

AFRICAN RESEARCH UNIVERSITIES ALLIANCE (ARUA)

Towards developing a Collaborative PhD Program across ARUA Member Universities

Experiences from the Makerere University, Uganda

**A Research Report Produced for ARUA by the
Human Sciences Research Council (HSRC)**

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1. Introduction: An overview of the country

1.1 Introduction to the study and the report

This report highlights the status of PhD education in Uganda, using the case of Makerere University as the only ARUA member in the country. It provides an overview of the country's socio-economic status, which has a bearing on how universities organise PhD programmes and which could influence the conceptualisation, design and implementation of collaborative programmes as envisaged by ARUA. It further details the national and institutional policy and operational frameworks for PhD programmes in Uganda, the nature of student access and progression policies across the programmes, opportunities for designing collaborative arrangements, and challenges that need to be addressed.

The report is divided into five sections. The next section provides an overview of Uganda's socio-economic and political dynamics. Section two provides a brief description of the Ugandan higher education landscape. Section three delves into the case study of the university and the two selected programmes. Section four presents the findings from the data collected from the two case study programmes. Section five provides a best practice case study while section six presents some recommendations and conclusions.

1.2 Uganda Socio-political and economic profile

Uganda is a landlocked country in East Africa with a diverse landscape encompassing the Rwenzori Mountains, the Lake Victoria, and several national parks. The main government offices are headquartered in Kampala which is the capital city of Uganda. Uganda covers an area of 241,038 square kilometers, of which a third is covered by freshwater bodies and wetlands. The country has over 40 spoken languages with only three being official: Luganda, Swahili, and English.

Uganda has survived military dictatorships, under the regimes of Iddi Amin between 1971 and 1979 and under Milton Obote between 1980 and 1986. Under these two regimes, minimal academic freedom existed. During these periods, the foundation for higher education in Uganda was destabilized in terms of funding and the quality of education. Even though the situation has improved under president Yoweri Museveni, since 1986, there have still been numerous and frequent allegations of human rights abuses by the government. According to the Human Rights Report in 2018, there has been gross violation of human rights in the Rwenzori

Mountains. This is one of the many cases that point out the injustices carried out by the Ugandan armed forces.

In terms of the socio-economic context, Uganda is one of the youngest and fastest growing countries in the world. About 48% of this population is approximated to be under the watch of security forces. The country has over 70% of her population being youthful. Under the most likely scenario, the population of Uganda currently estimated at 46 million, will at least double between 2020 and 2060, reaching 104 million people (Myers et al, 2021). This is what many scholars have referred to as ‘the demographic time bomb’, with potentially negative effects on both the education, economic and social sectors, if not adequately managed.

From the projections of the World Bank (2021), Uganda has registered impressive economic growth and GDP expansion in the past 21 years. It had a GDP of \$US6.19 billion in 2000, which grew to \$US 40.43 billion in 2021. Efforts to transform the economy have been largely unsuccessful. According to the World Bank, Uganda’s GDP growth rate was 3.38% (date?), a 0,43 % increase from 2020. There was a sharp decline of the growth rate in 2020 from 6.44% in 2019 to 2.95%. The continuous decline in the GDP growth rate is because of high levels of poverty, corruption and decline in foreign remittances. According to Ggoobi et al. (2017), growth has mostly come about through an improved macroeconomic environment, increased private sector investment, considerable donor support, higher exports on primary commodities and relative political stability. On the other hand, Uganda’s economic structure has not changed much in more than half a century after independence. 77% percent of its population is rural and highly dependent on agriculture for sustenance (World Bank, 2021). Ugandan economy like any other country, suffered some damages from Covid-19 and subsequent lockdowns aimed at preventing the spread of the virus. Real GDP declined by 0.5% in 2020 after growing by 7.5% in 2019 (ADB, 2020). Tourism and hospitality were negatively impacted by the global travel restrictions and local containment measures. The manufacturing, financial and education sectors were subsequently affected through the rising inflation rates.

Table 1: Socio-economic overview of Uganda

Name of Country	Uganda
National Population	47.1 million (2021)
GDP per capita	858.8 (2021)
Human development index	0.4(2021)
Unemployment rate	2.9% (2021)
Main economic sectors	Agriculture, Industry, Services

Gross primary enrolment ratio	102.7% (2003-2017)
Gross secondary enrolment ratio	24.64% (2017)
Gross tertiary enrolment ratio	5% (2017)
Number of public universities	9 Public Universities (NCHE,2019)
Number of private universities	44 Private Universities. (NCHE,2019)

Source: United Nations (2017), World bank (2021) & NCHE (2019)

1.3 Uganda's main economic /development policies

Uganda's development Strategy is spelt out in its National Development Plans (Uganda Vision, 2040). The first and second National Development Plans (NDPI and NDPII) were aimed at achieving Uganda's vision 2040. The National Development Plan is a series of six five-year plans culminating into vision 2040. Implementation, however, remains uncoordinated and incoherent because of the weak National Industrial Policy (NDPIII, 2020). In terms of performance, only about 30% has been executed mostly in policy formation for the sugar, textiles, iron ore and cereals subsectors (Ggoobi et al., 2017). Uganda's development agenda is geared towards industrialization (manufacturing industries), mineral exploration, science, technology and innovation and increased employment in the other sectors, manufacturing, and services, rather than the agricultural sector. Industrialization is seen as key in the transformation of any society to a modern one. The Ugandan government through the vision 2040, aims to increase its savings from 14.5% of the GDP to 35% by 2040, to increase investments.

1.4 Education, skills, and employment context

Education is viewed as playing the most critical role in the development spheres of any social structure, from economic, social to political development. For Uganda to fulfil its development goals by 2040, through the promotion of improved technology, heightened manufacturing processes and innovation, investing in education is viewed as key (Uganda's Vision 2040). Uganda is investing in education through different aspects, the establishment of universal Primary and Secondary Education being a case in point. Vocational institutes and universities are aimed to increase the number of skilled laborers. There has been insignificant improvement in tertiary enrollment. This has been affected by the small number of tertiary institutions, having only 9 public universities and around 40 private colleges. The increased number of early marriages and a relatively larger percentage of the population living on less than a dollar per day, has largely compromised young people's access to institutions of higher learning. Adolescent pregnancy is also a significant challenge and a key contributor to the exclusion of

girls from education in Uganda, where it is estimated to cause about 59% of all school dropouts (Okwamy & Kamusiime, 2017).

Uganda's education system is comprised of seven (7) years of primary school followed by six (6) years of secondary school. Secondary education is comprised of the Ordinary level (first 4 years) and the Advanced level (2 years). Students who complete the Ordinary level can join vocational institutions but only those who complete the Advanced level can proceed to colleges, universities, or other institutions of higher education.

2. The higher education landscape

2.1 Shape and size of the higher education system

The higher education sector is made up of nine (9) public universities, forty-four (44) private universities, ten (10) other degree awarding institutions and 176 other tertiary institutions (NCHE, 2019). Some, if not most of these institutions were established because of political mandate, to bring about regional representation and achieve balance in regional development, referred to by Kasozi (2019) as ‘political appeasements.’ Hence, there is concern that universities might be serving more of a political mandate than an academic knowledge production and skills development purpose. The core issues on staffing, that is under-staffing and the academic disciplines of most of these tertiary institutions in different locations of the country were never addressed in entirety. Makerere University located in Kampala is Uganda’s largest and oldest institution of higher learning, first established as a technical school in 1922. Makerere became an independent national university in 1970. To date, Makerere University is comprised of nine (9) colleges and one school offering programmes for about 36,000 undergraduates and 4,000 postgraduates. Uganda’s higher education enjoys several international students.

2.2 Doctoral numbers

All the 9 public universities offer doctoral training with Makerere leading in the enrolments and graduation rates as shown in table 1 below. Makerere University has graduated more than 1 000 doctorates since its inception in 1922. One recommendation has been that the government should make Makerere University a trainer of high-level postgraduates and transfer undergraduate training to other universities in the country. Most of the PhD programmes in Makerere have a teaching component which is not the situation in the other universities, which offer PhD by thesis and research only.

Table 2: Totals for PhDs awarded by Public Universities in Uganda 1970-2020

University	Time Period	Total	Percentage
Gulu (GU)	2013-2020	15	1.5
Kyambogo (KyU)	2018	2	0.2
Makerere (Mak)	1970-2020	923	90,2
Mbarara University of Science & Technology (MUST)	2014-2020	74	7.2
Uganda Management Institute (UMI)	2018-2020	11	1.07
Total		1,025	100.0

Source: CEPIDE Research Report (2021)

Of the 44 private universities, only 7 universities have been able to train PhDs, that is, 172 PhD graduates between the period of 2001 to 2020 (See table 2). Kampala International University has registered and graduated the highest number of PhDs (a total of 85 PhD graduates) amongst the private universities.

Table 3: Totals for PhDs awarded by private universities in Uganda 2001-2020

University	Time period	Total	Percentage
Bishop Stuart University (BSU)	2012	01	0.6
Busoga (BU)	2014	01	0.6
Islamic University in Uganda (IUIU)	2001-2019	14	8.1
Kampala International University (KIU)	2011-2020	85	49.4
Nkumba (NU)	2009-2019	55	32.0
Uganda Christian (UCU)	2018-2020	06	3.5
Uganda Martyrs (UMU)	2004-2020	10	5.8
TOTAL		172	100.0

Source: CEPIDE Research Report (2021)

According to Kasozi (2019), it is evident that the numbers for postgraduate training are far below the country's needs in both the education sector and the rest of the society. Uganda has about 250,000 higher education students, of whom more than 150,000 are in universities with a low ratio of PhDs to other students.

2.2 Challenges facing Higher Education System- PhD training and Knowledge production

This section highlights on the challenges that generally face PhD training and knowledge production in Uganda. These challenges will be expounded on following the reflections on access, structure, and experience of the PhD programmes at Makerere University.

There is limited funding from both the government and other stakeholders towards higher education. Funding is one of the main challenges that immensely affect higher education in Uganda. According to a UNESCO report (2021) *Race Against Time for Smarter Development*, Uganda is only using 0.3% of its GDP to fund its higher education sector. This percentage is way below the 1% mark set by the African Union in higher education funding. The widening of the funding gap in higher education emanates from increased poverty and a narrow tax base (Omona, 2012).

Higher education in Uganda is also faced with an acute shortage in qualified and well-trained research staff. The growth of any higher education system is rooted in its ability to promote research and innovation. Kasozi (2019) notes that Uganda does not only need qualified academic staff but also well-trained researchers to perform the triple function of knowledge production, its dissemination and application in the society. There is a small number of PhD holders who can train supervise doctoral students. Of these few staff, most of them are moonlighting in order to meet their financial needs hence low production (Martin et al., 2014).

This current study has established non-existence of a policy framework on collaboration and support for PhD training and knowledge production as one key challenge. Collaboration plays an important role in the education sector of the 21st century. Uganda lacks adequate policy framework that can guide its knowledge production and training through collaboration.

The PhD holders in Uganda are on high demand due to the many years of experience and training they hold. This has caused a serious brain drain on the country. Most of the PhDs produced locally are absorbed by the international market causing an imbalance in progressive training and knowledge production (Kasozi, 2019).

3 Makerere University and the Selected programmes

3.1 Makerere University: Brief overview

Makerere University, Kampala, is Uganda's largest and oldest institution of higher learning. It was established in 1922 as a technical school with the aim of training Africans as carpenters and mechanics and later became a 'vocational-professional college' training medical assistants, surveyors, schoolteachers, and similar auxiliary personnel for the colonial government. In 1937, the De La Warr Commission was of the recommendation that Makerere University be reconstituted to include both a secondary school (as was the case before) and a Higher College of East Africa. In 1943, the British Government Commission chaired by Lord Asquith recommended the development of the 'Asquith Colleges' which had 'special relationship' with the University of London which granted their degrees ensuring their adherence to the international standards (Ashby, 1964). Reborn as the University of East Africa in the 1950s, Makerere started offering degree courses. Makerere was affiliated to the University of London until 1963 when it became one of the three constituent colleges of the University of East Africa, together with Nairobi and Dar es Salaam Colleges. In 1970 Makerere became a fully-fledged university, and an autonomous national university of Uganda as was the case of Nairobi college of Kenya and Dar Es Salaam college of Tanzania (Mwiria et al. 2007). This year Makerere will be celebrating its centenary. To date, Makerere University is formed of nine colleges and one school offering programmes to more than 30,000 graduates. On May 23rd, 2022, Makerere celebrated its' 72nd graduation ceremony. With its robust history, Makerere University was an alma mater to many of the famous post-independence African leaders and novelists.

3.2 The selected doctoral programmes for analysis

Two PhD programmes were selected in consultation with the university and respective colleges (i.e., the College of Humanities and Social Sciences; the College of Natural Sciences) senior management. As indicated above, these were identified based on a set of selection criteria. The Gerda Henkel PhD programme was selected as it's a good example of a collaborative programme as well as a cohort structure of PhD. On the other end, the Physics programme represents most of the PhD programmes at Makerere University, what was referred to as 'traditional programmes' by the respondents – based on its structure and application process.

Gerda Henkel PhD Programme in Historic and Humanistic Sciences:

The programme started in 2017 at Makerere University, College of Humanities and Social Sciences. The university/faculty received funding from Gerda Henkel Foundation. The project started off as part of a cohort project of PhD students in Stellenbosch University, South Africa in 2010; and expanded northwards being part of Makerere University as a cohort system. This made the Makerere University team rethink funding for its PhD program. Makerere University agreed on the following: six months dedicated to the development of the proposal (full-time funded and on-campus) unlike the 1-year proposal development as is the case for Stellenbosch University; the students are facilitated by training and workshops; which is expected for minimum time completion. There is an extension of two months in the instances where the proposals are not completed within the stipulated six months. From the cohort statistics, about 80% of students completed their proposal development and defence within 6-8 months. After the proposal development phase, the students attain full admission into the program; and then start the data collection and writing phase. Working with the example of the 2017 cohort (10 students) – one student dropped out because of the long illness and later death of a family member; after which she was also faced by health issues. Of the nine students remaining in the programme, five completed and defended their PhD thesis in 2021 followed by graduation in the same year. Three completed their studies – have been examined and are to graduate in May 2022. They needed an extra 6-9 months. The 2020 and 2021 cohorts were largely affected by the COVID -19 pandemic and have only started the literature reviews and data collections.

Physics PhD Programme

The Physics PhD Programme is one of the main ‘traditional’ PhD programmes in the College of Natural Sciences at Makerere University. The programme somewhat supplies a contrast and different perspective to the Humanities programme as it represents a typical PhD programme within the university which does not benefit from external funding, and there is little, or no collaboration built into the programme.

3.3 Recap of research focus and objectives

The overarching aim of this research report is to respond to ARUA’s objective to create globally competitive collaborative PhD programs among ARUA member universities. More specifically the research looks to find selected PhD programmes at ARUA member universities, review the programmes and make recommendations to ARUA towards better

collaboration across the Alliance. The two PhD programmes selected from each university was done to supply a representation one from the humanities and one from the natural sciences. Data was collected from each of the programme coordinators or head of programmes. Institutional data was further collected from the institutional websites, and these were analysed according to three main themes: access to the programmes, structure of the programme and experience through the programme. The research further sought to conduct interviews with each university vice chancellor to get inputs into four key issues related to collaboration: national and institutional policy, current collaboration practice, challenges facing collaboration and recommendations for better collaboration. As the only member of ARUA from Uganda, Makerere University was included as the sample institution to be studied in the project. However, the PhD programs from the university were selected through a negotiated approach between the research team and Makerere research office. While a set of criteria were proposed, the university had the discretion to suggest a preferred programme from the humanities and another from the natural science.

Table 4: Data on Access, structure, and experience through the programme

	HUMANITIES	STEM
Name of programme	Gerda Henkel PhD Programme in Historic and Humanistic Sciences	PhD in Physics
Academic home	College of Humanities and Social Sciences	College of Natural Sciences
	Access to the programme	
Entry requirement	<p>The Gerda Henkel PhD Programme of historic and humanistic sciences has the follow key admission requirements:</p> <ul style="list-style-type: none"> - Research experience in the Humanities and Social Sciences at a university or Research institute. - Solid foundation in writing and research methods. - Excellent oral and written communication skills - Applicants should prove ability for independent work. - Hold a master’s degree in the Humanities and Social Sciences discipline from a recognised university. - Hold an Honours undergraduate degree in the Humanities and social sciences from a recognised university related to the specialisation being applied for (example, if you are applying for a PhD in Sociology, you must have offered sociology at an undergraduate level) - Supply two letters from two academic referees recommending the application. - Be under the age of 40 years (male) and 45 years (female) by 30th September 2022 or time of application. 	<p>The admission requirements for the PhD physics programme are like other traditional PhD programmes at Makerere University and nationally where it requires the student to have master’s degree in a relevant field as its minimum prior qualification. Other requirements such as work experience or professional registration are not relevant at the time of application.</p>

	<p>NOTE: The admission requirements are unique to this program and have been customised to fit in the cohort approach of the program.</p> <p>General Requirements</p> <p>Research experience in the humanities and social sciences at a university or a Research Institute and a strong foundation in writing and research methods.</p> <ul style="list-style-type: none"> - Exemplary study achievements and exam performances - Certificate(s) of the university degree qualifying for PhD studies (generally master's certificate for direct doctorates: seminar attendance certificates) 	
Last five-year enrolment figures	10 students in each cohort (2017-2022) – Estimated 40 students	About 20 students
Last five-year graduation figures	About 10 Students. 5 more students to graduate in 2022.	6 (2020)
Start and end date? Month	The applications for this PhD program tend to run from January- April of a given year since the start of the programme. For instance, the call for the 2022 cohort is out (January – April 2022). The start date for this program is in September of a given year, in this case the program will start in September 2022 and 2025.	As it applies to other traditional PhD programmes at Makerere University, the application dates and start dates of the PhD Physics programme runs throughout the year if there is funding and a supervision for the student. NOTE: Many students in the Physics PhD programme are self-sponsored compared to other programmes. Therefore, this decides the start time and time of completion – some students take 8 years to complete due to funding.
Application process? Open	Funder Calls/Funding calls:	Supervisor route:

application, supervisor route, or funder calls? Interviews?	The application calls (Funding calls) for this PhD program tend to run from January- April of a given year since the start of the programme. For instance, the call for the 2022 cohort is out (January – April 2022). The start date for this program is in September of a given year, in this case the program will start in September 2022 and end in 2025.	At the beginning of the programme, the students must develop and submit a concept paper with the support of their proposed supervisors, which is submitted later for provisional admission
Programme cost	Each student receives 12,000 dollars p.a – tuition fees, infrastructure, stipend – these amounts are comparable to what postgraduate students receive in North America and Europe.	Depends on the areas of research – some research that is laboratory research requires a lot of funding to buy consumables – provided for by projects if linked to them; some students use secondary data – thus need monies for software; need to pay tuition (US\$2300 p.a).
Structure of the programme		
Credit system?	This programme adopted the PhD by research model - the students are examined by a PhD dissertation. For this PhD programme, the department only requires the students to develop a proposal, a thesis by monograph and publish two articles in peer reviewed journals before graduation.	Thesis by monograph mainly. The students are expected to publish two articles in peer reviewed journals before graduation
Duration of programme	The Gerda Henkel PhD Programme is an inter-disciplinary PhD by research that has the duration of three years. These 3 years entail: the first year is for research proposal development where the students have provisional admission; the second year the students have full admission. There is a possibility of extension by one to two years after the third year for the students to complete their research.	Minimum is supposed to be 3 years – some students complete in 2 years and allowed to graduate if they complete fees
Registration process	The funding calls are advertised between January – April of a given year. For instance, the call for the 2022 cohort is out (January – April 2022). The students apply to be considered for funding. If considered for funding, the students are offered provisional admission (6 months – 1 year) to develop and defend the proposal; after which they reach full admission.	At the beginning of the programme, the students are required to develop and submit a concept paper with the support of their proposed supervisors; The School of Graduate Studies then forward the applications to the department; the department identifies and assigns the supervisor(s) to support the students in improving the concept note; The area of expertise is considered at this stage, therefore the supervisors the research group are contacted before

	The formal procedure of applying for this programme requires a CV and a sample writing (e.g., a draft concept note, an article), graduates with masters and honours degrees.	being assigned the students for supervision. Later, the department writes to the academic registrar to grant provisional admission to the students and supply the names of the identified supervisors. After admission, the PhD student has one year to develop the PhD proposal which has to be presented at department and later at the school of Physical Sciences. After, the proposal development stage, the students are then recommended for full admission.
Course design (thesis only or hybrid/paper)	A thesis by monograph and publish two articles in peer reviewed journals before graduation. Hybrid?	Thesis by monograph mainly. The students are expected to publish two articles in peer reviewed journals before graduation. Hybrid?
Supervisory model	On supervision, this program adopts a team supervision model, where one student has several supervisors. In most instances, the student has two or three supervisors, who is the ‘main’ supervisor and the ‘co-supervisor(s).	The Physics PhD program adopts the one student-several supervisors (team supervision model); The common case is where one student is assigned two supervisors, however there are instances where the student can be assigned two or more supervisors – some of the supervisors are ‘external supervisors’
Collaborative? How	There are no collaborative supervision models adopted for the Gerda Henkel program as the students are on a cohort PhD program. The program adopts a cohort system where 10 students are admitted each year. This program is fully a university of Makerere University program and not collaborative. The only difference from the ‘traditional’ PhD programs is that it is a cohort PhD programme, and the students are full time.	Collaborative supervision aspects are not part of the Physics PhD programme. The PhD programme is mainly a Makerere University programme and not collaborative with other universities or research institutions. However, different research programmes or projects in the department allow students to visit some regional and international universities for research, for instance, University of Northwest in Mafikeng, South Africa, the University of Nairobi, Kenya and the Norwegian University of Science and Technology, Norway.

Graduation requirement (paper, etc)	Thesis and publish two articles in peer reviewed journals before graduation.	Theses publish two articles in peer reviewed journals before graduation: Present at an institutional, national and/or international conference.
	Experience through the programme	
Quality of staff? % PhD / Professors?	TBC	TBC
Quality of infrastructure (library, labs, ICT etc)	<p>Library: The university has a well-equipped library. Training from the university including through the university library that is well equipped; training and writing workshops (i.e., writing the dissertation, research methods) at the college level.</p> <p>Reading rooms/Computer/Internet/</p> <p>Academic infrastructure are provided for the students, i.e. 2 reading rooms and internet a new Mac Book laptop; facility given starting with 2020/2021 – research funding and conference funding provided; (different interims of financial support the cohort system; the research supporting infrastructure – workshops, experts from the East African Universities– all these structures available to support these cohort students are not available to Makerere University students doing the ‘traditional’/conventional’ PhD programs.</p>	<p>Laboratories Project laboratories are supplied for the students – to allow research.</p> <p>Printing Materials The students are linked to projects thus provided by printing materials; students get themselves; self-sponsored student buy the materials themselves.</p> <p>Library The department has a library (outdated books) – rarely used – mostly used by undergraduates, main university library supplies training and material.</p>
Programme support (courses, funding, training etc)	<p>Training: Given that this is a cohort PhD programme – the trainings are replicated across the years of the PhD: one specialized training and workshop offered during the first year particularly on the philosophy of quantitative and qualitative research methods; visiting experts from the universities/institutions in the East African region [University of Nairobi; University of Dar Es Salaam) are engaged to take the students through trainings on research methods (quantitative</p>	<p>Additional Funding: Tutoring and lecturing not applicable at Makerere now; to introduce graduate program; other funding opportunities depend on projects available at the department; some students get funding from Embassies (i.e., Germany; Belgium).</p>

<p>research, archive research, historical methods) – the trainings are basically based on the disciplines e.g., history; Trainings are also offered on focus group discussions as a research method.</p> <p>Workshops</p> <p>A series of targeted research method and writing workshops are offered, for instance, the 2020 cohort was taken through trainings and workshops on how conduct data collection during the COVID-19 pandemic (in this case the department involved experts from the University of Nairobi and Kenyatta University in Kenya). The 2021 Cohort completed a workshop on research methods in March 2022; The 2022 cohort started a workshop on how to author a dissertation in March 2022. Makerere University hosts The Centre of Excellence in Research Teaching and Learning – this centre offers the students periodical trainings, workshops, and seminars in teaching, learning and research.</p> <p>Funding: The programme is fully funded by the Gerda Henkel Foundation. An average of US\$ 500, 000 dollars is funded to run the different cohort(s) pa. Each student receives 12,000 dollars p.a – tuition fees, infrastructure, stipend – these amounts are comparable to what postgraduate students receive in North America and Europe.</p> <p>Additional Funding: In addition, students are encouraged to search for more funding. The Social Sciences Research Council is currently funding 5 students under – proposal development and data collection. Other financial assistances come from the University of Cape town; British Institute in Eastern Africa (BIEA) based in Nairobi.</p>	<p>Conference: Depends if the students are linked to research projects – most students are self-sponsored; the university/department does not sponsor conference attendance</p>
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	<p>The PhD program also receives bilateral funding from the Journal of Africa Cultural studies annually – e.g., the next meeting is happening in Cape Town this year and students have been supported to attend.</p> <p>Subsistence allowance: Living allowance and opportunities to leverage funding from other funders.</p> <p>Conference Attendance: The 2020- 2022 cohort have funding to attend conference – US\$ 5000.</p>	
<p>Programme highlight. What makes it recognised?</p>	<p>The cohort system of the Gerda Henkel PhD programme makes this program unique. The students are fully funded and full-time thus this is intended to influence the graduation rates. For instance, of the 10 students of the 2017 cohort, 5 students were able to graduate in time. However, it is important to note that the later graduation rates (of the 2020/21 cohorts) will be largely affected by COVID-19, as the students might not be able to collect data and complete their dissertations in time as earlier anticipated.</p>	<p>The department of Physics tries to increase the completion rates, improving the enrolments and graduation rates. There are seminars where all graduate students are expected to present their work and allows them to catch up on their research. Some projects within the department which the students are linked to and encourage them to complete in time. PhD students get funding by being linked to these projects. For instance, through this collaboration the University of Eduardo Mondlane has started a PhD training. The other universities that the PhD Physics collaborate with is Dar Es Salaam University, Tanzania; the Norwegian University of Science and Technology, Norway and Eduardo Mondlane University, Mozambique.</p>

Any compulsory components?		For the PhD Physics programme, seminar attendance and seminar presentation are one of the compulsory elements. The students must present at conferences and seminars for them move to next stage of research. In addition, there are interdisciplinary courses at Makerere University and at the department that must be taken by the students. There are exchange programme elements linked to the PhD Physics programme if there is funding that is linked to projects – for instance, the link with the University of Nairobi and the Norwegian University of Science and Technology.
Aspirations towards collaboration		

4. Findings from the Institutional data

4.1 The data collection process

The data collection process at the university experienced a number of challenges. Firstly, there was slow responses from the contact persons requiring multiple instances of follow up. Secondly, while some other country cases could rely on available desktop information, in this case, minimal data was available online, through requested meetings as well as documentation. This was exceedingly difficult as the researcher was not able in some cases to secure follow-up interviews and available documentation was either insufficient or outdated. Thirdly, policy documents were also unavailable or limited and particularly staff data that was needed to understand PhD student/staff ratio and to analyse the PhD supervision ability was not forthcoming either.

Limited information was available on the policies for collaboration on PhD training in Uganda. It was hoped that follow up interviews would enable closing some of these information gaps, but unfortunately these could not be secured within the project timelines.

The next section outlines findings from the institutional data collected from both programmes. The aim of the data collection was to get information on the structure of the programmes, the admission requirements, and to make recommendations towards principles that can inform the development of more collaborative programmes across ARUA universities. The data has been organised around three main dimensions access, structure, and experience of doctoral programme delivery for the case of Makerere University. The analysis of this data equally highlights the challenges and opportunities for establishing and strengthening collaboration towards the production of quality doctoral graduates across Africa in ways that promote mobility and better student experience.

4.2 Emerging findings linked to Access

This sub-section highlights the information collected around access to doctoral programmes within Makerere University.

4.2.1 Admission Requirements

The data shows that access to a PhD programme, both in the Natural Sciences or Humanities has some standard requirements. This tends to be a master's degree or equivalent in a relevant field as its minimum prior qualification. For the humanities, there is emphasis on research experience in the field at a recognised university or Research institute. The detailed information

on the admission requirements is provided in Annex 1. Other general requirements for accessing the PhD programmes both in the Natural and Humanities fields, were indicated as follows: a strong foundation in writing and research methods; exemplary study achievements and exam performance – (as for Makerere, specifications of the exact achievements were not provided); certificate(s) of the university degree qualifying for PhD studies (generally master's certificate and seminar attendance certificates, e.tc); and excellent oral and written communication skills.

4.2.2 The start and end of the PhD Programmes

In relation to when the PhD programme starts or ends, there were some differences between the selected Humanities programme and the Natural Sciences programme. The institutional data collected shows that, for the PhD programme in the Humanities, the applications tend to run from January - April of any given year. The commencement of the Humanities programme is largely dependent on the funding calls which also tend to run during the same period annually. While for the Natural Sciences programme it is like other traditional PhD programmes at Makerere University, the application dates and start dates of the PhD Physics programme runs throughout the year if there is funding and supervision for the student.

4.2.3 The Application Process

Another aspect relating to access is the application process of the programmes. The institutional data shows that for the Humanities programmes the application process takes the funders' calls approach as application calls (funding calls by the main funder of this programme – Gerda Henkel Foundation) for the PhD program. As said above this tends to run from January - April of any given year. While for the Natural Sciences programme, supervisory support is of paramount importance as at the beginning of the programme, the students must develop and give a concept paper with the support of their proposed supervisors by the department, which is given later for provisional admission.

4.3.4 The PhD Programme Costs

On the programme costs, data showed differences between the PhD programmes in the Natural Sciences and Humanities. The humanities programme had higher costs, as each student

receives 12,000 dollars p.a (equivalent to 75, 160,360 Uganda Shillings per annum)¹ to cover tuition fees, infrastructure, and stipend. These amounts are comparable to what postgraduate students generally receive in North America and Europe. While for the Natural Sciences, the selected programmes costs largely depend on the areas of research. For instance, some research that includes laboratory research work requires a lot of funding to buy consumables – supported by projects if linked to them; some students use secondary data – thus need monies for software; or need to pay tuition (e.g., US\$2300 p.a; equivalent to 8,643,441 Uganda Shillings).

With students qualifying for funding depending on their research areas, it means that there can exist several collaborative programmes within a department. Makerere University has created an open system for collaboration in terms of the few programmes such as the humanities cohort programme and supervision, but opportunities exist in minimal.

4.3. Findings linked to the structure of the Programme

The structure of the PhD makes up several aspects that will be reflected on in this section based on the institutional data collected: the credit system, duration of the programme, the supervisory models of the programme and the aspects within the programmes that are important considerations for collaboration.

4.3.1 The Credit system

On the credit system there appears to be some differences in standards where the students are credited by a thesis and/or expected to publish two peer-reviewed articles before graduation. For the traditional programmes (PhD in Physics), the thesis is by monograph mainly and students are expected to publish two articles in peer reviewed journals before graduation. For the cohort system adopted for the humanities programme, the students are examined by a PhD dissertation on top of two articles published. It was written down from the interview that the taught programmes wherein the requirement is for a PhD by research and dissertation, is considered superior as compared to PhD by research only because of the practical knowledge and experience it offers the students. Both programmes are structured to be completed in three years, although a PhD student in Physics can complete studies in two years and graduate on paying full fees for the three years.

¹ 2022 USD to UG Shillings exchange rate

4.3.2 Duration of Programmes

In relation to the duration of the programmes, there appears to be some similarities across the Humanities and Natural Sciences. The programmes are expected to be completed in 3 years with some students completing in 2 years and there is a possibility of extension by one to two years after the third year. Particularly for the Humanities, this 3 year entails the following: the first year is for the research proposal development where the students have provisional admission; the second year the students have full admission, and the third year is for the dissertation and presentation. For the natural sciences programme on the other end, the smallest period of completion is supposed to be 3 years – some students complete in 2 years and allowed to graduate if they complete fees

4.3.3 Supervisory Model

On the supervisory model, the institutional data shows that there seems to be a standard approach in the models adopted. The PhD focus programme in the Humanities adopts a team supervision model, where one student has several supervisors. In most instances, the student has two or three supervisors: the ‘main’ supervisor and the ‘co-supervisor(s)’. The PhD programme in the Natural Sciences similarly adopts the one student-several supervisors (team supervision model) approach. The most common is the assignment of one student to two supervisors, however there are instances where the student can be assigned two or more supervisors. In some cases, these supervisors can be ‘external supervisors’.

4.3.4 Collaboration

The institutional data also highlighted that there are no collaborative supervision models adopted for both the focus programmes in this project. As for the Humanities programme, students are on a cohort PhD programme. The only difference from the ‘traditional PhD program’ (i.e., the Natural Sciences programme) is it is a cohort PhD program and students are full time compared to the Natural Science traditional programme where some students are working full time and doing the PhD part-time.

However, there are other PhD programmes in the university that do have a stronger collaborative approach. For example, under the PhD in Physics, different research programmes allow students to visit international universities for research. The PhD students get funding by being linked to these projects. For instance, through this collaboration, the University of Eduardo Mondlane has started PhD training. Other universities are also part of collaborative

efforts with the university's PhD in Physics, such as a collaboration with Dar es Salaam University, Tanzania, the Norwegian University of Science and Technology, Norway and the University of Nairobi, Kenya. These collaborations could form the basis for possible ARUA collaboration initiatives.

4.4. Experience through the Programme

This sub-section will highlight the institutional data collected on PhD student experience. This will be looked at from three angles: access to funding, training and conference attendance and institutional infrastructure.

4.4.1 Access to Funding

The data collected shows huge discrepancies in access to funding between the Humanities and Natural sciences disciplines. The Humanities programme is fully funded by the Gerda Henkel Foundation. An average of US\$ 500, 000 (1,888,308,000 equivalent Uganda Shillings) is funded to run the different cohort(s) per annum. Each student receives US\$12,000 (75,532,320 Uganda Shillings) that covers tuition fees, infrastructure, and a stipend. Students are encouraged to search for additional funding. The Social Sciences Research Council is currently funding five (5) students under proposal development and data collection. Other financial assistance has been identified as coming from the University of Cape Town and British Institute in Eastern Africa (BIEA) based in Nairobi.

For the humanities, additional funding is not easily accessed as tutoring and lecturing is not applicable at Makerere now. For this programme, other funding opportunities depend on projects available at the department and some students get funding from Embassies (i.e., Germany; Belgium).

4.3.2 Training, Workshop and Conference Attendance

The data collected shows that training is emphasised within the Humanities programmes, with a particular focus on research methods and data collection. Given that the focus Humanities programme is a cohort PhD programme – the training takes place across the years of the PhD: one specialized training and workshop offered during the first year particularly on the philosophy of quantitative and qualitative research and research methods (i.e., quantitative

research, archive research, historical methods, focus group discussions). These training opportunities are basically based on the disciplines e.g., history.

Additionally, there is a series of targeted workshops on how to write a PhD dissertation, research method and how to conduct literature reviews. For instance, the 2020 cohort was taken through training and workshops on how to conduct data collection during the COVID-19 pandemic. In this case the department involved experts from the University of Nairobi and Kenyatta University in Kenya. All doctoral students under the cohort programme receive funding for conference attendance. For the PhD in Physics, it depends on whether this is linked to a research project. For the Natural Sciences programme, conference costs are covered depending on whether students are linked to research projects. In most cases the students are self-sponsored, and the department does not fund conference attendance. In addition, Makerere University hosts The Centre of Excellence in Research Teaching and Learning which offers the students periodical training, workshops, and seminars in teaching, learning and research.

4.3.3 Institutional infrastructure and support

From the data annexed below, it is noted that Makerere university has a well-equipped library. Notably, through the university library, students receive training and take part in writing workshops (i.e., writing the dissertation, research methods) at the Humanities college level as well as the university level. Doctoral students under this Humanities programme are also provided with a modern laptop, internet and reading rooms. A critical point to note is that all these structures available to support these cohort students in the Humanities programme are not available to the wider Makerere University students doing the ‘traditional/conventional’ PhD programmes. In comparison, traditional programmes tend to have outdated books, for example as is the case at the department of Physics’ library and the printed study material which can only be accessed at individual expense. In general, Makerere University needs improvement and updating of its infrastructure to support doctoral training and research for the broader research programmes that do not have dedicated funding. This is an underlying issue for all institutions of higher learning in the region which can be a significant impediment to collaboration both nationally and internationally.

4.5 Reflections: Challenges facing PhD training

Observations from the institutional data is that the enrolment and graduation rates are low for the traditional PhD programmes (i.e., for example, the Physics programme) in comparison to the cohort system (i.e., the Gerda Henkel of historic and humanistic sciences). There is a constraint on funding for self-sponsored students who are mostly in the traditional PhD programmes on research projects and conference attendance. Furthermore, it is compulsory for students in such scenarios to present in seminars or conferences for them to go ahead to the next level. Although the enrolment may be low, these are all key factors contributing to the lower graduation rate at the PhD level. In addition, the factors or challenges that affect access, and experience within the programmes could as well be an obstacle to collaboration across PhD programmes, both institutionally, nationally, and internationally. These challenges are reflected and considered in detail below:

4.5.1 Staffing Challenges

The data collected on the two focus programmes shows that students are distributed two to three supervisors. One main supervisor and one or two core supervisors. However, due to inadequate staffing in Makerere University, some, if not most of, these supervisors are external. Writing and completing a doctoral degree requires resources and commitment both by the students and supervisors. Supervisors help to cultivate and develop the intellectual abilities of students for the completion of doctoral degrees. Most of the PhD programmes in Makerere and other African universities face shortages in qualified academics and supervisors. This lack of supervisory capacity makes it difficult for PhD candidates to complete their studies, and for others even to begin, since it is a requirement for a candidate to have at least one supervisor before beginning doctoral degrees. Universities are handicapped in terms of personnel. In most cases students rely on remote supervision. Furthermore, some of the supervisors within the university context are not knowledgeable in the fields where students are conducting their theses thus this continuing demand for external supervision.

4.5.2 Context of Research

The context within which PhD level studies is conducted has a direct bearing on training. This relates to the political environment, level of freedom and protection of human rights in each society. As it is clear in most African countries with high political tensions, Uganda is no

exception. Though the first two, most oppressive regimes are long gone, much needs to be done to build an environment which would support research and innovation in Uganda.

Added contextual aspects also importantly decide how research would be conducted by the PhD candidates. Availability and accessibility of research material and equipment is key. Besides supervision and the role of the student in the completion of a doctorate degree, the context of research for the degree is also a contributing factor. It was noted that some candidates would drop out of a programme due to family related reasons or relocation. The PhD students need funding to finance their projects, to travel and support their families. The limited resources in the university; libraries, laboratory equipment and other research equipment in line with the programme decide the completion timelines for the PhD students enrolled. According To Muriisa (2015), regardless of the quality and competence of the students who enrol on the program, the context of the program plays a role in affecting the completion rates of the PhD degree. Muriisa (2015) also notes that most of the students who enrol for PhD in the sub-Saharan Africa are on full time employment. In most cases these are self-sponsored students sourcing for finances through their employment to fund their doctoral studies. Hence a small proportion of their time is distributed towards the studies and research.

4.5.3 Funding challenges

From the data provided we find that the PhD in Historic and Humanistic Sciences under Gerda Henkel Foundation is fully funded as compared to the PhD in Physics. The programme receives US\$ 500,000 per annum. Each student is estimated to receive 12,000 dollars per annum which is meant to ease tuition fees, infrastructure, and a stipend. Further to this, some of the students received added funding from the Social Science Research Council for proposal development and data collection. Students from this programme also receive funding from bilateral institutions e.g., Journal of Africa Cultural Studies, British Institute of East Africa (BIEA) in Nairobi and the University of Cape Town. Well-funded programmes like the Gerda Henkel PhD programme make it easier for students to access wider training on the programmes being offered. PhD candidates from the Gerda Henkel Programme thus have an advantage towards completing their degrees on time.

Like the students studying PhD in Physics, most typical PhD students at Makerere are self-sponsored. As earlier said, PhD Physics does not receive any specific funding for their students. The tuition fees, estimated at \$ US 2,3000 is paid by the students themselves. Other funding opportunities at the department of physics depends on the programmes available, some of the

students may get funding from the embassies, for example the Embassy of Germany. The department does not necessarily fund conference attendance. Seminar attendance and conference presentation are one of the compulsory elements for students to move to the next stage of research. Some students accept to eight years to complete the degree due to inadequate funding and other support needed.

Secondly, funding is also a cross-cutting challenge on institutional preparedness to conduct doctoral research. It is noted in the data that most of the books under the physics section in the library are outdated. Furthermore, these books can only be used by undergraduates. These departments lack adequate finances to stock their libraries, subscribe to online journal databases and update research laboratories with up-to-date chemicals and equipment needed for lab work. On the other end for the PhD in Historic and Humanistic Sciences, the university library is fully equipped with books, training rooms and workshops. The above observation suggests that neither programme is getting adequate funding to support the PhD programme, or these funds are not being appropriately managed by the university or relevant departments. Notwithstanding, collaboration across ARUA universities could mitigate some of these challenges as some of the students could receive help from resources. However, such collaborations will need to be embarked upon for win-win partnerships.

4.5.4 Systemic challenges

In addition to the challenges reflected in the section above, respondents highlighted some challenges at the systemic level.

From the data collected, respondents are of the view that for collaboration to be possible, political commitment and support are needed in the different countries to support PhD programmes. There is the view that adopting a cohort system, which has a huge focus on funding for the PhD students, well equipped libraries, targeted training, and workshops as well as availability of conference funds will be a great enabler of collaboration. Arguably, funding is very key, as the example of Stellenbosch University as illustrated from the data in annex. It was argued that Stellenbosch University introduced the cohort project/system with the aim of using the cohort system to change the demographics of the university, that is, transformation to ensure the representation of the different races and/or ethnicities in the country. On the other end, Makerere University, which adopted the cohort project/system from the project at Stellenbosch University, had the strategic need of transforming the university to a research

university. The assumption is that the cohort system allows the university to create research ability needed for the transformation. Therefore, there are recommendations of a cohort system (given its characteristics) being adopted across ARUA universities to allow PhD programmes' collaboration.

Another key point is that there is need for mindset changes on the training in terms of the ability of the university. In relation to the above reflections, the university is faced by huge understaffing issues that haven't been addressed for many years. As already highlighted (see section 4.4), the staffing problems have largely affected supervision of the PhD students. This challenge could impede the aim among the ARUA Universities in offering collaborative PhD programmes.

5. Recommendations towards collaborative PhD programs

This sub-section supplies a conclusion on the several aspects discussed above in relation to the PhD programmes in the Ugandan context and particularly how the different aspects will be enablers or not to collaboration.

5.1 Quality assurance and accreditation

For collaborative programs, production of quality PhD graduates should be key. In a globalized world quality is not only an issue of a nation and thus requires diligently working with other similar agencies through setting up sub-continental, continental and international QA agencies and networks (Adamu, 2021). This helps to create collaboration through sharing of information, good practice, and experience which in turn can ease mobility of students and qualification. These agencies will also help in checking the quality of PhD programmes being adopted for collaborating institutions of higher learning. PhD candidates are not only consumers of knowledge but also active contributors to the generation of new knowledge. According to Ruhinda (2017), the IUCEA is on its course in adapting a Regional Quality Assurance framework that consists of:

- Standard guidelines and procedures
- Programme benchmarks
- Principles and Guidelines making up a policy framework.

To achieve this goal at the institution level, it is recommended that: In line with the requirements that come with PhD thesis and dissertation, no university should enrol more PhD candidates that it can provide with adequate services and supervision.

There should be an establishment of Quality Agencies (QA) at the national and regional level that at least use similar standards and procedures in their levels of assessments. Creating such a similarity makes it easier for institutions to develop a collaborative platform.

5.2 Increased avenues for sustainable funding

Universities in Africa, including ARUA universities, should be encouraged to have ways in which they would generate more and sustainable funding for the PhD programmes. This may be through income generation, increased government support and other stakeholders. Over-reliance on funding from development partners is unsustainable and restrictive. There has been

a call for the African countries to spend at least 1% of their GDP on higher education. In the Eastern Africa region Uganda spends the least, 0.3% of its GDP. (UNESCO,2021)

One of the constraints that has come out throughout this study has been on the constraints of funding. In the Makerere case, there is a lot to be done in relation to asking for sustainable and sufficient funds for PhD training. Funding here needs to be done on two levels:

1. Infrastructural funding - If we are to achieve collaboration to similar levels as that of the countries linked to the Bologna Process, then ARUA universities need to invest in infrastructure, e.g., modern laboratories, libraries, and other research facilities. There is need to create a competitive environment internationally. Modern facilities attract international students, and it makes it easier for collaboration.

2. Inadequate funding is one of the main causes in low and delayed doctoral completion in this case. From this study it is recommended that the council for higher education (Uganda) through the government should lobby for increased allocation of resources in doctoral training and research. Some of the areas like the natural sciences which require higher tuition fees (due to the need of larger equipment, infrastructure, and materials for research) as compared to other disciplines (i.e., humanities and social sciences), need more funding. Through adequate funding, the issues on staffing would have been addressed partly. Essentially the argument is for more subsidizing of PhD programmes particularly in Natural Sciences programmes if collaboration is attempted.

5.3 Programme restructuring

The differences in how the doctoral programmes are structured within Uganda's Makerere University was also noted in this study. This affects the completion rates adversely. Some institutions within Uganda (particularly the public universities) and programmes in the universities do not allow credit transfers, making it difficult for students who need to transfer from one university to another. This on the other end affects collaboration both institutional and nationally. Therefore, it is recommended that the ARUA universities work together and restructure their doctoral programmes to fit the regional and international standards. Secondly, there should be an introduction of coursework in the doctoral programmes. It would help students to fully understand their field of study.

5.4 Higher education policy formulation and implementation

The government and the university need to come up with strong policies to support internationalisation and collaboration, both nationally and institutionally. One of the major weaknesses that has been recognized in this study is insufficient information on the available policies to support collaboration or lack of thereof. As noted by Kasozi (2019), the ratio of PhDs to the population is exceptionally low in Uganda. There are inadequate policies for implementation to support doctoral studies on funding and research. The policies to be formulated here should focus more on funding and supporting doctoral studies within the Ugandan borders and the region. This will set the stage for more collaborative programmes.

Conclusion

The admission requirements are like those of other institutions nationally and within the East African community. The time slotted for completion of postgraduate studies is similar in most of the East African Institutions of Higher Learning. Free movement of East African citizens with the EAC member states, is also one of the reasons that explains a larger proportion of international students coming from Kenya and Tanzania. This explains the high numbers of foreign students from Kenya and Republic of Tanzania at Makerere University. The similarity in admission requirements creates a flexible environment for collaboration and internationalisation of the doctoral programmes. Under the cohort system, the team supervisory model is adopted, where one student is given several supervisors. With a good success rate this model has proved to be well-suited for the students who are on full time basis. It is also good to note and encourage the presence of collaborative supervision for specific projects in the department of physics.

However, several issues need to be addressed to support the PhD programmes in general and collaboration. From staffing, funding to programme restructuring, there is much to be done through a joint effort. Collaboration stays the best fit for the future of integration and academic excellence in Africa, and particularly for the ARUA universities. There are inadequate and ineffective policies to support internationalisation and collaboration in the Ugandan context. The existence of such relevant policies would hopefully support provision of funding, a more favourable research environment and frameworks on collaborative initiatives nationally and internationally.

There exists a disparity between the funding of the Humanities and Natural Sciences PhD programmes. Focus should be put on the harmonisation of the funding structures within the colleges and the university at large. Different programmes shall always receive distinct levels of funding. The margin can be supported to avoid a situation where other programmes are totally disadvantaged within the same institution. Provision of modern research equipment and up-to-date study materials is an impetus to produce more qualified doctoral graduates; therefore, it is important that provision is harmonised within the colleges and the university.

Some of the main factors that affect staffing are funding (Government funding) and successful completion of doctoral studies. PhDs are an entry point to a rigorous world of research and innovation. Although no specific up-to-date data on staffing has been shared or availed from Makerere University, the conditions lead to the assertion that the number of staff with PhDs is extremely low. For a sustainable knowledge transfer, the number of qualified staff with PhDs and associate professors should triple in the next 3-5 years to sustain PhD training at Makerere University and in Uganda in general.

References

- African Development Bank (2021) Uganda Economic Outlook. Available at: <https://www.afdb.org/en/countries/east-africa/uganda/uganda-economic-outlook>. (Accessed: 21/4/2022)
- Ashby, E. (1964). African universities and western tradition. In *African Universities and Western Tradition*. Harvard University Press.
- Cara, M. Emi, S. Aziz, A. (2021). 'The demographic boom: An explainer on Uganda's population trends', World Bank Blogs, 18th February. Available at: <https://blogs.worldbank.org/africacan/demographic-boom-explainer-ugandas-population-trends>. (Accessed: 15th March 2021)
- Etomaru, I, Bakkabulindi, F.E.K, Balojja, T.D. (2021). State of Doctoral Education and Training in Uganda. Research Report, March 2021
- Ggoobi, R, Wabukala B. M, Ntayi, J (2017) Economic Development and Industrial Policy in Uganda. Friedrich Ebert Stiftung, November 2017.
- Halvorsen, Tor. 2010. 'Introduction'. In *Reshaping Research Universities in the Nile Basin Countries*, book 2, edited by Alema Kassahun, Mary Mwiandi and Tor Halvorsen. Kampala: Fountain http://ir.kabarak.ac.ke/bitstream/handle/123456789/984/bitstream_651.pdf?sequence=1 (Accessed: 31/08/2022).
- Kasozi, A.B.K. (2019). Creation of the Next Generation of Thinkers and Innovators: Doctoral Trainings in Ugandan Universities. *Makerere Journal of Higher Education*
- Martin, C. L., Allan, M. K., & Peter, K. (2014). The Effect of Moonlighting on Service Quality among Public Universities in Uganda: The Case of MUK and MUST. Available at:
- Muriisa, K.R (2015) The State of Doctoral Education in Social Sciences in Uganda: Experiences and Challenges of Doctoral Training at Mbarara University of Science and Technology. (2003-2010). *Journal of Education and Practice*, Vol.6, No.10,2015.
- Muriisa, K.R. (2010), 'It's not about Money, Financial Governance and Research in Public Universities in Uganda. In *Reshaping Research Universities in the Nile Basin Countries*, book 2, edited by Alema Kassahun, Mary Mwiandi and Tor Halvorsen. Kampala: Fountain.
- Mwiria, K., Ng'ethe, N., Ngome, C., & Odero, V. W. (2007). *Public and private universities in Kenya*. University of Nairobi Press.
- National Planning Authority (2020) Third National Development Plan (NDPIII)-2020/21-2024/25
- Omona.J., (2012) Funding Higher Education in Uganda: Modalities, Challenges and Opportunities in Twenty-First Century. *Makerere Higher Education Journal*

Ruhinda, B. (2017) Harmonization of Higher Education Systems Towards an EAC Common Higher Education Area. IUCEA.

Schneegan, S., Lewis, J., Straza, T (2021) The Race Against Time for Smarter Development. UNESCO Science Report, June 2021 World Bank (2021) <https://data.worldbank.org/country/uganda?view=chart> (Accessed at: 24/8/2022)

Uganda Vision 2040

Zdravko, L., Jadranka, B. (2005) Second European Conference on Harmonization of PhD programmes in Biomedicine and Health Sciences. University of Zagreb, 2005. Guidelines for Organization of PhD Programmes in Biomedicine and Health Science

Appendix: Data gathering instrument

African Research Universities Alliance (ARUA)

Data Collection Instrument: Doctoral Degree Programme

Towards a Collaborative PhD Program across ARUA member universities
in the Natural Sciences and the Humanities and Social Science Disciplines

Compiled by [Name of researcher(s)]

Please note: This data collection instrument must be completed for every programme separately. [One for the natural science programme and another for the Humanities /social science programme]

- a. Name of the university where the degree is offered

Programme-specific information:

- b. Name of the faculty/school and department/centre/institute where the degree is offered
- c. Exact name of the degree programme and qualification
- d. Number of credits (total; elements)
- e. Number of students/candidates enrolled in the degree programme over the last 5 years (number of enrolled PhDs)
- f. Academic staff available for supervision / staff to student ratio
- g. Qualification of staff (% PhD, % professors)
- h. Graduation number in the degree programme over the last 5 years
- i. Availability of supporting infrastructure, including institution-wide infrastructure (library; ICT support; statistics support; research hub; writing centres etc.); faculty-wide infrastructure / department / centre (e.g. laboratories, studios, postgraduate academies); and programme specific infrastructure (if any).
- j. Is this a collaborative programme (with another institute/university)? If yes, please elaborate on any relevant aspect.
- k. What is the history of this programme? (date started, how it might have changed with time)
- l. What makes this programme one of the best? Any notable graduates, ranking achievements, patents or so (or other 'bragging rights' or significant achievements or recognitions worth mentioning)?

Admission requirements

- m. Minimum prior qualification plus other requirements (e.g. masters GPA or score average points/merits; work experience; professional registration, or the like)
- n. Application date & start date of programme (deadlines)
- o. Formal application procedure and requirements for supporting documents (e.g. PhD proposal; CV; sample writing; etc.)
- p. Contacting and assignment of supervisor(s)

- q. Please comment: Are these admission requirements typical for all doctoral programmes nationally, in this institution, or are they specific to the HUM or STEM, or are they unique to this particular programme?

Structure and content of programme

- r. Assignment of supervisor and supervision model
- i. one student-one supervisor (traditional / apprenticeship model);
 - ii. one student-several supervisors (team supervision model);
 - iii. many students-several supervisors (cohort supervision)
 - iv. is there a contract between supervisor and student?
- s. Collaborative supervision aspects and other research support (e.g. joint cohort research days; postgraduate academies; etc.)
- t. Provisional vs. full registration rules e.g. Is there a period when one is provisionally admitted pending some procedures? such as proposal presentation and acceptance, title registration;

Programme requirements:

- u. Compulsory elements (e.g. compulsory orientation; compulsory course work; minimum lab work; seminar attendance; residency requirements; professional work/internship requirement; field work requirements;)
- v. Other elements, e.g. exchange programmes
- w. Milestones and outputs of the programme:
- i. Requirement to present (inhouse or at a conference)
 - ii. Requirement to publish (type and number of minimum publications)
 - iii. Thesis by monograph, by professional capstone, by articles (explain all in detail)
- x. Duration of the programme: Minimum time to graduation; maximum time to graduation
- y. Financial obligations and benefits
- z. Costs of the programme (per annum; overall)
- aa. Funding opportunities: availability of sponsorship, bursaries, scholarships, assistantships; tutoring/lecturing; etc.
- bb. Conference attendance (e.g. availability of sponsorship)

Assessment of this programme

- cc. Please comment: Is this structure and content of the programme typical for all doctoral programmes in this institution, or are they specific to the HUM or STEM, or are they unique to this particular programme?
- dd. Please comment on the programme's comparability with other doctoral programmes you are familiar with.
- ee. Please comment on best practices or the need to modify.
- ff. What could be done to make the programme more harmonized with others within ARUA universities.

Please use the reporting tool to collect and compile additional information on (1) the country and national higher education system; (2) doctoral degree rules (national) in the country and related information; (3) the institutional background (university).