020 and 2021 have the issues crystallised out. Cross-referencing the issues and actions in the Minutes of the different years shows a very high level of compliance and follow-up of the issues. The following outputs stand out as having emanated from the guidance provided by the AGM in the OP period:

1. The RUFORUM Charter was formulated and subsequently endorsed during the Biennial Conference of 2018 in Nairobi. As at July, 2022, the Secretariat had worked with Vice Chancellors to engage with national governments and twelve governments had signed the Charter. These were Benin, Cameroon, Democratic Republic of Congo, eSwatini, Ghana, Liberia, Malawi, Mali, Sierra Leone, South Sudan, Sudan and Zimbabwe.
2. As a result of the AGM endorsements, the RUFORUM full membership increased by 61 universities between 2018 and 2021. By the end of 2021, the membership stood at 147 universities in 38 countries spanning the African continent. This number had further grown to 157 universities in 40 countries by June 2022.
3. The Secretariat initiated discussions with the University of Pretoria, Makerere University and University of Abomey Calavi to develop a collaborative programme addressing frontier sciences.
4. To increase visibility, the Secretariat undertook the following activities: (i) Rolling out National Higher Education Days as part of National Forum activities – started with Liberia, Mali and Zambia; (ii) Holding exhibitions during the Committee of Ten Heads of State Summit (C10) – Ten Universities exhibited during the 2018 C10 meeting and (iii) Ensuring sustained publication and dissemination to members of the Quarterly Newsletter.
5. The four continental initiatives - agreed at the 2019 Joint Meeting of Ministers Responsible for Agriculture, Education & Training - are being followed up by the Flagships. They are (i) The Regional initiatives Building Africa's Science, Technology and Innovation Capacity (BASTIC); (ii) Strengthening Africa's Innovation and Entrepreneurship Capacity (SASTIE); (iii) Regional Initiative to Strengthen Staff Capacity and Increase the Pool of Women Scientists in Africa (RISSCAW); and (iv) the African Digital Agricultural Platform (AfriDAP) are being followed up through the Flagships.
6. Intensified Secretariat efforts in engaging the universities for GTA placements. By the 2020 AGM, it was engaging the universities for 304 GTAs for PhD training and had succeeded in getting placements for 212 GTAs in 29 host universities.
7. The Secretariat devised the Young African Entrepreneurs Competition and recognised farmers, upcoming scientists and individuals who have made significant contributions to Africa's development especially in Agriculture and Higher Education fields. During the 2021 Triennial Conference, awards were made by the AGM to 3 outstanding farmers from Benin; 5 Outstanding Young scientists from Benin, 22 Young Innovators from across Africa; and 17 individuals who have made significant contribution to Africa's development.

4.5.2.2 Overall assessment of governance and stewardship outputs

As evidenced by the activities and outputs, it can be stated that during the period of the OP implementation the governance organs were robust enough to provide effective guidance to drive the activities of the Secretariat. The robustness is not simply due to the existence of the governance organs but also due to having clearly laid down processes that they follow. In this regard, it is notable that governance functions were sustained during the 2020 - 2021 COVID-19 pandemic.

4.5.3 Secretariat capacity strengthened

4.5.3.1 Outputs of Secretariat capacity strengthening

i. Human capacity developed: A new Secretariat Organogram was approved in May 2018 and guided the Secretariat human capacity development. Recruitment for open staff positions was initiated in 2018.

ii. Institutional capacity enhancement: In the OP period, there were three Secretariat institutional enhancements evident from the periodic progress reports. First, was the development of the Internal Audit Charter and associated Internal Audit Manual both of which were approved. Second, was the

development of the RUFORUM Post COVID 19 strategy to enable member universities to respond, recover and build resilience in the medium term. Third, was the adoption of a temporary informal policy - prompted by the COVID-19 restrictions – to enable staff to mix working from office and from home.

iii. In-country and regional-level implementation structures and systems established: During the OP period, there was no operational regional institutional set-up for supporting implementation. At national level the National Chapters were not effectively operational. However, engagement with stakeholders took place through projects. Technical and administrative support at national level is fostered through actively engaging university Vice Chancellors, Principals and Deans in the governance processes. Nevertheless, it was a commonly expressed view by key informants at universities that the linchpins for technical and administrative support should be Focal Persons but they do not exist in most universities. The project implementers appear to play this role. This implies that support is correlated with the intensity of activities supported by RUFORUM. This means that it is difficult to get support for interventions of a systemic nature - such as the K-Hub interventions and those that would influence university policies, strategies and programmes.

iv. Secretariat and Programmes managed: The organisational set-up for the Support Flagship was operationalised by the Units/ Department graphically illustrated with the associated human capacity in Chart 4.10. The alignment of the Departments/ Units with the Flagships is approximate since it is difficult to draw sharp organisational boundaries based on departments in programmes that support interventions that are embedded in complex innovation systems. Overlaps in the themes/ disciplines covered by the Flagships is inevitable and requires more complex management arrangements. It was outside the scope of this assignment to undertake a functional analysis of the adequacy of the staff for the management tasks at hand. However, given the exponential growth of the RUFORUM membership in the period of the 2018 - 2022 Operational Plan implementation, it is not unreasonable to assume that the workload has also grown both quantitatively and qualitatively - and possibly outgrown the existing human capacities. It was evident to the assessors that the increasing workloads of the Secretariat staff are already affecting their efficiency as well as their personal lives. There is therefore a need to undertake a functional analysis and, if necessary, restructure and/or enhance the capacity of the Secretariat

Chart 4.10: Secretariat and Flagship management

| DEPARTMENT/ UNIT | | TAGDev | CREATE | RANCH |
|------------------------------------|------------------|--|---|-------|
| Training & Community Development | | * Technical Specialist-Youth Development & Community Engagement (<i>June 2019</i>); * Technical, Vocational Education & Under-graduate Training * Manager, Training & community development; | | |
| Research and Innovation | | | * Manager, Research & Innovation; * Technical Specialist-Staff Development & Academic Mobility (<i>June 2019</i>); * Technical Specialist, Research & Development | |
| Regional Anchor Universities (RAU) | | | * Manager, RAU; * Technical Specialist, Graduate & Post-Doc; * Technical Specialist RAU | |
| KNOWLEDGE HUB | | * Technical Specialist, Knowledge Management; * Manager Knowledge Hub; Technical Specialist-Corporate Communication and Advocacy; * Systems Administrator; <i>and</i> , * Systems Development | | |
| S U P P O R T | Partnerships | Technical Specialist-Development & Partnership | | |
| | Management | * Executive Secretary (ES) (<i>pre-2018</i>); * Deputy ES - Planning, Resources Mobilisation & Management (<i>June 2019</i>); * Deputy Executive Secretary-Programme Development & Implementation (<i>June 2019</i>) | | |
| | PMEL | Technical Specialist, Planning Monitoring Evaluation & Learning (PMEL) | | |
| | Finance & Admin. | * Systems Accountant; * Manager, Finance & Administration; * Senior Finance Officer; * Finance Officer; * Internal Auditor; * Administrative Assistant | | |

4.5.4 Outputs of advocacy, partnerships and alliances development activities

4.5.4.1 Partnerships actualised

RUFORUM has partnership agreements/ MoUs with twenty-eight organisations. Twelve of these partnerships were formed in the OP period. Fourteen of the partnerships yielded twenty tangible results. Seven of the partnerships were aligned in some way with the TAGDev Flagship. One key informant opined that, in addition to the well-articulated Flagships, the pre-existing partnership with the Mastercard Foundation acted as a magnet for other partners to pitch in and support the transformative agenda of the 2018-2022 OP. Many of the partnerships appeared to be inclined towards the K-Hub and Support Flagships suggesting that they (the partnerships) had systemic impacts. Given that the transformative agenda of the Operational Plan is strongly oriented towards entrepreneurship, it is noteworthy that partnership with private sector actors is conspicuously missing.

4.5.4.2 Policy-level outreach and awareness built

The outreach and awareness building for policy makers that RUFORUM has undertaken is very comprehensive. Overall, there was a consensus among Key Informants that RUFORUM has acquired the premier advocacy role in bringing the voice of Higher Agricultural Education to the highest policy-making levels at national, regional, continental and global levels. This is attested to by the communiqués that are made at the end of Ministerial dialogues. They provide reference points that countries can use to elaborate their HAE and STI policies and also collaborate in implementation and monitoring progress as well as sharing experiences and lessons. Key informants further concurred that the engagement with policy makers at different levels, are projecting the status that RUFORUM has acquired in the arenas where policy-relevant frameworks and initiatives are made. The notable engagements include: a RUFORUM exhibition for Heads of state at the C10 Summit in Malawi; four inter-ministerial meetings/ roundtables/ dialogues; participation (as a co-sponsor) in First Annual General Meeting of the Eastern Africa Parliamentary Alliance for Food Security and Nutrition; direct engagement with the Government of Uganda and that of Benin; participation in the AU Third Ordinary Session of the Specialised Technical Committee on Education, Science and Technology; hosting of dialogue platforms for senior African member states government officials, relevant Commissions at the AU, the CAADP and the European Commission; and co-organising a high-level event on *“Promoting inclusive rural transformation in Africa: Evidence in favour of improved coherence between social protection and rural development policy.”*

4.5.4.3 Donor coordination and sensitisation attained

Donor coordination cannot be done in abstract but, rather, it is done in the presence of well-defined agendas, strategies, programmes and projects. The Flagships provide the first level at which the coordination and consultations can be done. Within the Flagships it has attempted to bring together donors around well-defined initiatives over which there is political and technical consensus, namely the five continental initiatives agreed upon Ministerial meetings, namely SHAEA, BASTIC, SASTIE, RISSCAW and AfriDAP. There is no guarantee that all donors will align with these initiatives and there will be times that RUFORUM will have to be pragmatic and accept to work with donors outside these initiatives. However, the fact that the Flagships and the initiatives are in place gives a high level of confidence that donor coordination will be possible. At a general level, the engagements that RUFORUM has had with donors have conditioned the environment for further engagements. Notable among these are the development partners meeting that it co-convened in Morocco to provide a platform for dialogue between the African tertiary education sector and the global and African development partners to chart a way forward on AHESTI; the presentation of AHESTI approaches during the Tenth Anniversary of the FAO-China South-South Cooperation Programme; and the brainstorming meeting to explore funding

opportunities available in Europe for Europe-Africa partnership in research and capacity building projects that it organised in partnership with AGRINATURA.

4.5.4.4 Awareness built for development actions

The immediate tangible outputs of the diverse and sustainable engagements that RUFORUM has had with other development actors are the networks into which it has embedded itself. These are the foundations for building future partnerships and joint efforts to mobilise resources. These are outlined in different sections of this report. The broader building of awareness can be assumed to have been attained to different degrees by the engagements it has had with the broader universe of development practitioners to enhance their awareness and increase their support for its agenda in particular and Higher Agricultural Education in general. To this end, RUFORUM commissioned country case studies on science technology and innovation (ST&I) and uses the results to engage with development practitioners – such as is done at RUFORUM conferences. It hosted Higher Agricultural Education National Days in Liberia, Mali and Zambia which brought together policy makers, government officials, academia, private sector and community leaders. Through the National Forums of Mali and Zambia, it brought together policy makers, the private sector and higher education institutions for enhancing awareness of the development of higher agricultural education in these countries. Furthermore, it was a co-organiser of an event that provided a platform for open dialogue between smallholder farmers and key stakeholders, including universities, the private sector, civil society, policy makers, and researchers. It also organised a meeting of its partners under the theme: *“Promoting Equal Opportunity in Youth Employability and Entrepreneurship in Africa”*.

RUFORUM has endeavoured to ensure presence at fora at which Higher Education issues are deliberated upon. It was represented at the High-Level Forum of International Cooperation on Agriculture and the second Forestry Education Technology & the Annual Conference that took place in China. It also participated in the 10th AGM of the Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA), and the 7th World Agricultural Prize Award hosted by Nanjing Agricultural University. It was one of the three international co-organisers of a Pre-2021 United Nations Food Systems Summit (UNFSS) entitled: *“Working together for resilient food systems: towards a Europe – Africa platform for research and innovation”*.

As regards **engagement with the private sector** - narrowly defined to refer to profit-making entities - the engagement is very limited if it exists at all. The caveat to this statement is that engagement with the so-defined private sector takes place at the programmatic level and is driven by the entrepreneurship-focused transformative agenda being promoted at universities. It may be an idea in the future to plug the university entrepreneurship hubs being established into intercontinental networks that can get them a stake at the policy table.

4.5.5 Outputs of resources mobilisation

4.5.5.1 Efforts made for resource mobilisation through proposal and concept note development

i. **Identifying opportunities and developing proposals for network-wide activities:** Mobilising resources for activities and projects that support the whole network or a consortium of member universities is a core function of the Support Flagship. In the 2018 – 2022 period, the Secretariat engaged with donors with proposals or ideas on a wide range of possibilities. The donors included National Governments of member universities, the Dutch Ministry of Foreign Affairs, the National Research Foundation (NRF) of South Africa, the Carnegie Corporation of New York, Dubai Cares, International Development Research Center (IDRC), the International Fund for Agricultural Development (IFAD), Swedish International Development Agency (SIDA) and the Arab Bank for Economic Development in Africa (BADEA). The Secretariat developed general proposals aligned with its initiatives and disseminated them

to development agencies. The initiatives included AfriDAP; SASTIE, BASTIC, University Engagement to Support Human Capital Development, Youth Employability and Entrepreneurship for Agricultural Transformation in Africa (YEEAT), and University-TVET agri-led rural transformation for shared prosperity in Uganda (UniTRAST).

ii. **Identifying university-specific opportunities and supporting the universities to develop proposals:** The RUFORUM Secretariat actively engaged in monitoring opportunities for funding for supporting member universities. Where opportunities were identified, it mobilised members through the relevant technical Flagship to form teams that were facilitated to develop proposals. The numbers reported in the quarterly reports for the 2018 – 2022 period add up to 110 teams mobilised and development of 72 proposals supported. In addition to responding to opportunities, the Secretariat supported the universities to proactively develop and submit proposals to funding agencies. The areas that were focused on included climate smart innovations in the livestock value chain in the northern communal areas of Namibia; resilient finger millet for low resource production in Uganda and other dryland tropics; developing a phytosanitary knowledge and training hub (PhytoKaT) in South Africa; and, piloting an Agri-Food Mentorship and Coaching Program for Africa. The Secretariat also acted as a catalyst in initiating discussions between member universities and their governments and funding agencies to support implementation of the AHESI.

iii. **Identifying and pursuing opportunities for Secretariat capacity development:** The Secretariat developed a proposal to the BRIDGIN Foundation for the construction of RUFORUM Secretariat headquarters with support from the Government of Uganda.

iv. **Establishing sustainable funding mechanisms and instruments** Under the Support Flagship priority action area of focus on: “*Resource diversification and investments*”, there was an expectation that mobilising funding for RUFORUM projects and programmes would include establishing sustainable funding mechanisms and instruments. The only evident thrusts in this area were sustaining the mechanisms that were previously in place, namely: investing RUFORUM Trust Funds as well as depositing unutilised grant funds and savings from salaries on interest-generating fixed deposit accounts. The complete data of revenues generated through these mechanisms from 2018 - 2022 could not be obtained.

4.5.5.2 *Assessment of efforts made for resource mobilisation*

The resources mobilised between 2018 and 2021 are presented in Table 4.3 alongside the estimates that were made in the OP. The Secretariat mobilises resources which are: (i) Managed directly by the Secretariat, (ii) Managed by other partners or its members with the Secretariat receiving a portion of the funds as an implementing partner; and (iii) Managed solely by the universities without any funds coming to the Secretariat. In all the three cases, the RUFORUM Secretariat invests funds and staff time in either developing the proposals, convening the write-shops or advocating for the funds from funders that come through the Secretariat or directly to the universities. Funds from the World Bank to the Universities, specifically came through advocacy, proposal development write-shops convened and proposal review by the Secretariat. There is also cash and in-kind contribution from the universities to events such as the Annual General Meetings and Triennial Conferences that does not come to the Secretariat. Other funds come in piece-meal and may have not have been captured in the resource mobilisation database³⁵.

As can be seen, funds that were mobilised for all the Flagships except the RANCH were below what the OP considered as needed to implement the planned activities - the K-Hub being the most handicapped in this regard. The funds for the RANCH were mobilised late in the implementation period and therefore did not impact substantially on the activities and results of this Flagship.

³⁵ The funds that RUFORUM receives from DAAD were specifically mentioned as not captured in the database.

Table 4.3: Resources mobilised

| Total mobilised by Secretariat | Total mobilised by/for Universities | TOTAL Mobilised | TOTAL OP Estimates (2018 - 2021) | Funding gap (%) | Major Donors |
|--------------------------------|-------------------------------------|-----------------|----------------------------------|-----------------|---|
| TAGDEV | | | | | |
| 31,947,593 | 3,785,526 | 35,733,119 | 52,536,000 | 32% | MasterCard Foundation; African Development Bank; Bill and Melinda Gates Foundation; Carnegie Cooperation of New York; European Commission Erasmus+ Capacity Building in Higher Education; Food and Agricultural Organisation of the United Nations (FAO) |
| CREATE | | | | | |
| 14,937,460 | 21,160,111 | 36,097,571 | 43,300,000 | 16.6% | Canada's International Development Research Centre (IDRC); Food & Business Applied Research Fund (ARF) of the Netherlands Ministry of Foreign Affairs; Bioinnovate Africa; African Development Bank; Ministry of Primary Industries of New Zealand; United Kingdom Research and Innovation Programme; Intra Africa Mobility |
| RANCH | | | | | |
| 70,000,000 | 73,419,032 | 143,419,032 | 50,990,000 | -181.3% | World Bank |
| K-Hub | | | | | |
| 5,789,896 | - | 5,789,896 | 16,983,880 | 66% | European Commission; Arab Bank for Economic Development in Africa (BADEA) and Common Wealth of Learning |

Source of Data on Resources mobilised: RUFORUM Finance Unit

4.5.6 Monitoring evaluation and learning

The Support Flagship is largely a reactive entity that responds to the needs of the other Flagships. As such, its performance is reflected in the attainment of the KPIs by the other Flagships. The core activities are therefore the implementation of the Performance Monitoring Framework (PMF) that gives the KPIs and **in some cases the targets** against which the actuals attained are assessed. The PMF acts as a base document for formulating M&E frameworks for individual projects. **It is not structured in a way that is obviously aligned with the Flagships and, for this assessment, the alignment was derived from the reporting responsibilities assigned to the Flagship except in the case of TAGDev that had a standalone PMF Framework.** The main outputs from implementation of the PMF were:

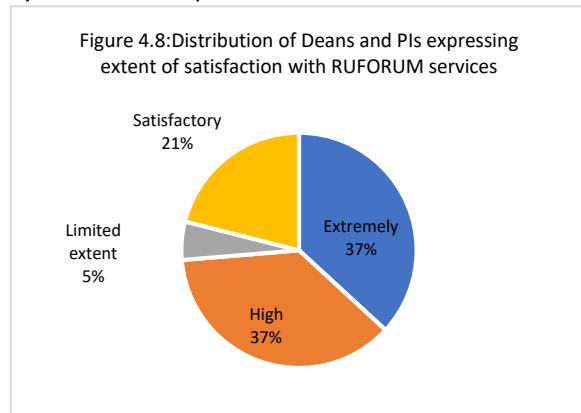
1. Annual performance monitoring plans by the different Flagships;
2. Resources for Quarterly reviews to assess progress towards achieving annual targets by the Flagships;
3. Information and data for reports including those to the Board and AGM;
4. Information and data to support evaluation and learning events;
5. Responses to ad hoc requests for data and information about RUFORUM activities.

Some key informants from the network expressed the view - shared by the team that undertook this assessment - that the PMEL Framework demands collection of data that does not fit into what can qualify as "Key Performance Indicators". Therefore, it may be necessary to review the indicators so that effort of data collection becomes less onerous and more focused. Furthermore, if the Flagships embrace all the work that the Secretariat undertakes and from which the impacts in the ToC materialise, considerations should be made of aligning the PMEL Framework directly with the Flagships.

4.5.7 Outcomes of the Support Flagship

As previously indicated, Support Flagship is largely a reactive entity that responds to the specific needs for support by the other Flagships. As such, the outcomes of all the supported Flagships have stands that originate from the Support Flagship. However, there are systemic needs for all the Flagships that are addressed by the Support Flagship. They relate to having a conducive internal and external environment in which to operate. In the 2018 - 2022 Operational Plan implementation period, the Support Flagship has generated outcomes that particularly condition the environment for the RUFORUM network to be impactful in the African Higher Agricultural Education space - albeit that many of them were built on the foundations that had already been built. The outcomes that were found in this assessment to be most profound and to be largely attributable to the Support Flagship are outlined below:

1. Enhanced global, regional and national profile of RUFORUM: Key Informants and survey respondents concurred that the activities implemented through the OP have enhanced the profile of RUFORUM as a continental organisation. This is evidenced by the growth of its constituency of member universities and its participation in continental and global fora as the amplifier of the collective voice of its members as well as becoming the gateway for potential international development agencies and partners to reach universities. This outcome is buttressed by the robust governance and management systems and capacities that meet international standards. Majority of Deans and Principal Investigators



who responded to the on-line survey during this evaluation expressed satisfaction with the services provided by RUFORUM (Figure 4.8). It is noteworthy that many Key Informants also attributed the enhanced profile of RUFORUM to the charismatic leadership of the Executive Director and the professionalism of the Secretariat staff - so much so that there were concerns that change of leadership in the future may disorient the network if not managed properly and that if the attractiveness of RUFORUM as an employer is not sustained so as to retain and recruit high calibre staff, its profile might be dented.

2. Growing attention to issues pertaining to African Higher Agricultural Education and ST&I and heightening awareness on the need to invest in higher human capital development in these fields. RUFORUM is continuing to be a vehicle for uniting member universities in Africa to come up with a common voice on issues. Key informants noted that the way RUFORUM has advocated for Higher Agricultural Education and, of recent, ST&I is very commendable. This was more-less an abandoned/orphaned subject. The outcome is that issues of HAE and ST&I are more visible to a wide range of actors at national, regional, continental and global levels. This visibility is not tooted into the abstract but, rather, in the interventions that RUFORUM supports.

3. Increasing awareness of the challenges of human capital development in Africa and the associated need to strengthen capacities of African Universities: Stakeholders agree that engagement with political leaders and policy makers at all levels - especially the Ministers responsible for Education, Agriculture, Science, Technology and Innovation - and with development partners and donors is now becoming sustainable and is continuing to be impactful in surfacing the challenges of human capital development for agriculture in Africa. The foundation for this is the legitimacy that RUFORUM has reinforces as an Africa-owned network with a credible track record and systems for advocacy.

4. Momentum generated for doctoral work in HAE and ST&I in the member universities. Through the vibrancy that RUFORUM has generated by effectively supporting doctoral work in focus faculties (716

PhDs so far) and the ensuing improvement in the quality of staff the momentum has been generated for the faculties to continue doctoral training. The graduate training and research are also noted to have stopped being elitist as they were previously, and are now linked to the local contexts - and therefore having higher chances of having development impact. Furthermore, graduates from African countries have gained more confidence in enrolling for doctoral training in African universities.

5. Exposing the challenges of funding for post-graduate education and research at universities: RUFORUM has succeeded in offering a range of sub-grants and or scholarships which address needs at different levels of university education within both public and private universities. Governments in most of the countries with RUFORUM member universities do not support research. Their funding is mainly for supporting staff salaries in public universities. Private universities are particularly handicapped when it comes to supporting post-graduate training as the true market rates for higher education are out of reach for individuals and private sponsors. This outcome of exposing the magnitude of the gap in funding post-graduate education and research at universities is significant. If it is acknowledged that holders of post-graduate degrees are crucial for development, there is a justification for RUFORUM to intensify advocacy for policy changes in this area - not least because there is growing expectation from members for RUFORUM to continue to filling the gap.

Text Box 4.21

“Government is not funding the graduate students. All those we have are through scholarships or private funding. Need for a lot of advocacy for the countries to take this up and invest.” *(Dean from member university in Uganda)*

6. Synergies in resource utilisation: The proof that RUFORUM has shown that it is possible to create synergies between universities by enabling them to share resources especially staff is energising the universities to break down barriers rooted in inter-university competition and hence formalise relationships that foster synergies (constructive competition). There are examples to learn from RUFORUM activities where peer support from universities with higher capacities and well-established programs supporting the weaker ones through the GTA scheme, academic staff mobility, as well as other collaborative capacity building and research projects. These were highly appreciated by the stakeholders in this assessment. Key informants noted that RUFORUM has been a vehicle for enhancing intra-Africa interactions among universities. By facilitating academic mobility, RUFORUM is playing a crucial role in helping to break barriers along language blocks and catalysing the coming together as well as sharing of resources. The culture of visiting lecturers from member universities as well as collaborative research and collaborative supervision of graduates is taking root and is greatly valued by the young universities. Interestingly, coordination and collaboration among member universities in the same country is not happening to the level that it could.

7. Enhanced partnerships: Partnership remains a key delivery mechanism for catalysing and increasing impact within the development context in Africa. RUFORUM has helped African Universities to realise that they can support each other and that collectively (as a common market), they have a wide range of post-graduate and research options to offer and that there is an internal market for their offerings. The GTA program has been applauded as a good and innovative initiative that enhances partnerships to emerge. It is credited for having helped some of the member universities to fast-track training of staff at PhD level although operationalising it sustainably is still a challenge.

Text Box 4.22

“We may be behind schedule in terms of reaching the set targets, but we will get there.” *(RUFORUM Board Executive member - a woman)*

“Due to GTA, human capacity building in our institutions that we were lacking support for graduate training programs is coming up very well.” *(Vice Chancellor of RUFORUM member university in Uganda, a man)*

“GTA concept is very good, it encourages mobility and staff development for the relatively young universities and networking but it requires funding.” *(Dean, from a member university in Uganda)*

“GTA has helped Mzuzu University to fast-track training of 5 staff at PhD level.” *(A Director of Research, Mzuzu University).*

8. Emergence of African Centers of Excellence. Much as the RANCH Flagship was not able to deliver substantially on establishing RAUs or Higher Education Centers of Excellence, some are emerging as offshoots of RUFORUM Regional Training Programs. For instance, Makerere University Regional Centre for Crop Improvement (MaRCCI) has evolved into a platform for continued building of human capacity development in this area. By time of this evaluation MARCCI was in process of recruiting 7 PhD candidates. It is also working with Seed Systems Africa (formerly AGRA) to train Eritreans and Somalis.

Text Box 4.23

“We have gained confidence that we can do it, as RUFORUM RTP provided the opportunity to learn the ropes of doing it right and doing it better, mobilising expertise from different parts of the continent and thus rationalising resources to support the capacity strengthening at graduate level. We have gathered scattered expertise to help deliver the capacity building. From becoming a COE, MARCCI is now a host centre for the African led and World Bank affiliated Partnership for Skills Development in applied Sciences, Engineering and Technology (PASET). PASET provides basket funding to various universities to support PhD scholarships. It targets to train 1,000 PhDs in Africa, and MARCCI was chosen competitively to run its plant breeding training program for the foreseeable future.”

(Director MARCCI)

9. Integration of agricultural education value chains: The drive by RUFORUM during this Operational Plan implementation has generated momentum that is continuing to propel integration of universities and TVET institutions. This will be accelerated by the realisation that uptake of research outputs (technologies, strategies, and information) produced by universities can be catalysed through TVETs. Key informants appreciated the program of engaging TVET students in product and service development around research outputs done by the graduate students in universities and called for such engagement to continue.

Text Box 4.24

“The link between university and TVET institutions is very good. This has facilitated mutual learning among staff of the universities and participating TVETs as well as students from both categories of institutions.” *(Source: University member of staff - a female).*

“Students who get the TVET certificates from the collaborating institutions should accumulate credit to enable them join degree programs, and spend less time for their Bachelors.” *(Source: Board Executive member, a female)*

10. Linkages with the global HAE universe: The convenings that RUFORUM has supported for member universities to partner with institutions from other parts of the world to write grant proposals is beginning to initiate a next phase of RUFORUM growth from being introverted within Africa to reaching out to universities in other continents. One Key Informant who has been associated with RUFORUM since its inception and continues to champion its causes was of the view that moving to this phase needs to happen not least because RUFORUM has won trust of many international development partners and donors. Its involvement in the grant proposals as an associate implementing partner enhances credibility of the member university teams thus increasing odds of winning.

11. **Developing a fund mobilisation and management service for member universities:** With the much-appreciated credibility and track record that that RUFORUM has gained as fund mobiliser and manager during the implementation of this OP - and before - one institutional outcome that is desirable - and is already happening to some extent - is for it to become a service provider for resource mobilisation and grants management not simply out of altruism for ensuring the functioning of its members but out of a need to partially transform its business model to that of being a broker with self-interest.

Text Box 4.25

“(RUFORUM) has built confidence and trust of the donors and development partners. Over the years it has built a good reputation of working with different donors. How to talk to donors so as to mobilise funds, you can have the best ideas, but if you do not get funds, it will not work.” (Source: *Former VC of a member university*)

5 OVERALL ASSESSMENT OF COHERENCE

The OP is coherent with a number of global/ regional/ continental/ national development policies, priorities and agendas some of which have been highlighted in Section 3.1.2. Most significantly, is the coherence with the needs of universities as vividly evidenced by many of them joining the network in the OP period. The outputs of the TAGDev flagship implementation illustrate the synergies between communities and universities as both tap into their resources and facilities for their mutual benefit in training, research and incubation of ideas and technologies. Field attachments enhanced the students’ technical agricultural skills and enabled them to obtain insight into farmers’ indigenous knowledge. The coherence was validated by the findings through key informant interviews and the survey that the stakeholders concur that curriculum content and delivery changes that the Flagships - particularly the TAGDev - are nurturing graduates who are oriented to rural community-level needs including entrepreneurial approaches to addressing them.

The factors that favored coherence were in-built into the conceptual underpinnings for the OP. The ones that were validated to have been operationalised include:

- Engagement with and satisfaction by commercial and smallholder farmers as well as with the key stakeholders in the private and public sectors operating at community levels;
- Networking/ collaborating/ partnering with a wide range of actors in the education ecosystem - especially the TVETs, primary and secondary schools;
- The convening of meetings where Development Partners develop consensus with other stakeholders on joint support mechanisms for developing human capital to address Africa’s high-level skills constraints especially the critical issues of ensuring gender equity in HAE, and balancing the interventions for enhancing food and nutrition security with those for conserving agro-ecosystems in Africa; and
- Engagement with both the AUC Education, Science, Technology & Innovation (ESTI) and the Agriculture, Rural Development, Blue Economy and Sustainable Environment (ARBE) Directorates to take advantage of the opportunities focusing on capacity building collaborative engagements.

Evidence of coherence with national governments is illustrated by the progressive endorsements of the RUFORUM Charter which will give RUFORUM the legitimacy to be an implementation Agency for Higher Education training in Agriculture and ST&I in their countries. Furthermore, representatives from 18 governments who attended a ministerial round table meeting held during the 15th AGM urged the Africa Union Commission to request inclusion of RUFORUM in funding opportunities to Africa and called for

development Partners to support/ continue to support investments in HAE, Science, Technology and Innovation in Africa.

With specific regards to coherence, going forward RUFORUM will have to consolidate and strengthen the alignment it has initiated with TVET institutions and schools and the leadership status it has acquired in policy engagement at national, regional and continental levels. However, with time it will need to determine, as a continental body, the relative intensities of emphasis that it needs to give coherence at the different levels for maximum systemic impact. On the extremes, the balancing has to be between coherence with high-level continental/regional/ national policy agendas that have a potential to radiate to operational levels at universities, or whether to prioritise coherence at university and community levels in the hope that they will generate the pressure to induce coherence at the higher levels. It is not an either-or issue but one of prioritising emphasis for maximum impact on coherence.

The above notwithstanding, coherence through the community engagement paradigm will remain a given. To ensure that it happens, universities will need to develop a sharper focus on interventions that are driven by local indicators for community transformation. This will require that the community engagement should be grounded into the vision and transformation roadmaps with milestones that the communities and/ or individual households have developed participatorily in-situ. It would therefore be an imperative for students who engage with the communities not to just have abstract knowledge and skills but to have contextualised them to the visions and roadmaps. The monitoring processes for the community engagement would therefore need to focus on both student learning and community transformation.

6 OVERALL ASSESSMENT OF EFFICIENCY

This criterion focused on examining the extent to which the mechanisms used for OP implementation exploited synergies, use of measures to improve cost effectiveness, and the appropriateness of resources used for administration and monitoring of projects. The evaluators have gained the impression that the mechanisms used for OP implementation foster efficient use of available resources and in a cost-conscious way. This is based on the following observations:

- RUFORUM management is well structured, experienced and supports the execution of OP interventions. Technical and financial accountability reports are prepared by RUFORUM grantees as well as project/activity implementers and submitted to the Secretariat financial unit for due diligence. Audited financial statements are prepared by the Secretariat, reviewed by the Finance and Administration Committee of the Board and approved by the Board members during the Annual General Meetings. Realisation of activities followed the annual activity workplans and this is indicative of effective planning.
- Updating the operating system for the RIMS and shifting from APTIVET which was difficult and expensive to maintain is indicative of cost saving operations. It also strengthened the capacity of Secretariat staff to manage the system and routine troubleshooting. The implementation of activities in ways that allow them to contribute to realisation of outputs in different flagship programs exploits aspects of matrix management which increase efficiency. For instance, an on-line training on entrepreneurship contributes to TAGDEV and CREATE in terms of the skilling aspects, and to K-Hub due to the nature of the platform used for engagement.
- By evolving its means/platforms of engagement from the predominantly face-to-face to dual engagement through on-line platforms and face-to-face meetings. RUFORUM has developed its capacity to effectively manage this shift and deliver successful events. This is greatly appreciated

and applauded by the stakeholders. Utilisation of ICTs enabled governance and the Secretariat activities to continue even during the COVID-19 local downs as well as continued engagement with member universities through webinars virtual meetings and trainings. This also enabled engagement of many stakeholders and relying of proceedings to many more people during the 2021 Triennial Conference in Benin in spite of the COVID-19 pandemic and the associated restrictions on travel and social distancing. By utilising ICTs to offer continental wide complimentary trainings in specific themes across member universities, there has been enhanced efficiency of outreach to more participants than what would be possible through face-to-face trainings. Creation of the Regional e-learning platform will further enhance RUFORUM's efficiency to deliver the courses in an efficient manner.

Prior to the COVID-19 outbreak, all PhD defences were usually done physically/ face-to-face. International students left the countries where they studied/hosting countries after submitting their theses. Due to travel constraints caused by the pandemic, RUFORUM advocated for and facilitated the reform allowing for virtual defence so that students would not bear the cost of travelling back to hosting universities.

- Enhance resource sharing and The engagement mechanisms such as establishment of research chairs, academic mobility, GTA scheme provide opportunities to share resources and speed up the process of getting African universities to work together. With guidance of its Board, RUFORUM initiated a mechanism that allowed stronger members to train weaker members at local costs which is a win-win for both categories of universities. The more established/stronger universities enhanced their internationalisation agenda while the weaker universities were able to train their staff at lower cost than it would have been if they were to pay charges for international students.
- **Foster benefitting from economies of scale.** Enhancing networking and solidarity among member universities thereby facilitating access to resources which would otherwise have been difficult for individual universities on their own to find easily. The peer-to-peer support has enabled younger/smaller universities to access support to developed graduate training programs at minimal cost which would have been costlier if they were to engage the resource persons on their own. Key informants noted that universities now have a bank of internal and external supervisors of research and external examiners. They can take advantage of colleagues from other universities to support them in supervision and benefit from their experience. Development partners outside Africa who are interested in RUFORUM's work can be a source for resource people.
- Use of staff of member universities as resource persons to deliver short skills enhancement courses represents double investment in the system. The staff who serve as resource persons further improve their expertise and CVs in addition to earning income while the trainees are trained by people who are within the network and they can further engage with them in future.
- **Leveraging resources from member universities and their governments.** Synergies exploited between RUFORUM, its members, and their national governments as well as other partners enabled leveraging of resources (financial and technical expertise) in delivery of OP flagship program activities. Examples include leveraging resources from host universities and governments towards convening the AGM, and the Triennial/Biennial conferences. The Government of Kenya, and Benin contributed USD100,000 and USD 119,000 respectively towards the 2018 Biennial and 2021 Triennial conferences respectively. Key informants noted that the Government of Zimbabwe has committed to provide resources to support the hosting of the 2022 AGM. Member universities in the AGM or Triennial conference host country also support

participation of their students in the scientific side events; provide accommodation to the in-country students; and avail facilities to host some of the side events during the convenings.

Engaging with member universities to confound the capacity building in their institutions. For instance, RUFORUM engaged Mohammed VI Polytechnic University (UM6P) to collaboratively develop an e-learning platform through the Africa Digital Agriculture Programme (AfriDAP) under the support (both financially and in-kind) of UM6P. Botswana University of Agriculture and Natural Resources (BUAN) supported a short skills enhancement event on SDM for their staff and students while RUFORUM supported the trainers.

- **Exploiting synergy with local and international organisations to deliver on its program activities notably capacity building and advocacy for AHAE.** Examples include conducting training events on leadership; scientific data analysis software- R; as well as financial management and financial literacy in partnership with AWARD; MARCCI and Kenya Commercial Bank respectively. RUFORUM took advantage of international conferences such as the European Union Conference, FAO Food Summit, and COP 27 Conference to host tailored side events to engage with policy makers, donors and development partners to amplify what it is doing and urge for increased investment in African Higher Agricultural Education and ST&I.
- Taking advantage of convenings to bring together staff of member universities to jointly develop e-content and training materials for use as MOOCs on the Regional e-learning platform. The e-content for the courses and recordings of course delivery which were made available through YouTube are accessed and used as reference materials by students as well as lecturers from member universities who may want to offer similar courses. This reduces the time for lecturers in developing training content as they can quickly adapt the content to their situations.
- Supporting a larger number of students trained under the various fellowships and projects. For instance, although the 8 GRA-GRG projects were expected to recruit and train 16 MSc students (two under each GRG project), a total of 24 MSc students have been trained under these grants. Likewise, judicious and prudent use of resources enabled Egerton University under TAGDEV support to train 189 students (89 MSc and 100 BSc) more than the original target of 110 students (55 MSc and 55 BSc).
- Principal Investigators and other university staff involved in implementation of RUFORUM supported projects noted that administration, and reporting requirements did not constitute a burden to them. This was attributed to orientation on effective project management and implementation practices for grantees as well as the clear reporting guidelines. The technical progress reports are produced and uploaded into RIMS.

7 OVERALL ASSESSMENT OF SUSTAINABILITY

Sustainability at RUFORUM network level: Sustainability will come from fostering national ownership. The strategies that RUFORUM has inbuilt to foster national ownership include involving the VCs and Deans in its governance organs. The endorsement of the RUFORUM Charter by governments will entrench ownership at national level. RUFORUM has nurtured strong relationships with national governments as well as Ministries responsible for Education, ST&I, Agriculture, and Finance. Some of this engagement has involved networking and collaboration to seek support from development agencies. By undertaking advocacy for increased investment in HAE and ST&I with members of the governance organs and the member universities, RUFORUM helps to position them for continued engagement in the policy space. Likewise, facilitating advocacy by member universities with their respective Ministries of Finance and

Education to dialogue with prospective donors enhances national ownership and commitment to support HAE and STI.

Sustainability at member university level: The demand-driven nature of becoming a member of the network is a sustainability factor as is the fact that activities implemented at universities are underpinned by Memoranda of Understanding (MOUs) that have agreed provisions for exit strategies to ensure proper hand over to national institutions at the end of regionally coordinated projects. The management of implementation through the administrative systems and structures of the member university rather than setting up parallel structures and systems that will fall away at the end of the projects contributes to sustainability. RUFORUM's interventions have also enhanced the universities' organisational and institutional capacities in ways that were found in this study to be highly appreciated and therefore likely to be sustained. They include infrastructure, policies for graduate student management and for e-learning, university-wide community engagement, field attachment, integrating entrepreneurship modules in the academic programmes to enhance employability, and the value chain approach to research that goes beyond a focus on academic publications to direct community transformation.

The participatory way of engaging teams of member universities in a given country in the planning and organising for hosting of RUFORUM convenings enhances local ownership and builds capacity of the individual members of the Local Organising Committee in planning and managing of international events. Engaging teams of staff, post doctoral fellows, and graduate students from member universities and strengthening their capacities for writing grant-winning proposals has strengthened their appreciation of working in collaborative teams for regional projects. The "collaborative grant seeking" behaviour is likely to be sustained as illustrated in Text Box 7.1.

Text Box 7.1

Example of grant seeking behaviour likely to contribute to sustainability

"Participants of RUFORUM organised grant proposal writeshops which were tailored to seek funding from various donors were empowered with a better understanding of the processes and have since gone on to apply the acquired knowledge in writing other proposals. The project has positioned us to think differently and motivate our colleagues to mobilise more resources to undertake research."

(RUFORUM Alumni from a research institution in Uganda - a male).

Networking of leaders, and staff of member universities as well as graduate students and young career researchers through interactions during workshops, conferences as well as staff and student mobility and post-doctoral fellowship research teams is an effective mechanism for enhancing sustainability because it leads to formation of social networks that may endure. Likewise, CARP+ projects and embracing the retooling of staff from collaborating TVET institutions and resource persons from the local government institutions have enhanced the trust relationships between them and universities. The mutual learning among the different categories was applauded and considered to be a factor that will contribute to sustainability of working together to heighten awareness of the needs that will need to be addressed in joint engagements with farmers for community transformation.

Sustainability of the training programmes that have been developed shall be contributed to by the fact that staff who will deliver them were involved and that they were subsequently approved by all the relevant university organs. Their scaling out will be fostered by the fact that they were deliberately developed with a perspective of being adaptable to other member universities - and even possibly providing a foundation for centres of excellence. This is already happening with the training programmes that were developed under TAGDev by Gulu and Egerton Universities.

Areas where sustainability at the member university level may be undermined is adoption of e-learning, varied institutionalisation of GTA approach, and access to K-Hub services. Key informants intimated that, even when the pressure to adopt e-learning approaches was high during the COVID-19 pandemic, there

was passive resistance by some staff and even students to respond to the opportunities that were provided by RUFORUM. Such inertia is not uncommon when promoting new technologies, approaches and methods in any field. Incentives will have to be devised to accelerate adoption. Access to K-Hub services will require major enhancements in the platforms for sharing information in a more socialised way. The institutionalisation of the GTA approach will require RUFORUM to step back and diversify the ways in which it can be implemented. Overall, sustainability will require intensification of the sensitisation of stakeholders - especially new office-bearers, top-management, staff and students on the key tenets of RUFORUM and the opportunities it offers.

Sustainability at community level: The sustainability of the outcomes and impact will come from, among other things, the uptake of the products from research by community institutions. For example, such institutions have embarked on multiplying and selling quality seeds and or planting materials, and pig artificial insemination services thus facilitating continued farmer access to good seed. These community institutions are likely to continue to engage in these activities if, where necessary, the universities help them to find resources to bootstrap them as businesses as well as aiding them to sustain or find technology partners such as research institutions and higher-level private sector actors. The businesses started by the young entrepreneurs are also likely to continue.

8 GOOD PRACTICES THAT HAVE EMERGED AND LESSONS LEARNT

The good practices that have emerged and the lessons that have been learnt are presented in detail in Annex 5 with sufficient narrative so that it is not necessary to cross-refer to the main report to find out where they arise from. They are derived from the RUFORUM reports, opinions expressed by key informants and the survey. In summary, the good practices relate to the following:

1. Collaborative curriculum development and implementation
2. End-user engagement and focus in teaching and research
3. Grants management
4. Incentivizing young entrepreneurs and innovators
5. Organising development-oriented conferences in academic settings
6. Brokering networking, collaboration and partnerships
7. Coordination of rapid response mechanisms for dealing with crises
8. Community engagement

There were many lessons that were learnt during implementation of the Flagships. Some of the general lessons learnt were:

1. Resource mobilisation that is focused on individual flagships is challenging, rather resource mobilisation has to blend elements of different flagships and put them in a package based on the targeted donor. Retro-fitting the results from projects into the flagships then becomes another challenge.
2. Support and interventions from member states' governments are crucial for successful implementation of the flagships, scaling up the training and research investments as well as facilitating policy formulation and implementation. For instance, such government support was instrumental for the success in mobilising resources for the RAU through the ACEII AF.
3. The TAGDev programme illustrates one of the ways in which universities can garner greater government support by demonstrating their immediate relevance and effectiveness to development initiatives.

4. Application of online technologies is instrumental in facilitating RUFORUM's reach and engagement with diverse audiences but a blend of online and physical means of communication and engagement continues to be necessary because of varying propensities and challenges for different stakeholders to migrate to online means.
5. Initiation and sustenance of strong partnerships are essential for the effectiveness of RUFORUM's programs. For instance, partnerships will continue to be the lever for access to online and other resources for the resilience of higher education and response to the challenges generated by COVID-19.
6. The ability to innovate, pivot, adapt and cope is vital for continued implementation of the OP interventions at individual programme, institutional and network levels particularly in response to challenges like those posed by the COVID-19 pandemic.

9 CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE ACTION

9.1 Conclusions

9.1.1 Strategic objective 1:

Strategic Objective (SO) 1 was: *"To build synergy from networks of specialisation to develop quality human resources and capacity required to intensify and increase Africa's agricultural productivity and competitiveness"*. In the OP, it was to be pursued through the RANCH and the CREATE Flagships. The findings of this assessment indicate that major strides were made on the path to attainment of the SO - albeit that the major contributor was the CREATE Flagship. Impactful results were attained from supporting academic staff development, professional development of staff through the skills enhancement and exposure events, enhancing training and retention of MSc and PhD graduates in the continent, and fostering adoption of innovative teaching approaches in the member universities. Universities have generated research outputs that address development challenges, produced graduates who strengthen national research systems and interventions that catalyse community level development. Outcomes are beginning to emerge evidencing that member universities are achieving impacts at multiple scales and shaping HAE management and delivery in positive ways as well as rationalising resource use - especially use of expertise.

Mechanisms for developing and reforming curricula to promote continuous response to stakeholder needs in a rapidly changing environment as well as adoption of innovative teaching approaches were promoted and are beginning to be institutionalised. However, the National Forums which were expected to foster demand articulation and stronger communication between universities and the national stakeholders have not taken off in most of the countries.

Based on the evidence from this assessment, there is a strong justification for the CREATE Flagship to continue supporting capacity development for curriculum improvements and research in RUFORUM member universities. For this to happen, it will be necessary to undertake comprehensive experience capitalisation of the processes that have been used by the member universities through the communities of practice that have been engaged in the thematic areas supporting research and training.

There is also evidence that the capacities of RUFORUM member universities to undertake impact-oriented research through addressing real-life development challenges for the countries and small holder farmers has been strengthened in ways that simultaneously position the universities on the frontiers of international scientific research. An illustrative example, is the enhanced focus on research on greenhouse gases (GHG) - specifically, member universities and pilot countries adopting methodologies for estimating

GHG emissions from livestock farming systems thus positioning the countries to obtain data for use in making realistic estimates for reporting on the Nationally Determined Contributions to the United Nations Framework Convention on Climate Change (UNFCCC) while at the same time generating animal feeding models to support rational pasture use and management by smallholders so as to mitigate climate change.

Technologies and other research outputs from the PhD research grants and Post-Doctoral fellowships such as improved crop varieties also have potential for intensifying and increasing Africa's agricultural productivity and competitiveness as well as strengthening the continent's agri-food systems. However, for this to happen, it will be essential to strengthen engagement with the private sector. Hence, taking to scale the research outputs generated by university teams may not be as fast as it could be if linkages with private sector are made during research implementation. This requires facilitating supported researchers to create linkages with the private sector for transforming the outputs into products and or services. It is noteworthy, however, that this has started to happen through the TAGDev Flagship.

Although some research grants enabled some universities to improve certain research facilities, key informants noted that a lot is still needed to upgrade research facilities and infrastructure notably laboratory equipment to make the training more practical in the universities. Within the scope of the what could be done in this area within the framework of the OP, this was an outcome which was envisaged to materialise from the activities of the RANCH Flagship for which the expected outcome was: *"African Centres of Excellence and Academic Leadership with high standards of conduct in a field of agricultural and STI education, research, innovation and learning supporting other institutions to use and facilitate application of science for development"*. The RANCH Flagship did not take off effectively during the OP period. The support for five Higher Education Centres of Excellence in Malawi and Mozambique through the [ACEII-AF Project](#) came on stream in March 2022 and is therefore not expected to be consequential for generating outputs and outcomes in this OP period but promises major strides in the next OP.

One apparent oversight that was revealed through interactions with stakeholders, is that of training for technicians. This is essential if they are to match the changing requirements that researchers will be putting on them as the latter respond to new scientific challenges. Going forward, RUFORUM should consider also organising short skills enhancement courses for the technicians as staff of universities.

9.1.2 Strategic objective 2

In the OP, Strategic objective 2 was framed as: *"To ensure the products, processes and knowledge developed through university research directly respond to and are used by value chain actors in the agri-food system to catalyse transformation"*. It was to be explicitly pursued through the TAGDev and K-Hub Flagships. The results from the pursuit of this objective can be visualised as the energy that enables RUFORUM to go beyond human capacity development and generating research outputs to bringing about the overall change that RUFORUM the Theory of Change expects to take place, namely *"vibrant transformative universities catalysing sustainable development and inclusive agri-food system development in Africa"*. The TAGDev Flagship has contributed to this overall outcome in many ways that were verified in this assessment. It has put in place instruments - CARPs, RECAPs, nurturing grants, etc - that enable the Secretariat to deliver the outputs expected of it, namely: (i) enabling early adopter universities to institutionalise and provide proof of concept of community and entrepreneurship-centred curricula for producing development-oriented graduates, and (ii) strengthen their capacity to innovate on deploying students to work with research and business and development partners to generate, access and deploy innovations that support development. This has enabled the universities to start generating the outputs that in turn are expected of them in the Theory of change, namely: mainstreaming innovative teaching and learning approaches and curricula, producing proactive and skilled graduates who can influence the development processes at the country level, producing relevant innovations, products and

services, and institutionalising enabling policies, principles and practices associated with the qualitative features of the new curricular.

Evidence is beginning to emerge that where the TAGDev has influenced universities to generate the above outputs, graduates, communities and other stakeholders are beginning to undertake interventions that are likely to impact on agri-food systems. To wit, the start-up agribusiness enterprises are generating products and services that innovatively address societal challenges, and create jobs for other young people as well as wealth for community members. Uptake and continued use of the research outputs, knowledge and technologies by value chain actors and smallholder farmers indicates that the focus on participatory farm-level action-oriented research has positioned universities and their graduates to apply science, technology and innovation to better respond to client-felt needs and priorities as well as positioning research for use. The innovations produced by the research teams and the resultant products used by community members or private sector actors are indicators that the products developed through university research respond to and are used by value chain actors.

The above notwithstanding, a lot still has to be done. The efforts to take forward/ link research products from the various RUFORUM research grants into the agribusiness incubation centres and beyond were still in nascent stages, as were the commendable efforts to embrace TVETs, schools and the out-of-school youth. However, what has been achieved in these areas is eye-opening and much appreciated and therefore needs to be supported further to ensure stronger integration of the components of the agricultural education value chain and its cross-sectoral linkages to other components of the agricultural innovation systems. The biggest challenge going forward shall be moving from proof of concept in a few early adopter universities (fifteen by the time of this assessment) to scaling up the innovative approaches so that they become integral to the modus operandi in the RUFORUM network. Already a community engagement strategy has been developed supported by guidelines for its implementation.

The K-Hub was expected to contribute to SO2 by generating outputs that would lead to: *“RUFORUM member institutions and affiliates collaborating, using up-to-date information to make substantial structural changes in the way HAE is organised and operated.* The K-Hub operated with a budget that was 66% below what the OP estimated it would need to deliver what was expected of it. This is a strong caveat that has to be borne in mind when considering the performance of the K-Hub. Upfront, it has to be stated that within this dire budget constraint, the K-Hub did a commendable job.

The K-Hub appears to have prioritized developing and enhancing online platforms for enabling the Secretariat to be in control of the flow of information within the network. However, these platforms do not have comprehensive social tools to enable network members to initiate and manage the way they communicate with other members, or to enable them to generate content (such as newsletters, training courses, standard publications, video and audio presentations). This is attributed to the fact that the OP did not expect the K-Hub to **necessarily** create new online tools and platforms but to develop smarter methods to activate existing ones to initiate or to develop network dialogue platforms.

At the core of facilitating systematic enhancement of access to information within the network, the K-Hub was to develop an open access portal with multiple functionalities and systems that would improve knowledge generation, management and sharing. This was not attained and therefore ease of access of information by users was constrained to some degree by the fact that they had to log into multiple online sites/ portals – in some cases requiring registration and authentication for each one. Nevertheless, even though the envisaged integrated open access portal was not realised, the tools and platforms that were put in place facilitated access to information within the limitation of their functionalities.

The OP expected that the K-Hub would facilitate universities to create knowledge platforms, knowledge hubs and knowledge management units so as to best respond to the knowledge demand by their

stakeholders and partners. A lot was done but outputs from the reported activities do not convincingly bring out these expectations as having been realised. This is especially so for the expected results relating to building member universities' capacities.

The K-Hub was expected to facilitate the use of the latest electronic means and diverse multimedia for teaching and to facilitate establishment of customised Virtual Learning Environments for students. On the side of the teachers, it was expected to ultimately lead to the emergence of communities of practice that would engage with students from multiple universities. It was also expected to facilitate universities in the use of Open Access software to provide complimentary agricultural extension and advisory services. In these areas, the activities and outputs generated indicate that effort was put in creating awareness on the use of ITs for teaching and for initiating the development of the capacities for teachers and learners to use ITs. The roll out to member universities the facilities and resources for deploying ITs for teaching was initiated but still has a long way to go. Regarding the aspect of creating awareness and developing human capacities, there only apparent area where some effort was directed was training in online content. More needs to be done to enhance use of ICTs for outreach.

The K-Hub relied heavily on the Repository for facilitating synthesis, documentation and dissemination of emerging lessons, best practices and innovations. In the OP period there was an increase of over 100% in the number of knowledge products that can be accessed from the Repository. While popular social media platforms are deployed in knowledge management by the K-Hub and the emphasis appears to be on disseminating information from the Secretariat and the members; they are not being used very effectively for strategic communication and engagement targeting specific audiences and influencers e.g. for purposes of resource mobilisation and advocacy. The power of social media in these regards is therefore not being maximally exploited.

The convening of the RUFORUM Triennial Conference is a very high-profile activity that has impacted on the visibility and influence of RUFORUM as well as enhancing the value that accrues to members from belonging to the network. It is turning out to be a vital activity that has to be sustained. It energises the sharing of information, knowledge, best practice experiences and evidence. Through the side events and networking opportunities it is beginning to crystallise out thematic groupings and communities of practice/ interest. The OP envisaged this and proposed that, as a catalyst, there should be knowledge sharing incentives. This aspect does not appear to have been addressed significantly.

9.1.3 Strategic objective 3

Strategic objective 3 was: *“To marshal resources and strategically allocate them to enable Africa’s universities to transform into viable institutional entities responsive to national aspirations and conditions through intensive knowledge-sharing and collective action.”* It was to be pursued through the K-Hub and Support Flagships. The conclusions made on the K-Hub under SO2 are pertinent to SO3. The specific focus of the Support Flagship in underpinning the pursuit of SO3 was: *“To enhance the relevance, legitimacy and viability of RUFORUM as a continental HAE network and effectiveness of its members to collaborate for implementing its programmes and be held accountable for results.”* The achievements of RUFORUM in the period before commencement of implementation of the 2018 - 2022 OP had already built a very strong foundation for SO3. The OP has taken the achievements forward and / or reinforced them in some specific ways. It has enhanced further, the global, regional and national profile of RUFORUM by projecting the transformative innovations in teaching and research. This is manifested by the growth in membership, national governments buying into the RUFORUM Charter, institutionalisation of regular engagements with political leaders and policy makers at all levels - especially the Ministers responsible for Education, Agriculture, Science, Technology and Innovation, the mandate from the African Union to be an implementing partner of the Action Plan for the Science, Technology and Innovation Strategy for Africa (STISA) and the stake as the voice of HAE in the 2021 United Nations Food Systems Summit 2021. The

Support and K-Hub flagships have enabled the projecting of ground-truth evidence - from the other Flagships - that African Higher Agricultural Education can be more relevant to development. This is likely to lead to more investment for promoting transformative agricultural training and research.

Overall progress has been made in marshalling resources through fostering the creation of communities and networks of practice by putting in place networking systems and positioning the RUFORUM Secretariat as a broker of relationships that trigger the spontaneous emergence of communities of common interest and practice. Collective action has been fostered through the inter-university linkages for resource mobilisation and supporting post-graduate training and research. RUFORUM has continued to demonstrate that it is possible to create synergies in these areas. Universities are sharing staff and teaching resources. This is proving to be very significant where RUFORUM funding instruments are enabling young universities to get support from more established or better-endowed universities as well as enabling partnerships to emerge in implementing training and research programmes. The RUFORUM Secretariat is gradually developing a de facto fund mobilisation and management service for member universities. It is not farfetched to imagine that over time this will become a core element of its value proposition. However, to avoid a mission creep from the core RUFORUM mission of facilitating the members to implement transformative teaching and research agendas and becoming consumed by mobilizing resources to support research projects in member universities, RUFORUM should focus on specific a few topics that are directly related to improving African higher education and research in the areas that can have wide systemic impacts on agricultural innovation and development in a relatively short time.

RUFORUM recognised in the OP that shortening the path from university training and research to development impact as a way of becoming more responsive to national aspirations and conditions through intensive knowledge-sharing and collective action will not be possible if HAE remains in a silo. It thus endeavoured to initiate the integration of agricultural education value chains by supporting universities to embrace and share resources with TVET institutions and - through them - reach out to the communities especially the youth. This has been successful especially in the two universities that were focused on (i.e. Gulu and Egerton universities). Much as this achievement is beginning to be recognised and admired, it is important to ensure that the knowledge that has been gained from this institutional innovation is capitalised and scaled up and out.

One challenge that has been exposed is that national policies for public funding of university teaching and research are not tailored for enabling sharing of resources. The idea of sharing resources by private universities in Africa is not plausible even if they see a value in it. Further pursuit of this aspect of SO3 will require strong advocacy for donors to continue to enable RUFORUM to sustain the funding instruments that catalyse it to happen by leveraging the limited in-kind resources that the universities may have.

A view was expressed that in the next stages of RUFORUM development, it will need to enhance the linkages with the global HAE universe - without compromising the commendable emphasis it has hitherto put on strengthening African higher agricultural education. The two are not mutually exclusive and can be creatively pursued in mutually beneficial ways. The convenings that RUFORUM has supported for member universities to partner with institutions from other parts of the world to write grant proposals is beginning to initiate this next phase of RUFORUM's growth. It should be strongly encouraged and supported

9.2 Recommendations

9.2.1 TAGDev Flagship

1. In the ending OP RUFORUM has mainly used grants that it has mobilized from donors to proactively support a few universities to adopt the community engagement and entrepreneurship transformative teaching and research approaches. Now that the concept has been proved to work, the next OP should put in place mechanisms for responding to member universities' needs for support and technical facilitation for adopting the models. This may, for example, include gradually replacing grant-funding mechanisms with competitive challenge-fund mechanisms as well as supporting universities themselves to develop proposals to donors for implementing the transformative approaches;
2. Before getting students to engage with communities, the universities should undertake visioning exercises with the communities and/or households, and put in place clear strategies for successive cohorts of students to keep building on the communities' or individuals' visions. In this way, it will become possible to assess the contributions that universities make to the communities over time;
3. (Linked to 2 above) the monitoring, evaluation and learning linked to engagements of cohorts of students with communities should go beyond the periods of engagement so that the impacts can be tracked over a longer time;
4. Establish a community of practice to provide foresight and thought leadership in the approaches that transform university teaching and research from being predominantly academic and scientific pursuits to being more directly linked to development processes;
5. Plug the university entrepreneurship hubs being established into intercontinental networks that can synergise them. Immediate networks to consider are the Pan-African Agribusiness & Agroindustry Consortium ([PanAAC](#)) and the African Agribusiness Incubators Network ([AAIN](#)).

9.2.2 CREATE Flagship

1. RUFORUM has embarked on a path that goes beyond human capacity strengthening for universities to embrace the diverse actors in the agricultural education value chain. Given that there are other players already active in these areas it is recommended that RUFORUM should strengthen its partnerships with these actors in implementing its next OP. An example is the African Forum for Agricultural Advisory Services ([AFAAS](#));
2. Institute measures to catalyze member universities to improve graduate student management processes. This will be critical for mitigating systemic challenges that cause delays in graduate student completion
3. Continue with the short skills enhancement courses for students and staff. Harmonize, scheduling of the short skills training courses offered on-line with the university calendars to ensure the target groups will have time to fully participate in the training. Also consider organising short skills enhancement courses for the technicians as staff of universities to capacitate them to match the changing requirements that researchers will be putting on them as the latter respond to new scientific challenges.
4. Foster institutionalization of GTA in member universities. This will require intensification of the sensitisation of stakeholders - especially new office-bearers, top-management, staff and students on the key tenets of RUFORUM and the opportunities it offers; and diversification of the ways in which GTA can be implemented in the different member universities.
5. Institutionalise the discretionary nurturing grant system for supporting capacity development at young universities;

9.2.3 RANCH Flagship

1. The concept of Regional Anchor Universities (RAUs) and Centres of Best Practices (CBPs) should be based on subservience to the realities of the member universities so that methods and approaches developed are easily scalable;
2. In developing RAUs and CBPs, RUFORUM should draw inspiration from and develop alliances with other institutions operating under similar realities from outside the continent - such as it has already done with the Earth University in Costa Rica;
3. Support the universities in advocating for counterpart funding for the establishment of RAUs and/or CBPs from the foundation bodies of the universities - whether public or private. This advocacy should surface the implication that establishing RAUs and CBPs comes with it a responsibility for supporting students from other universities;
4. Provide leadership in and champion the removal of the schisms that exist at all levels between agricultural education and research in national agricultural innovation systems.

9.2.4 K-Hub Flagship

1. More emphasis needs to be placed on developing governance systems for knowledge management and information security. To this end, it is recommended that RUFORUM should aspire to acquire certification for the [ISO 30401:2018](https://www.iso.org/obp/ui/#iso:std:iso:30401:ed-1:v1:en)³⁶ Standard for knowledge management systems and for [ISO 27001](https://www.iso.org/isoiec-27001-information-security.html)³⁷ Standard for information security management. This will increase the level of trust that users have in the RUFORUM knowledge products and services.
2. Implement the general expectation of the 2018 - 2022 Operational Plan to develop smarter methods to activate existing platforms including developing an open access portal with multiple functionalities and systems that would improve knowledge generation, management and sharing as well as easing of access to information and virtual social networking. Specifically, the K-Hub should conceptualise a virtual social networking platform that can be used as a hub for accessing multiple platforms through a single dashboard. The platform should be intra-operable with other platforms and also have the versatility to enable other/new tools to be integrated with time. Furthermore, it should have much more enhanced functionalities for socialized/ community network interactions, content generation/ co-creation and also have a “virtual marketplace” for brokering opportunities for funding research and innovation projects.
3. As was expected in the OP, the K-Hub should facilitate universities to create knowledge platforms, knowledge hubs and knowledge management units so as to best respond to the knowledge demand by their stakeholders and partners.
4. Develop and implement a social media strategy that, among other things, articulates KPIs for social media engagement outcomes aligned with the pursuit of the RUFORUM 2030 Vision;
5. Develop processes and mechanisms driven by agreed KPIs for tracking the use of disseminated/ broadcasted documents;
6. Broaden the scope of capacity development for use of online platforms for communication and engagement to embrace research and outreach needs - not only teaching, general communication and engagement;
7. As envisaged by the OP, devise incentives to catalyse knowledge-sharing incentives.

³⁶ <https://www.iso.org/obp/ui/#iso:std:iso:30401:ed-1:v1:en>

³⁷ <https://www.iso.org/isoiec-27001-information-security.html>

9.2.5 Support Flagship

i. Governance, stewardship and management

1. Develop criteria for categorising member universities based on organisational and institutional capacities as well as environmental externalities in which they operate. Apply the criteria to cluster similar universities and develop standard policies and strategies that can enable RUFORUM to apply differentiated affirmative actions in targeting interventions;
2. Identify the common services that all member universities equally benefit from and put in place policies and strategies that prioritise these as the core services that RUFORUM provides to members;
3. To avoid a mission creep from the core RUFORUM mission of facilitating the members to implement transformative teaching and research agendas and become consumed by mobilizing resources to support research projects in member universities, RUFORUM should focus on a few topics (“Flagship topics”) that are directly related to improving African higher education and research in the areas that can have wide systemic impacts on agricultural innovation and development in a relatively short time;
4. In the wide spectrum of potential areas of interventions needed to advance HAE in Africa - ranging from influencing HAE at university level to influencing high level continental policy issues - review/ articulate a value proposition that gives RUFORUM a well-defined niche. Otherwise there will be a continuous mission creep;
5. Commission a study on networked governance approaches to identify ones that can be piloted to increase the efficiency of governance processes, especially ensuring that all voices from the diverse members can be heard;
6. Operationalise the regional nodes and Country Chapters as a priority but do so in a cautious institutional and organisational action research mode that recognizes the diversity of the regional and national contexts;
7. Make it a standard practice to give “foreign” students a basic orientation to the social and cultural environments that they are going to work in so that they do not just experientially muddle through.

ii. Program management

8. The RUFORUM AGM and Board should come out more strongly with measures - including incentives and sanctions linked to compliance - that can lead to efficiency and harmonisation of student management processes at member universities;
9. Given the exponential growth of the RUFORUM membership in the period of the 2018 - 2022 Operational Plan implementation, there is a need to undertake a functional analysis and, if necessary restructure and/or enhance the capacity of the Secretariat;
10. The functionalities of the RIMS for monitoring progress of students funded by RUFORUM grants should be enhanced and each relevant manager should have a dashboard on the platform where the progress statuses of students of concern to them are surfaced so that, where needed, virtual interactions for devising remedial actions can be taken more promptly - including escalation to relevant higher management levels;
11. Given that, in programmes that support interventions that are embedded in complex innovation systems, it is difficult to draw sharp organisational boundaries based on departments, the Secretariat

should formally try out a matrix management³⁸ organisational arrangement which it appears to have been implementing informally or inadvertently.

- 12 Use the AGMs, Triennial conferences and other scientific convenings to support the formation of communities of practice and institutionalise them as a fall-back reserve mechanism for supporting programme management in technical areas including undertaking participatory thought leadership studies;
- 13 Make more concerted efforts to develop the capacities of member universities in critical management and operational areas in which they interface with RUFORUM. The capacity development should embrace all categories of staff involved in RUFORUM-funded projects in the orientation courses given to PIs.
- 14 Make efforts to understand the diverse causes of non-career related dissatisfaction in engaging in RUFORUM activities and take possible remedial measures to address them. Measures that could go under immediate consideration based on the findings including acknowledging and rewarding in material or non-material ways collaborators from national research institutes who supervise and/or mentor university students, and payment of stipends or performance-related incentives to PIs in universities.
- 15 Given the strong recognition by stakeholders that charismatic leadership and professional staff have contributed greatly to the high international profile that RUFORUM has attained, sustain efforts for making RUFORUM an attractive employer not only in terms of remuneration but also through improving the work-life balance of staff;

iii. Resource mobilisation & sustainability

- 16 To overcome the growing attitude of members regarding RUFORUM as a donor and that they are entitled to the resources it mobilises, place more emphasis on facilitating and brokering relationships between groups of universities and donors so that the universities are the ones that directly mobilise resources for the regional initiatives that they desire.
- 17 Member universities should make more efforts to have some of their activities integrated in national public and private projects and programmes. These activities include community engagement, community action research, TVET engagements, etc.
- 18 Commission a study on social innovation and crowdfunding in the higher education sector with a view to getting recommendations on the feasibility of developing a bespoke platform or linking to existing platforms such as can be seen here: <https://experiment.com/>.
- 19 Visibility and demonstrable impact are the drivers of resource mobilisation in mature networks. RUFORUM should therefore revise its current value proposition to one that is oriented towards attracting resources on the basis of its credibility and track record.
- 20 In the new paradigm that RUFORUM is promoting of many universities in very diverse environments networking to implement transformative teaching and research, there cannot be a one-size-fits-all mechanism of funding. This is a valid area for research. RUFORUM should, therefore, spearhead action research on institutional and organisational innovations for development for sustainability and resource mobilisation in networks.
- 21 More efforts should be made to mobilise resources for the Trust Fund as this is potentially a major mechanism for sustainable funding

³⁸ <https://gocardless.com/guides/posts/matrix-management/#:~:text=Matrix%20management%20is%20a%20form,both%20functions%20and%20project%20lines>

iv. Monitoring Learning and Evaluation

- 22 Undertake skills enhancement for detailed and rigorous impact assessments using rigorous protocols of the PMF.
- 23 Review the human capacity and ICT resource needs for implementing the PMF to ensure that they are quantitatively and qualitatively adequate to cope with the workload that will in all probability increase with the growth of the network.

Annex 1: TERMS OF REFERENCE

Extracted from the Contract

1.3 Objectives:

The overall objective of the evaluation is to provide a factual evidence-based assessment and appraisal the implementation modalities, level of outputs, achievements, and outcomes over the five year of RUFORUM's implementation of the Operational Plan 2018-2022. Additionally, the review will assess the outcomes following the OECD DAC revised evaluation criteria.

1.4 Scope and focus of the Evaluation

The evaluation will focus on the programme design, scope, implementation status and the level of achievement of the strategic objectives. It will collate and analyze lessons learnt, challenges faced and best practices obtained during implementation which will inform RUFORUM organization's learning agenda

1.5 Evaluation Questions

The evaluation inquiry will involve for standard areas of interest: relevance, coherence, effectiveness, efficiency, impact and sustainability – in respect to RUFORUM. The following key questions will guide the assessment:

- i. Relevance – (programme design and focus)
 - a) To what was the overall mission and vision of the RUFORUM achieved
 - b) What and how much progress was made towards achieving the outputs and outcomes under each flagship programme of the RUFORUM OP 2018-2022
 - c) To what extent were the results (outputs and outcomes) achieved?
 - d) Were the inputs and strategies identified realistic, appropriate and adequate to achieve the results?
 - e) Is RUFORUM relevant to address the identified capacity needs required to improve the productivity of Africa's agri-food systems?
- ii. Effectiveness: (Organisation Management Processes and their appropriateness in supporting delivery)
 - a) Is RUFORUM effective in delivering desired/planned results?
 - b) To what extent did organization M&E systems contribute in meeting results?
 - c) How effective were the strategies and tools used in the implementation process?
 - d) How effective was RUFORUM in responding to the needs and emerging issues of the beneficiaries? What were the mitigating measures and what results were achieved?
 - e) What are the future intervention strategies and issues?
- iii. Efficiency – (of Implementation)
 - a) Was the process of achieving results efficient? Specifically did the actual or expected results (outputs and outcomes) justify the costs incurred? Were the resources effectively utilized? What factors contributed to implementation efficiency?
 - b) Did RUFORUM activities overlap and duplicate other similar interventions (funded nationally and /or by other donors?)

- c) Were there more efficient ways and means of delivering more and better results (outputs and outcomes) with the available inputs? Could a different approach have produced better results?
 - d) How is RUFORUM collaborating with National Ministries, Agencies and Departments, and other development partners to leverage investment in Africa's Higher Education Sector?
 - e) How efficient are the management and accountability structures of RUFORUM?
 - f) How did RUFORUM financial management processes and procedures affect implementation?
 - g) What are the strengths, weaknesses, opportunities and threats of the implementation process?
- iv. Coherence
- a) Does RUFORUM duplicate existing efforts on the Continent and elsewhere?
 - b) Does RUFORUM undermine or supplement the effects of any existing initiatives?
 - c) Can RUFORUM succeed/fail if other initiatives falters?
- v. Sustainability
- a) To what extent are RUFORUM benefits likely to be sustained after the first phase of the Operational Plan 2018-2022?
 - b) What is the likelihood of continuation and sustainability of outcomes and benefits after the first phase of the Operational Plan 2018-2022?
 - c) How were capacities strengthened at the individual and organizational level (including contributing factors and constraints)?
 - d) Describe the main lessons that have emerged
 - e) What are the recommendations for the next phase of the Operational Plan (2023-2027) (NB: The recommendations should provide comprehensive proposals based on the current evaluation findings).

1.6 Methodology for Evaluation

The evaluation will be carried in accordance with the acceptable industrial Evaluation Policies and in full compliance to the Development Assistance Committee (DAC) Quality Standards for Development Evaluation. The evaluation will be summative involving both Qualitative and Quantitative methods.

1.6.1 Data collection

The evaluation will involve wide stakeholder participation including RUFORUM member universities through their Deans, Principals and Vice Chancellors, selected smallholder farmers, Principal Investigators, private sector, RUFORUM Partners and Regional and Continental Agencies. In order to promote the use of existing sources/information and avoid duplication, data will be mainly collected from various information sources through a desk review that will include the comprehensive desk review and analysis of relevant documents, information, data/statistics, triangulation of different studies, etc. Data will also be collected from stakeholders' key informants through interviews, discussions, consultative processes, and observations in field missions.

1.6.2 Documents for Desk Review

The desk review will focus on the following documents: RUFORUM periodic reports –Quarterly and Annual Reports, the previous outcome assessment report, thought pieces, Annual General Meeting proceedings, RUFORUM Biennial/Triennial Proceedings, RUFORUM Operational Plan 2018-2022, Mastercard Foundation proposal, RUFORUM Vision 2030; RUFORUM Tracer Study

Annex 2: OECD EVALUATION CRITERIA

| | |
|--|---|
| <p>RELEVANCE</p> <p>Is the intervention doing the right things?</p> | <p>The extent to which the intervention objectives and design respond to beneficiaries, global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change. Note: “Respond to” means that the objectives and design of the intervention are sensitive to the economic, environmental, equity, social, political economy, and capacity conditions in which it takes place.</p> |
| <p>COHERENCE</p> <p>How well does the intervention fit?</p> | <p>The compatibility of the intervention with other interventions in a country, sector or institution. <i>Includes (i) Internal coherence addresses the synergies and interlinkages between the intervention and other interventions carried out by the same institution/government, as well as the consistency of the intervention with the relevant international norms and standards to which that institution/government adheres; (ii) External coherence considers the consistency of the intervention with other actors’ interventions in the same context.</i></p> |
| <p>EFFECTIVENESS</p> <p>Is the intervention achieving its objectives?</p> | <p>The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups. <i>Analysis of effectiveness involves taking account of the relative importance of the objectives or results.</i></p> |
| <p>EFFICIENCY</p> <p>How well are resources being used?</p> | <p>The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way. <i>“Economic” is the conversion of inputs (funds, expertise, natural resources, time, etc.) into outputs, outcomes and impacts, in the most cost-effective way possible, as compared to feasible alternatives in the context. “Timely” delivery is within the intended timeframe, or a timeframe reasonably adjusted to the demands of the evolving context.</i></p> |
| <p>IMPACT</p> <p>What difference does the intervention make?</p> | <p>The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects. <i>Impact addresses the ultimate significance and potentially transformative effects of the intervention.</i></p> |
| <p>SUSTAINABILITY</p> <p>Will the benefits last?</p> | <p>The extent to which the net benefits of the intervention continue, or are likely to continue. This includes an examination of the financial, economic, social, environmental, and institutional capacities of the systems needed to sustain net benefits over time.</p> |

Annex 3: LIST OF STAKEHOLDERS CONSULTED

| | Name | Organization/ Institution | Designation | Contact |
|-----|---|--|--|---|
| 1. | Prof Emmanuel Kaunda | LUANAR | Vice Chancellor | ekaunda@luanar.ac.mw |
| 2. | Prof. Agnes Mwangwela | LUANAR | Deputy Vice Chancellor | amwangwela@luanar.ac.mw |
| 3. | Phillip Kaunda | LUANAR | University Registrar | Pkaunda@luanar.ac.mw |
| 4. | Dr. Precious Gawanani | LUANAR | Coordinator Open and Distance Learning Hub | pgawanani@luanar.ac.mw |
| 5. | Dr. Moses Chinyama | LUANAR | Director Natural Resources Campus | mchinyama@luanar.ac.mw |
| 6. | Dr. Tasokwa Kakota Chibiawa | LUANAR | Director Quality Assurance | tkakota@luanar.ac.mw |
| 7. | M.r C. S Malemba | LUANAR | Director Finance | cmalemba@luanar.ac.mw |
| 8. | Mr. Mudaniso Hara | LUANAR | Elearning Officer | mhara@luanar.ac.mw |
| 9. | D.r Bonet Kamwana | LUANAR | HOD Agribusiness Management Lecturer ABM | bkamwana@luanar.ac.mw |
| 10. | Dr. Francisco Chamera | LUANAR | Lecturer BASIC | fchamera@luanar.ac.mw |
| 11. | Ms. Beatrice Bwanali | LUANAR | ODEL | bbwanali@luanar.ac.mw |
| 12. | Dr. Ronnie Mvula | LUANAR | Lecturer ABM & Director Student Affairs | rmvula@luanar.ac.mw |
| 13. | Mr. David Tsambewe | LUANAR | ODEL | dtsambewe@luanar.ac.mw |
| 14. | Dr. Austine Mtethiwa | LUANAR | HOD Aquaculture & Fisheries Science | amtethiwa@luanar.ac.mw ; +265 0888316331 |
| 15. | Ass.Prof Kenedy Machira | LUANAR | HoD Applied Economics | kmachira@luanar.ac.mw |
| 16. | Mr. Pilirani Mogha | LUANAR | ODL Undergraduate student | +265996162417 |
| 17. | Mr, James Chimphamba | LUANAR | ODL Undergraduate student | +265993262018 |
| 18. | Ms. Sara Moyo | LUANAR | ODL Undergraduate student | +265993440339 |
| 19. | Dr. Mary Shawa | RUFORUM Board | Chairperson Finance & Administration Board Sub-committee | Mary.shawa@plan-international.org |
| 20. | Prof. Vincent Saka | RUFORUM Founding member | | Vicentaka21@gmail.com ; +265888832042 |
| 21. | Prof. Kanyama Phiri | Malawi University of Business & Applied Sciences | Chair University Council & Former RUFORUM Board Chair | +265999933085; gykphiri@gmail.com |
| 22. | Dr. Wales Singini | Mzuzu University | Director of Research; RUFORUM Alumnus | singini.w@mzuni.ac.mw; walessingini@gmail.com +265999576812 |
| 23. | Assoc. Prof Innocent Wadzanayi Nyakudya | Bindura University of Science Education | Dean Faculty of Agriculture and Environmental Sciences | iwnyakudya@buse.ac.zw ; pupunege@yahoo.com ; +263717083893 |
| 24. | Prof George Nyamadzawo | Bindura University of Science and Technology | PI CARP project | gnyama@yahoo.com |

| | Name | Organization/ Institution | Designation | Contact |
|-----|--------------------------|---|---|---|
| 25. | Prof Mahamadi Courtie | Bindura University of Science Education | Director of Research & Graduate Studies | |
| 26. | Dr Admore Mureva | Bindura University of Science Education | Head of Department Natural Resources | |
| 27. | Dr.Xavier Poshiwa | Great Zimbabwe University | Dean School of Agriculture | xposhiwa@gzu.ac.zw |
| 28. | Rev. Prof Peter Mageto | Africa University | Ag Vice Chancellor | vc@africau.edu |
| 29. | Prof. Pamela Machakanja | Africa University | Interim Deputy Vice Chancellor | dvc@africau.edu |
| 30. | Dr. Kudakwashe Muchena | Africa University | Personal Assistant to the Vice Chancellor | vcpa@africau.edu |
| 31. | Dr. Suzan Mutambu | Africa University | Dean School of Medicine, and Agriculture | deanchans@africau.edu |
| 32. | Dr. Rosemary Maturure | Africa University | The University Librarian | librarian@africau.edu |
| 33. | Dr. Wilber | Africa University | HoD Agriculture | |
| 34. | Jeanette Dadzie | Africa University | Marketing & Public Affairs Officer | progassist@africau.edu ; 0783187197 |
| 35. | Mr. Tuarrira Mtaita | Africa University | Lecturer | tamtaita@africau.edu |
| 36. | Mr. Larry Kies | Africa University | Lecturer | lkies@africau.edu |
| 37. | Jefta Tabarira | Africa University | Lecturer | jtabarira@africau.edu |
| 38. | Dr. Kudzai Mukumbi | Africa University | Lecturer | mukumbik@africau.edu |
| 39. | Dr. Sebastian Chakeredza | Africa University | Lecturer | chakeredzas@africau.edu |
| 40. | Dr. Esther N. Masvaya | MUAST | Director - Climate Change and Food Security Institute | enmasvaya@muast.ac.zw |
| 41. | Dr. Courage Bangira | MUAST | Dean - Faculty of Earth and Environmental Sciences | cbangira@muast.ac.zw |
| 42. | Dr. Godwil Madamombe | MUAST | Dean: Faculty of Agricultural Sciences and Technology | gmadampmbe@muast.ac.zw |
| 43. | Ms. Jefline J. Kodzwa | MUAST | Dphil Student | kodzwejefline@gmail.com |
| 44. | Dr. Honest Machezano | University of Pretoria | Lecturer | honest.machezano@up.ac.za |
| 45. | Prof. Brighton Mvumi | University of Zimbabwe(UZ) | Professor/HoD | mvumibm@hotmail.com |
| 46. | Prof Mutisi | UZ | Chairperson Local Organizing Committee for 2022 AGM, Former Dean & Former member of RUFORUM Technical Committee | Mutisi@agric.uz.ac.zw |
| 47. | Prof Prisca Mugabe | UZ | Deputy Dean Faculty of Agriculture, Environment and Food Systems | |
| 48. | Dr. Elijah Nyakudya | UZ | Dean of Agriculture Environment and Food Systems | elijahnyakudya@yahoo.co.uk |

| | Name | Organization/ Institution | Designation | Contact |
|-----|-----------------------------|---|--|--|
| 49. | Mr. Tedious Choga | UZ | MSc student | tediouschoga@yahoo.com |
| 50. | Dr. Gaudencia T. Kujeke | UZ | Lecturer | gkujeke@agric.uz.ac.zw |
| 51. | Mr. Tonderai Nhepera | UZ | Computer Technician | tnhepera@agric.uz.ac.zw |
| 52. | Dr. Joyful T. Rugare | UZ | Senior Lecturer | rugarejoy@yahoo.co.uk |
| 53. | Mrs. Annia Matikiti | UZ | Senior Chief Technician | matikitia@yahoo.com |
| 54. | Prof. Edward Mutandwa | UZ | HoD/ABDE | emutandwa@agric.uz.ac.zw |
| 55. | Prof Irvin Mpofo | Chinhoyi University of Technology (CUT) | Pro. Vice Chancellor Academic Affairs & Research | |
| 56. | Prof Chris Murungweni | CUT | Dean Faculty of Agriculture & Technology | cmurungweni@cut.ac.zw |
| 57. | Dr. Musiwa Kumbirai | CUT | Deputy Dean Faculty of Agriculture & Technology | kmusiyiwa@cut.ac.zw |
| 58. | Dr. Taper | CUT | Director of Marketing & Public Relations | |
| 59. | Dr. Gabriel Soropa | CUT | Lecturer | gsoropa@gmail.com |
| 60. | Mr. Qhubekani Nyoni | CUT | DPhil Student | qnyoni@cut.ac.zw |
| 61. | Mr. Elton Dangare | CUT | PhD Student | edangare@cut.ac.zw |
| 62. | Dr. Nilton Mashavakure | CUT | Senior Lecturer | n.mashavakure@gmail.com |
| 63. | Miss. Marilyn W. Kutamahufa | CUT | MPhil student | wimbie.kutama@gmail.com |
| 64. | Miss. Chipo.P.Zvavamwe | CUT | MPhil Student | chipozvavamwe@gmail.com |
| 65. | Miss. Gladys Mtetwa | CUT | MPhil Student | cleotrishamtetwa@gmail.com |
| 66. | Miss. Connie Madembo | CUT | DPhil student | c.madembo@cgiar.org |
| 67. | Ms. Tinotenda B. Kaseke | CUT | DPhil student | tinoblessingk@gmail.com |
| 68. | Mr. Aleck Muchandiona | CUT | PhD Student | alecmuchandiona@yahoo.com |
| 69. | Miss. Natalie Ncube | CUT | Mphil student | nataliencube98@gmail.com |
| 70. | Miss. Kudakwashe Chiyaya | CUT | MPhil Student | kchiwaya@cut.ac.zw |
| 71. | Miss. Mellisa C. Mpofo | CUT | MPhil Student | mpofumellisac@gmail.com |
| 72. | Ms. Nyasha Rumhungwe | CUT | MPhil Student | cathyrumh391@gmail.com |
| 73. | Ms. Medeline Bhebhe | CUT | Mphil Student | mediebhebhe@gmail.com |
| 74. | Ms. Lucy Chipondoro | CUT | MPhil student | lchipondoro@gmail.com |
| 75. | Ms. Tafadzwa W.Nyagomo | CUT | MPhil Student | tnyagomo@cut.ac.zw |
| 76. | Ms. Raviro Machabango | CUT | MPhil Student | rmachabango@gmail.com |
| 77. | Mrs. Mutore Rachel | CUT | DPhil Student | rachelmmutore2@gmail.com |
| 78. | Ms. Rumbidzai Makanda | CUT | DPhil Student | rmakanda@cut.ac.zw |

| | Name | Organization/ Institution | Designation | Contact |
|-----|------------------------------|-------------------------------------|---|--|
| 79. | Dr. Ssekandi | Kabale University | HOD Agricultural Sciences, RUFORUM Alumnus | +256779421377 |
| 80. | Dr. Phiona Mutekanga | Kabale University | HoD Environmental Sciences | +256782128008 |
| 81. | Dr. Alex Saturday | Kabale University | Lecturer | +256783694119 |
| 82. | Mr. Mutebi Micheal | Kabale University | e-learning Officer | +256782056946 |
| 83. | Dr. Rebecca Kalibwani | Bishop Stuart University (BSU) | PI RECAP-Incubation Hub | +256701666146 |
| 84. | Dr. Cosmas Kiguli | BSU | Lecturer, Business Coach | +256702295874; ckiguli@faest.bsu.ac.ug |
| 85. | Mr. Hillary Nahurira | Active Living Uganda Ltd | Proprietor/ Entrepreneur; former Incubate of BSU | +256785650460 |
| 86. | Ms Annita Atuheirwe | | Entrepreneur; former Incubate of BSU | +256786925512; atuheirweannitah123@gmail.com |
| 87. | Ms. Kirabo Fortunate | BSU | Student/Incubate | |
| 88. | Mr. Mariyomujuni Clifton | BSU | Student/Incubate | +256783626764 |
| 89. | Ms. Nakunda Apophia | BSU | Student/Incubate | +256704740372 |
| 90. | Dr. Francis Otto | RUFORUM | Manager K-Hub | f.otto@ruforum.org |
| 91. | David Martin Amitu | RUFORUM | | |
| 92. | Solome Abigal Inapat | Soroti University | | |
| 93. | Prof. Paul Katamba | Bugema University | Vice Chancellor | +256772561152; paulkat64@gmail.com |
| 94. | Prof. Eliabu Lugujo | Ndejje University | Vice Chancellor | +256772306795; vc@ndejeuniversity.ac.ug |
| 95. | Prof. Ismail Simbwa Gyagenda | Islamic University in Uganda (IUIU) | Vice Chancellor | +256700575536; ismailgyagenda@gmail.com |
| 96. | Prof. Taha Mohamed | Kordafan University | Former Vice Chancellor & current PI for RUFORUM project | +256701418483; nour5432158@gmail.com |
| 97. | Dr. Alex Barakagira | Nkumba University | Dean | +256772428857; barakalexham2@gmail.com |
| 98. | Prof Gorettie Nabanoga | Makerere University | Principal CAES | +256772520404; goreti69@gmail.com |
| 99. | Dr. Drake Mirembe | Makerere University | Lecturer COCIS | +256776844343; dmirembe@gmail.com |
| 100 | Dr. Sarah Akello | Makerere University | RUFORUM Alumnus, Deputy Director MARCCI | +256782734449; sarahakello@yahoo.com |
| 101 | Dr. Richard Edema | Makerere University | FORUM Alumnus & Director MARCCI | +256781735049; redema@marcci.org |
| 102 | Dr. Hellen Kongai Biruma | Busitema University | RUFORUM Alumnus | +256701961559; hellenbiruma@gmail.com |
| 103 | Selma Nghituwamhata | Makerere University | MSc Student | +256774735336; snghtuwamhata@gmail.com |
| 104 | Ahmed Bashir | Makerere University | MSc Student | +256774672267; ahmedbashir.sd@gmail.com |
| 105 | Marie Claudine Mukashena | Makerere University | MSc Student | +256772202576; muclaudine9@gmail.com |
| 106 | Tinovonga Gonhi | Makerere University | PhD Student | +256709174938; tinotendagonhi@gmail.com |

| | Name | Organization/ Institution | Designation | Contact |
|-----|-------------------------------|--|---|--|
| 107 | Jean Bosco Ngarukiyimana | University for Development Studies Ghana | PhD Student | +256784878153; jeanbosconganukiyimana@gmail.com |
| 108 | Unzimai Innocent Vuldu | Makerere University | MSc Student | +256776215767; schwarzinnocent@gmail.com |
| 109 | Masudi Tambwe Fiston | Makerere University | MSc Student | +256780273920; masudidiston@gmail.com |
| 110 | Nkurunziza Gelase | Makerere University | PhD Student | +256777768214; nkurugelase@gmail.com |
| 111 | Nada S.A Musa | Makerere University | PhD Student | +256775173286; nada.musa@hotmail.com |
| 112 | Dr. Badji Arfaug | Makerere University, | Post Doc fellow NARO/NaCRR | +256756736561; dabgarf42@gmail.com; d |
| 113 | Dr. Angela Ibanda | Kishangani University | Post Doc fellow NARO/NaCRR | +256750126353; angeltanzito@gmail.com |
| 114 | Dr. Emmanuel Amponsah Adjei | Makerere University, MARCCI | Post Doc Fellow | +256771023078; emmaadjeif@gmail.com |
| 115 | Dr. Loki Robert OKongo | Gulu University | Department of Environment and Natural Resources Management Lecturer | +256772874449; r.o.loki@gu.ac.ug |
| 116 | Dr Denis Nono | Gulu University | Lecturer Department of Bio-systems Engineering | +256775831102; d.nono@gu.ac.ug |
| 117 | Alowo Docus | Gulu University | PhD student Department of Food science and post-harvest technology | +256778766419; dorcusaloeb2017@gmail.com |
| 118 | Nassanga Prossy | Gulu University | PhD student Department of food science post-harvest technology | +256787699089; pnassanga@gmail.com |
| 119 | Dr. Solomon Olum | Gulu University | HOD Department of Food Science and Post-harvest technology | +256779486193; s.olum@gu.ac.ug |
| 120 | Ass. Prof Basil Mugonola | Gulu University | HOD Rural Development & Agribusiness | +256772459745; basil.mugonola@gmail.com |
| 121 | Assoc. Prof. Ndyomugenyi Elly | Gulu University | Assoc. Prof Animal production & rearing management. PI pig CARP | ellyndyomugenyi@gmail.com |
| 122 | Dr. Stephen Wamala Kalule | Gulu University | Sen. lecturer Department of Rural Development and Agro business | +256775151480; wamalakalule@gu.ac.ug |
| 123 | Dr. Odongo Walter | Gulu University | S. Lecturer, Coordinator Student centered outreach prog & PI RECAP | +256777036100; w.ochengo@gu.ac.ug |
| 124 | Dr. Aliro Tonny | Gulu University | Asst. Lecturer | +256772859189; acirottonny@gmail.com |
| 125 | Mr. Katya Kule | Gulu University | Lecturer | +256783348632 |
| 126 | Mr. Omara Emmanuel Pacoto | Gulu District local Government | DFO | +256772533797; omaraemmanuel@gmail.com |
| 127 | Lakor Jackson | Gulu District local Government | DFO | +256772614164; lakorjacksonpacoto@gmail.com |
| 128 | Esther Joseph Cheyo | Gulu university | MSc student | +25678442162; estheranna45@gmail.com |

| | Name | Organization/ Institution | Designation | Contact |
|-----|--------------------------|--|---|---|
| 129 | Agato Joan Epiu | Gulu University | BA Educ student | +256755082418; epiujoan@gmail.com |
| 130 | Elias Munenzero | Gulu University | MSc student | +256779831879; eriasm16@gmail.com |
| 131 | Ekebu Peter Gordon | Gulu University | BSc student | +256778261026; petergordonekebu2@gmail.com |
| 132 | Ayiri Joshua | Gulu University | BSc student | +256780176818; ayiriinfo@gmail.com |
| 133 | Nabukenya Margret | Gulu University | Msc student | +256788191488; margretmarian6@gmail.com |
| 134 | Woor Sylvia | Gulu University | MSc student | +256787762471; sylviawoor@gmail.com |
| 135 | Douglas Otoo | Gulu University | MSc student | +256778361142; douglasotoo@gmail.com |
| 136 | Okot Vincent | Gulu University | MSc student | +256778779186; vincentokot2018@gmail.com |
| 137 | Ocaka Gabriel DA. | Northern Uganda Youth Development Centre (NYYDC) | Head Instructor/teacher | +256775594333; ocakagab@gmail.com |
| 138 | Odong Daniel Elem | NUYDC | Instructor | +256777776849; danioes4@gmail.com |
| 139 | Okongo Ronald | NUYDC | Instructor | +256775779113; okongoronald90@gmail.com |
| 140 | Abednego Single Timothy | NUYDC | Instructor | +256772001066; timothyabednego@gmail.com |
| 141 | Pwoyber Daniel | NUYDC | Instructor | +256779705774; pwonyberdaniel@gmail.com |
| 142 | Narukoma Naume | NUYDC | Instructor | +256783253287; narukomanaume@gmail.com |
| 143 | Ocira Denish | NUYDC | Farmer | +256779750547 |
| 144 | Prof. George L. Openjuru | Gulu university | Vice Chancellor | +256776540009; vc@gu.ac.ug |
| 145 | David Obol Otori | Gulu university | University Secretary | +256772155010; us@gu.ac.ug ; davidobolotori@gmail.com |
| 146 | Dr. Collins Okello | Gulu university | Dean Faculty of Agriculture & Environment | +256787279336; c.okello@gu.ac.ug |
| 147 | Bayo Paul | Gulu university | Senior Internal Auditor | +256785417200; bayopaul@gmail.com |
| 148 | Nyeko John | Gulu University | University Bursar | +256782416688; ub@gu.ac.ug |
| 149 | Komakech Daniel | Gulu University | IRGS | d.komakech@gu.ac.ug |
| 150 | Prof. Duncan Ongeng | Gulu University | Prof. FAE | 0+256782673491; d.ongeng@gu.ac.ug |
| 151 | Sr. Rosalba Aciro | Gulu University | Deputy Academic Registrar | +256782536473; r.aciro@gu.ac.ug |
| 152 | Perez Matsiko | Gulu University | Director ICT | +256782920553; p.matsiko@gu.ac.ug |
| 153 | Opiyo Francis | Gulu University | C/DOS | Opiyofrancis72@gmail.com |
| 154 | Betty Alanyo | Gulu University | Librarian | +256787458865; b.alayo@gu.ac.ug |
| 155 | Lilham Tebere | Gulu University | Senior planner | +256772583573; l.tebere@gu.ac.ug |
| 156 | Dr. Mukembo Robert | Gulu University | Medical officer | +256783434435; mukemborobert@gmail.com |
| 157 | Mahmoud Khalid | Gulu University | Assistant P.R.O | +256782533072; k.mahmoud@gu.ac.ug |
| 158 | Ms. Dora Lalwenyi | Gulu | Host farmer for GU students on placement | |
| 159 | Mrs. Vicky Olobo | Gulu | Host farmer for GU students on placement | |
| 160 | Akumu Jusphne | BOBI Community Polytechnic | Farmer | +256784179871 |

| | Name | Organization/ Institution | Designation | Contact |
|-----|-----------------------------------|---|---|--|
| 161 | Rwot Lonyo Sharon | BOBI Community Polytechnic | Farmer | +256785006454 |
| 162 | Aloyo Agnes | BOBI Community Polytechnic | Farmer | |
| 163 | Akello Stella | BOBI Community Polytechnic | Farmer | |
| 164 | Aluga Vicky | BOBI Community Polytechnic | Farmer | +256786270204 |
| 165 | Opiyo Tonney | BOBI Community Polytechnic | Farmer | +256761432626 |
| 166 | Akullu Anna | BOBI Community Polytechnic | Farmer | |
| 167 | Akello Sofia | BOBI Community Polytechnic | Farmer | |
| 168 | Acen Lidya | BOBI Community Polytechnic | Farmer | +256783522892 |
| 169 | Ikwele Denish | BOBI Community Polytechnic | Farmer | |
| 170 | Adong Esther | BOBI Community Polytechnic | Farmer | +256775425983 |
| 171 | Akot Juliet | BOBI Community Polytechnic | Farmer | |
| 172 | Waiga Isaac Discoro | BOBI Community Polytechnic | Head Instructor | +256781370694; idiscoro@gmail.com |
| 173 | Kermu Patrick | BOBI Community Polytechnic | Farm Manager | +256783363154; kermupatrick541@gmail.com |
| 174 | Okello Samuel | BOBI Community Polytechnic | Farmer | +256785006454 |
| 175 | Ronney Ojok | BOBI Community Polytechnic | Farmer | +256785887167 |
| 176 | Mono Joy | BOBI Community Polytechnic | Farmer | +256782763238 |
| 177 | Okot Morish | BOBI Community Polytechnic | Farmer | +256777203256 |
| 178 | Adong Lilian | BOBI Community Polytechnic | Farmer | |
| 179 | Ojok Alex | BOBI Community Polytechnic | Farmer | |
| 180 | Prof. Johnny Mugisha | Makerere University | Former Principal and Senior Lecturer, CAES. Currently CARP+ Principal Investigator and student supervisor | johnnymugisha@gmail.com |
| 181 | Dr. Sadik Kassim | National Agricultural Research Organization, Uganda | Deputy Director General, Agriculture Technology Promotion & Alumnus | sdkassim@gmail.com |
| 182 | Prof Sam-Amoah Livingstone Kobina | University of Cape Coast | Member RUFORUM Technical Committee | lk_samamoah@yahoo.com |
| 183 | Frank Kumi | University of Cape Coast | RUFORUM Alumnus and Post-doc grantee | frankkumifk@gmail.com |
| 184 | Leresche Kay | Education Consultant, South Africa | Member, RUFORUM International Advisory Panel | bandroop@gmail.com |
| 185 | Mwala Mick | University of Zambia | Student Supervisor | mmwala@unza.zm |
| 186 | Dr. Abigael Otingal | University of Eldoret | Alumnus and PI | amarishas@yahoo.com |

| | Name | Organization/ Institution | Designation | Contact |
|-----|--------------------------------|---|---|---|
| 187 | Dr Sokona Dagnoko | SG2000 | Member RUFORUM Technical Committee | sokona.dagnoko@gmail.com |
| 188 | Patrick Okori | ICRISAT | | P.Okori@cgiar.org |
| 189 | Prof. Ahmed Idris | Peace University | Vice Chancellor | abuelyoni2002@hotmail.com |
| 190 | Adam Bush Adam | Peace University | Dean | adambush@gmail.com |
| 191 | Adil Deifalla Mohammed | University of Gezira | | Adildeifalla@gmail.com |
| 192 | Prof. Daniel Sherrald | Former Provost, EARTH University, Costa Rica | Member, RUFORUM International Advisory Panel | sherrard065@gmail.com |
| 193 | Prof. Avlessi Felicien | Universite of Abomey Calavi (UAC) | Vice Chancellor/Rector | +22995813000; avlessif@gmail.com |
| 194 | Prof. Saidou Alion | UAC | Deputy Vice Chancellor Research & academic affairs | +22667494480; saidoualion@gmail.com |
| 195 | Prof. Kelome Nelly | UAC | Deputy Vice Chancellor | +22966019476; nkelome@yahoo.com |
| 196 | Prof Achille E. Assogbadjo | UAC | | +22995055975; assogbadjo@gmail.com |
| 197 | Prof. Ahohuendo Bonaventine | UAC | Dean Faculty De Sciences Agronomiques | +22997449859; ahohuendoc@yahoo.com |
| 198 | Prof. Augustin Aoudji | UAC | Vice Dean | +22997481280; augustin.aoudji@gmail.com |
| 199 | Dr. Robert Kawuki | National Agricultural Research Organization, National Crops Resources Research Institute (NaCRRI) | Plant breeder | kawukisezirobert@gmail.com |
| 200 | David Kraybill | Independent Consultant | Book Editor | kraybill.1@gmail.com |
| 201 | Dr. David Nielson | Independent Consultant | Agricultural Specialist & Member, RUFORUM International Advisory Panel | dnielson0427@gmail.com |
| 202 | Dr. Gabriel Karubanga | College of Agricultural and Environmental Sciences (CAES) | Lecturer, Department of Extension & Innovation Studies (DEIS) School of Agricultural Sciences (SAS), RUFORUM Alumnus, Post-doc grantee and student supervisor | amootigabs@gmail.com |
| 203 | Amushendje, Theopoline Omagano | University of Namibia | Deputy Dean: Faculty of Agriculture & Natural Resources Neudamm Campus | tamushendje@unam.na |
| 204 | Runyararo Jolyn Rukara | RUFORUM Secretariat | Research & Innovation Unit | r.rukarwa@ruforum.org |

Annex 4: LIST OF DOCUMENTS REVIEWED

1. RUFORUM at a Glance
2. Vision 2030 Strategy
3. RUFORUM Performance Monitoring Framework
4. RUFORUM Annual Reports (2018-2019; 2019-2020, 2020-2021)
5. RUFORUM Quarterly Progress Reports (for each quarter from July 2017- Dec 2021)
6. RUFORUM Flagship Budget Estimates and Actuals (2018-2021)
7. External Audit reports (2018-2019; 2019-2020; 2020-2021)
8. Minutes of RUFORUM AGMs (2018, 2019, 2020 meetings)
9. Biennial reports (2016 and 2018)
10. 2021 Triennial Report
11. [Triennial Conference Bulletin](#)
12. Workplans (2018-2019; 2019-2020; 2020-2021 and 2021-2022)
13. RUFORUM governance and management policies
 - i. Revised Constitution for the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) (2021)
 - ii. The Board Executive Approved RUFORUM Secretariat Organogram as of 12th May 2018 and as of 27th January 2022
 - iii. Financial Management Manual (April 2011)
 - iv. Procurement and Disposal Policies and Procedures
 - v. RUFORUM Code of Conduct Handbook
 - vi. RUFORUM Monitoring and Evaluation Policy (April 2011)
 - vii. Risk Management Framework, 2016-2020 (March 2016)
 - viii. Risk management strategy
 - ix. RUFORUM Human Resource Manual (April 2011)
 - x. Information & Communication Technology (ICT) Policy (August 2016)
14. Report on Functional Analysis and Restructuring of RUFORUM (June 2014)
15. [RUFORUM Community Action Research Programme Call for Proposals, July 2017](#)
16. [Expression of Interest for Staff Mobility in African Universities](#)
17. [Report of the ICT Capacity Survey conducted by RUFORUM Secretariat, 2019/2020](#)
18. [Status Analysis of eLearning in African Universities](#)
19. [TAGDev Mid-Term Review: Summary Report- Infographics](#)
20. Data on TAGDev skills enhancement events
21. [Tracer study of RUFORUM Graduates 2004-2020](#)
22. Technical Skills Development Programme (TESDEP) Project Technical Report
23. Data on TESDEP beneficiaries
24. [RUFORUM Secretariat Response to the COVID-19 Pandemic: Briefing Note to the RUFORUM Board Executive Committee and Wider Network](#)
25. African Universities Response to COVID-19, Emerging and Re-emerging Global Epidemics and Pandemic
26. [RUFORUM Thought piece on COVID 19](#)

27. Report on feasibility study on Youth employment, entrepreneurship and agricultural sector development Uganda
28. [Report of the Partners Meeting on Promoting Equal Opportunity for Youth Employability and Entrepreneurship in Africa](#)
29. [The Cape Coast Ministerial Communiqué, 2019](#)
30. BASTIC Concept Note
31. [Press Release Announcing three RUFORUM Grant Recipients for Community Action Research Programmes PLUS \(CARP+\) 2019](#)
32. [Science Technology and Innovation Strategy for Africa 2024](#)
33. [Science Agenda for Agriculture in Africa: “Connecting Science” to Transform Agriculture in Africa.](#)
34. [Agenda 2063: The Africa We Want](#)
35. [Agricultural Education and Skills Improvement Framework \(AESIF\)](#)
36. [Continental Education Strategy for Africa \(CESA\)](#)
37. [Continental Strategy for Technical and Vocational Educational and Training \(TVET\)](#)
38. [Strategy for Higher Education, Science and Technology](#)
39. [United Nations Sustainable Development Goals](#)
40. [Factsheets on capacities in agricultural higher education in various countries](#)
41. Impact Story of Dr. Sarah Akello Esimu
42. Lists of IPM-FAPA students
43. Data on applications received and those awarded for all scholarships as well as those that completed under the different grants since 2018

Annex 5: GOOD PRACTICES THAT HAVE EMERGED AND THE LESSONS LEARNT

1. Good practices that have emerged and lessons learned

1.1. Collaborative curriculum Development & implementation

RUFORUM has demonstrated how African universities can be rallied around a common concern and to collaborate in the development and implementation of a regional curriculum. Furthermore, it has shown that donors can be attracted to such programmes. For example, the MSc in Aquatic Animal System and Ecosystem Management has been developed by LUANAR in collaboration with 5 other universities to respond to the emergency of fish diseases in the region. The program will be sponsored by NORAD for 2 years and offer 20 full scholarships to students enrolled from different countries.

1.2. End-user engagement and focus in teaching and research

The TAGDev Flagship was in many respects an action research programme aimed at bringing out best practices in how communities and industry can be brought on board in the teaching and research process in order to shorten the to shorten the journey from generation of graduates and research outputs and development impact. The funded activities at Gulu University and Egerton University have generated practices that are already attracting other universities to adopt the community action research and entrepreneurship support models that they have developed. These models also demonstrate how a wide range of actors (researchers, farmer communities, local governments, private sector entrepreneurs, development professionals, policy makers, general educators, development partners, NGOs civil society organisations) can be brought on board to contribute to teaching and research processes e.g. by giving seminars or joining student supervisory teams.

1.3. Grants management

African-owned and managed institutions have - rightly or wrongly - acquired a negative reputation when it comes to the fiduciary process associated with managing grants. So much so, that many big donors are averse to entrusting them with their funds. If the donors want to work with, the common practice is to work through consortia which bring on board a partner from a developed country to be the managing partner. Over the years RUFORUM has been able to retain its major donors and, latterly, funding agencies are beginning to approach and/or re-engage with it to manage grants for the projects they want to support within African university networks. This is evidence of the good practices it has developed in managing grants. These practices consultative development of programs, merit-based and transparent process of assessing applicants for grants and scholarships, and adherence to rigorous fiduciary management processes. In fact, grants management may in the future become one of the services that sustain RUFORUM.

1.4. Incentivising young entrepreneurs and innovators

Incentivising young people to enter agriculture related careers is a challenge because of the low recognition of agriculture graduates as professionals - comparable for example, to lawyers, doctors and engineers. They lack beacons to draw them to careers in agriculture. RUFORUM has devised ways in which this can be overcome through initiatives like the Young African Entrepreneurs Competition and recognition awards. These awards are given to outstanding farmers, young innovators, upcoming scientists and individuals who have made significant contribution to Africa development through agricultural value chains.

1.5. Organising development-oriented conferences in academic settings

Conferences organised with universities at the centre are traditionally oriented toward presentation of scientific papers from research. However, RUFORUM has managed to widen the agenda for the conferences it holds to embrace all key stakeholders in agriculture. Private sector actors, community leaders and policy makers are involved in the dialogues targeted at guiding Africa's HAE sector. The conferences also enable networking and partnerships among other players in the agricultural education value chains.

1.6. Brokering networking, collaboration and partnerships

Networking, collaboration and partnerships in universities is often through social relationships between lecturers and researchers establish through participating in academic conferences and while undertaking training. This works well for academics and researchers in established universities and is a challenge for many of the nascent universities in the RUFORUM network. RUFORUM has developed practices for brokering partnerships between academics, researchers and universities generally. This has been particularly effective in enabling consortia to form for mobilising resources from diverse donors, for enabling south-south & north-south cooperation, and for participating in strategic multi-university partnerships funded by big donors.

1.7. Coordination of rapid response mechanisms for dealing with crises

RUFORUM came into its own when it initiated and coordinated the response during the COVID-19 pandemic. Efforts are also being made towards strengthening the existing eLearning centres and broker resource sharing across the RUFORUM network universities and with other global eLearning centres in and outside Africa. This demonstrated the value to universities of having an institutional hub for coordination.

2. Lessons learned

2.1. Lessons learned from the TAGDev Flagship Programme

1. Students can be problem solvers and can actively participate in the generation of development ideas. This is a reversal of the traditional model of education in which information is primarily from university academics who are perceived to have most if not all of the knowledge;
2. Field attachments allow students to disseminate research findings, innovations and technologies; enhance linkage with the public and private sector; increase their experiential learning; support the delivery of complementary extension services to farmers and rural based entrepreneurs;
3. Engagement with communities may be hampered by expectations by the smallholders of “freebies”. This mind-set should be discouraged at the outset;
4. Field attachments and CARP give universities an opportunity to demonstrate that they directly connected to development processes. They are also highly appreciated by the students, communities and entrepreneurs;
5. Many students enrol into agricultural courses at universities with little exposure to rural settings and agriculture generally. Field attachment enhance the students’ practical agricultural skills in a real-world setting, whet their appetites or realistic expectations to work in rural settings, improve their communication with rural people, and enabled them to obtain insight into farmers’ indigenous knowledge;
6. The shift from disciplinary based research to community action research requires patience, iterative trials and academics’ understanding of the private sector as a basis for creating entry points of engagement;
7. Universities can directly influence agricultural development processes through multi-stakeholder collaborative research, innovation and institutional transformation projects.
8. Private sector partners can be willing to co-finance research and community outreach work when given a structured way of partnership;
9. The CARPs are an effective option for strengthening university-community linkages, leveraging resources from different stakeholders and influencing commodity value chains and economic development;
10. The CARP+ projects can promote multi-stakeholder collaboration and public-private partnerships for mutual contribution to shared value creation along various agricultural value chains.
11. With the appropriate business plans and implementation, the enterprises emerging from the CARP+ can promote profitable youth employment;
12. Close collaboration between universities and TVET institutions can deliver qualified and skilled development-oriented skilled graduates, fast-track the uptake of innovations, and harness opportunities;
13. TVET institutions are good entry points for engaging farmers directly, delivering low-cost extension services, delivering appropriate technologies and practical skills to farmers;

14. The TVETs are also good entry points for engaging with youth without formal education and those with very basic general education;
15. The TVET sector can be made more attractive by raising public awareness of the value of TVET as a viable skills-based learning approach and in so doing reshaping attitudes in favour of them;
16. Incubation of agribusinesses is feasible under universities and enable students to get business mentoring and a head-start in engaging - and possibly partnering - with established agri-preneurs in commercialising their innovations;
17. Innovation and young entrepreneurship competitions provide an opportunity to recognize and motivate youth innovation;
18. Entrepreneurship is a general skill that students can apply to go into businesses outside agriculture. Hence the courses broaden employment opportunities for graduates;
19. Entrepreneurship to flourish and go beyond the immediate family and community markets, it is essential for students to be given an appreciation of the rigorous process that have to complied with to get certification by National Bureaus of Standards;
20. Community-based agri-business incubation needs to be based on a comprehensive analysis of the local value chains to ensure that the businesses are established on a scale that is sustainable;
21. Timely completion of postgraduate studies is possible under conditions of supportive university administration, student commitment and financial support as well as provision of extra student social support when needed - as was the case during the COVID-19 pandemic;
22. The post-doctoral fellowships provide an essential growth path for young scientists within the university system and are highly appreciated but are limited by low availability of opportunities;

2.2. Lessons learned from the RANCH Flagship Programme:

It is challenging to mobilise funding for establishing RAU even when there are supportive continent-wide frameworks such as BASTIC and SASTIE to catalyse the efforts. Hence continuous engagement with national governments, policy makers, development partners, private sector and other stakeholders is essential to enhance their awareness of the value of RAU

2.3. Lessons learned from the CREATE Flagship Programme:

1. There is high demand for the GTA programme which continues to be an essential means for strengthening and upgrading capacities of faculty through facilitated academic mobility across member universities. However, universities have challenges in meeting their obligations to support the GTAs under the current institutional framework endorsed by the RUFORUM governance;
2. Donors can be relatively positively inclined to supporting doctoral training in Africa as was evidenced by the support from SENTINEL Project of the United Kingdom Research and Innovation (UKRI); and Mastercard Foundation (CARP);
3. Participation of women in HAE and STI has been undermined by limited initiatives specifically targeting them;
4. Establishment of Academic and Research Chairs is possible and has been demonstrated by African universities in other sectors. RUFORUM needs to learn from these universities;
5. Continued close monitoring of students' (GTA Fellows, the post-doc Fellows and other graduate students) progress during review meetings is essential for the timely completion of doctorate studies under the different programs;
6. Cross-institutional mentorship and staff support can play an important role to strengthen both the research capacity of the PhD students as well as early career and young academics to become effective academic leaders in their institutions;
7. The post-doctoral programme has potential to build the capacity of the Fellows to work in multidisciplinary research teams, to mentor and supervise students, and to run research projects successfully. However, there is need to extend the duration of the Fellowship to three years in order to

realize the expected outputs. Secondly, students and staff under the different programmes need to take advantage of existing e-resources.

8. Upgrading research infrastructure to facilitate online learning is likely to pay high dividends in graduate training;
9. Student support and engagement is still a key feature for the success of the graduate programmes under RUFORUM;
10. The demand for both doctoral and postdoctoral opportunities out-weigh the opportunities available. Concerted efforts for resource mobilization and innovative engagements have to be explored by all stakeholders.
11. Based on the experiences gained in developing online courses targeting RUFORUM supported students during the COVID-19 pandemic, the courses extend the reach of RUFORUM to non-RUFORUM students. Online courses may one of the means for reaching out to all member universities;
12. Capacity development intended to increase the pool of scientists in Africa is a continuous process which necessitates exploration of all potential avenues and multi-sector and inter-disciplinary partnerships.

2.4. Lessons learned from the K-Hub Flagship Programme

1. New ICT tools and platforms can be effective mechanisms for harnessing and sharing information that can be used in the member universities, CARP communities and policy makers need to be designed and utilised. However, their functionalities need to be enhanced
2. RUFORUM as a network can play a brokerage role of enabling universities to establish Moodle Platforms with organizations highly experienced in applying this technology in the field of higher education;
3. RUFORUM webinars have become a key engagement platform for African higher education, governments, private sector, development partners and students. This was demonstrated during the COVID-19 pandemic;
4. The inertia in adopting use of new ICT technologies for teaching and general communication can be overcome by systemic external pressures such as the COVID-19 pandemic and once this has happened it is important to capitalise on the traction gained;
5. Although the National Forum concept has been proved to be an effective mechanism for bringing stakeholders in HAE to come together for advocacy, resource mobilisation, lesson sharing, and converging on a common agenda, their establishment is difficult without an external spark - such as can be provided by RUFORUM.

2.5. Lessons learned from the Program Support Flagship Programme:

1. Engagement with all stakeholders, especially with policy makers at the highest level in government is important in generating publicity and advocacy benefits for the network. However, it is a time consuming and expensive endeavour;
2. Political will is important in supporting the efforts of researchers and innovators. These efforts need to be directed towards developing policies to strengthen food systems in the continent as well as support delivery of quality higher education which recognizes the value of local knowledge;
3. More effort is still needed to ensure hands-on skills for graduate students and for timely graduation;
4. Procedures and systems within universities tend to be extraordinarily bureaucratic and result in delays which undermine timely procurement, implementation and auditing. VC intervention in resolving such challenges and expediting issues has been and will continue to be critically needed;
5. The current network structure, governance organs, activities and convenings cannot cater effectively for the explosive increase in RUFORUM membership - even with the tweaking in OP implementation;
6. Annual General Meetings offer policy makers (government ministers and technocrats), the academia and other stakeholders an opportunity for dialogue and to initiate/ consolidate partnerships;
7. There is a growing attitude among some universities of viewing RUFORUM as a donor and also of having an entitlement mentality when it comes to distribution of resources. This is causing some hindrances in the universities taking on full ownership of the network;

8. Whilst it is the desire of RUFORUM to have regional representation in the management the Secretariat, attracting senior staff from outside Ugandan/East Africa is challenging because of the high costs involved in employing international professionals;

2.6. General lessons learned

1. Resource mobilisation focused on individual flagships is challenging, rather resource mobilisation has to blend elements of different flagships and put them in a package based on the targeted donor. Retrofitting the results from projects into the flagships then becomes another challenge;
2. Support and interventions from member states' governments are crucial for successful implementation of these flagships, scaling up the training and research investments as well as facilitating policy formulation and implementation. For instance, such government support was instrumental for the success in mobilising resources for the RAU through the SHAEA initiative;
3. The TAGDev programme illustrates one of the ways in which universities can garner greater government support by demonstrating their immediate relevance and effectiveness to development initiatives;
4. Application of online technologies is instrumental in facilitating RUFORUM's reach and engagement with diverse audiences but a blend of online and physical means of communication and engagement continues to be needed because of varying propensities and challenges for different stakeholders to migrate to online means;
5. Initiation and sustenance of strong partnerships are essential for the effectiveness of RUFORUM's programs. For instance, partnerships will continue to be the lever for access to online and other resources for the resilience of higher education and response to the challenges generated by COVID-19;
6. The ability to innovate, pivot, adapt and cope is vital for continued implementation of the OP interventions at individual programme, institutional and network levels particularly in response to challenges like those posed by the COVID-19 pandemic.