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Research Application Summary

Insights and lessons from a multi-criteria approach for identifying potential students for implementation of university transformation agenda

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Abstract

Identification of right profile and potential students from disadvantaged classes is critical for inclusive university transformation agenda. This paper documents the insights and lessons from the selection of potential students, as part of the implementation of university transformation project for Africa's growth and development. A four phase selection approach was applied, which included (i) evaluation and admission of applicants to the university, (ii) shortlisting of admitted students based on information derived from application forms, (iii) verification and household validation, and, (iv) final selection. Shortlisting and selection criteria included among others, poverty indicators, family/household characteristics, and leadership experience. In total, 506 applications were received from 22 African countries. The Master of Science programme in Food Security and Community Nutrition attracted the highest number of applications, while the Bachelor of Science programme in Animal Sciences at Egerton received the lowest number of applicants. Out of the 506 applicants, 103 were shortlisted (46 nationals from Uganda, 30 nationals from Kenya and 27 from other African countries) for household validation phase. Overall, parents and guardians were supportive of the applicant willingness to undertake agriculture related degree. Following the household validation process, 30 applicants were selected and approved by the RUFORUM Technical Committee. Of these students, 24 (80%) were nationals from Kenya and Uganda (10 and 14 respectively); and 6 (20%) were Pan-African students from Ghana, Nigeria, Tanzania, Rwanda, Zimbabwe and Malawi. Interestingly, 53% of the selected applicants were females, aligning with gender balance. Overall, the recruitment process enabled identification of disadvantaged students across eight African countries. Given the challenges and difficulties, it is suggested that the call for next cohort of students be launched earlier, and the recruitment and selection tools be revised to account for the learnings from the first recruitment cycle.

Key words: Agriculture, Disadvantaged students, Uganda, Kenya, RUFORUM, Training, Universities

Résumé

L'identification des étudiants potentiels défavorisés est essentielle pour les programmes de transformation inclusive dans les universités. Ce document présente quelques aperçus et les leçons de la sélection d'étudiants dans le cadre d'un projet de transformation des universités pour la croissance et le développement de l'Afrique. Une approche de sélection en quatre phases a été utilisée : (i) l'évaluation et l'admission des candidats à l'université, (ii) la présélection des étudiants admis sur la base des formulaires de candidature, (iii) la vérification et la validation dans les ménages, et, (iv) sélection finale. Les critères de présélection et de sélection comprenaient entre autres, les indicateurs de pauvreté, les caractéristiques de la famille / du ménage et l'expérience dans le leadership. Au total, lors du premier appel à candidature, 506 dossiers ont été reçu de 22 pays africains. Le programme de maîtrise ès sciences en sécurité alimentaire et en nutrition communautaire a attiré le plus grand nombre de candidatures, alors que celui de la licence en sciences animales a reçu un nombre limité de candidats. Sur les 506 candidats, 103 ont été présélectionnés (46 ressortissants de l'Ouganda, 30 ressortissants du Kenya et 27 d'autres pays africains) pour la phase de validation. Dans l'ensemble, les parents et les tuteurs étaient favorables à la volonté de leurs protégés à étudier en agriculture. À la suite du processus de validation des ménages, 30 candidats ont été finalement sélectionnés et approuvés par le comité technique du RUFORUM. Parmi ces étudiants, 24 (80%) étaient ressortissants du Kenya et de l'Ouganda (10 et 14 respectivement); et 6 (20%) venaient du Ghana, du Nigeria, de la Tanzanie, du Rwanda, du Zimbabwe et du Malawi. Fait intéressant, 53% des candidats sélectionnés étaient des filles. Dans l'ensemble, le processus de recrutement a permis d'identifier des étudiants défavorisés dans huit pays africains. Compte tenu des défis et difficultés, il est suggéré que l'appel à candidature pour la prochaine cohorte soit lancé plus tôt et que les outils de recrutement et de sélection soient révisés pour tenir compte des enseignements tirés du premier cycle de recrutement.

Mots-clés: agriculture, étudiants défavorisés, Ouganda, Kenya, RUFORUM, formation, universités

Introduction

Africa's expanding youth population is generally seen as challenge of youth unemployment but potentially, presents an opportunity for the youth to become the engine driving new agriculture and agribusiness enterprises as well as rural transformation. Agro-business and entrepreneurship have been advanced as prospective opportunities for youth in Africa (Sanginga, 2015), yet successful delivery on African agricultural transformation agenda relies on providing the right skills to Africa's youth as future modern farmers.

There is increased evidence that higher agricultural education plays important role in providing youth with skills and opportunities to support continental growth and development (Karl *et al.,* 1997; Diao *et al.,* 2006). In Africa, it is expected that higher education policies and institutions foster agricultural transformation by triggering at

different levels, opportunities for solving long-remained challenges of food security, agro-business and TIC expansion, poverty alleviation and livelihoods improvement, especially in rural areas. The success of higher education policies in achieving these goals is largely dependent on university-communities connectedness, and several other demographic challenges. Added to the exponential African population growth, and the changing market demands which are critical challenges, the agricultural sector in Africa is facing a lack of appropriate agricultural training models, research relevant to the communities and skilled and proactive graduates that will feed the African agricultural sector and raise agricultural productivity (Teller and Hailemariam, 2011; Binswanger-Mkhize, 2009).

Partnerships among higher education institutions contribute to advancing, upscaling science and technology, and sharing lessons. Recognizing the existing gaps and challenges ahead of the continental agenda, the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) partnered with mastercard foundation and two universities in Uganda and Kenya (here after "early adopter universities"), to implement a program for strengthening the capacity of African agricultural universities and graduates to contribute to accelerated growth and transformation of agriculture and the development of sustainable livelihoods in Africa (http://www.ruforum.org/MCF/). The success in this program builds upon lessons from implementation at the two early adopter higher institutions for widening implementation and impact across the continent through the RUFORUM network. Among others, the program aims to (i) pilot a new model of agricultural education that connects tertiary agricultural education to rural communities and smallholder farmers; (ii) strengthen agribusiness/entrepreneurship; (iii) scale out the model for agricultural education to other agricultural universities and TVET institutions; and (iv) increase collaboration and mutual learning among institutions and agencies.

Linkages between universities and rural communities and small scale farmers can be strengthened through student community engagement and community action research. Therefore, students with potential and positive attitude towards agriculture, community development and entrepreneurship are the key actors of the university transformation agenda. Creating opportunities for advancing disadvantaged youth learning and skills acquisition is also the underlying basis of this program, and critical to inclusive implementation of the university transformation agenda. Over the eight years of program implementation, two hundred and twenty disadvantaged but academically talented students will be identified and recruited to undertake agriculture-related programs at Gulu University and Egerton University. In this working document, we present a multi-criteria approach enabling identification of right profile disadvantaged students to support the implementation of agricultural university transformation agenda.

Methodological framework

Initially, a call for application was launched on the project website (http://www.ruforum.org/MCF/) with a comprehensive questionnaire form outlining the eligible programs, the selection criteria, the benefits and nature of the studentships, the application process; as well as the necessary information to be provided by the applicants. Overall the selection of the students follows a four phase process: intake, shortlisting, verification and selection (Figure 1).

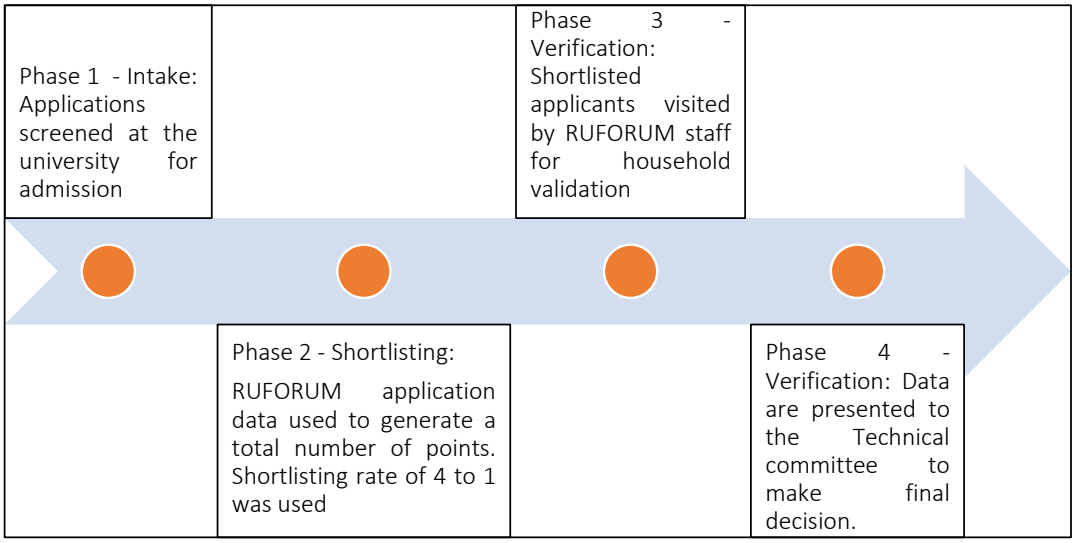

Figure 1. Description of different phases for selection of the students

Intake – Reception of applications and admission at the two universities. Applications were received at the universities. Both admissions and scholarship admission forms were checked for compliance, and a committee processed the admission of applicants and ensured that the basic minimum requirements were met. The list of admitted candidates was transmitted afterwards to RUFORUM along with information from the application forms.

Shortlisting. Upon reception of the list of admitted applicants, the data was examined for consistency. Applicants who submitted a RUFORUM application but were not admitted were excluded from the shortlisting procedure. For the shortlisting phase, specific scholarship eligibility criteria were used. In order to qualify for the scholarship, applicants must be less than 25 years old at the time of application for undergraduate and less than 30 years for postgraduate studies. After screening applications for the minimum age requirement, a ranking system was created to rate applications based on a selected set of relevant variables. These variables included poverty indicators, family/household characteristics, and leadership experience. The higher an applicant scored the greater the likelihood of him/her having a low-socioeconomic status and experience in several different leadership positions. A 4:1 ratio of shortlisted applicants to eligible studentship positions was used to offer a competitive advantage while taking into account budget restrictions.

Verification through household survey. Shortlisted applicants were contacted for home visit and validation. The purpose of the home visit was to confirm applicant's disadvantaged background. In addition to verifying the household socioeconomic status, applicants were also interviewed to gather information on perceptions of leadership, agriculture and entrepreneurship. For each household visit, we used three tools: (1) applicant household survey; (2) parent/guardian/spouse household survey; and (3) applicant psychometric survey. SurveyCTO was used to upload the data from the household surveys into the online system. The household surveys were conducted in thirteen countries namely Kenya,

Uganda, Malawi, Ghana, Nigeria, Benin, Sierra Leone, Lesotho, Mozambique, Rwanda, South Sudan, Tanzania and Zimbabwe. The applicant household survey focused on identifying information that might aid in identification of qualified applicants. Information such as family relocation and disabilities can be useful in making a decision between two equally ranked candidates.

The household survey with a parent/guardian/spouse was conducted to provide more information regarding the household, specifically in terms of assets. Additionally, the parent/guardian/spouse was asked a series of questions in regards to their knowledge of the applicants' desire to study agriculture and their perception and acceptance towards the applicant pursuing agriculture-related programme. These questions were mainly to provide a more detailed synopsis of the household and did not carry heavy weight in ranking shortlisted applicants.

Visited applicants were also requested to fill in a self-administered questionnaire/statements on perceptions of agriculture and entrepreneurship, leadership traits, and career preference. Using Likert-scale questions, applicants rated the extent to which they agreed or disagreed to the statements. Few questions were reverse-coded where the ideal answer would be to disagree with the statement instead (e.g. "people who operate commercial farms can never become as wealthy as those doing other businesses"). Leadership questions used a ten-point Likert scale. Additionally, five questions were asked to record the applicant's life satisfaction. Lastly an open-ended question was asked to gather the ideal career sought by applicants. The question asked "if you were completely free to choose any job what would you desire most as a lifetime job?". The three verification tools work together to provide a comprehensive idea of the attitude of the shortlisted applicants. The tools aim to determine if the applicant is genuinely interested in agriculture.

Selection of shortlisted applicants based on assets, leadership, interaction with others, agriculture and entrepreneuship. The final step was to select the disadvantaged applicants. Verification data and application data were merged together using STATA to create a final dataset that was used for selection. Five components were used to rank the shortlisted applicants, and include poverty assets, leadership, interaction with others, agriculture and entrepreneurship (Figure 2).

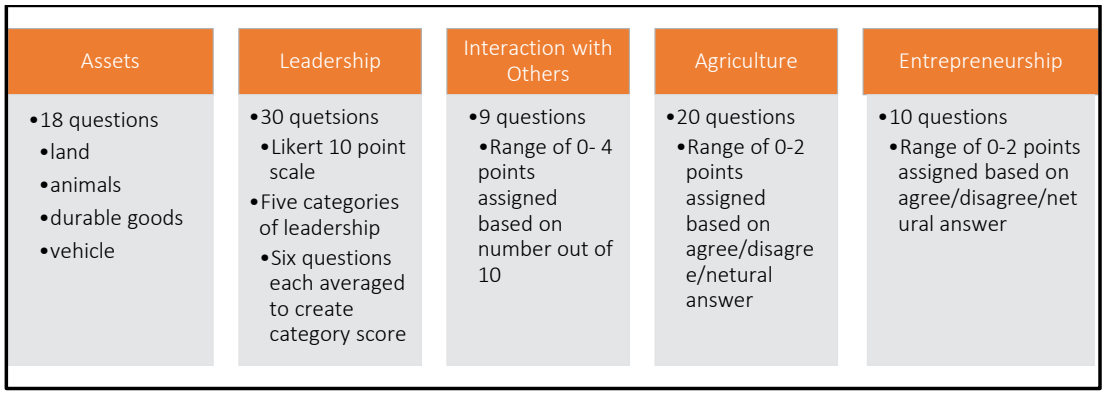

Figure 2. Summary of components used to rank the shortlisted applicants

Eighteen asset items were asked to the applicant's parent/guardian/spouse. They included the total area of cultivatable and household land owned, number of different types of livestock, durable goods from agriculture tools, furniture, and different means of transportation. A ranking system was used to calculate the overall asset wealth for each applicant. Generally, applicants are given total points when they do not own the asset, and zero in the reverse case. In addition, applicant with household owning car or laptop would have less points than applicants with household owning radio or mobile phone.

Leadership was assessed through five practices of leadership (Figure 3) that are common leadership behaviours. These practices reflect how leaders model the way, inspire a shared vision, challenge the process, enable other to act, and encourage. They allow one to gain personal perspective as a leader. A series of questions were asked to applicants to understand how they interact with others. The scores from these questions were summed up to create a sub-total score. Again like leadership and assets the rank was negative to privilege the higher point allocations. As for agriculture, twenty questions were asked to gauge applicant's perception of agriculture. Applicants were given the opportunity to (i) strongly agree; (ii) agree; (iii) disagree; and (iv) strongly disagree. The scores from twenty questions were added together to create a sub-total score. In terms of entrepreneurship, ten questions were asked to assess applicant's perception of entrepreneurship. These statement questions used the same agree/disagree scale as agriculture questions. The ten questions were used to create a sub-total score.

The selection of the shortlisted applicants was based on the total score obtained by summing up the sub-total scores of respective components (poverty assets, leadership, interaction with others, agriculture and entrepreneurship). Overall, the lower the score the higher the applicant was ranked.

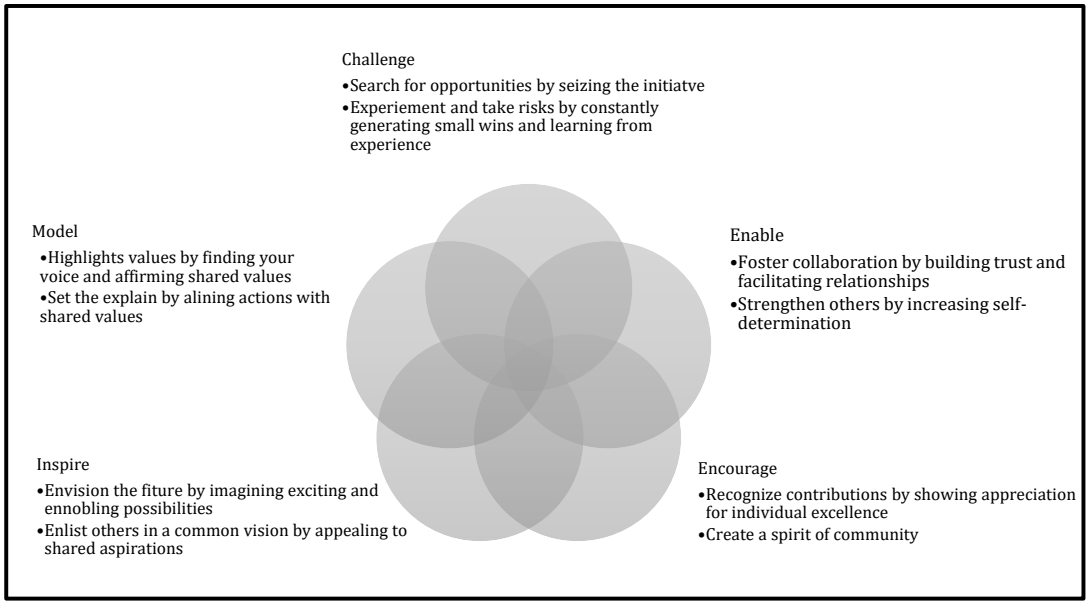

Figure 3. Five practices of exemplary leadership

Results

Applications received. In total, 310 and 196 applications (from 22 countries) were submitted to Gulu University and Egerton University, respectively. As expected, most applications came from respective countries (77.42% in Uganda and 59.69% in Kenya). However, only 22% of the applications to Gulu University came from international applicants, whereas at Egerton University, 40% of applications were submitted from other countries. Overall, five countries made up to 84% of the applications (Figure 3). There were: Uganda (49.41%), Kenya (24.90%), Benin (3.36%), Malawi (3.36%) and South Sudan (2.96 %).

Interestingly, out the four programmes (BSc. Agri-Entrepreneurship and Communication Management; BSc. Food and Agribusiness; MSc Agri-Enterprises Development; and MSc. Food Security and Community Nutrition) at Gulu University, the Master programme in Food Security and Community Nutrition attracted the highest number of applications (98) while the other three programmes received in average 70 applications. As for Egerton University, the Master of Science in Agri-Enterprises Development attracted the highest number of applications (81) while the BSc in Animal Sciences received the lowest number of applicants (only 15).

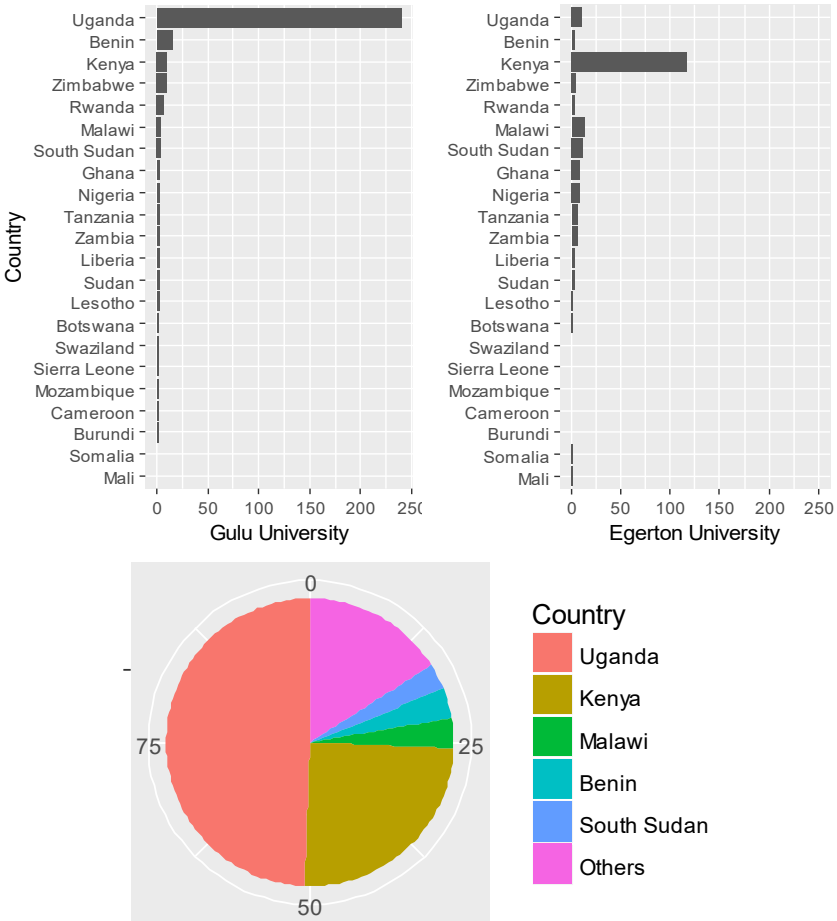

Figure 3. Distribution of the applications according to the universities across countries

Shortlisting at Egerton University. Due to relatively lower number of applicants admitted to Egerton University, the age criteria was not applied during the shortlisting. Out the 86 applicants admitted, 46 were shortlisted: 13 undergraduate and 33 postgraduate applicants. The summary of the applications and as well as the shortlisting outcomes at Egerton University are summarized in Figure 4 and Figure 5

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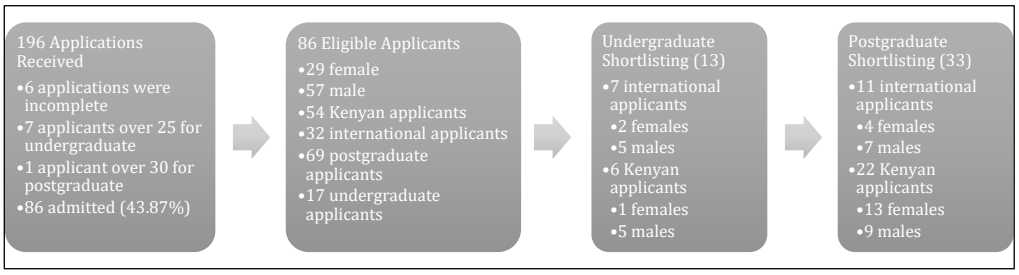

Figure 4. Summary of Egerton University applications and shortlisting

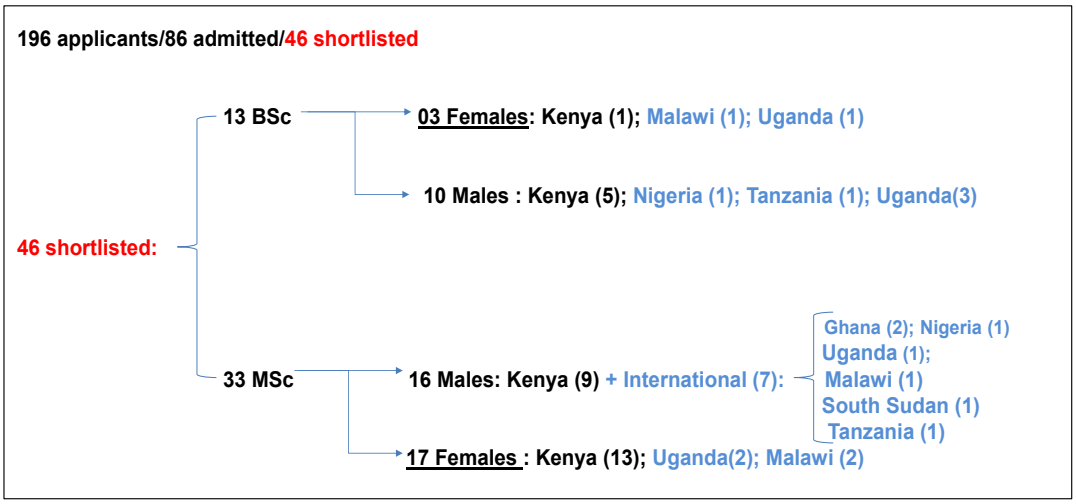

Figure 5. Country based summary of the shortlisting of applicants to Egerton University

Shortlisting at Gulu University. Applicants above the age of 25 years and 30 years for undergraduate and postgraduate degrees were excluded. In total, 199 applicants were considered for the shortlisting. Out of these, 32 undergraduate applicants and 22 postgraduate applicants were shortlisted. The summary of the applications and as well as the shortlisting outcomes are shown in Figures 6 and 7.

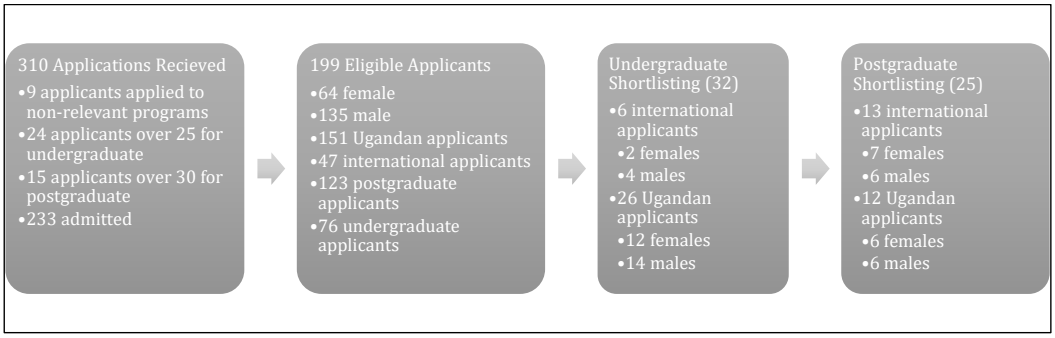

Figure 6. Summary of Gulu University applications and shortlisting

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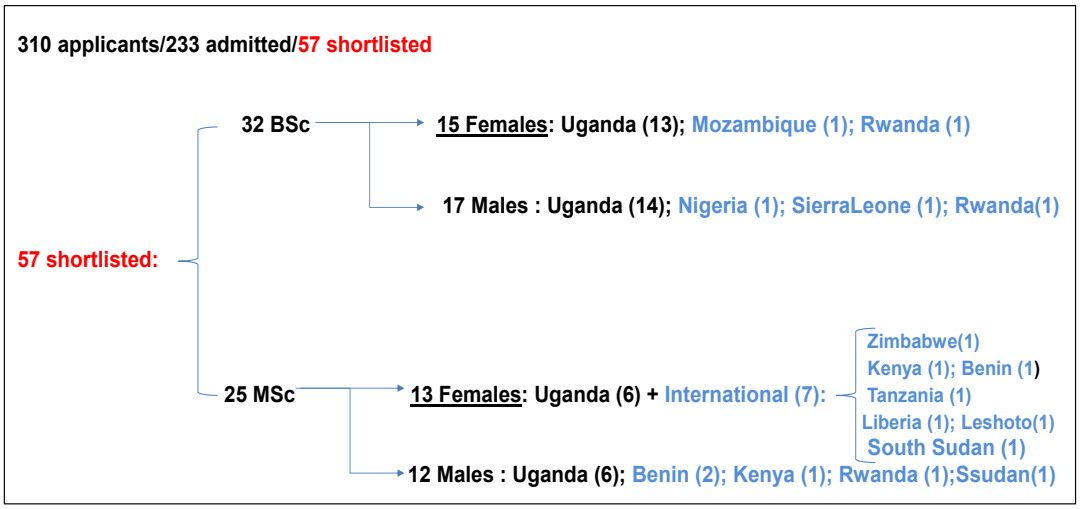

Figure 7. Country based summary of the shortlisting of applicants to Gulu University

Selection of the applicants. Basic information regarding shortlisted candidates including the total points scored for each of the five ranking variables in addition to the overall rank was used to rank applicants. Applicants were first grouped by gender (to allow equitable repartition of females and males) and then by program applied for. Doing so allows for selecting for each programme, top ranked candidates among the females separately from the males. The selection was done for each University separately. During the selection, all personal information such as names and villages were removed to ensure applicants are selected anonymously independent of names and villages. List of selected students as well as the waiting list were submitted to the Technical committee for final decision. In total 30 students (15 for Gulu University and 15 for Egerton University) were selected for the six programmes. Out of the 30, 23 students were nationals from Kenya and Uganda (10 and 13 respectively); and 7 (23%) were internationals from Ghana, Nigeria, Tanzania, Rwanda, Zimbabwe and Malawi (see Table 1). In addition, 53% of the selected applicants were females.

Table 1. Mobility table resulting from the selection of the students for the MCF@RUFORUM studentship

	Receiving institutions and programs				
Sending countries	Gulu BSc	Gulu MSc	Egerton BSc	Egerton MSc	Total
Uganda	8	4	1	1	14
Kenya	0	0	3	7	10
Malawi	0	0	0	1	1
Ghana	0	0	0	1	1
Tanzania	0	0	1	0	1
Zimbabwe	0	1	0	0	1
Rwanda	1	0	0	0	1
Nigeria	1	0	0	0	1
Gender	Gulu BSc	Gulu MSc	Egerton BSc	Egerton MSc	
Females	6	3	2	5	16
Males	4	2	3	5	14

Key emerging issues and recommendations

The holistic nature of the process provides an opportunity to learn and understand the specific socio-economic hurdles applicants are facing. In some cases, households are composed of ill-fitting wood hammered together to make more of shack than a house. The psychometric questionnaire remains a strong component. It was very useful in determining applicants that were genuinely interested in agriculture and entrepreneurship. The questionnaire also was able to capture applicants' current ability for leadership based on modeling behaviour, sharing and encouragement towards a vision, and enabling others to act. While the process enables RUFORUM to identify and select not only the academically talented but those with a passion towards agriculture entrepreneurship and of a low socio-economic background, it was also informative as staff were able to visit households, and anticipate on the life changing financial benefit that a studentship of this scope can provide for selected applicants.

The following emerging issues can serve as useful information for the process and similar selection processes in future:

1. The application form used was relatively too lengthy and it might be possible that significant portion of information captured could have not been verified. It is recommended that the holistic approach be scaled down to only include relevant points to be used in the shortlisting procedure.
2. In general, applicants were not really open in disclosing information about their applications for admission at other institutions. It is possible they felt that providing such information would limit their chance at receiving the RUFORUM studentship.
3. The fact that only five countries out of the 22 made up to 84% of the applications suggests that recruitment strategy be undertaken to reach out to many African countries. Further, only 22% of the applications to Gulu University came from international applicants, whereas at Egerton University, 40% of applications were submitted from other countries. It would be effective to design an online application form for international applicants to facilitate the application process.
4. The Master of Science programme in Food Security and Community Nutrition attracted the highest number of applications, while the Bachelor of Science programme in Animal Sciences at Egerton received the lowest number of applicants. This calls for a need to review and improve the Bachelor of Science programme in Animal Sciences to make it more attractive to applicants.
5. The shortlisting ratio of 1:4 is theoretically acceptable to provide a fair opportunity for all applicants. However, in practical terms, it was largely high taking account the number of field visits to conduct in a timely manner. This was more evident when dealing with applicants from countries other than Kenya and Uganda. As way forward, it will be important to determine a 'cap' of shortlisted applicants based on a feasible number of household visits. Further, it would be efficient to shortlist only two-three applicants in countries other than Uganda and Kenya.
5. The effective incorporation of equity and gender equality principles into shortlisting/ selection requires thoughtful consideration of how to identify, target, and serve sub-groups

of marginalized beneficiaries.

6. There is a need for a recruitment strategy that targets potential applicants from disadvantaged groups. It is suggested to widen the applicant pool by handing out application forms directly to students at schools across the country; working with local grassroots actors to identify community members who fit the target profile.

7. Although parents and guardians were overall supportive of the applicant willingness to undertake agriculture related degree, it was often found that the parents/guardians were not in the best position to comment as most applicants, especially at postgraduate level, were household heads. As way forward, it would be time effective to redesign the parental/ guardian survey and transfer the socio-economic questions to the applicant survey.

Acknowledgement

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