




DEMOGRAPHICS OF AFRICAN FACULTY IN THE EAST AFRICAN COMMUNITY



Project Partners:





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Please cite the work as follows: “*Inter-university Council for East Africa (2023). Demographics of African Faculty in the East African Community*”.



Acknowledgement

The study on Demographics of African Faculty in the East African Community as well as the production of this report was supported by Carnegie Corporation of New York through a grant (number G-21-58066). However, the statements made, and views expressed in the report do not necessarily reflect the views of Carnegie Corporation of New York.

The remarkable joint effort of the members of the consortium; Education Sub Saharan Africa (ESSA), the Association of African Universities (AAU), and the Population Reference Bureau (PRB), in partnership with the Inter-University Council for East Africa (IUCEA) cannot be overlooked. The collaboration remained strong and steadfast during the study.

Sincere gratitude goes to the Commissions/Councils for Higher Education in the six participating countries (Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda), the universities, the national bureau of statistics and all the institutions and individuals that participated in the data collection exercise. The study would not have been successful without access to the existing data and information.

Special acknowledgement goes to the commissioned in-country researchers who carried out the study in the six countries, processed the data and documented the findings in a report submitted to IUCEA. Finally, hearty appreciation goes to the lead researcher, Dr. Joash Migosi, who led the research team and compilation of the final report.

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Acronyms and Abbreviations

AAU	Association of African Universities
BMD	Bachelor-Master-Doctorate
CASS	College of Arts and Social Sciences
CAVM	College of Agriculture and Veterinary Medicine
CBE	College of Business and Economics
CE	College of Education
CHE	Certificate of Higher Education
CMHS	College of Medicine and Health Sciences
CNES	National Commission for Higher Education
CNESTI	National Commission for Science, Technology and Innovation
CNRU	Rwandan National Commission for UNESCO
CNU	National Commission for UNESCO
CST	College of Science and Technology
CUE	Commission for University Education
DAF	Demographics of African Faculty
EAC	East African Community
ENS	<i>Ecole Normale Supérieure</i>
ESSA	Education Sub-Saharan Africa
HE	Higher Education
HEC	Higher Education Council
HEIs	Higher Education institutions
HES	High Education System
ICTs	Information and Communication Technologies
IUCEA	Inter University council of East Africa
IUIU	Islamic University In Uganda
IUSE	Institute University of Education Sciences
KUCCPS	Kenya Universities and Colleges Central Placement Service
MoHEST	Ministry of Higher Education, Science and Technology
MTP	Medium Term Plan
NCHE	National Council for Higher Education
NESP	National Education Sector Plan
NESSP	National Education Sector Strategic Plan
ODAI	Other degree awarding institutes
OTI	Other Tertiary Institutions
PhD	Doctor of Philosophy
PRB	Population Reference Bureau
PWDs	Persons living with Disability
RCL	Resources for College Libraries
STEM	Science, Technology, Engineering and Mathematics
STI	Science, Technology and Innovation
STR	Student Teacher Ratio
TA	Teaching Assistant
TCU	Tanzania Commission for Universities
TVET	Technical and Vocational Education and Training
UB	University of Burundi
UDSM	University of Dar es Salaam
UGL	<i>Université des Grands Lacs</i>
ULBU	<i>Université Lumière de Bujumbura</i>



ULT	<i>Université du Lac Tanganyika</i>
UM	University of Mwaro
UMI	Uganda Management Institute
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNG	University of Ngozi
UNPD	United Nations Population Department
UoJ	University of Juba
UOTIA	Universities and Other Tertiary Institutions Act
USA	<i>Université Sagesse d'Afrique</i>

EXECUTIVE SUMMARY

Introduction

The Demographics of African Faculty in the East African Community (DAF-EAC) is a study undertaken by a consortium comprised of the Inter-University Council for East Africa (IUCEA), Education Sub Saharan Africa (ESSA), the Association of African Universities (AAU), and the Population Reference Bureau (PRB). DAF-EAC follows the initial study on Demographics of African Faculty in Ghana, which provided important demographic data and identified challenges concerning faculty in the country.

DAF-EAC sought to assess the status of Higher Education faculty in the East African region in terms of numbers, distribution by gender and areas of study. The study comprised four components namely; background research, analysis of current and future faculty demand, stakeholder engagement and dissemination of study findings, and co-creation of solutions to address the faculty challenges. The study was funded by the Carnegie Corporation of New York (grant number G-21-58066), focusing on six Partner States of the East African Community, namely Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda.

Methodology

The study employed a descriptive survey research design that combined both qualitative and quantitative approaches. Data collection was carried out at the national level in each partner state, including relevant ministries in charge of university education, National Councils/Commissions for Higher Education, National Bureaus of Statistics, and University Student Placement Boards. Further, in case of unavailability of data in national institutions, one of the largest universities in the Partner State was considered. Desktop reviews were conducted to gather background information about university education in each partner state, policy norms, academic staff mobility, and student enrolment, among others. Key informant interviews were conducted in the relevant institutions to complement the quantitative data collected on staff and student numbers.

This report presents the findings on the background and current status of Higher Education, faculty distribution, gender ratio and student faculty ratios. Five discipline categories were customized from UNESCO's International Standard Classification of Education Fields and Training (2013) to provide an internationally recognised guideline/framework for the analysis. The categories are as follows - (1) Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services (2) Education (3) Health and Welfare (4) Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ Information and Communication Technologies and (5) Agriculture/ Forestry/ Fisheries/ Veterinary.

Among the key outputs of the study are projections of faculty needed by 2030, given the projected growth in student enrolment due to population growth and to meet the goals for student-teacher ratios (STRs). The student enrolment was projected to grow at the same rate as the population ages 18 – 21, the age group typically associated with Higher Education, according to the UN Population Division. Each country had a unique base year based on data availability. Actual STRs by discipline and faculty-gender ratios were analysed for each country in the base year.

Burundi

In Burundi, there is an increasing demand in student enrolments for all disciplines in public and private Higher Education Institutions (HEIs); especially, following the introduction of Bachelor-Master-Doctorate BMD system. Nevertheless, some disciplines seem to be more attractive than others. In general, gender inequality persists among faculty academic ranks and student enrolments. Majority of faculty were found to be part-time in both public and private universities. Nationally, there is a major challenge of inadequate data and lack of guiding policy norms on Higher Education.

Using University of Burundi, which is the largest and oldest public university in the country, it was found that there is an acute shortage of academic staff. This is made worse by departure of professors and other academic staff each academic year. Projections from the DAF model indicate that University of Burundi

would require an additional faculty of 1,365 to bridge the gap by the year 2030. The recommendations made include: 1) Definition of policy norms on student enrolment and faculty numbers; 2) Facilitation of a detailed national Higher Education database; 3) Enhancement of staff recruitment to meet current and future needs; and 4) Harmonization of working conditions for staff in Higher Education with the rest of the EAC Partner States.

Kenya

Kenya has some defined policy norms in terms of faculty ranking, gender ratio and STR by discipline as provided by the Commission for University Education (CUE, 2014). However, not all the defined policy norms have been achieved. Further, the national Higher Education data, though available, is not continuously updated; the most recent publicly available data are from the year 2017.

The projections show that Kenya will require an additional faculty of 25,961 by 2030 to meet STR Goals, taking account of population growth. Compared to the base year, 2017, the universities need more than 100% increment in the number of faculty by 2030. It is evident that Kenyan universities have not met policy norms for STR across all disciplines. The study findings, however, show that the faculty gender ratio meets the Kenyan legal/constitutional two third gender rule but not the policy norm. There's a need therefore for addressing the policy norms by undertaking staff development policies to fill the staff shortfall.

Rwanda

Education in Rwanda has undergone considerable changes and faced major disruptions due to periods of conflict, but since 1994, there has been steady growth of Higher Education institutions. The data from Rwanda indicates a disproportionately higher number of male academic staff than their female counterparts. The trend was the same with student enrolments, especially among STEM disciplines. The projections estimate that Rwanda will require an additional faculty of 12,573 by 2030. The study recommends deliberate efforts to; a) progressively recruit more staff by 2030, and b) enhance Higher Education data management system.

South Sudan


The study in South Sudan utilized data on student enrolment and faculty disaggregated by discipline from the University of Juba (UoJ); the largest and premier University in the country. The Ministry of Higher Education Science and Technology (MoHEST) provided additional data. The projections for the University of Juba in the years 2021 – 2030 (an interval of 10 years) were computed across all five disciplines categories. There are significant challenges ahead in terms of recruiting the faculty needed to meet the policy norms target in 2030. The additional faculty that was needed in the University of Juba across the five disciplines so as to have met the goals for STRs in 2021 was 360 compared to 619 faculty members that will be needed across the disciplines by the year 2030. The study recommends deliberate efforts to recruit more staff to meet the academic staff shortfall and also make Higher Education data readily available, if possible, in a one stop shop setup.

Tanzania

The DAF model projections for Tanzania yielded findings on three key aspects, namely; faculty demand, STR and gender ratio among the faculty. In general, there are remarkable deficits and imbalances among these aspects. There are significant challenges ahead in terms of recruiting the faculty needed to meet the policy norms for STRs and gender ratio by 2030, as well as retaining them once recruited. Student enrolment increase is projected to reach 297,987, while the corresponding additional faculty needed to achieve policy norms for STR by 2030 is 33,291. Further, the faculty was found to be male dominated. The study recommends early preparations for requisite academic staff through recruitment and staff development programmes.

Uganda

In Uganda, student enrolment has significantly increased in the last decade due to a rise in population and demand for Higher Education. However, the demand for faculty has not kept pace with this increase in enrolment. Using Makerere University, the study found that the STR in Arts and Humanities is 33:1 and 60:1 in Education, which is much higher than the policy norm of 18:1. The ratio of male to female faculty is 3:1,



which is not in line with the policy norm of 2:1. The study projects that an additional 5,785 faculty members are needed for Makerere University to meet the increased student enrolment and the policy norm for STR by 2030. The study highlights the need for targeted interventions to address gender inequality and promote greater diversity and inclusivity in the academic field. Such interventions may include targeted recruitment and retention efforts, mentoring programmes and professional development opportunities.

Key Observations and Proposed Interventions

The study brought out the key data challenges in the region, including varied Higher Education data gaps among Partner States, lack of up-to-date data, and lack of capacity for data collection and management. Some Partner States do not have nationally defined Higher Education policy norms. Further, the study revealed the challenge of shortage of faculty and gender inequality among faculty academic ranks and student enrolments within the Partner States.

In recognition of the critical role of data in decision-making and in identification of opportunities, sustainable collection and management of Higher Education data at institutional, national and regional levels is highly recommended. Building a culture of data collation and management in Higher Education in the EAC region requires coordinated interventions through capacity building of data managers at the Commissions/Councils responsible for Higher Education. This is in addition to awareness creation among policy makers on the importance of Higher Education data in defining clear and relevant policy norms. The shortage of faculty should be addressed through strategic interventions, which include but are not limited to training of adequate relevant PhDs, recruitment of desired faculty for optimal student-teacher ratio and putting in place policies to attract and engage adjunct faculty from the private sector.

CHAPTER 1

BACKGROUND

1.1 Introduction

Accurate, consolidated, and up to date data on faculty in Higher Education is necessary for effective policy decisions, planning and investment that is needed to improve the quality of education in Africa. The Demographics of African Faculty in the East African Community (DAF-EAC) study was undertaken by a consortium that comprised of the Inter-University Council for East Africa (IUCEA), Education Sub Saharan Africa (ESSA), Association of African Universities (AAU), and the Population Reference Bureau (PRB). The study aimed at exploring, describing and documenting the status of Higher Education faculty in the East African Community (EAC). This followed an earlier study on Demographics of African Faculty in Ghana, which provided important sets of demographic data and identified challenges concerning the faculty in the country. DAF-EAC study was funded by the Carnegie Corporation of New York (grant number G-21-58066) focusing on six EAC Partner States, namely Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda.

1.2 Study Objectives

The objectives of the DAF-EAC study were to:

- a) **Undertake a comprehensive desktop literature review and collect data on:**
 - i) Higher Education policy landscape and strategies related to faculty at the country level; and
 - ii) The status of Higher Education faculty in regard to the national policy (norms) or those provided for the study on Higher Education.
- b) **Forecast future student enrolments, supply and demand for faculty, by use of a DAF model:**
 - i) Analysis of current faculty demand by establishing the current student enrolment and faculty in Higher Education Institutions (HEIs) disaggregated by gender and discipline;
 - ii) Assessment of the number of additional faculty needed to meet policy norms and to replace those who exit teaching within the current year;
 - iii) Analysis of future faculty demand through projection of the student enrolment by a given target year by discipline; and
 - iv) Assessment of the number of faculty needed to meet policy norms in the target year and additional faculty needed to replace those who exit teaching between current and target year.

1.3 Methodology

The study employed a descriptive survey research design that combined both qualitative and quantitative approaches. Data collection was carried out at the national offices in each partner state, including Ministries in charge of University Education, National Councils/Commissions for Higher Education, National Bureaus of Statistics, and University Student Placement Boards. Further, where data was unavailable at the national institution of a given partner state, one of the largest universities in that state was used in the DAF projections. Desktop reviews were conducted to gather background information about university education in each partner state, policy norms, academic staff mobility and student enrolment among others. Key Informant Interviews (KIIs) were conducted in the relevant institutions to complement the quantitative data collected.

Quantitative data was collected on university staff and students in the Partner States, and the analysis yielded findings on the status of Higher Education, faculty distribution, gender ratio and student faculty ratios. Five discipline categories of the analysis were customized from UNESCO's International Standard Classification of Education Fields and Training (2013) to provide an internationally recognised guideline/framework for the analysis. The categories were as follows;

- a) Arts and Humanities/Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services;
- b) Education;
- c) Health and Welfare;
- d) Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ Information and Communication Technologies; and
- e) Agriculture/ Forestry/ Fisheries/ Veterinary.

The following four policy norms were examined in the study;

- a) Faculty by discipline;
- b) Student-Teacher Ratio (STR) by discipline;
- c) Gender Ratio; and
- d) Rate of growth in student enrolment.

Each partner state used the existing national policy norms. However, where the policy norms were absent in a country, Kenya's policy norms, obtained from the Commission for University Education (CUE) were adopted and customized for comparative analysis. Each country had a unique base year which was guided by data availability.

The schematic presentation of analysis for faculty needed to meet policy norms is shown in Figures 1.1 and 1.2.

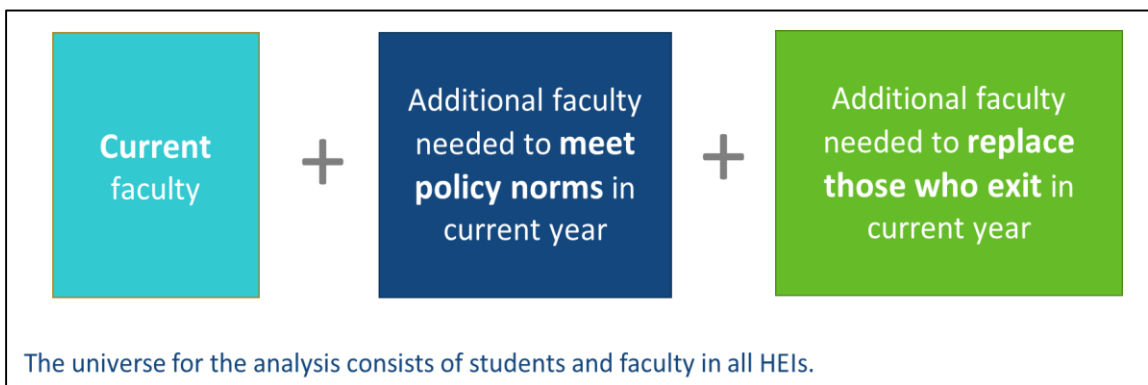


Figure 1.1: Analysis of Current Faculty Demand (Faculty Needed to Meet Policy Norms: Current Year)

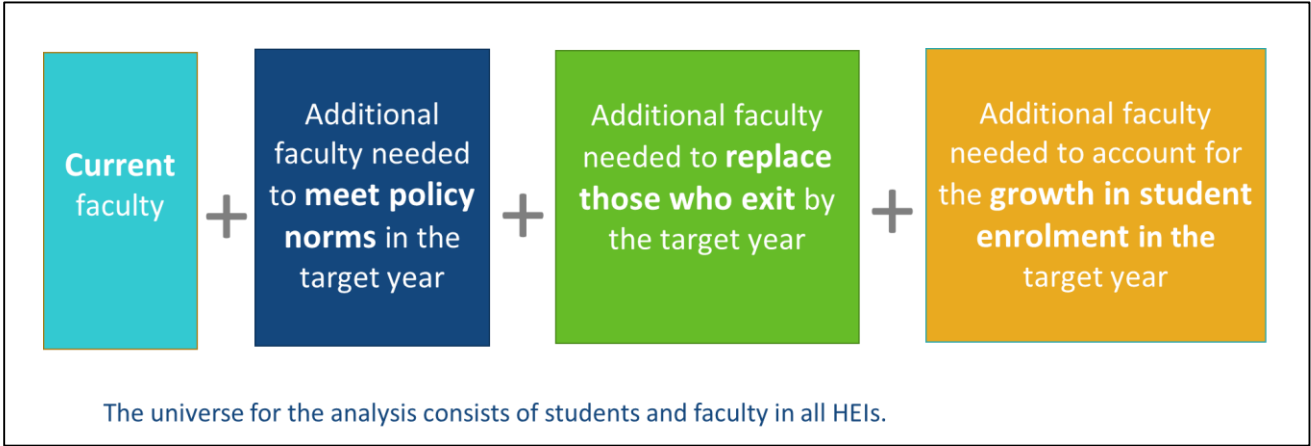


Figure 1.2: Analysis of Future Faculty Demand (Faculty Needed to Meet Policy Norms: Future Target Year)

CHAPTER 2

BURUNDI REPORT

By

Deogratias Nduwarugira and Micheline Sabiteka

2.1 Introduction

This section presents the historical development of tertiary education in Burundi, retracing and sharing the foundation and evolution of the Higher Education System (HES). Further, the section presents information on the status of faculty and the DAF model projections for the year 2030 using year 2021 as the base period.

2.2 Historical Background of Tertiary Education System in Burundi

2.2.1 Foundation and Evolution

The following schema retraces the evolution of Burundi's HES from its first step to date (UNESCO 1986):

- a) 1960 (by decree of May 31): Creation of the Institute of the Jesuit Fathers in Bujumbura, which included the Faculty of Philosophy and Arts, and Economics. At the time, the Faculty of Law was a section of the Faculty of Philosophy and Arts;
- b) At the independence of the former Belgian Congo or the actual Republic Democratic of Congo (June 30, 1960), the Agronomic Institute of Ruanda-Urundi which since 1958 was part of the Faculty of Agronomy of the Astrida Official University in the Belgian Congo and Ruanda-Urundi (Astrida, now Butare in Rwanda) was transferred to Bujumbura;
- c) October 1961: The Agronomic Institute and the Jesuit Institute joined forces to constitute the Faculty of Sciences in Bujumbura;
- d) 1964 (Royal decree 001/350, 10 January): All faculties were brought together to constitute the Official University of Bujumbura (UB);
- e) 1965-1967: Decree-Law No. 1/76 (27 June): The Ecole Normale Supérieure (ENS) was founded for training of teachers of the first secondary education cycle;
- f) 1973: The ENS became the Institute University of Education Sciences (IUSE);
- g) 1976 (Law number 1/137 of 29 June): IUSE was assimilated to universities;
- h) 1977 (decree number 1/620 of 29 June): The UB and the IUSE merged to form the current University of Burundi; and decree 100/101 of 18 October organised faculties and institutes at the UB;
- i) 1980 and 1985: Decree 100/143 of September 16 and decree 100/7 of February 5 updated the organisation at the UB;
- j) 1995: The ministerial decision 610/48 of March 1 organised private Higher Education in Burundi;
- k) 2011 (reform Law number 1/22 of December 30, replacing the law of 13 July 1989) reorganised Higher Education, fixed the legal dispositions which currently govern public and private Higher Education. Among others, a candidate must hold a state diploma after general, pedagogical and technical studies in secondary school to access the Higher Education system;
- l) 2021: Decree 100/166 of 12 July replaced the decree 100/275 of 18 October 2012 on the conditions of access to the Higher Education in Burundi.

The HES in Burundi remains characterised by increasing predominance of private institutions (86% in 2017-2018). The main causes of the boom in private institutions include the liberalisation of the sector following the transition to the Bachelor-Master-Doctorate (BMD) system (Figure 2.1).

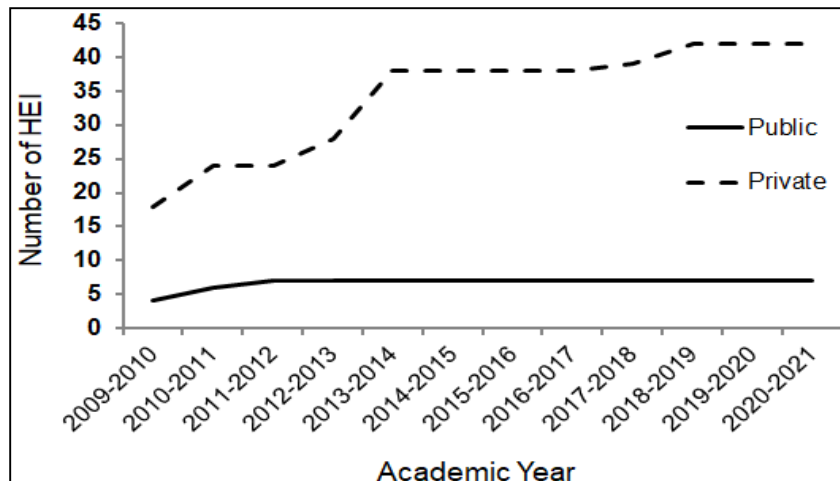


Figure 2.1: Evolution of the Number of Public and Private Higher Education Institutions (HEIs) in Burundi from 2009 to 2021

Source: Burundian Office for Educational Planning Statistics. Statistical yearbook 2019-2020

Note: Only 35 of the 42 HEIs already accredited as private are currently functional!

2.2.2 Student Enrolment and Faculty by Full-time Status: Case of University of Burundi

University of Burundi is the biggest and oldest HEI in Burundi. Before the arrival of private establishments in the 2000s, in a global context of massification and strong demand of Higher Education, the University remained the only public HEI in the country. To date, the University keeps a monopoly on the sector of Higher Education with specialised faculties and training institutes. Tables 2.1 and 2.2 show the student enrolment and faculty by full-time status at the University between 1974 and 1992.

Table 2.1: Student Enrolment at the University of Burundi from 1974 to 1992

Academic Year	Student Enrolment
1974 – 1975	458
1978 – 1979	1,716
1982 – 1983	1,829
1983 – 1984	2,009
1984 – 1985	2,076
1986 – 1987	2,208
1991 – 1992	2,584

Source: UNESCO 1986

Table 2.2: Faculty by Full-time Status at the University of Burundi in 1984 and 1986

Year	Full-time	Part-time	Total
1984	218	95	313
1986	221	102	323

Source: UNESCO 1986

2.3 Organization and Key Participants in High Education

Education in Burundi is divided into the following three phases as shown in Figure 2.2.

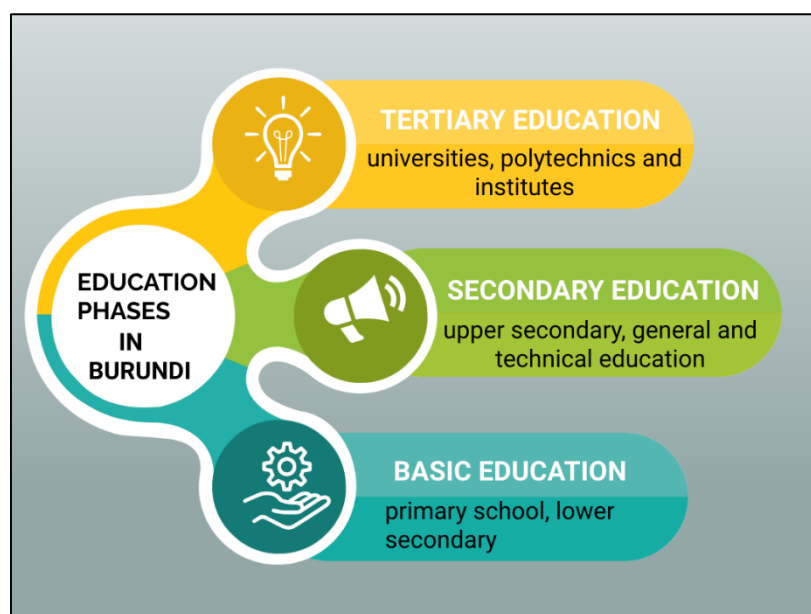


Figure 2.2: Education Phases in Burundi

The Higher Education in Burundi is further organised on three cycles, each leading to an academic title. These are:

- a) Baccalaureate (2 years);
- b) Master (2 years) and
- c) Doctorate (3 years).

According to Law number 1/07 of 29 October 2020, HEIs can take names of universities, schools or high schools, university institutes or institutes, under the conditions fixed by decree. Non-university institutions with a special status also participate alongside universities in training and development effort, as well as research and innovation. They are created by decree or ordinance as schools or institutes. All public and private tertiary institutions must seek accreditation from the National Commission for Higher Education (CNES). Programmes are periodically revised.

The sector is regulated by the law on reorganisation of the high education in Burundi promulgated on 30 December 2011. Alongside the private (from associations, societies, etc.), five ministries (Ministry of National Education and Scientific Research, the Ministry of National Defence, the Ministry of Interior and Public Security, Ministry of Public Service, and the Ministry of Health) are involved in the public high education. Further, according to the Decree of 13 August 2018, the Ministry of National Education and Research is responsible for the coordination of public and private HEIs. This ministry is mandated to conceive, plan and execute coherent national policies for Higher Education and scientific and technological research. The Ministry works closely with three special commissions (cf. Decree number 100/113 of 18 August 2018): the CNES, the National Commission for Science, Technology and Innovation (CNESTI) and the National Commission for UNESCO (CNU):

- a) The **Commission for Higher Education (CNES)** is in charge of proposing orientations, planning, implementing and controlling activities of Higher Education in accordance with the general policy of the government, giving advice and opinion on any study on Higher Education, verifying compliance with ethics, and setting standards for the recruitment of faculty within HEIs. It is also in charge of proposing legal texts governing Higher Education, analysing compliance with national, regional and international standard texts, including the academic regulations of the public and private HEIs. It ensures permanent monitoring of compliance for opening HEIs and approving educational programmes. Further, it is in charge of coordinating activities and monitoring the implementation of the BMD reform, in particular the implementation of quality assurance and monitoring of the accreditation system; and of setting student mobility, capitalisation and transferability of credit.
- b) The **National Commission for Science, Technology and Innovation (CNESTI)** is mandated to support the coordination of research activities in line with the national socio-economic development objectives; and proposing priorities and necessary orientations in the field of Science, Technology and Innovation (STI) in accordance with the general policy of the government. It is in charge of giving opinions and considerations on the strategies to promote and coordinate the development of the national policy of scientific research and technological innovation, and determining the eligibility criteria to admit research and innovation projects to be funded. Its functions also include contribution to the development and analysis of legal texts governing STI; analysing and approving research programmes from institutions and research centres. Further, it is in charge of coordinating and animating the activities of specialised sub-commissions; and ensuring the harmonisation of the local research system with that of other countries in general and those of the sub-region in particular. It is also in charge of suggesting to the government any proposal for more effectively supporting the STI sector including matters of administration.
- c) The **National Commission for UNESCO (CNU)** is mandated to participate in the promotion of intellectual and educational activities in Burundi, developing ideas of mutual understanding between peoples; and informing the public of the aims, programmes and work of UNESCO in accordance with its charter.

2.4 Challenges in Higher Education

The main challenges faced by the Ministry of National Education and Research in Burundi as it seeks to accomplish its missions are related to (VLIR-UOS 2014). They include:

- a) **High training demand (student enrolment):** There is currently a high demand for university places (public and private) due to limited absorption capacity by the universities.
- b) **Staff qualification:** The need for qualified teachers has not been fully met. The lack of qualified teachers has been aggravated by the socio-political crisis that Burundi experienced in 1993, with the assassination of the first democratically elected president. This pushed a significant number of Burundian intellectuals and expatriates to leave the country. In addition, the brain drain phenomenon often observed in numerous countries within Africa has not spared the country.
- c) **Quality assurance:** The high student enrolment has over stretched the available university capacities.

2.5 Strategic Orientations in Higher Education in Burundi

To promote high education, the Burundi government adopted, among others, policies and strategies. For instance, six strategic orientations were elaborated for the 2012 – 2020 period to guide authorities in the sector. These strategic orientations were articulated around six points (VLIR-UOS 2014):

- a) A moderate and controlled quantitative development by regulating new student enrolments in public HEIs – the orientation of a large number of enrolments at the private HEIs (53% in 2020) considering the needs of the employment sector;
- b) Development of a short and profession-oriented post-secondary offer – creation of institutes for short professional training;
- c) Establishment of an incentive and controlled scholarship policy – stabilisation of scholarships in relation to the available country budget, especially by reviewing the criteria for awarding scholarships (priority disciplines, merit or scholarship loans);
- d) Improving the quality of training through implementation of the BMD (Baccalaureate-Masters-Doctorate) reform, introduction and development of the use of ICTs, and establishment of a system of quality assurance;
- e) Development of science, technology and research by defining and implementing a science and technology education policy and using scientific research in the improvement of the quality of training; and
- f) Strengthening sub-regional integration in the area of training.



Figure 2.3: Strategic Orientations in Higher Education in Burundi

In particular, the University of Burundi has the ultimate vision of providing education of the highest standard based on quality teaching and research for sustainable socio-economic development. This objective is achieved through three missions:

- a) Provision of excellent training to build competent human capital to guide the socio-economic development of Burundi, the sub-region, and the whole world;
- b) Ensuring high quality training of the faculty in all relevant fields with a view of promoting scientific research for the nation's development; and
- c) Rendering service to the community through development support and productive relations maintained with the society in various fields.

2.6 Policy Norms on Tertiary Education in Burundi

According to the Ghana pilot DAF analysis (2018), policy norms normally cover the following areas: student enrolments, student-teacher ratios (STR); personnel; financial norms; and students' accommodation. These are

used as policy benchmarks for monitoring the performance of tertiary education institutions as well as instruments for determining resource requirements. The policy norms are also meant to assist HEIs in planning and ensuring efficiency in their operations. They particularly establish standards which need to be respected in recruitment of new faculty and within student environments. However, Burundi does not have all these policy norms.

2.6.1 Student Enrolment

The Decree 100/166 of 12 July 2021, replacing the Decree 100/275 of 18 October 2012, defined the conditions that a candidate must fulfil in order to get access Higher Education in Burundi. These are:

- a) A laureates of general, pedagogical and technical humanities holding a state diploma and having obtained, after the procedure of the synthetic mark calculated in proportion to 30% of the mark obtained at school in the disciplines that have been the subject of the state examination and 70% of the mark obtained in the state exam, a mark equal to or greater than 50%;
- b) A candidate who participated in the state examination but has not obtained the state diploma has access to professional Higher Education. however, a student holding a state diploma who so wish can have access to professional Higher Education;
- c) A candidate of Burundian nationality who studied abroad and has full access to public or private Higher Education based on qualifications equivalent to the state diploma;
- d) Depending on the available places, an applicant of foreign nationality can access HES after getting equivalence of his/her qualifications; and
- e) A Burundian without a state diploma but has attended state examination can also get access to high education leading to professional baccalaureate and professional master.

2.6.2 Faculty

Without sufficient faculty numbers, the ambitious goals of tertiary education cannot be fulfilled. According to the Ministerial decision of 17 February 2022, five ranks and policy norms associated with faculty are currently applicable in HES in Burundi. These are:

- a) **Assistant:** Should have a bachelor degree (4 or 5 training years) (before the BMD arrival, some faculties and institutes delivered the bachelor degree after 4 or 5 years of training, depending on the program specificity);
- b) **Assistant Lecturer:** Should have a master's degree; being full-time in a HEI;
- c) **Senior Lecturer:** Should have a PhD degree or equivalent, being full-time in a HEI;
- d) **Associate Professor:** Should have been a senior lecturer for at least 4 years, been rated annually with a mention of "very good" for 4 times, published on the institution's web portal at least 1 course of at least 30 hours, 5 articles, and be the 1st author of 2 articles;
- e) **Ordinary Professor:** Should have been an associate professor for 4 years, rated 4 times with "very good", have published on the institution's web portal all the specialty courses, 6 articles in RCL, at least 4 in RI; and be the 1st author of at least 3 articles; and
- f) **Emeritus Professor:** Should have retired at Ordinary professor rank and committed to: continue to supervise the research work in progress, initiate others and publish the results, supervise theses and postdoctoral research, and provide annual reports.

2.7 Key Findings

2.7.1 Impact of the BMD system

Following the Law no. 1/22 of 30 December 2011, replacing the law of 13 July 1989, Higher Education in Burundi was reorganized by the introduction of the BMD system. The country experienced an exponential increase in enrolment in tertiary education without a corresponding expansion in physical and academic infrastructure. This situation put high pressure on facilities and staff in all the institutions, both public and private. Further, despite the significant improvements in faculty in the recent years, all the needs for qualified teachers have not been met. The problem of lack of qualified teachers has been aggravated by the cyclical socio-political state in the country. Figures 2.4 and 2.5 show the evolution of student enrolments and faculty numbers in the high education in Burundi respectively, since the beginning of the BMD system (2011 – 2012) to the academic year 2019 – 2020. In particular, student enrolments decreased from 51,225 in the academic 2014 – 2015 to 37,266 in academic year 2015-2016. This could be explained by the post-election conflict experienced in the country which resulted to some students leaving the country. Nevertheless, the conflict seemed not to have a significant impact on the faculty, and both the students' enrolment and faculty numbers continued to increase thereafter, thanks to the regained peace and stability in the country.

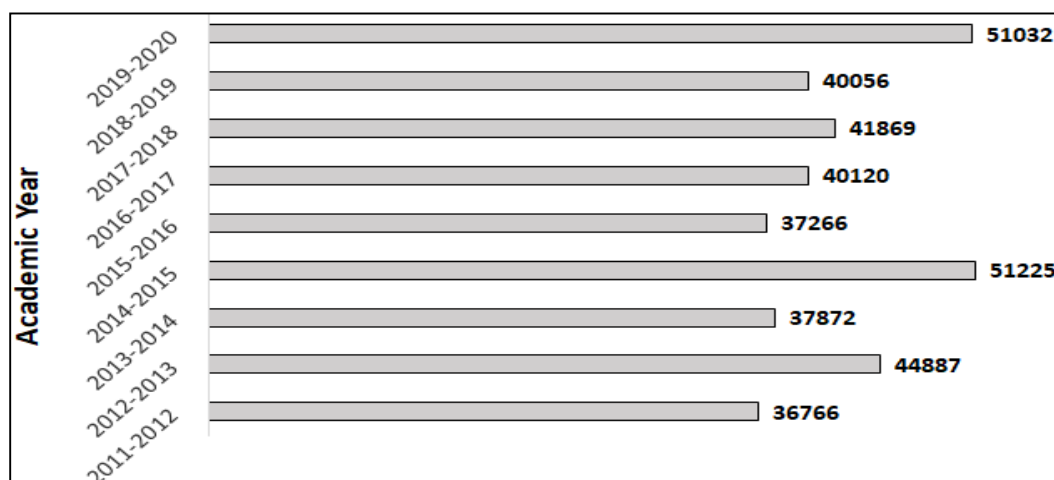


Figure 2.4: Evolution of Student Enrolments in the HES in Burundi from 2011 to 2020

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

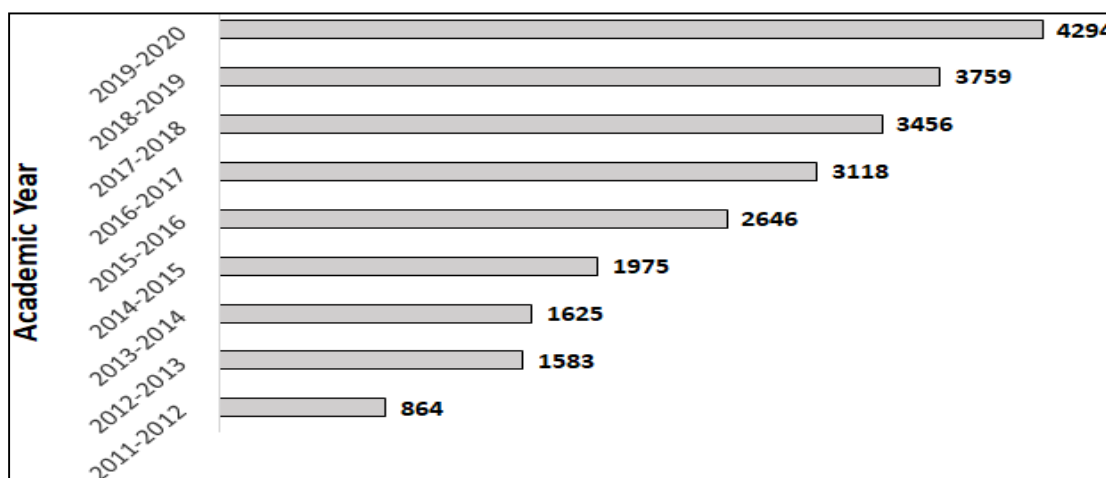


Figure 2.5: Evolution Faculty Number in the HES in Burundi from 2011 to 2020

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

2.7.2 Staff

2.7.2.1 Faculty Distribution by Rank and by Gender

As presented in Figure 2.6, a total of 4,294 faculty members, dominated by assistant lecturers were observed at the national level during the academic year 2019 – 2020. Nevertheless, the size of the faculty with a PhD is normally an important determinant of the ability to teach and to conduct quality research.

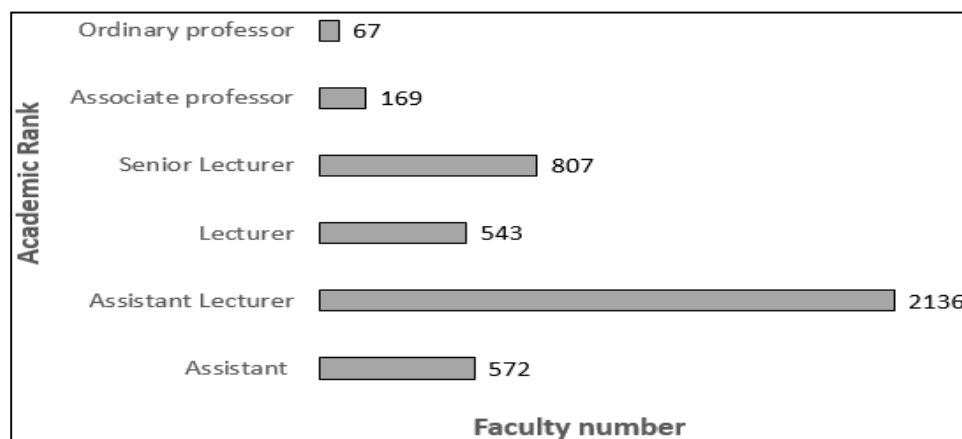


Figure 2.6: Faculty Distribution by Rank

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

As shown in figure 2.7, the faculty in Burundi's HES was dominated by males (2017 – 2020). Further, whereas the population of male faculty rose by 0.7% between 2017 and 2019, the population of the female faculty dropped by 13.2%. However, both numbers exhibited an upturn by 2020, increasing by 8% and 19.9% for the male and female faculty respectively. However, to continuously bridge the gender gap in the Burundi's HES faculty, a significant majority of additional members need to be female scientists.

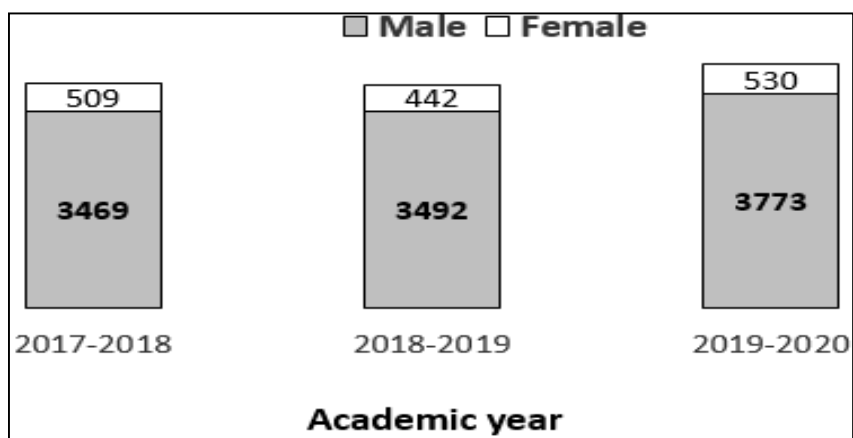


Figure 2.7: Faculty Distribution by Gender

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

2.7.2.2 Faculty Distribution by Disciplines

Data on faculty distribution by disciplines were not available at the national level, and discipline classification was not standardised across HEIs. Consequently, faculty data was collected from select most frequented HEIs in Burundi and the 2013 UNESCO International Standard Classification of fields of education and training was used. Table 2.3 shows the faculty distribution for some select most frequented HEIs with the essential combination of student enrolment and staff.

Table 2.3: Faculty Distribution by Discipline in Select Most Frequented HEIs in Burundi (2020 – 2021)

Discipline categories	Public				Private				Total
	UB	ENS	ULT	ULBU	UGL	USA	UNG	UM	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	170	-	140	275	295	70	119	-	1,069
b) Education	60	197	-	-	-	-	15	-	272
c) Health & Welfare	74	-	-	79	86	37	92	122	490
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	149	-	94	129	70	56	22	-	520
e) Agriculture/ Forestry/ Fisheries/ Veterinary	65	-	-	13	-	-	40	-	118
Total	518	197	234	496	451	163	288	122	2,469
UB: University of Burundi			UGL: Université des Grands Lacs						
ENS: Ecole Normale Supérieure			USA: Université Sagesse d'Afrique						
ULT: Université du Lac Tanganyika			UNG: University of Ngozi						
ULBU: Université Lumière de Bujumbura			UM: University of Mwaro						

2.7.2.3 Faculty Full-Time Status

As shown in Table 2.4, during the academic year 2019 – 2020, majority of the faculty were part-time at private HEIs at 3,239 (74.9%) against 1,087 (25.1%) faculty members in the public. Further, more faculty members, 73.8%, were engaged on part-time basis while fewer, 26.2% were engaged in full-time basis. However, it is acknowledged that one faculty member could be teaching in more than one institutions, hence the possibility of being counted multiple times during the DAF exercise.

Table 2.4: Faculty Distribution by Full-Time Status at the National Level (2019 – 2020)

Category	Full-time Status		Total
	Full-time	Part-time	
Public	642	445	1,087
Private	493	2,746	3,239
Total	1,135	3,191	4,326

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

Table 2.5 shows the distribution of the faculty by nationality for the academic year 2019 – 2020. A greater proportion, 97% (4,194) of the faculty in Burundi's HES were citizens of Burundi, 0.9% (39) were from within the EAC, while 2.1% were from outside the EAC.

Table 2.5: Faculty Distribution by Nationality at the National Level (2019 – 2020)

Category	Nationality			Total
	Burundi	EAC	Outside EAC	
Public	1,077	9	1	1,087
Private	3,117	30	92	3,239
Total	4,194	39	93	4,326

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

2.7.3 Students

There is an increasing trend in student enrolment in the Burundian tertiary education across all disciplines in public and private Universities. A total of 51,032 student enrolments were recorded during the academic year 2019 – 2020.

2.7.3.1 Enrolment by Discipline

Disciplines related to Arts and Humanities/Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services seemed to be the most attractive, with 27,715 (54.3%) of the 51,032 enrolments. On the other hand, as seen in Figure 2.8, disciplines linked to Agriculture/ Forestry/ Fisheries/ Veterinary seemed did not attract many students, with 482 (0.9%) of the 51,032 enrolments. Further, enrolment in Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs was significant at 9,406 students (18.4%), followed by that in Health and Welfare at 8,073 students (15.8%), and that in Education at 5,356 students (10.5%). The enrolment was observed to be particularly high for disciplines related to Sciences in private than in public Universities, and as seen in Figure 2.9, private universities seemed not to invest heavily in student enrolment for disciplines linked to Education, Agriculture/ Forestry/ Fisheries/ Veterinary.

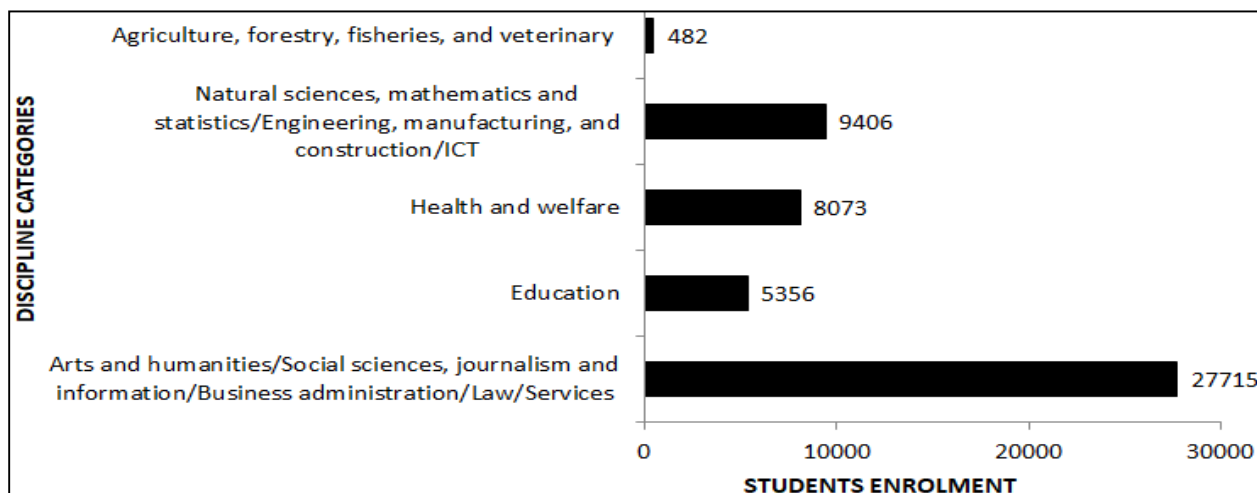


Figure 2.8: Students Enrolment by Discipline in the HEIs at National Level (2019 – 2020)

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

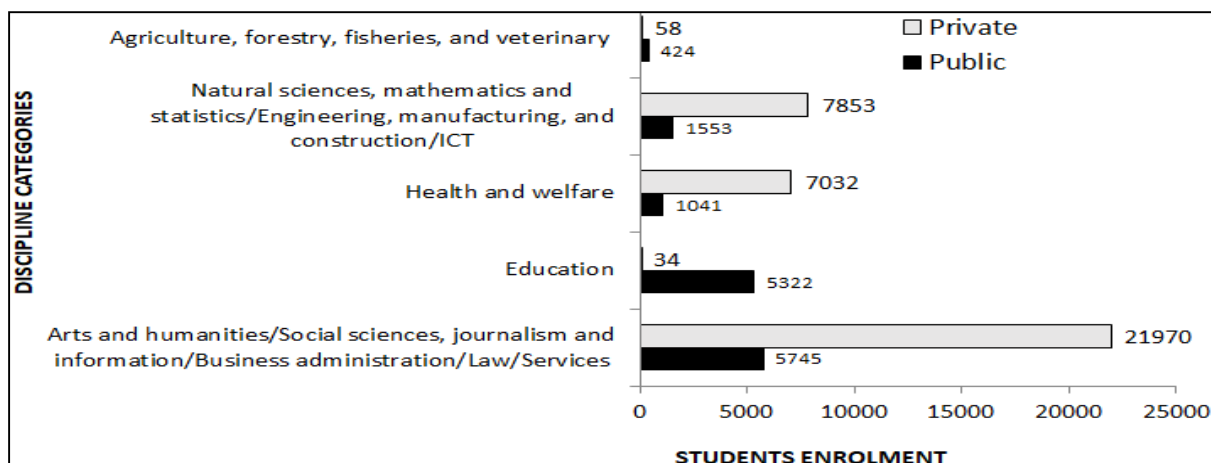


Figure 2.9: Students Enrolment by Discipline in Public and Private HEIs (2019 – 2020)

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

2.7.3.2 Enrolment by Gender

Female students seemed to be mostly attracted to disciplines related to Arts and Humanities/ Social Sciences, Journalism and Information/ Business Administration/ Law/ Services, recording an enrolment of 14,105 students (27.6%), followed by Health and Welfare at 3,953 students (7.7%). Further, as shown in Figure 2.10, fewer female students enrolled for scientific courses, where only 2,179 female students (4.2%) were enrolled against 7,227 male students (23.3%).

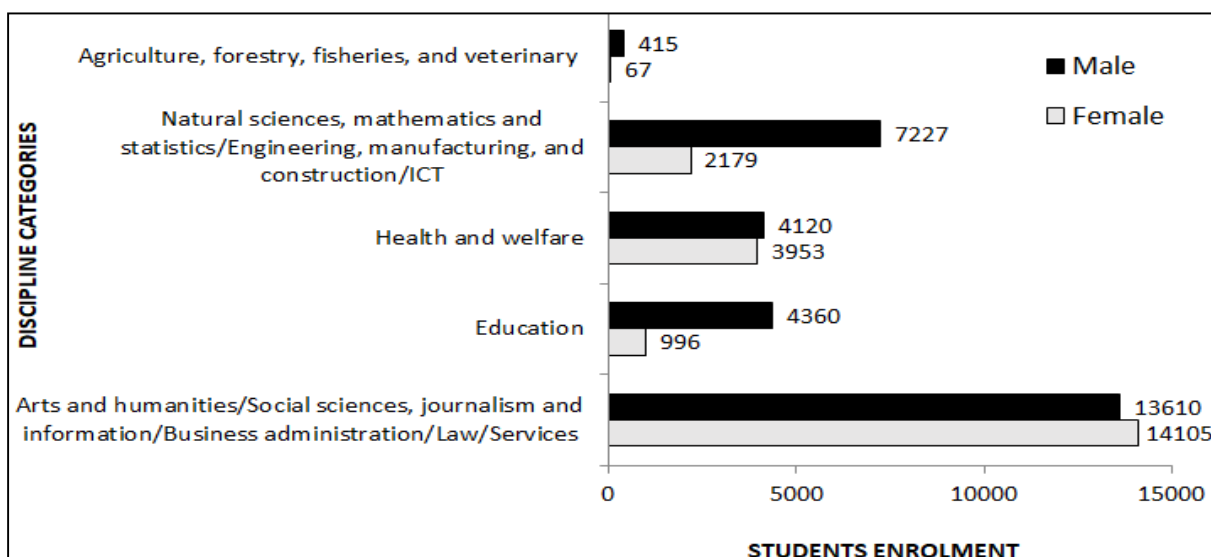


Figure 2.10: Students Enrolment by Gender at National Level (2019 – 2020)

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

2.7.3.3 Enrolment by Nationality

Other than the Burundian nationals, students of other different nationalities enroll for various courses within the Burundian HES. As shown in Table 2.6, Congolese nationals dominated other citizens from the EAC in the Burundian HEIs, recording 1,879 (95.3%) of the 1,971 enrolments. This could probably be attributed to the French system used in teaching in Burundi. The Rwandese students accounted for 63 of the enrolments (3.2%), Tanzanian students 5 enrolments (0.3%), Kenyan students 10 enrolments (0.5%) and students of other nationalities represented 14 (0.7%). Further, it was established that of the 1,971 foreign enrolments, 547 (27.8%) were female students, while 1,424 (72.2%) were male.

Table 2.6: Foreign Students Enrolment by Country and Gender in High Education (2020 – 2021)

Nationality	Congolese		Rwandese		Tanzanian		Kenyan		Other Nationalities		Total F	Total F+M
	F	F+M	F	F+M	F	F+M	F	F+M	F	F+M		
Total	520	1,879	14	63	0	5	6	10	7	14	547	1,971

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2020-2021

2.7.3.4 Enrolment by Discipline, Level of Study and Gender at the University of Burundi (UB)

Applied pedagogy appeared to be the most attractive among the disciplines offered by UB, recording an enrolment of 2,961 (21.2%) out of the 13,990 students enrolled within the 2020 – 2021 academic year. As presented in Table 2.7, the second highest enrolment was for courses related to Economic Sciences and Business Administration at 2,763 (19.7%), and Arts, Journalism and Humanities at 2,493 (17.8%). Physical Education and Sports attracted the least number of students recording an enrolment of 234 students (1.7%) followed by Applied Statistics at 299 students (2.1%). Further, most students, 13,392 (95.7%) were enrolled for Bachelor's degree courses, while 598 students (4.3%) were enrolled for Masters programmes. Gender parity in the enrolment appeared to be elusive with male students representing a significantly higher proportion of the enrolment at 71.9% (10,054 students) as compared to female enrolment of 28.1% (3,936 students).

Table 2.7: Student Enrolment by Discipline, Level of Study and Gender at UB (2020 – 2021)

Discipline Categories	Level of Study by Gender						Grand Total
	Male			Female			
	Bachelor	Master	Total	Bachelor	Master	Total	
a) Applied Pedagogy	1,986	21	2,007	953	1	954	2,961
b) Arts, Journalism & Humanities	1,672	108	1,780	624	89	713	2,493
c) Psychology and Educational Sciences	637	-	637	408	-	408	1,045
d) Economic Sciences & Business Administration	1,674	73	1,747	996	20	1,016	2,763
e) Political & Legal Sciences	377	72	449	120	11	131	580
f) Natural Sciences	578	44	622	165	8	173	795
g) Applied Statistics	246	-	246	53	-	53	299
h) Engineering, Construction & ICT	983	72	1,055	107	32	139	1,194
i) Agronomy & Bioengineering	1,024	41	1,065	180	6	186	1,251
j) Health and Welfare	266	-	266	109	-	109	375
k) Physical Education & Sports	180	-	180	54	-	54	234
Total	9,623	431	10,054	3,769	167	3,936	13,990

Source: University of Burundi, Academic Service

2.7.4 Student-Teacher-Ratio (STR)

Since the introduction of the BMD system in HES in Burundi during the period 2011 – 2020, there has been a decrease in the Student-Teacher Ratio (STR) as shown in Table 2.8. This could be attributed to the growing number of teachers who have benefited from training grants abroad and who return after their training. A STR of 12 was found at the national level (student enrolment: 51,032 and faculty: 4,294) during the academic year 2019 – 2020. This recorded a significant improvement as evidenced by the consistent decrease in the ratio from 43 in the 2011 – 2012 academic year.

Table 2.8: Evolution of STR in the HES in Burundi (2011 – 2020)

Academic Year	Students	Faculty	STR
2011 – 2012	36,766	864	43:1
2012 – 2013	44,887	1,583	28:1
2013 – 2014	37,872	1,625	23:1
2014 – 2015	51,225	1,975	26:1
2015 – 2016	37,266	2,646	14:1
2016 – 2017	40,120	3,118	13:1
2017 – 2018	41,869	3,456	12:1
2018 – 2019	40,056	3,759	11:1
2019 – 2020	51,024	4,294	12:1

Source: Burundian Office for Educational Planning and Statistics. Statistical Yearbook 2019-2020

2.7.4.1 STR by Institutions

The STR for University of Burundi (UB) was observed to have deteriorated from 8:1 in 1986 (UNESCO 1986), to 27:1 in 2020 – 2021 academic year. Such high ratio was also recorded for Université Sagesse d’Afrique (USA) at 24:1, while University of Mwaro (UM) recorded the lowest STR at 2:1, followed by University of Ngozi (UNG) at 7:1. The plausible reason for this is that those institutions are the oldest private HEIs in Burundi, and they are located in the countryside, thus recording the lowest student population. Table 2.9 shows the STRs which were computed from the collected primary data for the select most frequented HEIs.

Table 2.9: Student Teacher Ratio in the Select Most Frequented HEIs in Burundi (2020 – 2021)

HEI	Students Enrolment	Faculty	STR
University of Burundi (UB) (STR in 1986 - 8:1)	13,990	518	27:1
Ecole Normale Supérieure (ENS)	2,715	197	14:1
Université du Lac Tanganyika (ULT)	3,772	234	16:1
Université Lumière de Bujumbura (ULBU)	6,774	496	14:1
Université des Grands Lacs (UGL)	7,975	451	18:1
Université Sagesse d’Afrique (USA)	3,971	163	24:1
University of Ngozi (UNG)	2,138	288	7:1
University of Mwaro (UM)	218	122	2:1

2.7.4.2 STR by Discipline Categories

Data on faculty distribution by disciplines were not available to facilitate computation of STR at the national level. However, such data was available for select most frequented HEIs, and yielded the STRs presented in Table 2.10. During the 2020 – 2021 academic year, the STRs varied across different disciplines and institutions as shown.

Table 2.10: STR by Discipline Categories in Select Most Frequented HEIs in Burundi (2020 – 2021)

Discipline categories	HEIs							
	UB	ENS	ULT	ULBU	UGL	USA	UNG	UM
a) Arts & Humanities/ Social Sciences/ Journalism & information/ Business Administration/ Law/ Services	40:1	-	17:1	10:1	20:1	33:1	8:1	-
b) Education	49:1	14:1	-	-	-	-	2:1	-
c) Health & Welfare	8:1	-	-	24:1	13:1	20:1	9:1	2:1
d) Natural Sciences/ Mathematics & Statistics/ Engineering, Manufacturing/ Construction/ ICTs	15:1	-	15:1	15:1	13:1	17:1	5:1	-
e) Agriculture/ Forestry/ Fisheries/ Veterinary	19:1	-	-	11:1	-	-	6:1	-
Average	27:1	14:1	16:1	14:1	18:1	24:1	7:1	2:1

The lowest ratio, 2:1, was recorded in UM for the Health and Welfare courses, and in UNG for Education courses. This was followed by 5:1 recorded in UNG for Natural Sciences, Mathematics and Statistics, Engineering, Manufacturing, Construction and ICT courses and 6:1 for Agriculture, Forestry, Fisheries and Veterinary courses in the same University. Specifically:

- a) For Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services, the lowest ratio of 8:1 was recorded at UNG, followed by *Université Lumière de Bujumbura* (ULBU) recording a ratio of 10:1. The highest ratios of 40:1 and 33:1 were observed at the UB and USA, respectively. Only the *Université du Lac Tanganyika* (ULT) and the *Université des Grands Lacs* (UGL) showed a ratio that seemed to match the policy norms from Kenya (18:1), with ratios of 17:1 and 20:1, respectively.
- b) For Education, the lowest ratio of 2:1 was noted at the UNG. This was attributed to the few students who had enrolled for Education related courses at the University (17 students). The highest ratio of 49:1 was observed at UB. Only the *Ecole Normale supérieure* (ENS) had a ratio of 14:1 that seems to match the policy norms in Kenya (18:1).
- c) For Health and Welfare, the lowest ratio of 2:1 was noted in UM, while the highest ratios of 24:1, 20:1 and 13:1 were noted at ULBU, USA and UGL respectively. On the other hand, UB and UNG showed ratios that seemed to fulfil the policy norm (7:1) used in Kenya at 8:1 and 9:1 respectively.
- d) For Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs, the lowest ratio of 5:1 was observed at the UNG. In general, the other HEIs showed an STR that slightly match the policy norm of 10:1.
- e) For Agriculture/ Forestry/ Fisheries/ Veterinary, the lowest ratio of 6:1 was recorded at UNG, and the highest at the UB. A ratio of 11:1 that seemed to match the policy norm of 10:1 was observed at the ULBU. The highest ratio of 19:1 was observed at the UB.

2.7.5 Factors Attracting Students and Faculty

The most common factors that attract faculty to HEIs include the availability of opportunities for employment, participation in national education, and enhancement of personal curriculum-vitae. On the other hand, students are mostly attracted to specific HEIs due to accessibility, lower school fees in the region and scholarship opportunities, especially in public institutions.

2.7.6 Key Reasons Why Students and Faculty Leave

The most common reasons why faculty members leave a HEI are:

- a) Low salaries;
- b) Better working conditions and remuneration at other local/regional HEIs;
- c) High workload in an unfavorable environment;
- d) Lack of sufficient infrastructure and equipment (desks, lecture halls etc.)
- e) Attraction by political promotion;
- f) Retirements; and
- g) Death.

On the other hand, students mostly drop out of a HEI due to the following reasons:

- a) Hard living conditions;
- b) Scholarship irregularities (especially in public institutions);
- c) High school fees (especially in private institutions);
- d) Location (mainly in the countryside); and
- e) Availability of job opportunities.

2.8 DAF-EAC Model Analysis: Case of University of Burundi

2.8.1 Analysis Questions

To describe the challenges facing Higher Education in Burundi moving forward, the study addressed the following two questions:

- a) How many additional faculty are required to achieve the policy norm for Student-Teacher-Ratios (STRs) in the baseline year (the year when the latest data are available)?
- b) How many additional faculty are required to meet the policy norm for STRs in 2030, given the projected growth in student enrolment due to the growth in the population ages 18-21 ?

2.8.2 Methodology

Data on student enrolment and faculty disaggregated by discipline from the University of Burundi (UB) was used. UB is the biggest and oldest HEI in the country, and its data for the academic year 2020 – 2021 was available and complete with a total of 518 of faculty and 13,990 student enrolments. The following five discipline categories that were based on UNESCO's International Standard Classification of Education Fields of Education and Training (2013) were used to make the analysis feasible, while allowing for results comparability across the EAC countries:

- a) Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services
- b) Education
- c) Health and Welfare
- d) Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs
- e) Agriculture/ Forestry/ Fisheries/ Veterinary

Only Kenya and Tanzania have policy norms for STRs, though the ones for Tanzania are not disaggregated by discipline in a way that is comparable with those of UNESCO. Kenya is also the only country in EAC to have set the gender-ratio for faculty. Given the lack of these goals specific to Burundi, the goals for Kenya as provided by the Commission for University Education (CUE) were adopted for the STR and faculty-gender ratio as benchmarks in the analysis.

2.8.3 Findings

With exception for Health and Welfare, the STRs for the discipline categories deviated significantly from the policy norms. A huge gap was particularly noted with policy norms in Arts and Humanities/ Social sciences, Journalism and Information/Business Administration/ Law/ Services; and Education (Table 2.11). These findings suggest that the University of Burundi has to develop and implement interventions to elevate its faculty. The actual STRs indicate that teachers are handle significantly high workloads, a phenomenon that is highly likely to compromise the quality of education. Further, the faculty-gender ratio remains very low to meet the policy-norms (Table 2.12). The University must take an affirmative step to promote female hiring in order to meet policy norms on gender equity.

Table 2.11: Policy Norms Versus Realities for STR by Discipline in 2021 (Baseline Year)

Discipline Categories	Student Enrolment	Number of Faculty	Actual STRs	Policy norms for STRs
a) Arts & Humanities/ Social sciences/ Journalism & Information/ Business Administration/ Law/ Services	6,881	170	40:1	18:1
b) Education	2,961	60	49:1	18:1
c) Health & Welfare	609	74	8:1	7:1
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	2,288	149	15:1	10:1
e) Agriculture/ Forestry/ Fisheries/ Veterinary	1,251	65	19:1	10:1

Note: The policy norms are adopted from Kenya.

Sources: 1) Vice-Chancellor office and Academic service, University of Burundi; 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

Table 2.12 Policy Norm Versus Reality for Faculty-Gender Ratio (Male-to-Female Ratio) in 2021

Male Faculty	Female Faculty	Actual Male-to-Female Ratio	Policy norm for Male-to-Female Ratio
447	71	6:1	2:1

Note: The policy norms are adopted from Kenya.

Sources:1) Vice-Chancellor office and Academic service, University of Burundi; 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014."

Table 2.13 presents the number of faculty needed to achieve the STR goals as set in 2021, considering both the number of faculty who are expected to exit teaching in the course of the year (switching jobs, retiring, dying, moving overseas, etc.) and the number overestimated, that is, the faculty who are registered on the payroll at universities as teaching but cannot be verified for whatever the reasons.

Table 2.13: Additional Faculty Needed to Achieve Policy Norms for STR Set in 2021 (Baseline Year)

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet STR goals*	470
b) Additional faculty needed to replace the ones projected to exit during the year**	20
c) Additional faculty needed to account for overestimation***	26
TOTAL	515
Panel B: Breakdown of the additional faculty needed to meet the STR goals by discipline:	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	212
b) Education	105
c) Health & Welfare	13
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	80
e) Agriculture/ Forestry/ Fisheries,/Veterinary	60
TOTAL	470

Notes: *The policy norms are adopted from Kenya.

**Assumption: 5% of professors and 10% of academic teaching staff exit each academic year and need to be replaced.

***Overestimation of faculty can result from having faculty who are on the payroll but are absent from the universities for some reason. The assumption is that the faculty is overestimated by 5%.

Sources: 1) Vice-Chancellor office and Academic service, University of Burundi; 2) Commission for University Education, Kenya; Universities Standards and Guidelines (2014).

During the baseline year (2021), a total of 470 faculty members were needed to meet the STR goals, among them 212 in Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services, and 105 in Education. High enrolment was particularly observed for courses related to Arts and Humanities unlike the other categories mostly relating to Natural Sciences, Applied Sciences and related disciplines. Moreover, an additional 20 faculty members were needed to replace the ones projected to leave during the baseline year, and 26 to account for overestimation.

The analysis suggests that moving forward, the University of Burundi should embrace a strategic policy for faculty hiring and replacement according to STR goals by discipline and by age. Table 2.14 shows the faculty needed to meet the goals for STRs by 2030, given the projected growth in student enrolment due to population growth. The student enrolment is projected to grow at the same rate as the population of ages 18 – 21; the age group typically associated with Higher Education according to the United Nation Population Division (UNPD). The table also presents the number needed to replace those projected to have exited teaching annually until 2030 and the overestimation of faculty.

Table 2.14: Additional Faculty Needed to Achieve the Policy Norms for STR by 2030

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet STR goals, taking account of population growth**	760
b) Additional faculty needed to meet the increased enrolment due to population growth*	320
c) Additional faculty needed to replace the ones projected to exit during the year***	258
d) Additional faculty needed to account for overestimation****	26
TOTAL	1 365
Panel B: Breakdown of the additional faculty needed to meet the increased enrolment due to population growth by discipline	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	105
b) Education	37
c) Health & Welfare	46
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	92
e) Agriculture/ Forestry/ Fisheries/ Veterinary	40
TOTAL	320
Panel C: Breakdown of the additional faculty needed to meet STR goals by discipline, given population growth	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	344
b) Education	169
c) Health & Welfare	21

Description	Faculty Needed
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	129
e) Agriculture/ Forestry/ Fisheries/ Veterinary	97
TOTAL	760

Notes: *The policy norms are adopted from Kenya.

**Assumption: student enrolment will grow annually at the same rate as the population age 18 – 21 projected by UNPD.

***Assumption: 5% of professors and 10% of academic teaching staff exit each academic year and need to be replaced.

****Assumption: The faculty is overestimated by 5%.

Sources: 1) Vice-Chancellor office and Academic service, University of Burundi; 2) United Nations, Department of Economic and Social Affairs, Population Division; World Population Prospects (2022); 3) Commission for University Education, Kenya; Universities Standards and Guidelines (2014).

A total of 1365 additional faculty will be needed to achieve policy norms for STR by 2030, among them 760 new faculty members by taking population growth into account. A high number of additional faculty members will particularly be needed in Arts and Humanities, and Business Administration. On the other hand, disciplines related to Health and Welfare will require the lowest number of additional faculty. Moreover, 258 additional faculty will be needed to replace the ones projected to exit by 2030.

Finally, Table 2.15 presents the female faculty needed to meet the gender ratio goals among faculty, both in the baseline year and in year 2030. The faculty gender ratio in 2030 is projected to be the same as what was observed in the baseline year. The goal ratio will be progressively achieved by increasing the number of female faculty rather than decreasing the number of male faculty.

Table 2.15 Additional Female Faculty Needed to Meet Policy Norms for the Faculty Gender Ratio

Description	Female faculty needed
To have met the goal ratio in 2021 (baseline year)*	309
To meet the goal in year 2030**	501

Notes: *The policy norms are adopted from Kenya.

**Assumptions: 1) The 2030 faculty projections will reflect the same gender ratio as in the baseline year; and 2) Increase in female faculty is needed to meet the policy norm for faculty gender ratio rather than reducing the male faculty.

Sources: 1) Vice-Chancellor office and Academic service, University of Burundi; 2) Commission for University Education, Kenya; Universities Standards and Guidelines (2014).

A total of 309 additional female faculty were needed to meet the policy norms for the faculty gender ratio in the baseline year (2021), while 509 will be needed by the year 2030. The analysis suggests that, to achieve the goal of gender balance, an additional faculty of female scientists would have to be hired. However, it is evident that there are significant challenges ahead in terms of recruiting the faculty needed to meet the policy norms for STRs and gender ratio by 2030, as well as retaining them once recruited. These numbers, however, do not consider other ways in which student enrolment is likely evolve, including the distribution of students across disciplines and the growth in student enrolment due to increases in student enrolment ratios and the population growth in the future.

2.8.4 Limitations of the DAF Model

The projection of faculty demand and supply undertaken for the University of Burundi provides a method for examining the relative effects of policies borrowed from Kenya. Further, the data collected were mainly based

on the baccalaureate level which accounts for the largest part of enrolments in the Burundian HES. Enrolment in PhD and master are very recent and account for a very small proportion of the findings.

2.8.5 Challenges

Different challenges were encountered during data collection for DAF–EAC in Burundi. They include:

- a) Six ministries are involved in the HES: This posed a big challenge in data collection since access to some institutions was very difficult or totally impossible, especially for those in charge of defense and security;
- b) Data on faculty distribution by disciplines at the national level was not available, making it impossible to calculate the national STRs by discipline. As a result, a DAF Model could not be generated at the national level;
- c) Bureaucratic administrative processes, and dishonored promises and appointments by some stakeholders;
- d) Lack of data and data collection support services in some HEIs;
- e) Lack of standardized classification of disciplines across HEIs;
- f) Lack of a standard template for data collation within HEIs;
- g) Faculty teaching in more than one HEIs. Currently, faculty may lecture in private universities in addition to having a post in public universities, and faculty retiring from Public Universities may take positions in private universities. These individuals were likely to be double-counted in the analysis, which may have led to underestimation/overestimation of the number of additional faculty needed;
- h) Lack of clear and standardized policy norms. For instance, norms for student enrolment change every year, and available norms were more qualitative than quantitative; and
- i) Incomplete, disparate or outdated data on faculty and student enrolments.

2.8.6 Conclusion

In Burundi, there is an increasing demand in student enrolments for all disciplines in public and private HEIs; especially, following the introduction of BMD system. Nevertheless, some disciplines seem to be more attractive than others. In general, excessive masculinisation and gender inequality persist among faculty academic ranks and student enrolment. The HES suffers from lack of quantitative policy norms for student enrolment and faculty recruitments. In particular, regarding the faculty, majority are engaged on part-time basis in private institutions and one person could be teaching in more than one institution. Moreover, some HEIs seem to lack services for regularly collecting statistics on students' enrolment and the faculty.

Faculty mostly exit due to hard working conditions (low salary, heavy workload and unfavorable teaching environment), attraction by political promotion, retirement and death. Hard living and working conditions are also main factors pushing academic staff to exit. Finally, the DAF analysis findings from data collected at the University of Burundi indicated that the needs for qualified faculty have not been met. Further, the situation is worsened by departure of professors and academic staff in other ranks each academic year. Projections from the DAF model revealed that, a total of 1365 additional faculty, among them 509 females, will be needed to achieve policy norms for STR by 2030. This suggests that in order to achieve the goal of faculty gender balance, a higher number of the additional faculty would have to be female scientists.


2.8.7 Recommendations

The study adduced a number of recommendations that were categorised into short and long term.

- a) Short term recommendations;
 - a.1) National level
 - i) Stable and quantitative policy norms on student enrolment and faculty recruitment should be clearly defined; particularly, for females so as to overcome the excessive masculinisation currently observed in the HEIs;
 - ii) Working conditions should be improved for both staff and students through quality assurance, construction of enough classrooms, establishment of well equipped labs, and integration of digital technology in the HEIs;
 - iii) To attract enrolments for some disciplines, teaching programmes should be recalibrated to match the needs of the available market in the country;
 - iv) A detailed database of names, gender, age, qualification field, level of study level and research fields for each faculty member should be developed and regularly updated;
 - v) Most faculty can be counted more than once, particularly part-time faculty teaching in more than one institution. A national identity (ID) should be assigned to each faculty member to avoid data redundancy during subsequent DAF studies; and
 - vi) Offices in charge of data collection on staff and student enrolment within HEIs should be more operational, or be created where they do not exist.
 - a.2) Regional level
 - i) Policy norms on student enrolment and faculty recruitment should be harmonised across all the EAC countries;
 - ii) A standard template should be developed and adopted by all stakeholders for future exercises on data collection on faculty and student enrolment;
 - iii) A standard classification of disciplines need to be devised among the HEIs to harmonise collection, interpretation and comparison of data as well as the findings at the regional level;
 - iv) IUCEA to regularly monitor implementation of the measures established and recommendations formulated to improve the results of DAF studies within the EAC countries.
- b) Long term recommendations;
 - a) Faculty ranks and salaries to be harmonised across the EAC countries;
 - b) Data collection subsequent exercises on DAF-EAC to mainly focus on full-time status of HEIs at national level;
 - c) Education system reforms be undertaken to integrate and improve digital technology in the EAC countries to facilitate faculty sharing between HEIs at the national level and across countries. This could resolve or alleviate the deficit of faculty in some educational fields, and help in resolving the massification problems in classrooms; and
 - d) A platform on faculty and students should be established across HEIs in the EAC countries to facilitate data update and sharing among stakeholders.

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DAF-EAC STAKEHOLDER ENGAGEMENT WORKSHOP

CHAPTER 3

KENYA REPORT

By

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3.1 Introduction

This section presents the historical development of university education in Kenya and the DAF model projections for the year 2030 based on the base year 2017.

3.2. University Education in Kenya

The Royal College in Nairobi attained University College status in 1961. The college organized a special arrangement with the University of London. The college was mandated to prepare students for the degree programs of the University of London under the establishment of the University of East Africa. This was the first step towards the introduction and development of university education in Kenya. In 1963, the Royal College became the University College of Nairobi, a constituent college of the University of East Africa. Makerere University in Uganda and the University of Dar-es-Salaam in Tanzania were the other constituent colleges of the University. The University of East Africa continued operating until 1970 when the University College of Nairobi attained university status, becoming the University of Nairobi.

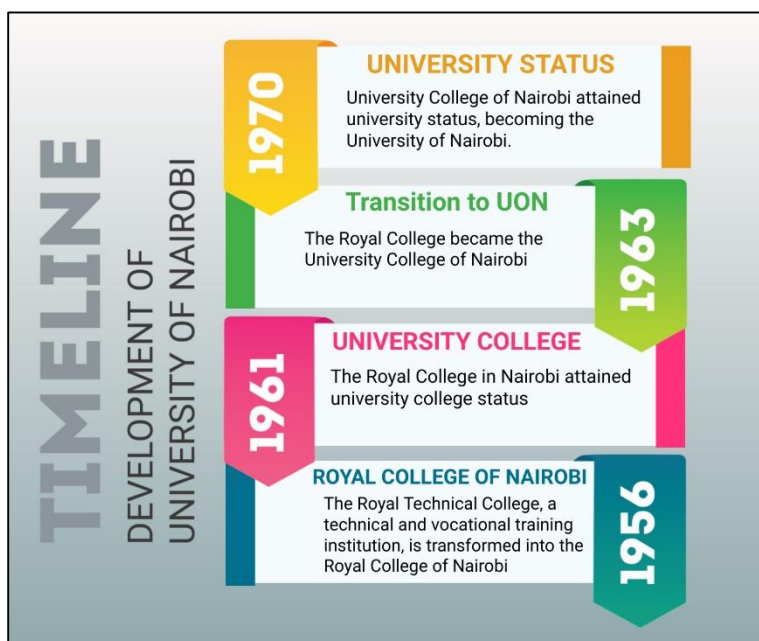


Figure 3.1: Timeline Development of the University of Nairobi

University education in Kenya has grown over the last three decades from a single public institution (the University of Nairobi started in 1970) and one private institution (United States International University started in 1969), to the current 74, making Kenya one of the countries with the highest number of HEIs in Africa.

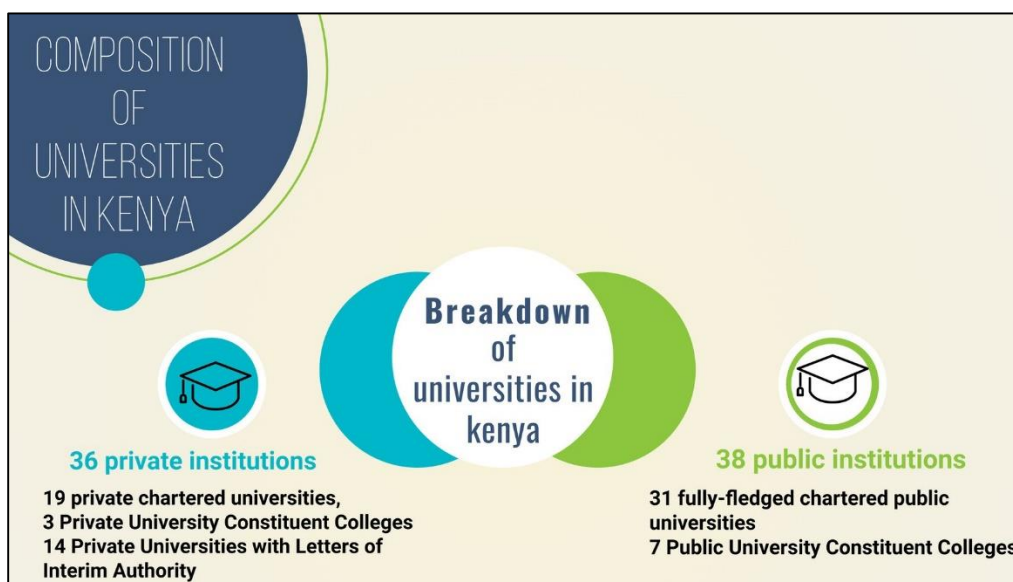


Figure 3.2: Composition of Universities in Kenya

As shown in Table 3.1, the number of universities mentioned comprise 38 public institutions (31 fully-fledged chartered public universities and 7 public university constituent colleges), and 36 private institutions (19 private chartered universities, 3 private university constituent colleges and 14 private universities with letters of interim authority).

Table 3.1: Number of Licensed Universities in Kenya

University Category	2016	2017	2018
a) Public Chartered Universities	23	30	31
b) Public University Constituent Colleges	8	4	7
c) Private Chartered Universities	17	18	19
d) Private University Constituent Colleges	5	5	3
e) Private Universities with LIA	12	12	14
f) Registered Private University	1	0	0
Total	66	68	74

Source: CUE report (2017/2018)

The growth in the number of universities in Kenya has seen a corresponding rise in the number of student enrolments. As such, while there were about 3,000 students enrolled in universities in 1970s, over the years, student enrolments had risen steadily to about 20,000 students by 1989/1990. By 1998/1999, total enrolment in public universities had climbed to 42,020 students, reaching 67,558 students in 2003/2004. This number has progressed, with enrolments of about 240,551 in 2012, and about 276,349 by the end of 2013. Further, the enrolments rose to 443,783 and 470,152 students in 2014 and 2015 respectively.

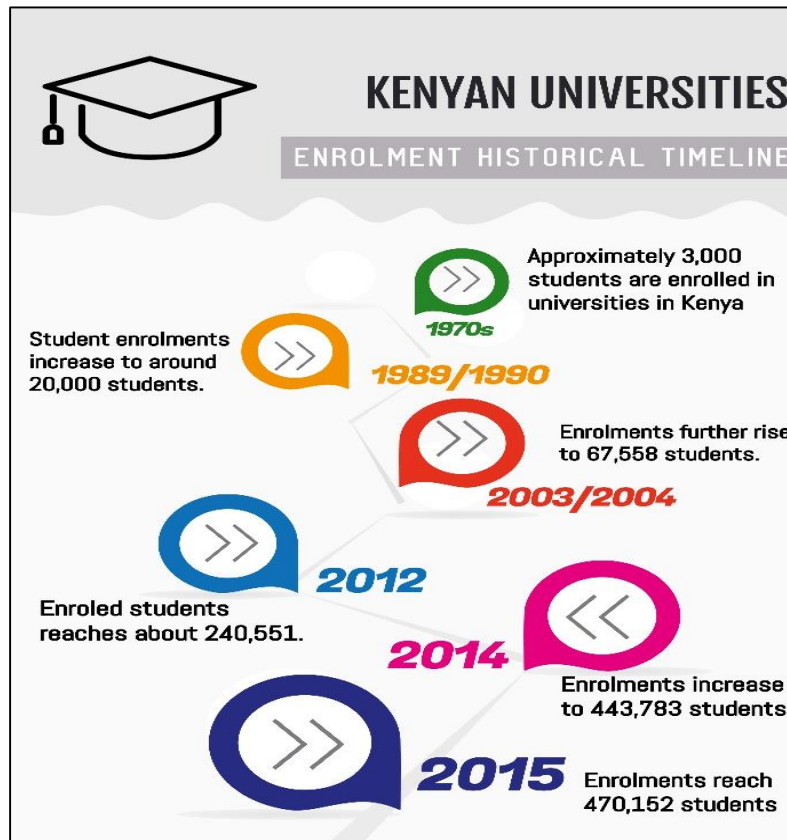


Figure 3.3: Chronology of Student Enrolments in Kenyan Universities

The rise in student numbers over the years, has been greater in public universities compared to their private sector counterparts, and to support this growth, the government has periodically developed various legal frameworks and strategies to ensure that it delivers the envisioned quality and relevant education. This is in line with the country’s requirements for socioeconomic and other forms of development. These efforts have progressively yielded fruits as the number of academic programmes offered as well as the number of students enrolled increased steadily.

3.3 University Accreditation in Kenya

University accreditation in Kenya refers the award of a charter by the Commission for University Education (CUE). For any university to be accredited, the CUE must ensure that the institution has adequate physical, human, library and financial resources, viable relevant academic programmes and a sound structures of governance. CUE was established by an Act of Parliament; the Universities Act No.42 of 2012 (Revised 2016) as the successor to the Commission for Higher Education (CHE). It undertakes functions focusing on the development and implementation of a quality assurance system for Higher Education (HE), submission of advisories on all aspects of HE policy, monitoring and evaluation of the state of the HES and spearheading intellectual discourse on key national issues pertaining to research, development, and innovation systems. As such, CUE seeks to be a leading regulator and custodian of quality for relevant and sustainable university education.

3.4 Student Placement in the HEIs

The Kenya Universities and Colleges Central Placement Service (KUCCPS) is a government agency that selects students for admission to public and private universities, national polytechnics, technical training institutes and other accredited colleges, under Government sponsorship. Until 2015, KUCCPS placed students only into public universities as the then law provided. However, from 2016, government-sponsored students have been placed in both public and private universities. The Kenyan Constitution, 2010, requires all public institutions to ensure equity in terms of gender, Persons living with Disabilities (PWDs), and regional distribution, among others.

KUCCPS was established to coordinate the placement of Government-sponsored students to Kenyan universities and colleges; develop and implement career guidance programmes; disseminate information on available programmes; and collect and retain data relating to university and college placement, among other functions. Through KUCCPS, students can apply for placement to artisan, certificate, diploma and degree courses. However, privately sponsored students apply directly to a university and are admitted upon meeting the entry requirements for the particular programme as set by the respective University Senates.

3.5 National Strategies in the Education Sector

The National Education Sector Strategic Plan (NESSP) 2018 – 2022 is an all-inclusive, sector-wide plan that spells out policy priorities, programmes and strategies for the education sector over a period of five years. NESSP (2018 – 2022) builds on the successes and challenges of the National Education Sector Plan (NESP) 2013 – 2017. The Plan aims at achieving four important strategic objectives for education, training and research, which are:

- a) To enhance access and equity;
- b) To provide quality and competency-based education, training and research;
- c) To strengthen management, governance and accountability; and
- d) To enhance relevance and capacities for Science, Technology and Innovation (STI) in education, training, and research for labour markets.

The achievement of these strategic objectives was expected to contribute to the realisation of the aspirations of Kenya's blueprint, the Vision 2030, as well as the Third Medium Term Plan (MTP III) which provides direction on planning and investments of the Vision 2030 during the period 2018 – 2022.

3.6 Study Findings

3.6.1 Policy Norms in Higher Education

3.6.1.1 Student-Teacher-Ratio (STR)

The STR policy by CUE is shown in Table 3.2. Education, Business Administration, Social Sciences, Journalism and Information, and Services are the disciplines with the highest STRs, while Health and Welfare have the lowest ratios. Over the years, majority of the disciplines have not been able to meet the recommended thresholds. This has been mainly due to an increase in the number of universities and programmes without a corresponding increase in staffing.

Table 3.2: Student-Teacher Ratio in Kenya's HES

Discipline	STR
a) Education	1:18
b) Business administration	1:18
c) Social sciences, journalism and information	1:18
d) Natural sciences, mathematics and statistics	1:10
e) Arts and humanities	1:15
f) Health and welfare	1:07
g) Engineering, manufacturing, and construction	1:10
h) Information and communication technologies	1:10
i) Agriculture, forestry, fisheries, and veterinary	1:10
j) Services	1:18
k) Law	1:15

3.6.1.2 Policy on Faculty Ranks

Academic University staff, also referred to as Faculty, are those whose main role is to instruct, research, and/or perform community outreach. The University Standards and Guidelines, 2014 stipulates that a university shall have adequate and competent human resources to carry out its mandate in accordance with its human resource policy. The recommended ratio of academic staff to administrative/non-academic staff in Universities in Kenya is 70% to 30%. The minimum criteria for appointment/promotion of academic staff in Kenyan universities are as per the qualifications presented in Table 3.3.

Table 3.3: Policy on Faculty Qualifications

Rank	Policy Requirements
a) Teaching Assistant/ Graduate Assistant/ Research Assistant	This grade facilitates identification of outstanding bachelor graduates for training for academic positions. The staff must: <ul style="list-style-type: none"> i) Have a Bachelor's degree in the relevant field with at least an Upper Second Class Honors; and ii) Be registered for a relevant Masters degree programme.
b) Tutorial Fellow/ Assistant Lecturer/ Junior Research Fellow	The staff must: <ul style="list-style-type: none"> i) Have a Bachelor's degree and a Master's degree qualification from a recognised/accredited university in the relevant field; ii) Have at least three years post qualification work experience; iii) Be registered for a Doctor of Philosophy (PhD) or equivalent Doctoral degree qualification; and iv) Demonstrated potential for university teaching and research.
c) Lecturer/ Research Fellow	The staff must: <ul style="list-style-type: none"> i) Have a PhD or equivalent degree qualification (or a Master's degree qualification in special cases) in the relevant area from a recognised/accredited university; ii) Have at least four years teaching experience at university level; iii) Have four equivalent publication points; and iv) Be registered by the relevant Professional Body (where applicable).
d) Senior Lecturer/ Senior Research Fellow	The staff must: <ul style="list-style-type: none"> i) Have a PhD or equivalent degree qualification (or a Master's degree qualification in special cases) in the relevant area from a recognised/accredited university;

Rank	Policy Requirements
	<ul style="list-style-type: none"> ii) Have at least three years of teaching/research experience at the university level as a Lecturer/Research Fellow; iii) Have accumulated at least six equivalent publication points as a Lecturer/Research Fellow; iv) Have supervised at least four postgraduate students and attracted research funds as a Lecturer/Research Fellow; and v) Been registered by the relevant Professional Body (where applicable).
e) Associate Professor/ Associate Research Professor	<p>The staff must:</p> <ul style="list-style-type: none"> i) Have a PhD or equivalent degree qualification (or a Master's degree qualification in special cases) in the relevant area from a recognised/accredited university; ii) Have at least three years teaching/ research experience at the university level as a Senior Lecturer/Senior Research Fellow; iii) Have accumulated at least eight equivalent publication points as a Senior Lecturer/Senior Research Fellow; and iv) Have supervised at least five postgraduate students and attracted funds.
f) Professor/ Research Professor	<p>The staff must:</p> <ul style="list-style-type: none"> i) Have a PhD or equivalent degree qualification (or a Master's degree qualification in special cases) in the relevant area from a recognised/accredited university; ii) Have at least four years teaching and research experience since being appointed Associate Professor/Associate Research Professor; iii) Have accumulated at least ten equivalent publication points since attaining Associate Professorship; iv) Have supervised at least five postgraduate students and attracted research funds since attaining Associate Professorship.
g) Adjunct Academic Staff	Professionals from the industry who offer support for university – industry linkages.

3.6.2. Comparison of Policy Norms and Current Status

3.6.2.1 Faculty Gender Ratio.

Based on the CUE reports, the findings indicate that the gender ratio policy is met in Kenya. The results are as shown in Table 3.4, where across the years, the gender ratio was 2:1.

Table 3.4: Faculty Gender ratio.

Description	2016/2017		2017/2018		2018/2019	
	Male	Female	Male	Female	Male	Female
Faculty proportion for all disciplines since 2016/2017	66%	34%	67%	33%	66%	34%
Ratio of male to female (2:1)	2:1		2:1		2:1	
Kenyan policy requirement for gender distribution at workplace	Each gender must occupy at least a third of the total positions.					

3.6.2.2 Faculty Distribution by Rank

The CUE 2017/2018 report showed that approximately 74% of the faculty are in public universities, while 26% are in private universities. The majority of the faculty are at the lecturer rank (40%) followed by 33% who are

tutorial fellows, 12% senior lecturers, 6% graduate assistants, 5% assistant professors and the least 3% being professors as shown in Table 3.5.

Table 3.5: Faculty Distribution by Rank

Category	Professors	Associate Professors	Senior Lecturers	Lecturers	Tutorial Fellows	Graduate Assistant	Total
Public Universities	487	781	1,842	5,988	5,174	914	15,186 (74%)
Private Universities	127	209	654	2,181	1,606	445	5,222 (26%)
TOTAL	614 (3%)	990 (5%)	2,496 (12%)	8,169 (40%)	6,780 (33%)	1,359 (6%)	20,408 (100%)

3.6.2.3 Faculty Distribution by Rank and Discipline: CUE 2017/2018

Business and Administration programmes had the highest proportion of academic staff followed by Natural Science, Mathematics and Statistics. The results in Table 3.6 show that the services domain had the highest proportion of academic staff at the rank of Graduate Assistant with 31.66%. Agriculture, Forestry, Fisheries and Veterinary domains had the largest academic proportion at 6.42%, while Business, Administration and Law had the least proportion at 0.99% in the rank of Professor. Overall, academic staff at the rank of Lecturer had the highest proportion at 40.03%.

Table 3.6: Faculty Distribution by Rank and Discipline

Cluster	Professors	Associate Professors	Senior Lecturers	Lecturers	Tutorial Fellows	Graduate Assistant	Total
a) Education	57	98	316	1205	531	61	2,268
b) Arts & Humanities	104	167	396	1208	588	107	2,570
c) Social Science, Journalism & Information	49	103	244	826	758	193	2,173
d) Business & Administration	38	87	431	1367	1658	260	3,841
e) Natural Science, Mathematics & Statistics	108	166	353	1137	1040	95	2,899
f) ICTs	19	35	114	484	653	132	1,437
g) Engineering, Manufacturing & Construction	41	73	149	476	508	229	1,476
h) Agriculture, Forestry Fisheries & Veterinary	97	142	168	584	449	72	1,512
i) Health & Welfare	97	115	298	826	550	147	2,033
j) Services	4	4	27	56	45	63	199
Grand Total	614	990	2,496	8,169	6,780	1,359	20,408
Proportion	3.01%	4.85%	12.23%	40.03%	33.22%	6.66%	100.00%

3.6.2.4 Student Distribution by Discipline (CUE 2018/2019)

The Constitution of Kenya (2010) provides for affordable access to university education for every Kenyan. Some of the government policies concerning university education are to ensure full utilization of the existing universities' resources and establishment of universities to train undergraduate students and increase enrolment.

The government's efforts to achieve these strategies have partially contributed to the growing number of universities over time and the increased enrolment of students in higher learning institutions in the country. The findings are as shown in Table 3.7, where majority of the students were enrolled in Education (20.40%) and Business Administration (20.10%). The minority were Law students (1.7%). More than three-quarters of the students had been enrolled in public universities compared to private universities (20%). Most of the students in private universities were pursuing Business Administration, while the domain of Agriculture, Forestry, Fisheries, and Veterinary had the least number of students.

Table 3.7: Student Distribution by Discipline

Discipline	Public	Private	Total	Percent
a) Education	89,660	20,929	110,589	20.40%
b) Business administration	73,289	35,599	108,888	20.10%
c) Social sciences, journalism and information	55,193	19,688	74,881	13.80%
d) Natural sciences, mathematics and statistics	52,033	2,501	54,534	10.10%
e) Arts and humanities	38,519	6,437	44,956	8.30%
f) Health and welfare	28,101	9,273	37,374	6.90%
g) Engineering, manufacturing, and construction	34,037	699	34,736	6.40%
h) ICTs	17,385	10,013	27,398	5.10%
i) Agriculture, forestry, fisheries, and veterinary	26,858	540	27,398	5.10%
j) Services	9,426	1,746	11,172	2.10%
k) Law	6,071	2,879	8,950	1.70%
Total	430,572 (80%)	110,304 (20%)	540,876	100%

3.6.2.5. Student Distribution by Gender (CUE 2017/2018)

The male students were the majority across all disciplines as shown in Table 3.8. Business and Administration had the highest enrolments with 134,202 students which accounted for 23% of total enrolments, followed by Education with 122,558 students at 22%, and Social Sciences, Journalism and Information with 66,406. The clusters with the lowest enrolments were Law (1%), Services (2%) and Agriculture, Forestry, Fisheries and Veterinary (5.13%). There were more females enrolled in Services than males.

Table 3.8: Student Distribution by Gender

Discipline Categories	Level of Study by Gender						Total
	Male			Female			
	Bachelor's	Master's	Doctoral	Bachelor's	Master's	Doctoral	
a) Agriculture, Forestry, Fisheries and Veterinary	15,481	828	1,030	10,216	485	519	28,559 (5%)
b) Arts and Humanities	16,184	2,710	872	14,027	1,672	518	35,983 (7%)
c) Business and Administration	49,672	13,843	4,760	41,258	11,046	2,843	123,422 (23%)
d) Law	3,237	516	19	3,241	208	5	7,226 (1%)

Discipline Categories	Level of Study by Gender						Total
	Male			Female			
	Bachelor's	Master's	Doctoral	Bachelor's	Master's	Doctoral	
e) Education	56,801	5,118	1,359	50,603	4,867	1,151	119,899 (22%)
f) Engineering, Manufacturing & Construction	21,748	816	279	6,163	198	65	29,269 (5%)
g) Health and Welfare	16,629	2,721	738	13,902	2,098	532	36,620 (7%)
h) ICT	22,450	1,827	185	9,038	855	76	34,431 (6%)
i) Natural Science, Mathematics and Statistics	26,912	3,137	1,445	15,504	1,482	1,082	49,562 (9%)
j) Services	4,603	260	140	4,928	248	135	10,314 (2%)
k) Social Science, Journalism and Information	28,474	3,740	1,504	23,719	3,012	1,184	61,633 (11%)
Total	262,191	35,516	12,331	192,599	26,171	8,110	536,918 (100%)

3.6.2.6 Student–Teacher Ratio (STR) (CUE 2017/2018)

As shown in Table 3.9, the policies put in place by CUE on STRs had not been met by 2018. Programmes in the Education and Services cluster had the highest ratio at 53:01 and 52:01 respectively, against the recommended threshold of 18:01 and 15:01 respectively. Natural Sciences, Mathematics and Statistics and ICT had ratios above the recommended threshold of 10:1 with 17:01 and 24:01 ratios respectively, while medical and applied sciences had a ratio of 18:01 against the threshold of 7:01. This scenario may be linked to the increase in the number of universities and programmes without a corresponding increase in staffing. Even after taking the part-time teaching staff into consideration, none of the clusters achieved the required threshold.

Table 3.9: Student–Teacher Ratio, 2017/2018

Discipline	Student	Faculty	Actual STR	Policy Norm (CUE 2014)
a) Education	119,899	2,268	53:01	18:01
b) Arts and Humanities	43,209	2,570	17:01	15:01
c) Social Science, Journalism and Information	61,633	2,173	28:01	18:01
d) Business and Administration	123,422	3,841	32:01	18:01
e) Natural Science, Mathematics and Statistics	49,562	2,899	17:01	10:01
f) Information and Communication Technology	34,431	1,437	24:01	10:01
g) Engineering, Manufacturing and Construction	29,269	1,476	20:01	10:01
h) Agriculture, Forestry, Fisheries and Veterinary	28,559	1,512	19:01	10:01
i) Health and Welfare	36,620	2,033	18:01	7:01
j) Services	10,314	199	52:01	15:01
Grand Total	536,918	20,408		

3.7. Key Reasons Why Students and Faculty Exit HEIs

3.7.1 Why Students Exit HEIs

University Reforms: University reforms in Kenya affect the normal operations of universities across the country due to less capitation from the government. Some of the recent reforms include:

- a) Rationalisation of academic programmes. Some academic programmes have been merged and others have been abolished;
- b) Phasing out of certificate and diploma programmes in the universities;
- c) Closing of some regional learning outreach centres/campuses; and
- d) Reduced capitation from the government.

3.7.2 Why Students Transfer Across HEIs

KUCCPS: Government sponsored students who have been placed by KUCCPS may opt for inter-university transfer due to various reasons such as preference for particular university, need to change course to another which is offered in a different university and university location among others.

3.7.3 Other Extraneous Factors

- a) COVID-19 Pandemic's effect on individual and family economic situations impacted decisions to undertake postgraduate or even self-sponsored programmes;
- b) The Government policy of 100% transition rates and placement of Government sponsored students to private universities created room for students to move to private universities;
- c) The Government's decision to sponsor students in TVET institutions for Diploma programmes created an opportunity for students to join courses of their choice;
- d) The quick uptake of online learning by private universities attracted self-sponsored students who would have otherwise joined public universities; and
- e) Appealing programmes from the international arena where foreign universities offer programmes at competitive fees than local universities.

3.7.4 Faculty Exit in HEIs

According to CUE, some of the reasons that contribute to faculty exit are;

- a) Natural attrition of the teaching staff; and
- b) Pursuing greener pastures like government appointments, politics etc.

3.8 Factors that Attract Students and Faculty to Universities

3.8.1 Factors Attracting Students

Qualitative data collected indicated that the following factors attract students to specific universities:

- a) Attractive university infrastructure;
- b) University accessibility;
- c) Year of establishment;
- d) Credibility of the university; and
- e) The university rankings.

3.8.2 Factors Attracting Faculty

The factors attracting faculty to specific universities were noted to be opportunities for employment and good working conditions provided by the university.

3.9 Challenges Facing University Education

The identified challenges facing university education in Kenya were:

- a) The STR as per the CUE standards: This has never been met by most universities; and
- b) Low numbers of PhD holders joining the teaching force.

3.10 DAF Model Analysis Projections

3.10.1 Introduction

To describe the challenges facing Higher Education in Kenya, data on student enrolment and faculty disaggregated by discipline from all universities offering degree programmes in Kenya (both private and public) were used. Tables 3.10 and 3.11 describe the actual STRs by discipline and the faculty-gender ratio in 2017, the baseline year, and their corresponding policy norms. The study findings showed that across all disciplines, the actual STRs do not tally with the national policy norms for STRs set by the government of Kenya.

3.10.2 Policy Norms Versus Realities for STR by Discipline in 2017

The ratios reveal that the number of students in all disciplines is higher than the number required per faculty member as stipulated in the policy. Specifically, in Education, the number of students assigned to one faculty (teacher) is three times higher than the policy norm. The number of students assigned to the faculty in Health and welfare, Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs, Agriculture/ Forestry/ Fisheries/ Veterinary is double the number required within the policy norms. The results are as shown in table 3.10.

Table 3.10: Policy Norms Versus Realities for STR by Discipline in 2017 (Baseline Year)

Discipline Categories	Student enrolment	Number of faculty	Actual STRs	STR Policy norms
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	238,578	8,783	27:1	18:1
b) Education	119,899	2,268	53:1	18:1
c) Health & Welfare	36,620	2,033	18:1	7:1
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	113,262	5,812	19:1	10:1
e) Agriculture/ Forestry/ Fisheries/ Veterinary	28,559	1,512	19:1	10:1

Source: Commission for University Education, Kenya (2017) and Universities Standards and Guidelines (2014).

3.10.3 Policy Norm Versus Reality for Faculty-Gender Ratio (Male-to-Female Ratio) in 2017

The findings in Table 3.11 show that in 2017, the actual number of male faculty was 13,610 while that of the female faculty was 6,798. This yielded the actual male-to-female ratio as 2:1 which meets the policy norms in line with the Kenya's constitution 2010. The Constitution requires that every sector should have at least a third of those employed being of the same gender.

Table 3.11: Policy Norm Versus Reality for Faculty-Gender Ratio (Male-to-Female Ratio) in 2017 (Baseline Year)

Male Faculty	Female Faculty	Actual Male-to-Female Ratio	Policy Norm for Male-to-Female Ratio
13,610	6,798	2:1	2:1

Source: Commission for University Education, Kenya (2017)

3.10.4 Additional Faculty Needed to Achieve Policy Norms for STR in 2017

Table 3.12 presents the additional number of faculty needed to have achieved the policy goal for STR in 2017, considering both the number of faculty who are expected to have exited teaching in the course of the year (switching jobs, retiring, dying, moving overseas, etc.) and the number overestimated, that is, the faculty who are registered on the payroll at universities as teaching but cannot be verified for whatever the reasons.

Table 3.12: Additional Faculty Needed to Achieve Policy Norms for STR in 2017 (Baseline Year)

Description	Additional Faculty Needed	Actual Faculty
Panel A: Total		
a) Additional faculty needed to meet STR goals	18,921	
b) Additional faculty needed to replace the ones projected to exit during the year*	39	
c) Additional faculty needed to account for overestimation**	1,020	
Total	19,980	
Panel B: Breakdown of the additional faculty needed to meet STR goals by discipline		
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	4,471	8,783
b) Education	4,393	2,268
c) Health & Welfare	3,198	2,033
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	5,514	5,812
e) Agriculture/ Forestry/ Fisheries/ Veterinary	1,344	1,512
Total	18,921	20,408

Notes: *Assumption: 5% of professors and 10% of other teaching staff exit each academic year and need replacement.
 **Overestimation of faculty can result from having faculty who are on the payroll of universities but are absent for some reason. Assumption: the faculty is overestimated by 5%.

Source: DAF model results

The projection analysis showed that the total additional number of faculty needed (19,980) is almost equal to the actual number of faculty available (20,408). Further, analysis by discipline showed that the additional number of faculty needed in Education (4,393) is double the number of faculty currently in place (2,268). Similarly, the number of faculty needed in Health and Welfare (3,198) is significantly higher than the number of faculty available (2,268). The additional number of faculty needed in Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs, Agriculture/ Forestry/ Fisheries/ Veterinary is almost equal to the number of faculty in place. The additional number of faculty needed in place for Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services (4,471) is almost a half the number of faculty in place (8,783).

3.10.5 Additional Faculty Needed to Meet Increased Student Enrolment and STR Goals by 2030

Table 3.13 shows the faculty needed to meet the goals for STRs by 2030, given the projected growth in student enrolment due to population growth. The student enrolment is projected to grow at the same rate as the population ages 18 – 21, the age group typically associated with Higher Education, according to the UN Population Division (UNPD). The table also shows the number needed to replace the ones projected to have exited teaching each year until 2030 and the overestimation of faculty.

Due to the projected population growth of students of age 18 – 21 years, the student enrolment rates in the universities increase, and the DAF model projects that the additional faculty needed in Kenya to meet the policy standards based on the projected population growth is 7,593. This is 2.7% of the number of faculty available in the base year 2017 (20,408).

The DAF model projection by discipline showed that additional faculty needed to meet the increased enrolment due to population growth is highest for Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services (3,268) followed by Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs (2,163), Education (844), Health and welfare (756), and Agriculture/ Forestry/ Fisheries/ Veterinary (563).

A comparison of the number of faculty in the base year and the additional faculty needed to meet the increased enrolment due to population growth shows that across all disciplines, an additional 2.7% of the number of faculty in the base year are needed.

On the other hand, the additional faculty needed to meet STR goals, taking into account the projected population growth of students of age 18 – 21 years, is 25,961. This is an indication that Kenya needs to at least double the number of faculty in the base year in order to meet the STR goals by 2030. Further, the additional faculty needed to replace the ones projected to exit is 657, while those needed to account for overestimation are 1,020.

The analysis showed that the additional faculty needed to meet STR goals by discipline, given population growth is highest for Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs (7,566) followed by Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services (6,135), Education (6,028), Health and Welfare (4,388) and Agriculture/ Forestry/ Fisheries/ Veterinary (1,844).

Table 3.13: Additional Faculty Needed to Meet Increased Student Enrolment and STR Goals by 2030

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet the increased enrolment due to population growth*	7,593
b) Additional faculty needed to meet STR goals, taking into account population growth	25,961
c) Additional faculty needed to replace the ones projected to exit during the year**	657
d) Additional faculty needed to account for overestimation***	1,020
Total	35,232
Panel B: Breakdown of the additional faculty needed to meet the increased enrolment due to population growth by discipline	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	3,268
b) Education	844
c) Health & Welfare	756
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	2,163
e) Agriculture/ Forestry/ Fisheries/ Veterinary	563

Description	Faculty Needed
Total	7,593
Panel C: Breakdown of the additional faculty needed to meet STR goals by discipline, given population growth	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	6,135
b) Education	6,028
c) Health & Welfare	4,388
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	7,566
e) Agriculture/ Forestry/ Fisheries/ Veterinary	1,844
Total	25,961

Notes: *Assumption: student enrolment grows annually at the rate of the population of age 18–21 projected by UNPD.

**Assumption: 5% of professors and 10% of other teaching staff exit each academic year and need replacement.

***Assumption: the faculty is overestimated by 5%.

Sources: 1) United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022; 2) CUE, Kenya (2014). Universities Standards and Guidelines 2014.

3.10.6 Additional Female Faculty Needed to Meet Policy Norm for the Faculty-Gender Ratio

Finally, Table 3.14 presents the number of additional female faculty needed to meet goals for the gender ratio. In the baseline year, 2017, and in the year of projection, 2030, the estimates were found to be 6,316 and 11,196 respectively. The faculty gender ratio in 2030 is assumed to be the same as the one observed in the baseline year. The assumption is that the goal for the gender ratio is achieved by increasing the number of female faculty, rather than decreasing the number of male faculty.

Table 3.14: Additional Female Faculty Needed to Meet Policy Norm for the Faculty-Gender Ratio

Description	Faculty Needed
To have met the goal in 2017 (baseline year)	6,316
To meet the goal in 2030	11,196

The additional female faculty needed by 2030 is projected to be 11,196 compared to 6,316 in 2017. This is an additional 46% with respect to the base year.

3.11 Conclusion

The desk review findings showed that Kenya has policy norms addressing the requirement for faculty ranking, gender ratio and Student-Teacher Ratio (STR) by discipline. The quantitative data showed that the additional faculty that was required in the base year (2017) to have achieved the policy norms in Kenya was 93% of the actual number (20,408). The projections showed that growth in student enrolment due to the growth in the population of ages 18 – 21 in the country requires an additional 25,961 faculties by 2030. Compared to the base year, the universities need more than 100% increase in the number of faculty by 2030. The study findings also showed that the faculty gender ratio meets the policy norms as per the Kenyan constitution.

The study, therefore, concludes that irrespective of the existing Higher Education policy landscape and strategies related to faculty at the country level, Kenyan universities have not met policy norms for STR across all disciplines. The country has national policy norms on STR, gender ratio and qualifications of faculty. However, findings showed that only the faculty gender ratio meets the recommended policy norm as per the Kenyan constitution. Further, based on the existing information, there are no proper approaches employed to address the challenges of faculty supply and demand.

3.12 Recommendations

The study yielded both long-term and short-term recommendations.

- a) Short term recommendation;
The Kenyan government through the CUE to work with the universities to address the gaps in the unmet national policy norms by ensuring that the Higher Education policy landscape and strategies related to faculty at the country level are properly implemented.
- b) Long term recommendation;
The CUE and the universities to work together and come up with proper approaches to address the challenges of faculty supply and demand at the country level. This can be achieved by introducing more funding and targeted scholarships to help increase the number of faculty.

3.13 References

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A SPEAKER DURING ONE OF THE DAF-EAC WORKSHOPS



PARTICIPANTS FOLLOW PROCEEDINGS IN ONE OF THE DAF-EAC WORKSHOPS

CHAPTER 4

RWANDA REPORT

By

Kabano Ignace and Gasafari Mpabuka Willy

4.1 Introduction

This section presents the historical perspectives of university education in Rwanda and the generated DAF model analysis and projections.

4.2. Historical Background to the Tertiary Education System in Rwanda

Education in Rwanda has undergone considerable changes in the recent history, and has faced major disruptions due to periods of conflict. Since 1994, the government and its development partners, have invested in considerable expansion of the National University of Rwanda and founded four specialist institutes, two colleges of education, two colleges of technologies and five colleges of nursing. It has also founded the Institute of Legal Practice and Development, and the institute for Management and Administration. In the same period, twelve new private Higher Education institutions have been opened¹.

In 1963, the National University of Rwanda, now known as the University of Rwanda, was established. The University of Rwanda is currently organized into six Colleges across 14 campuses: College of Arts and Social Sciences (CASS), College of Agriculture and Veterinary Medicine (CAVM); College of Business, and Economics (CBE); College of Education (CE); College of Science and Technology (CST); and College of Medicine and Health Sciences (CMHS).²

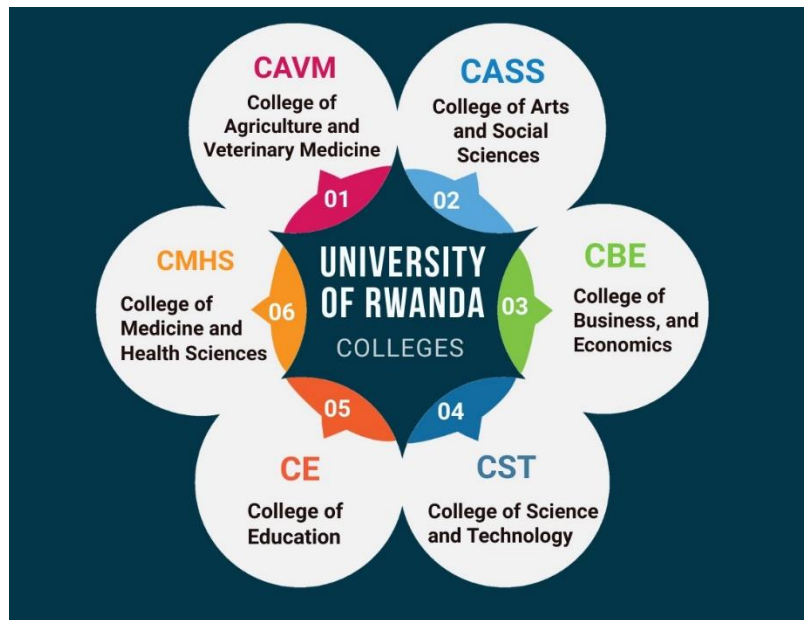


Figure 4.1: University of Rwanda Colleges

¹ Ministry of Education (2008) Higher Education Policy.

² University of Rwanda (2017) Towards the University of Rwanda We Want: UR Concept Note for Research Capacity Development and Institutional Advancement 2018 – 2023

4.3. Tertiary Education in Rwanda

The tertiary education sector in Rwanda is small but growing steadily. Despite this steady growth, tertiary enrolments fell slightly in 2021 and the number of HEIs in Rwanda fell dramatically from 54 to 40 in 2017 and 2018 respectively as shown in Table 4.1.

Table 4.1: Number of Higher Education Institutions in Rwanda

Description	2015/2016	2017/18	2018/19	2020/21
Higher Education Institutions (HEIs)				
Public	10	3	3	3
Private	44	37	37	35
Total	54	40	40	38
Polytechnics				
Public	8	1	1	1
Private	9	9	9	7
Total	17	10	10	8
General HEIs				
Public	2	2	2	2
Private	35	28	28	28
Total	37	30	30	30

Source: School census, Ministry of Education

4.4 Students Enrolment

Business Administration and Law had the highest enrolment between 2016/2017 and 2020/2021 academic years. However, the enrolment in this discipline category exhibited a steady downward trend with numbers decreasing from 30,360 students in 2016/2017 to 21,437 students in 2020/2021. Engineering, Manufacturing and Construction recorded the second highest enrolment between academic years 2016/2017 and 2018/2019, while Education was the second highest during the 2020/2021 academic year. Further, Arts and Humanities recorded the lowest enrolment with a steady downward trend between 2016/2017 and 2018/2019 academic years, while Social Sciences, Journalism and Information recorded the lowest enrolment in 2020/2021 academic year at 2,907 students. On the other hand, significant gender imbalance is observed in the enrollment for Engineering, Manufacturing and Construction courses with the female gender recording below 25% of the enrolment throughout the period four academic years. Overly, the total enrolment exhibited upward and downward movements over the period, resulting to a net decrease in the enrolment from 91,193 students in 2016/2017 academic year, to 88,448 students in 2020/2021 academic year. Table 4.2 shows the trends of Higher Education enrolment in Rwanda by discipline and gender between 2016 and 2021.

Table 4.2: Trends of Higher Education Students Enrolment by Discipline and Gender

Discipline	2016/2017			2017/2018			2018/2019			2020/2021		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
a) Education	6,892	4,014	10,906	5,513	3,425	8,938	6,402	4,473	10,875	8,149	5,872	14,021
b) Arts & Humanities	737	2,004	2,741	924	609	1,533	590	383	973	2,459	1,649	4,108
c) Social Sciences, Journalism & Information	2,065	2,244	4,309	2,861	2,140	5,001	3,151	3,107	6,258	1,446	1,461	2,907
d) Business Administration & Law	12,999	17,361	30,360	13,361	16,047	29,408	11,481	14,227	25,708	8,346	13,091	21,437
e) Natural Sciences, Mathematics & Statistics	2,614	1,363	3,977	2,020	964	2,984	2,461	1,314	3,775	3,251	2,570	5,821
f) ICTs	5,984	3,325	9,309	4,930	2,610	7,540	5,888	3,539	9,427	5,631	3,540	9,171
g) Engineering, Manufacturing & Construction	9,292	1,936	11,228	11,391	2,850	14,241	11,423	2,797	14,220	10,402	2,618	13,020
h) Agriculture, Forestry, Fisheries & Veterinary	2,597	1,705	4,302	1,725	851	2,576	1,909	998	2,907	2,514	1,646	4,160
i) Health & Welfare	3,545	3,685	7,230	4,442	3,809	8,251	3,477	3,249	6,726	3,297	2,999	6,296
j) Services	3,183	3,648	6,831	3,952	4,736	8,688	2,308	3,029	5,337	3,262	4,245	7,507
Total	49,908	41,285	91,193	51,119	38,041	89,160	49,090	37,116	86,206	48,757	39,691	88,448

Source: School census, Ministry of Education

4.5 Student-Teacher Ratio (STR)

Class size is an important aspect that needs to be regulated, not only in the interest of students, but also in line with the cost of programme delivery. The cost of delivering different subjects in HEIs vary by discipline. Rwanda adopted the Scottish funding ratios and the associated STRs as presented in Table 4.3.

Table 4.3: Adopted the Scottish Funding Ratios and the Associated STRs

Scottish Description	STR
Classroom based	1:25
High – Cost Classroom	1:21
Part Laboratory, Part Classroom	1:17
Laboratory	1:15
High – Cost Laboratory	1:14
Clinical Medicine	1:10

4.6 Gender Mainstreaming

Gender equality is sustainably promoted when all students and staff (across gender) enjoy equal opportunities, human rights and non-discrimination in all spheres of university life (UR Gender Policy, 2016). Gender mainstreaming means there will be continuous intentional assessment of the implications of planned actions, policies or programmes for women and men to ensure their concerns and experiences are an integral dimension of the design, implementation, monitoring and evaluation of those actions, so that women and men benefit equally (Economic and Social Council, UN, 1997).

4.7 The Status of the University of Rwanda

The student population estimate in Rwanda is expected to grow at a rate of 3% in the coming years. In the next 10 years, the percentage of academic staff with PhD is also expected to increase in tandem with student enrolment.

4.8 Minimum Qualifications to Teach in Tertiary Education Institutions

4.8.1 Requirements for Appointment and Academic Promotion

a) Tutorial Assistant

The minimum requirements for appointment as a tutorial assistant are:

Bachelor degree with honors (first class or upper second division) in a relevant field.

b) Lecturer

The minimum requirements for appointment as a lecturer from outside the University are:

- i) PhD or professional doctorate;
- ii) 2 publications points emanating from peer reviewed index journals; and
- iii) A teaching portfolio assessed as satisfactory.

c) Senior Lecturer

The Minimum requirements for promotion to a Senior Lecturer from a Lecturer or appointment as a Senior Lecturer from outside the University are:

- i) PhD, professional doctorate or Masters with Advanced Programme Qualification approved by senate;
- ii) A minimum of five publications points emanating from reviewed index journals. Three points which must have been earned since last promotion;
- iii) The research publication and conference proceeding from UR approved research publication database;
- iv) At least three years' experience of teaching – for a lecturer who have been teaching prior to embarking on a PhD, this period shall be considered in addition to the period post PhD graduation.
- v) Successful supervision of at least 2 Master's students; and
- vi) A teaching portfolio assessed as satisfactory.

d) Associate Professor

The minimum requirements for promotion to an Associate Professor are:

- i) Must meet all preceding criteria in the policy i.e. must have been previously appointed as a Senior Lecturer;
- ii) At least two years of relevant successful teaching experience as a Senior Lecturer in a recognised HEI;
- iii) A minimum of 9 publication points emanating from reviewed index journals, conference, proceeding, books and book chapters; 4 of which must have been published since last promotion;
- iv) Successful supervision of either of the following since promotion as a Senior Lecturer:
 - 5 Graduated PhDs + any number of current PhDs or
 - 4 Graduated PhDs + 1 current PhD or
 - 3 Graduated PhDs + 2 current PhDs or
 - 2 Graduated PhDs + 3 current PhDs or
 - 1 Graduated PhD + 4 current PhDs or
 - 5 current PhD.

Notes: At this level:

- 3 Masters degrees are equivalent to 1 PhD,
- 3 Bachelors degrees are equivalent to 1 Masters degree, and

- 10 research affiliates are equivalent to 1 Masters degree.
- In other words, five required PhDs are equivalent to 15 Masters’ supervisions or 45 Bachelors’ dissertation reports or 150 research affiliates.

- v) A teaching portfolio assessed as satisfactory
- vi) Meeting either criteria 1 or 2 or both as described under the grant income criteria (Table 4.4). Meeting the remaining criteria including 3 and 4 is an added advantage.

Note: A staff from outside Rwanda must have a PhD and will only be recruited as an Associate Professor based on experience, discipline and research output.

e) Professor

The Minimum requirements for promotion to a Professor are:

- i) Must meet all preceding criteria in the policy i.e. must have been previously appointed as an Associate Professor;
- ii) At least 2 years of relevant successful teaching experience as an Associate Professor or equivalent in recognised a HEI(s);
- iii) A minimum of 15 publications points emanating from reviewed index journals, conference proceeding, books and book chapters; 6 of which must have been published since last promotion;
- iv) Successful supervision of either of the following since promotion as an Associate Professor:
 - 5 Graduated PhDs + any number of current PhDs or
 - 4 Graduated PhDs + 1 current PhD or
 - 3 Graduated PhDs + 2 current PhDs or
 - 2 Graduated PhDs + 3 current PhDs or
 - 1 Graduated PhD + 4 current PhDs or
 - 5 current PhD.

Notes: At this level:

- 3 Masters degrees are equivalent to 1 PhD,
- 3 Bachelors degrees are equivalent to 1 Masters degree, and
- 10 research affiliates are equivalent to 1 Masters degree.
- In other words, five required PhDs are equivalent to 15 Masters’ supervisions or 45 Bachelors’ dissertation reports or 150 research affiliates.

- v) A teaching portfolio assessed as satisfactory
- vi) Meeting at least one of criteria 2 to 4 as described under the grant income criteria (Table 4.4).

Note: A staff from outside Rwanda must have a PhD and will only be recruited as an Associate Professor based on experience, discipline and research output.

Table 4.4: Grant Income Related Criteria

Grant Income Criteria	Weight
1. Participation in application for internal and external funding (without being co- or principal investigator; proof of substantial contribution provided)	Supervision of 1 PhD student
2. Co-Principal investigator in a successful competitive internal or external grant application (proof of substantial contribution provided)	Supervision of 2 PhD students
3. Principal investigator in a successful competitive grant application at the national or international level i.e. evidence of leading research funded by competitive grants (cases of grants that do not involve multiple institutions)	Supervision of 3 PhD students

Grant Income Criteria	Weight
4. Principal investigator on successful competitive research partnership grant application at a national or international level, typically involving multiple national or international institutions (evidence of leading such funded research should be provided)	Supervision of 4 PhD students

4.8.2 Factors that Attract Students and Members of Faculty

Five of the seven participating institutions indicated that existence of incentives is one of the key factors that attract students and faculty to specific HEIs. The heads of these institutions were of the view that faculty members were attracted by opportunities for professional development, good salary, welfare packages, allowances, infrastructure, and scholarship opportunities for further studies.

4.8.3 Key Reasons Why Students and Faculty Leave

The findings from the interview indicate that students mostly leave HEIs in Rwanda due to: financial constraints, poor academic performance, medical and disciplinary issues. On the other hand, faculty members leave academia for various reasons including; career/professional advancement, low salary, retirement, promotion for other government responsibilities, access to national and international non-governmental agencies that pay higher.

4.8.4 Size of Faculty in Rwandese HEIs

Table 4.5 shows the number of Higher Education staff from 2016/2017 to 2020/2021 disaggregated by gender and by public and private institutions. Overall, the higher staff for the year 2020/2021 is 6,065. This number has declined from 6,610 in the previous academic year which shows a decline of more than 500. The decline may result to the closure of some private universities by the Ministry of Education due to poor performance in terms of standards. The disaggregation by sex shows that 75.5% of academic staff are male while 24.5% are female.

Table 4.5: Number of Higher Education Staff in Rwanda

Indicator/Year	2016/17		2017/18		2018/19		2020/21	
	Number	%	Number	%	Number	%	Number	%
All Staff in HEIs								
Male	4,652	74.2	4,758	75.1	4,921	74.4	4,577	75.5
Female	1,619	25.8	1,577	24.9	1,689	25.6	1,488	24.5
Total	6,271		6,335		6,610		6,065	
Staff in Public HEIs								
Male	2,175	73.5	2,339	74.7	2,340	75.0	2,374	75.7
Female	783	26.5	792	25.3	782	25.0	761	24.3
Total	2,958		3,131		3,122		3,135	
Staff in Private HEIs								
Male	2,477	74.8	2,419	75.5	2,581	74.0	2,203	75.2
Female	836	25.2	785	24.5	907	26.0	727	24.8
Total	3,313		3,204		3,488		2,930	

Source: School census, Ministry of Education

Table 4.6 presents the number of Higher Education academic staff from year 2016/2017 to 2020/2021 disaggregated by sex and by public and private institutions. Overall, there are 4,301 academic staff at the national level in Rwanda. The disaggregation by sex shows that 81.2% of the academic staff in 2020/2021 were male, while 18.8% were female. The number of academic staff in public institutions is slightly higher than that in private institutions at 2,180 and 2,121 respectively.

Table 4.6: Number of Higher Education Academic Staff by Gender

Indicator/Year	2016/17		2017/18		2018/19		2020/21	
	Number	%	Number	%	Number	%	Number	%
All Academic Staff in HEIs								
Male	3,294	80.5	3,324	81.4	3,500	81.0	3,492	81.2
Female	800	19.5	762	18.6	822	19.0	809	18.8
Total	4,094		4,086		4,322		4,301	
Academic staff in public institutions								
Male	1,556	78.7	1,665	80.6	1,734	80.4	1,764	80.9
Female	421	21.3	401	19.4	424	19.6	416	19.1
Total	1,977		2,066		2,158		2,180	
Academic staff in Private institutions								
Male	1,738	82.1	1,659	82.1	1,766	81.6	1,728	81.5
Female	379	17.9	361	17.9	398	18.4	393	18.5
Total	2,117		2,020		2,164		2,121	

Source: School census, Ministry of Education

Table 4.7 presents the number of Higher Education academic staff by their qualification from 2016/2017 to 2020/2021. For the year 2020/2021, the highest number of academic staff was 2,113 with Masters degrees, followed by 976 PhD holders and 871 with Bachelor degrees.

Table 4.7: Number of Higher Education Academic Staff by Qualification and Gender

Qualification/Year	2016/17	2017/18	2018/19	2020/21
Below Bachelors				
Male	268	229	267	300
Female	45	26	39	41
Total	313	255	306	341
Bachelors				
Male	649	742	769	697
Female	193	209	199	174
Total	842	951	968	871
Masters				
Male	1783	1670	1693	1660
Female	466	434	478	453
Total	2,249	2,104	2,171	2,113
PhDs				
Male	594	683	771	835
Female	96	93	106	141
Total	690	776	877	976

Source: School Census, Ministry of Education

As shown in Table 4.8, the number of academic staff who are PhD holders at the national level exhibited a consistent upward trend over the four years' period. The numbers grew from 690 in 2016/2017, to 976 in 2020/2021. Among the entire academic staff/national faculty, PhD holders constitute 22.7%.

Table 4.8: PhD Holders Among Academic Staff in Higher Education

Year	Male			Female			Total	
	Number	% of staff with PhD	% of Academic Staff	Number	% of staff with PhD	% of Academic Staff	Number	% of Academic Staff
2016/2017	594	86.1%	18.0%	96	13.9%	12.0%	690	16.9%
2017/2018	683	88.0%	20.5%	93	12.0%	12.2%	776	19.0%
2018/2019	771	87.9%	22.0%	106	12.1%	12.9%	877	20.3%
2020/2021	835	86.0%	23.9%	141	14.0%	17.4%	976	22.7%

Source: School Census, Ministry of Education

Table 4.9 shows the information regarding the academic staff employed in the biggest university in Rwanda (University of Rwanda). Out of the 1232 academic staff employed by the University in 2021/2022, there were 12 professors, 57 associate professors, 108 senior lecturers, 328 lecturers, 598 assistant lecturers, and 129 tutors. 1,915 of the staff were male, while 317 were female. The results also indicate that most of the faculty members serve within the health and welfare discipline (202 staff members), followed by engineering, manufacturing, and construction at 143 staff members.

Table 4.9: Faculty Employed in the University of Rwanda by Rank and Gender

Discipline Classification	Female							Male						
	Tutorial assistant	Assistant lecturer	Lecturer	Senior lecturer	Associate Professor	Full professor	Total	Tutorial assistant	Assistant lecturer	Lecturer	Senior lecturer	Associate Professor	Full professor	Total
a) Education	6	16	6	1	1	0	30	11	56	34	13	7	0	121
b) Arts & Humanities	4	3	5	0	1	0	13	27	29	9	7	0	1	73
c) Social Sciences, Journalism & Information	0	4	3	1	1	1	10	1	10	18	5	2	0	36
d) Business, Administration & Law	1	22	9	0	0	0	32	1	39	28	10	2	0	80
e) Natural Sciences, Mathematics & Statistics	2	22	5	1	1	0	31	8	53	48	9	9	1	128
f) ICTs	1	4	1	1	0	0	7	0	24	7	2	3	0	36
g) Engineering, Manufacturing & Construction	5	15	2	0	0	0	22	11	88	25	14	5	0	143
h) Agriculture, Forestry, Fisheries & Veterinary	0	20	7	2	0	0	29	6	39	35	8	5	3	96
i) Health & Welfare	25	73	31	7	6	1	143	20	81	55	27	14	5	202
j) Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	44	179	69	13	10	2	317	85	419	259	95	47	10	915

Source: University of Rwanda

4.8.5 Student Enrolment in Rwandese HEIs

The disaggregation of the number of students by age group, level of education, and gender, as shown in Table 4.10 shows that only 1,095 students belong to the age group 16 – 18 years, 34,615 students belong to the age group of 19-23 years, and 39,566 belong to the age group greater than 23. This category constitutes 52% of the total number of students at national level.

Table 4.10: Number of Learners per Age, Level of Education, and Gender

Gender/Age	16 – 18	19 – 23	> 23	Total
Male	432	16,645	22,098	39,175
Female	663	17,970	17,468	36,101
Total	1,095	34,615	39,566	75,276

Source: School Census, Ministry of Education

Table 4.11 presents information on the trends of students' enrolment in Rwanda from 2017/2018 to 2020/2021. The results show that over the period, the number of students enrolled increased across all fields. From 2017/18, Business, Administration, and Law disciplines have had a higher percentage share of enrolment than others, followed by Education, Engineering, Manufacturing, and Construction in that order. The number of male students was much higher in all disciplines than females, except in Business Administration, Law, and Services.

Table 4.11: Trends of Student Enrolment in HEIs at the National level

Discipline/Year	2017/18			2018/19			2020/21		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
a) Education	5,513	3,425	8,938	6,402	4,473	10,875	8,149	5,872	14,021
b) Arts & Humanities	924	609	1,533	590	383	973	2,459	1,649	4,108
c) Social Sciences, Journalism & Information	2,861	2,140	5,001	3,151	3,107	6,258	1,446	1,461	2,907
d) Business, Administration & Law	13,361	16,047	29,408	11,481	14,227	25,708	8,346	13,091	21,437
e) Natural Sciences, Mathematics & Statistics	2,020	964	2,984	2,461	1,314	3,775	3,251	2,570	5,821
f) ICTs	4,930	2,610	7,540	5,888	3,539	9,427	5,631	3,540	9,171
g) Engineering, Manufacturing & Construction	11,391	2,850	14,241	11,423	2,797	14,220	10,402	2,618	13,020
h) Agriculture, Forestry, Fisheries & Veterinary	1,725	851	2,576	1,909	998	2,907	2,514	1,646	4,160
i) Health and Welfare	4,442	3,809	8,251	3,477	3,249	6,726	3,297	2,999	6,296
j) Services	3,952	4,736	8,688	2,308	3,029	5,337	3,262	4,245	7,507
Total	51,119	38,041	89,160	49,090	37,116	86,206	48,757	39,691	88,448

Source: School Census, Ministry of Education

Table 4.12 shows the number of students enrolled in Rwanda's largest university in 2021/2022. The results indicate that a total of 28,162 students were enrolled in the University of Rwanda within the year. Majority of the students were male (17,874 students), while the females numbered 10,288. Most of the students were enrolled for Bachelors' programmes; 14,981 male and 9,253 female students. Those enrolled for PhD

programmes were 373 and 119 male and female students respectively. Regarding the disciplines, Education came had the highest number of students enrolled at 7,704 students.

Table 4.12: Student Enrolment in the University of Rwanda by Gender, Qualification and Disciplines

Discipline	Male				Female				Total
	Total	Bachelors	Masters	PhD	Total	Bachelors	Masters	PhD	
a) Education	4,811	4,386	353	72	2,893	2,751	120	22	7,704
b) Arts & Humanities	178	162	15	1	84	81	3	0	262
c) Social sciences, Journalism & Information	1,921	1,329	506	86	1,198	1,008	164	26	3,119
d) Business Administration	1,247	1,074	153	20	1,227	1,159	63	5	2,474
e) Law	485	403	82	0	203	180	23	0	688
f) Natural Sciences, Mathematics & Statistics	898	728	124	46	452	388	50	14	1,350
g) ICTs	797	723	69	5	428	413	15	0	1,225
h) Engineering, Manufacturing & Construction	3,081	2,284	702	95	1,116	806	276	34	4,197
i) Agriculture, Forestry, Fisheries, & Veterinary	2,040	1,903	131	6	1,403	1,361	41	1	3,443
j) Health & Welfare	2,416	1,989	385	42	1,284	1,106	161	17	3,700
k) Service	0	0	0	0	0	0	0	0	0
Total	1,7874				10,288				28,162

Source: University of Rwanda

4.8.6 Student-Teacher Ratio (STR) in the University of Rwanda

Table 4.13 presents the information on the student-teacher ratio in the University of Rwanda in the 2021/2022 academic year. The findings indicate that the STRs vary across disciplines. The disciplines of Arts and Humanities and Health and Welfare had the lowest STRs of 3:1 and 11:1 respectively, followed by Engineering, Manufacturing and Construction at 26:1, and Agriculture, Forestry, Fisheries and Veterinary at 28:1. The low STR ratio can be attributed to academic staff in the payroll but out on official leave or a case of under enrolment in the said disciplines.

Table 4.13: Student-Teacher Ratios by Disciplines, University of Rwanda

Discipline Classification	STR
a) Education	51:1
b) Arts and humanities	3:1
c) Social sciences, journalism and information	68:1
d) Business, administration and law	29:1
e) Natural sciences, mathematics and statistics	71:1
f) Information and Communication Technologies (ICTs)	29:1
g) Engineering, manufacturing and construction	26:1
h) Agriculture, forestry, fisheries and veterinary	28:1
i) Health and welfare	11:1

4.9. Faculty Demand and Supply in Rwanda

This section presents analysis of the estimated demand for and supply of academic staff in Rwanda's tertiary institutions. The analysis projected the number of enrolled students and faculty needed in the coming years, up

to year 2050. Data on student enrolment and faculty disaggregated by discipline were used. The data were retrieved from a report provided by the High Education Council in Rwanda which included enrolled students and faculty disaggregated by discipline in all private and public HEIs. The following five discipline categories defined by UNESCO were adopted to make the analysis more comparable across the EAC Partner States:

- a) Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services
- b) Education
- c) Health and Welfare
- d) Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ICTs
- e) Agriculture/ Forestry/ Fisheries/ Veterinary

4.9.1 Student Enrolment Projections

Figure 4.2 presents the projected student enrolments in Rwanda for the period 2021 to 2050. The projections indicate that if the number of enrolled student is assumed to continue growing at the current, annual growth rate of 2.6%, the number of enrolled students of 88,448 as at 2021 is expected to grow to 126,693 by 2035, and to 186,192 by 2050. However, the growth projected here does not take into account the growth in the number of young population ages 18 – 21.

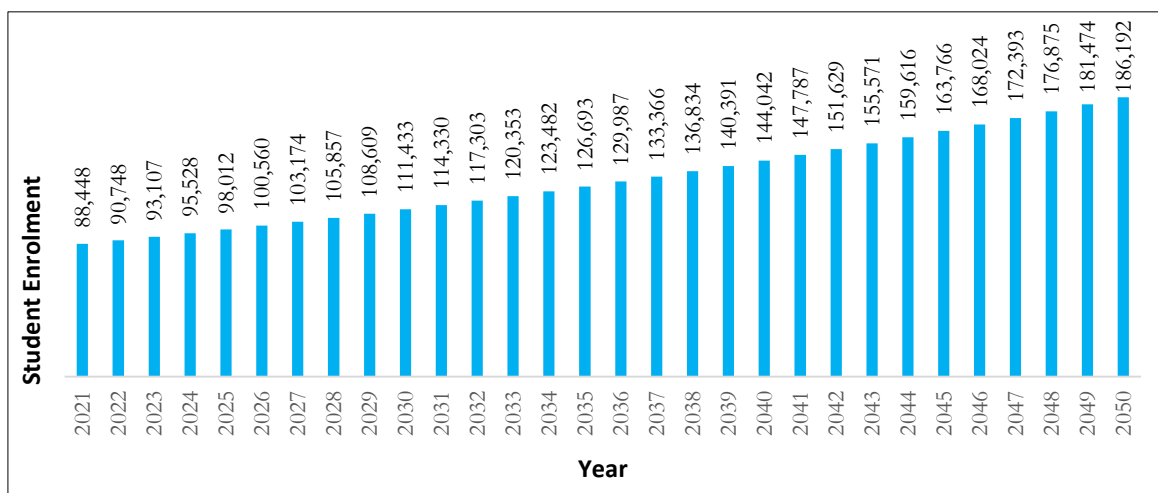


Figure 4.2: Projected Student Enrolment in Rwanda (2021 – 2050)

Table 4.14 presents the distribution of student enrolment in five disciplines in 2021. The distribution shows that 41% of the total enrolment was in Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Service. This is followed by Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs at 32%. The remaining disciplines had lesser proportions such as 16% of enrolment in Education, 7% in Health and Welfare as well as 5% in Agriculture/ Forestry/ Fisheries/ Veterinary.

Table 4.14: Student Enrolment by Discipline

Discipline	Student Enrolment	Proportion
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	35,959	41%
b) Education	14,021	16%
c) Health & Welfare	6,296	7%
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	28,012	32%
e) Agriculture/ Forestry/ Fisheries/ Veterinary	4,160	5%

Source: Ministry of Education, Education Statistics.

4.10 Policy Norms Versus Realities for STR

It is worth noting that within the country's HES, STRs vary across disciplines. On aggregate, the STR within the HEIs in Rwanda by 2021 was highest at 42:1 for Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services; followed by 27:1 for Education and 22:1 for Natural Sciences/ Mathematics and Statistics/Engineering/ Manufacturing/ Construction/ ICTs. The lowest STR was observed in Health and Welfare at 5:1.

A comparison of the actual STRs against the policy norms shows that in most disciplines, the actual STR is greater than the policy norm STR. In this regard there is a big gap in the discipline of Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services where the actual STR is greater than the goal policy at 42: 1 against 18:1. This is followed by the discipline of Education where actual STR is also greater than the goal policy at 27:1 against 18:1. However, two disciplines make exception where the actual STR is smaller or equal to the policy goal. These are the Health and welfare where the actual STR is 5:1 against a policy goal of 7:1, and the Agriculture/ Forestry/ Fisheries/ Veterinary discipline where the actual STR was equal to the policy goal of 10:1. The results in Table 4.15 show that in terms of STR, the discipline of Health and Welfare had achieved the target policy norm and went beyond the target policy, while the discipline of Agriculture/ Forestry/ Fisheries/ Veterinary reached the STR target policy. There is need to improve the STR for the remaining discipline such as Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services, Education and Natural Sciences/ Mathematics and Statistics/Engineering/ Manufacturing/ Construction/ ICTs in order to reach the STR target policy.

Table 4.15: Policy Norms Versus Realities for STR by Discipline in 2021 (Baseline Year)

Discipline Categories	Student Enrolment	Number of Faculty	Actual STRs	STR Policy Norms
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	35,959	852	42:1	18:1
b) Education	14,021	527	27:1	18:1
c) Health & Welfare	6,296	1,205	5:1	7:1
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	28,012	1,281	22:1	10:1
e) Agriculture/ Forestry/ Fisheries/ Veterinary	4,160	436	10:1	10:1

Note: The policy norms are adopted from Kenya

Source: Ministry of Education, Education Statistics.

4.11 Faculty Demand and Supply

This section presents analysis designed to estimate the demand for and supply of academic staff in Rwanda's HEIs. The analysis projects the number of faculty needed to meet the various policy norms. In addition to looking at demand generated by the need to increase the total number of faculty to meet policy goals and growing student enrolment, the analysis also examined the demand generated by the need to replace faculty who exit for a various reasons, including retirement and involuntary or voluntary departures prior to retirement ("replenish exits"). Retiring faculty accounts for just a proportion of the faculty exiting tertiary education positions.

With large youth cohorts, even with constant net enrolment in Rwanda's HEIs, student enrolment is expected to grow substantially. The growing student enrolment is expected to drive demand for faculty (academic staff) overall, and within disciplines. The bridge analysis considers the following categories:

- a) **Replenished exits:** Faculty needed to replace those who exit their positions by 2050. Assumed that 5% of professors and 10% of academic teaching staff exit each academic year; and
- b) **STR:** Faculty needed to meet disaggregated policy norms for STRs by 2050 – 18:1 for Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services, 10:1 for Education, 7:1 for Health and Welfare, 10:1 for Natural Science/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs, 10:1 for Agriculture/ Forestry/ Fisheries/ Veterinary.

The table 4.16 presents the reality and policy norm of Faculty Gender Ratio in the baseline year, 2021. The results show that there is a big difference between the actual faculty gender ratio compared to the policy norm for male-to-female ratio at 4:1 against 2:1. There is need to encourage female faculty in all disciplines in order to achieve the policy norm for gender ratio. In this context, achievement of faculty gender ratio implies recruiting additional faculty of the underrepresented gender among full time teaching staff by 2050, on the assumption that there is no decrease in the number of the overrepresented gender. The gender policy that was used in the model was 2:1 faculty gender ratio. Further, additional faculty needed by discipline implies the faculty needed to meet policy norms on the distribution of students across disciplines by 2050.

Table 4.16: Policy Norm Versus Reality for Faculty-Gender Ratio (Male-to-Female Ratio) in 2021 (Baseline Year)

Male Faculty	Female Faculty	Actual Male-to-Female Ratio	Policy Norm for Male-to-Female Ratio
3492	809	4:1	2:1

Note: The policy norm is adopted from Kenya.

Source: Ministry of education, education statistics.

Table 4.17 shows the faculty needed to meet the goals for STRs in 2021, the baseline year as per the analysis. Overall, the total additional faculty that was needed so as to have to achieved policy norms for STR in 2021 was determined as 3,805, including the number needed to replace those projected to exit during the year, and the ones needed to account for overestimation. The model assumed an exit rate of 5% for professors and 10% for other faculties. Overall, an exit of 672 faculties was estimated within year 2021. The disaggregation by professor and other faculties shows that with the same assumption, 17 professors were to exit in 2021.

Table 4.17: Additional Faculty Needed to Achieve Policy Norms for STR in 2021 (Baseline Year)

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet STR goals*	2,918
b) Additional faculty needed to replace the ones projected to exit during the year**	672
c) Additional faculty needed to account for overestimation***	215
Total	3,805
Panel B: Breakdown of the additional faculty needed to meet STR goals by discipline	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	1,146
b) Education	252
c) Health & Welfare	0 [-306]
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	1,520
e) Agriculture/ Forestry/ Fisheries/ Veterinary	0 [-20]
Total	2,918

Notes: *The policy norms were adopted from Kenya.

**Assumption: 5% of professors and 10% of academic teaching staff exit each academic year and need to be replaced.

*** Assumption: The faculty is overestimated by 5%.

****Negative sign (-) in the table implies the policy norm has been met and exceeded (May also mean student under enrolment or faculty overstaffing)

Source: Ministry of education, education statistics.

Table 4.18 shows the faculty needed to meet the goals for STRs by 2030, given the projected growth in student enrolment due to population growth, but assumes no change in student enrolment growth rate. The student enrolment is projected to grow at the same rate as the population ages 18 - 21, the age group typically associated with Higher Education, according to the UNPD. The table also shows the number needed to replace the ones projected to exit teaching each year until 2030 and overestimation of faculty. The results show that overall, the additional faculty needed by 2030 is 12,163. In addition, the additional faculty needed to meet the increased enrolment due to population growth is estimated at 1,118 while the additional faculty needed to meet STR goals by discipline, given population growth is equal to 3,266. The faculty distribution by gender based on actual gender ratio in 2021 are presented with very high proportion of male faculty compared to the female faculty, where 81% of faculties are male and 19% are female.

Table 4.18: Additional Faculty Needed to Achieve Policy Norms for STR in 2030, Given Increased Student Enrolment.

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet the increased enrolment due to population growth*	1,118
b) Additional faculty needed to meet STR goals, taking account of population growth**	3,676
c) Additional faculty needed to replace the ones projected to exit during the year***	7,564
d) Additional faculty needed to account for overestimation****	215
Total	12,573
Panel B: Breakdown of the additional faculty needed to meet the increased enrolment due to population growth by discipline	

Description	Faculty Needed
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	221
b) Education	137
c) Health & Welfare	313
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	333
e) Agriculture/ Forestry/ Fisheries/ Veterinary	113
Total	1,118
Panel C: Breakdown of the additional faculty needed to meet STR goals by discipline, given population growth	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	1,443
b) Education	317
c) Health & Welfare	0 [-385]
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	1,915
e) Agriculture/ Forestry/ Fisheries/ Veterinary	0 [-25]
Total	3,676

Note: * Assumption: Student enrolment will grow annually at the same rate as the population age group 18 – 21 projected by the UNDP.

**The policy norms are adopted from Kenya.

***Assumption: 5% of professors and 10% of academic teaching staff exit each academic year and need to be replaced.

****Assumption: The faculty is overestimated by 5%.

Sources: 1) Ministry of education, education statistics; 2) United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022.

Finally, Table 4.19 presents the female faculty needed to meet goals for the gender ratio among faculty, both in the baseline year and in 2030. The faculty gender ratio in 2030 is assumed to be the same as what is observed in the baseline year. The assumption is that the goal for the gender ratio is achieved by increasing the number of female faculty, rather than decreasing the number of male faculty. Therefore, with adoption of the policy of Kenya, the additional female faculty needed to have met the goal in 2021 is estimated to be 1,989. With the assumption that the 2030 faculty projections will reflect the same gender ratio as in the baseline year, the additional female faculty needed to meet the goal in 2030 is projected to be 2,717.

Table 4.19: Additional Female Faculty Needed to Meet Policy Norm for the Faculty-Gender Ratio

Description	Faculty Needed
To have met the goal in 2021 (baseline year) *	1,989
To meet the goal in 2030**	2,717

Notes: *The policy norm is adopted from Kenya.

**Assumption: 2030 faculty projections reflect the same gender ratio as in the baseline year, and increase in female hiring is needed to meet the policy norm for the faculty gender ratio, rather than decreasing the number of male faculty.

Source: Ministry of education, education statistics.

4.12 Conclusion

Having the previously discussed HEI statistics, particularly the projections of faculty and student enrolments, is one step towards meeting the education sector's data needs. The statistics obtained using the DAF model will aid in planning, monitoring, and evaluating national progress, as well as comparing it to regional and international goals and targets. In this study, the key statistics were highlighted. The findings indicated a higher number of male academic staff members as well as enrolled students than their female counterparts in Rwandan universities. Regarding the ranks of faculty, the male are more advanced in having higher ranks than the female faculty. Using administrative data, the findings indicate that the estimated number of faculty needed to meet the STR policy goals is expected to increase from 3,479 in 2021 to 12,163 in 2030.

The actual STR for the disciplines such as Arts and Humanities/Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services, Education and Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs is greater than the required policy norms.

4.13. Challenges and Constraints During Data Collection

- a) Data collection was conducted during the period of Covid-19 pandemic where some restrictions and protocols had to be observed in the country;
- b) Some targeted institutions could not receive researchers immediately, resulting into delays in data provision; and
- c) In some cases, data was unavailable for the study.

4.14 Recommendations

- a) Short term recommendations;
 - i) HEIs in Rwanda should keep data for both students and faculties in aggregated way (by discipline, gender, rank, etc.);
 - ii) HEIs to work with policymakers to establish HEIs' norms; and
 - iii) Enhance data management capacity building.
- b) Long term recommendation;

There is need to improve the STR for disciplines such as Education, Social Sciences and Journalism and Information, and Natural sciences, Mathematics and Statistics in order to achieve the target policy norm.

4.15 References

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PARTICIPANTS CONSULTING DURING A DAF-EAC WORKSHOP

CHAPTER 5

SOUTH SUDAN REPORT

By

Madalina Kaku Daniel and Pitya Jimmy Ladu

5.1 Introduction

This chapter outlines the historical development of university education in South Sudan and the resultant DAF model projections at the year 2030.

5.1.1 Brief History of Tertiary Education in South Sudan.

Until 09 July 2011, when South Sudan was declared independent, South Sudan's Higher Education sector was under the Sudanese government. At independence, South Sudan already had nine (9) universities out of which (5) were public and (4) were private. However, only a few were actually accredited and licensed by the Ministry of Higher Education Science and Technology (MoHEST). Majority were later closed down for failure to meet the university standards (Sudan Tribune report, 2012). Currently, South Sudan has five (5) public universities, six (6) private and ten (10) Technical and Vocational Education Training Institutions (TVET). It was found that the public universities had a total of 27,127 students enrolled in the year 2021, private universities had a total of 5,130 and about 500 Students in TVET institutions. The public universities contributed about 83% of the student's enrolment in tertiary education, with about 15% being in the private universities and 2% in the Technical and Vocational Education Institutions.

On the faculty or academic staff, the MoHEST recorded 2,620 academic staff in public universities and about 463 in private universities. The public universities contributed to 86% of the total faculty, while the private universities had 14%. In the year 2021, both public and private universities as well as the colleges had a total of 32,257 students and 3,083 academic staff across the country (Ministry of Higher, 2020/2021).

5.1.2 History of the University of Juba in South Sudan

University of Juba is one of the current 5 operational public universities in South Sudan. It was the first university to be established, hence one of the largest and the oldest universities in the country. The University was established in 1975 and began to admit students in 1977. It started its operations with only 4 colleges namely;

- a) Natural Resources and Environmental Studies;
- b) Medicine;
- c) Adult Education and Training; and
- d) Education.

In the year 1989, the University was relocated to Khartoum in Sudan due to serious civil war in the South. From there, the University grew into 12 colleges, 4 specialized centers, and a graduate college. The student population ranged between 18,000 and 25,000, the faculty grew to 655 and administrative and support staff to 900. Following the independence of South Sudan, the University was relocated back to its original premises in the South, after which number of students dropped drastically from 25,000 to 10,000 and the academic staff from 655 to 346. At that moment, there was extreme shortage of laboratories, lectures halls and offices. The motto of the University of Juba by then in 1975 was "Relevance and Excellence", which was changed later in 2014 by the current Vice Chancellor to "Inventing the Future, Transforming Society".

5.2 Criteria for Appointments and Promotion of Academic Staff by Ranking

5.2.1 Recruitment and Promotion Principles for University of Juba

Recruitment or promotion is a procedure through which a selected person is appointed to a vacant post in the institution, to perform duties of an employee. This is exclusively dependent upon the applicant's suitability for the post and is not decided on grounds of race, creed, sex or religion, unless specified otherwise, by the institution policy on gender or any other law. Where possible, the vacancies are filled by internal promotion. However, promotion from within the University has no further probation, it is a normal changes of status.

5.2.2 Appointments

The criteria for appointment for any academic staff position in the University of Juba is based on the decision by the relevant Head of Unit/ Department for necessary post.

5.2.3 Procedures for Recruitment

- a) The Vice-Chancellor is usually the chairperson of the committee on recruitment and is the one who calls the meeting;
- b) In the absence of the Vice-Chancellor, the deputy Vice-Chancellor assumes the chairperson role;
- c) The Personal Secretary is responsible for keeping all the records;
- d) All applications for new academic appointments are usually addressed to the chairperson of the committee. Applications addressed or submitted to any other University officer are re-addressed to the Chairperson;
- e) All applications of expatriate staff for renewal or termination of their contracts are addressed to the chairperson of the committee and are channeled through the Personal Secretary, then through the Dean concerned and finally to the chairperson;
- f) All recommendations for the first appointment and resignation of Teaching Assistants are channeled to the chairperson of the committee, through the Secretary for Academic Affairs, by the Dean concerned;
- g) All applications for appointment of Teaching Assistant as academic staff members after their postgraduate work, are channeled through the Secretary for Academic Affairs, the Personal Secretary, the Dean concerned in this order so as to reach the chairperson; and
- h) Status of Lecturer and Assistant Professor should be determined as follows;
 - i) A holder of a Master Degree or equivalent may be appointed in the status of a Lecturer; and
 - ii) A holder of PhD or its equivalent may be appointed in the status of an Assistant Professor.

5.2.3.1 Terms of Reference

The committee makes recommendations on:

- a) New appointments of academic and senior administrative staff;
- b) New appointments of Teaching Assistant (TA);
- c) Academic appointments of TAs after their postgraduate studies; and
- d) Any other matters concerning appointment referred to the committee.

5.2.3.2 Selection Criteria for Recruitment

The selection criteria are applied in descending order of importance in all promotion and recruitment processes;

- a) Years of experience in the post;
- b) Satisfactory references or other assessment of post-performance; and
- c) Relevant Education;
 - i) University / Higher institute Degree / Diploma; or
 - ii) Vocational Training.

5.2.3.3 Recruitment Standards

Any person seeking for recruitment to the civil service is required to meet the following minimum requirements:

- a) Be a South Sudanese citizen;
- b) Be at least 18 years of age and not more than 53 years;
- c) Has no criminal record;
- d) Has not been dismissed from a public institution of the government of Southern Sudan or any state government because of disciplinary action; and
- e) Meet any specific criteria for the post applied.

5.2.4 Requirements for Academic Promotion at the University of Juba

The process of promotion of the status of an academic staff from one level to another as per the rules of approval by the Ministry of Higher Education and the University senate is as follows:

- a) There must be established a promotion committee of the University of Juba for the following functions;
 - i) To receive applications for promotion;
 - ii) To evaluate such applications; and
 - iii) To recommend to the Vice-Chancellor the promotion of a staff member subject to the provisions University policy on promotions.
- b) Membership of the committee – the committee consists of the following;
 - i) The Vice-Chancellor – Chairperson;
 - ii) The Deputy Vice-Chancellor – member;
 - iii) The Principal – member;
 - iv) The Academic Secretary – member and Secretary;
 - v) The Deans of the colleges and the Directors of the centers who are of no lesser status than that to which the promotions are considered; and
 - vi) Two senior Professors of the University appointed by the Vice-Chancellor on the basis of their specialisation related to the subject of the applicant for the promotion.

Notes:

- i) In the absence of the Vice-Chancellor, the Deputy Vice-Chancellor acts as the Chairperson;
- ii) More than one half of the members constitute a quorum;
- iii) Decisions are taken by simple majority; and
- iv) The committee meets in January and July every year.

5.2.4.1 Promotion to the Status of Assistant Professor

Promotion from a lecturer to an Assistant Professor is based on one of the following:

- a) The candidate has obtained PhD in a field of specialization; and
- b) The candidate has spent seven years as a lecturer in the University along with the recommendations of the College Dean and Head of the concerned Department, provided that the applicant has published not less than two scientific papers in referred journals, in addition to his/her contributions in accordance with the provisions of his/ her status.

5.2.4.2 Promotion to the Status of Associate Professor

Promotion from Assistant Professor to the status of Associate Professor is based on one of the following criteria:

- a) Promotion through scientific research as well as teaching;
 - i) The applicant must have published after his/her promotion to the status of Assistant Professor not less than four scientific papers being senior author in at least two of them, in referred scientific journals subject to the provisions stated procedures; and
 - ii) The applicant must have spent at least three years as Assistant Professor in the University of Juba and contributed effectively to teaching appropriate load during this period.
- b) Promotion according to multiple criteria which includes teaching, scientific research administration as well as social services to the society provided that the applicant;
 - i) Has spent five years as Assistant Professor out of which at least two are in the University of Juba; and

- ii) Has published after his/her promotion to the status of Assistant Professor not less than two scientific papers in referred scientific journals.
- c) Promotion on the basis of meritorious service. The applicant must have;
 - i) Spent ten years or more as Assistant Professor of which at least five are in the University of Juba;
 - ii) Attained a PhD;
 - iii) Functioned through this period in the scientific aspects including teaching, administration, training, other university activities as well as social activities;
 - iv) Excellent performance in teaching;
 - v) Participated in supervision of students in higher diploma or M. A or M.Sc.;
 - vi) Participated in curriculum design and development, organisation and improvement of the Department, College or the University, materially, technically or in terms of human resource;
 - vii) Presented a number of studies in scientific meetings; and
 - viii) Good conduct and excellent relationship with his/her colleagues and the University community at large.

5.2.4.3 Promotion to the Status of Professor

Promotion from Associate Professor to the status of Professor is granted through one of the following criteria:

- a) Promotion through Scientific research alone provided;
 - i) The applicant has published after his/her promotion to the status of status of Associate Professor not less than five scientific papers being senior author in at least two of them, in referred scientific journals according to the conditions mentioned; and
 - ii) The applicant has spent four years in the service of the University of Juba as Associate Professor, making outstanding contribution to the promotion of teaching.
- b) Promotion through multiple criteria including teaching, scientific research as well as community service provided that;
 - a) The applicant has spent five years teaching as Associate Professor out of which three has been spent in the University of Juba; and
 - b) The applicant has published after his/her promotion to the status of Associate Professor not less than three scientific papers in referred scientific journals been a first author for one of them (University of Juba, 2008).

5.3 Academic Disciplines at the University of Juba

The following are the academic disciplines at the University of Juba (University of Juba statistical year book 2015/2016):

- a) Education;
- b) Arts and Humanities;
- c) Arts, Music and Drama
- d) Social and Economic Studies;
- e) Law;
- f) Applied and Industrial Sciences;
- g) Computer Science and Information Technology;
- h) Engineering and Architecture;
- i) Natural Resources and Environmental Studies;
- j) Medicine;
- k) Community Studies and Rural Development
- l) Peace and Development Studies/ Management Sciences.

Table 5.1 presents an elaborate classification of the various disciplines into five categories for the purposes of analysis using the DAF-EAC model.

Table 5.1: Classification of Disciplines for the DAF-EAC Model Analysis

Discipline Categories	Disciplines
a) Arts, Social Sciences and Humanities	i) Arts and humanities ii) Arts, Music & Drama iii) Social and Economic Studies iv) Law v) Community Studies & Rural Development vi) Centre for Peace & Development Studies vii) School of Business and Management Sciences
b) Education	Education
c) Health Sciences and Welfare	Medicine
d) Science and Technology, Engineering and Mathematics (STEM)	i) Applied & Industrial Sciences ii) Computer Science & Information technology iii) Engineering & Architecture
e) Agricultural and Veterinary Sciences	Natural Resources & Environmental Studies

5.4. Student Enrolment and Size of Faculty in Universities

Table 5.2 presents the student enrolment and size of faculty/academic staff in the five public and six private universities in South Sudan. The University of Juba recorded the highest student enrolment among the public universities at 18,000 students, while the University of Rumbek recorded the lowest at 731 students. The same universities recorded the highest and lowest number of faculty at 813 and 268 respectively. On the other hand, the Stafford International University enrolled the highest number of students among the private universities at 2,684 students, while the South University for Medicine, Science and Technology had the least number at 30 students. The same institutions had the highest and lowest size of faculty at 210 and 13 respectively.

Table 5.2: Student Enrolment and Number of Faculty in Public Universities in South Sudan

Universities	Students Enrolment	Faculty / Academic Staff
Public Universities		
a) University of Juba	18,000	813
b) University of Upper Nile	3,772	631
c) University of Bahr El Ghazal	2,624	515
d) University of Rumbek	731	268
e) University of Dr. John Garang	2,000	393
Sub-total	27,127	2,620
Private Universities		
a) Catholic University of South Sudan	1,397	100
b) St. Mary's College	189	50
c) Stafford International University	2,684	210
d) Star International University	598	60
e) Mary Help College	232	30
f) South University for Machine, Science and Technology	30	13
Sub-total	5,130	463
Total	32,257	3,083

Source: MOHEST, 2021

Table 5.3 shows the number of disciplines, faculty total, faculty by rank, faculty by gender and Students-Teacher Ratios (STRs) for the University of Juba in 2021. The total number of faculty was recorded as 360, with the rank of Assistant Lecturer having the highest faculty at 116, and that of Professor recording the lowest number at 9. Out of the 360 faculty members, 340 were male and 40 were female, yielding a faculty-gender ratio of 1:08. Further, the 360 faculty members are engaged to serve a student population of 4,767, which implies an STR of 1:13. Among the 12 discipline classifications, Natural Resources and Environmental Sciences had the highest faculty at 72, handling a student population of 596, thus an STR of 1:08. Centre for Peace and Development Studies had the least faculty at 5, teaching a student population of 123, thus and STR of 1:25. However, the highest STR was recorded for the discipline of Law at 1:30, where a faculty of 16 members was teaching a student population of 486. Notably, there significant faculty gender imbalance was observed in some disciplines where no female faculty member was engaged. These disciplines are; Arts and Humanities, Law and Engineering and Architecture.

Table 5.3: Number of Disciplines, Faculty Total, Faculty by Rank, Faculty by Gender and Student's – Teacher Ratio for University of Juba in 2021

Discipline classification	Faculty by Rank						Faculty by Gender				Student Enrolment	STRs
	Professor	Associate Professor	Assistant Professor	Lecturer	Assistant Lecturer	Total	Female	Male	Total	F:M Ratio		
a) Education	3	1	17	25	18	64	4	60	64	1:15	656	1:10
b) Arts & Humanities	1	0	5	13	6	25	0	25	25	0	428	1:17
c) Arts, Music & Drama	0	0	1	2	8	11	1	10	11	1:10	92	1:08
d) Social & Economic Studies	2	6	6	14	9	37	6	31	37	1:05	644	1:17
e) Law	0	0	1	6	9	16	0	16	16	0	486	1:30
f) Applied & Industrial Sciences	1	2	0	13	7	23	6	17	23	1:03	224	1:10
g) Computer Sciences & IT	0	1	1	3	5	10	2	8	10	1:04	127	1:13
h) Engineering & Architecture	0	3	9	12	11	35	0	35	35	0	407	1:12
i) Natural Resources & Environmental Sciences	2	2	25	20	23	72	6	66	72	1:11	596	1:08
j) Medicine	0	3	16	2	13	34	8	26	34	1:03	305	1:09
k) Community Studies & Rural Development	0	3	5	13	7	28	6	22	28	1:04	679	1:24
l) Centre for Peace & Development Studies	0	0	3	2	0	5	1	4	5	1:04	123	1:25
Total	9	21	89	125	116	360	40	320	360	1:08	4,767	1:13

5.5. DAF Model Analysis and Results Based on Indicators

For purposes of this study, data from the University of Juba was used in the DAF model analysis. The University is the largest and also well known as a mother University in the country as it contributes to 66% of the national student enrollment in Higher Education for the year 2021. Some of the data were obtained from the MoHEST, while other data were obtained directly from the University of Juba (UoJ). The analysis used five discipline categories that were developed based on UNESCO's International Standard Classification of Education Fields of Education and Training 2013. This aimed at making the analysis more feasible while allowing results comparability across the EAC countries. The five discipline categories were:

- Arts and Humanities/Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services
- Education

- c) Health and Welfare
- d) Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs
- e) Agriculture/ Forestry/ Fisheries/ Veterinary

Although the Ghana pilot analysis on which the current analysis is based examined the impact of meeting four policy norms relevant to Higher Education, those goals were not available in South Sudan upon verification across stakeholders. In fact, no country in EAC has goals set for the rate of growth in student enrolment nor the distribution of student enrolment across disciplines. Only Kenya and Tanzania have policy norms for STRs, though the ones for Tanzania are not disaggregated by discipline in a way that is comparable with the UNESCO's. Kenya is also the only country in EAC to have set the gender-ratio for faculty. Given the lack of these goals specific to South Sudan, the analysis adopted the goals from Kenya for the STR and faculty-gender ratio from its Commission for University Education as the benchmarks.

Table 5.4 presents the actual STRs by discipline in the baseline year, 2021, and their corresponding policy norms for the University of Juba. STRs are calculated by dividing student enrolment in each discipline by the corresponding faculty size. The STRs explain more on the quality of education where the lower the STRs, the higher the quality of education in that specific discipline. Two of the discipline categories, Agriculture/ Forestry/ Fisheries/ Veterinary and Education, had STRs lower than their policy goals, thus meeting the STR goals in the baseline year. All other disciplines, especially the one of Arts and Humanities/ Social sciences/ Journalism and Information/ Business administration/ Law/ Services had their STRs much higher than their respective policy goals.

Table 5.4: Actual STRs by Disciplines for the University of Juba

Disciplines	Student Enrolment	Faculty Size	Actual STR	Policy Norms for STRs
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	2,923	122	24:1	18:1
b) Education	656	64	10:1	18:1
c) Health & Welfare	305	34	9:1	7:1
d) Natural Sciences/ Mathematics & statistics/ Engineering/ Manufacturin/ Construction/ ICTs	718	68	11:1	10:1
e) Agriculture/ Forestry/ Fisheries/ Veterinary	596	72	8:1	10:1

Note: The Policy Norms were adopted from Kenya

Source: The University of Juba Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

Table 5.5 describes the actual faculty-gender ratio in the baseline year in 2021 and the policy goal. The faculty-gender ratio in the baseline year was eight male faculty members to one female, as opposed to the policy goal of no more than two male faculty members to one female member.

Table 5.5: Policy Goals Versus Reality for Faculty-Gender Ratio (Male-to-Female Ratio) in 2021 (Baseline Year) for the University of Juba

Male Faculty	Female Faculty	Actual Male-to-Female Ratio	Policy Goal for Male-to-Female Ratio
320	40	8:1	2:1

Table 5.6 presents the additional faculty that was needed so as to have achieved the student-teacher ratio in 2021, considering both the number of faculty who are expected to exit teaching in the course of the year (switching jobs, retiring, dying, moving overseas, etc.) and the number overestimated, that is, the faculty who are registered on the payroll at the university as teaching but cannot be verified for whatever the reason. The total additional faculty needed to achieve the policy goals for STR in 2021 was estimated to be 108, including the number needed to replace the ones projected to have exited during the year and the ones needed to account for overestimation. The model assumed an exit rate of 5% for professors and 10% for other faculties. Overall, exit of 36 faculties was estimated for year 2021.

Table 5.6: Total Additional Faculty Needed to Achieve Policy Goals for STR in 2021 (Baseline Year) for the University of Juba

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet STR goals*	54
b) Additional faculty needed to replace the ones projected to exit during the year**	36
c) Additional faculty needed to account for overestimation***	18
Total	108
Panel B: Breakdown of the additional faculty needed to meet STR goals by discipline:	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	40
b) Education	0 [-28]
c) Health & Welfare	10
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	4
e) Agriculture/ Forestry/ Fisheries/ Veterinary	0 [-12]
Total	54

Notes: *The policy goals are adopted from Kenya.

**Assumption: 5% of professors and 10% of academic teaching staff leave each academic year and need to be replaced.

*** Assumption: the faculty is overestimated by 5%.

Source: 1) The University of Juba; 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

Table 5.7 shows the additional faculty needed to meet the goals for STRs in 2030 for the University of Juba, given the projected growth in student enrolment due to population growth. We assume that the share of national student enrolment in the University of Juba remains the same in 2030 as it was observed in 2021. The student enrolment is projected to grow at the same rate as the population ages 18 – 21, the age group typically associated with Higher Education, according to the UNPD. The table also shows the number needed to replace the ones projected to exit teaching each year until 2030 and overestimation of faculty. The results show that overall, the estimated additional faculty needed by 2030 is 847. In addition, the breakdown of the additional faculty needed to meet the increased enrolment due to population growth is estimated at 259, while the breakdown of the additional faculty needed to meet STR goals, given population growth is estimated at 92.

Table 5.7: Total Additional Faculty Needed to Achieve Policy Goals for STR in 2030, Given Increased Student Enrolment

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet the increased enrolment due to population growth*	259
b) Additional faculty needed to meet STR goals, taking account of population growth**	92
c) Additional faculty needed to replace the ones projected to exit during the year***	479
d) Additional faculty needed to account for overestimation****	18
Total	847
Panel B: Breakdown of the additional faculty needed to meet the increased enrolment due to population growth by discipline	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	88
b) Education	46
c) Health & Welfare	24
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	49
e) Agriculture/ Forestry/ Fisheries/ Veterinary	52
Total	259
Panel C: Breakdown of the additional faculty needed to meet STR goals by discipline, given population growth	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	69
b) Education	0 [-47]
c) Health & Welfare	16
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	7
e) Agriculture/ Forestry/ Fisheries/ Veterinary	0 [-21]
Total	92

Notes: *Assumption: student enrolment will grow annually at the same rate as the population age group 18 – 21 projected by the UNPD.

**The policy goals are adopted from Kenya.

***Assumption: 5% of professors and 10% of academic teaching staff exit each academic year and need to be replaced.

****Assumption: The faculty is overestimated by 5%.

Sources: 1) The University of Juba; 2) United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022; 3) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

Finally, table 5.8 presents the additional female faculty needed to meet goals for the gender ratio among faculty, both in the baseline year, 2021, and in 2030. The assumption is that the goal for the gender ratio is achieved by increasing the number of female faculty, rather than decreasing the number of male faculty. The number of additional female faculty needed to have met the goal in 2021 is estimated to be 126. With the assumption that the 2030 faculty projections will reflect the same gender ratio as in the baseline year, the additional female faculty needed to meet the goal in 2030 is projected to be 245.

Table 5.8: Additional Female Faculty Needed to Meet Policy Goal for the Faculty-Gender Ratio

Description	Additional Faculty Needed
To have met the goal in 2021 (baseline year)*	126
To meet the goal in 2030**	245

Notes: *The policy goal is adopted from Kenya.

**Assumption: The 2030 faculty projections will reflect the same gender ratio as in the baseline year and that an additional increase in female hiring is needed to meet the policy goal for the faculty gender ratio, rather than decreasing the number of male faculty.

Sources: 1) The University of Juba; 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

In conclusion, the results indicate that in the University of Juba, there are significant challenges ahead in terms of recruiting the faculty needed to meet the policy goals for STRs and gender ratio by 2030, and in retaining the faculty once recruited. The results in Tables 5.6 and 5.7 above clearly show that the total faculty needed in the University across the five disciplines to meet the goals for STRs was 108 in 2021 and will be 847 by the year 2030. These numbers however, do not consider other ways in which student enrolment will likely evolve, including the distribution of students across disciplines and the future growth in student enrolment.

5.6 Challenges in Data Collection Exercise

The following challenges were experienced during data collection exercise for the DAF model:

- Limited data in the Ministry of Higher Education on faculty distribution by gender, faculty distribution by disciplines and faculty distribution by ranks;
- Lack of data on student enrolment by gender and disciplines in the Ministry of Higher Education; and
- Inadequate yearly data records on faculty exit rate by rank in the HEIs.

5.7 Conclusion

The desk review finding revealed that, in the year 2021, the tertiary education sector in South Sudan had 11 HEIs, comprising of five (5) public and six (6) private universities. In 2020/2021, there were 27,127 students enrolled in the public universities while, 5,130 were enrolled in the private universities in the country. The students were supported by a faculty of size 2,620 in the public universities and 463 in the private universities. Out of the 27,127 students in public universities, 18,000 students were enrolled at the University of Juba as contributing to about 66% of the entire students' enrolment in the country. Based on the data collected from the University of Juba on student enrolment in the same year 2021, 5,198 students were enrolled across the five disciplines. This implies that there is a big gap between the data collected from the MOHEST on the distribution of Students in various Universities, and that which is recorded by the Universities. For the University of Juba, a difference of 12,802 students is observed between the enrolment reported by the MOHEST and that which is reported by the University. The findings show that out of the 18,000 students enrolled at the University of Juba in the year 2021, only 5,198 (29%) who managed to register for that academic year, while the rest 12,802 (71%) did not register for various reasons.

The findings from the study will be very critical in the advancement of university education in South Sudan in the following ways;

- a) The study will improve the level of the data collation and availability at the MOHEST and in some of the HEIs;
- b) The findings from the study will provide information for decision makers in the national and institutional level, especially the MOHEST for planning purposes across faculties in South Sudan;
- c) The study will familiarize both national and institutions with the kind of data required in the national and institutional levels for the faculty's demand model and analysis; and
- d) The study will enable all the EAC countries to determine the norms and policies of Higher Education that should have existed in each country for quality assurance.

5.8 Recommendations

- a) Short term recommendations;
 - i) HEIs in South Sudan to keep adequately updated yearly data records on faculty exit by the disciplines; and
 - ii) Organization of the available data in the same format across faculties, universities and the Ministry.
- b) Long term recommendations;
 - i) The MOHEST to collate data on faculty distribution by gender, faculty distribution by disciplines, faculty distribution by ranks;
 - ii) MOHEST to develop and implement interventions towards reducing gender imbalance in student enrolment across disciplines;
 - iii) Regular data collation from all HEIs in the EAC countries; and
 - iv) Development of a standard methodology for future studies on HES in the EAC.

5.9 References

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TANZANIA



UGANDA



RWANDA



SOUTH SUDAN

CHAPTER 6

TANZANIA REPORT

By

Bahati Ilembo and Fatuma Simba

6.1 Introduction

This chapter outlines the university education history and development in Tanzania and the resultant DAF model projections generated.

6.2 Historical Background of Tertiary Education in Tanzania

University education in Tanzania started on 25th October 1961, where an affiliated college of the University of London, called University College of Dar es Salaam was established in Tanzania. At its inception, the affiliated college had only one faculty, the Faculty of Law, with 13 students. To demonstrate its commitment to university education, the then ruling party, the Tanganyika African National Union, offered its newly built headquarters along Lumumba Street in Dar es Salaam for use by the young university college until the latter could secure its own premises. After a massive mobilization of local and foreign resources, in 1964, the college was able to move to its own magnificent building on Observation Hill (its current location), 16 kilometers northwest of the Dar es Salaam city centre. In 1963, it became a constituent college of the University of East Africa together with Makerere University College in Uganda and Nairobi University College in Kenya. The constituent college of the University of East Africa in Tanzania became the full-fledged University of Dar es Salaam (UDSM) on 1st July 1970 through Act No. 12 of 1970, upon the decision by the three East African countries to establish a national university in each country and dissolve the University of East Africa.

Institutions for university education in Tanzania have tremendously increased from one university college in 1961 to 43 universities categorized as full-fledged universities and university colleges in 2020. In Tanzania, institutions offering university education are classified into three main types: full-fledged university, constituent university colleges, and university campuses, centres and institutes. There are 32 full-fledged universities and 17 university colleges (Tanzania Commission for Universities – TCU, 2023).

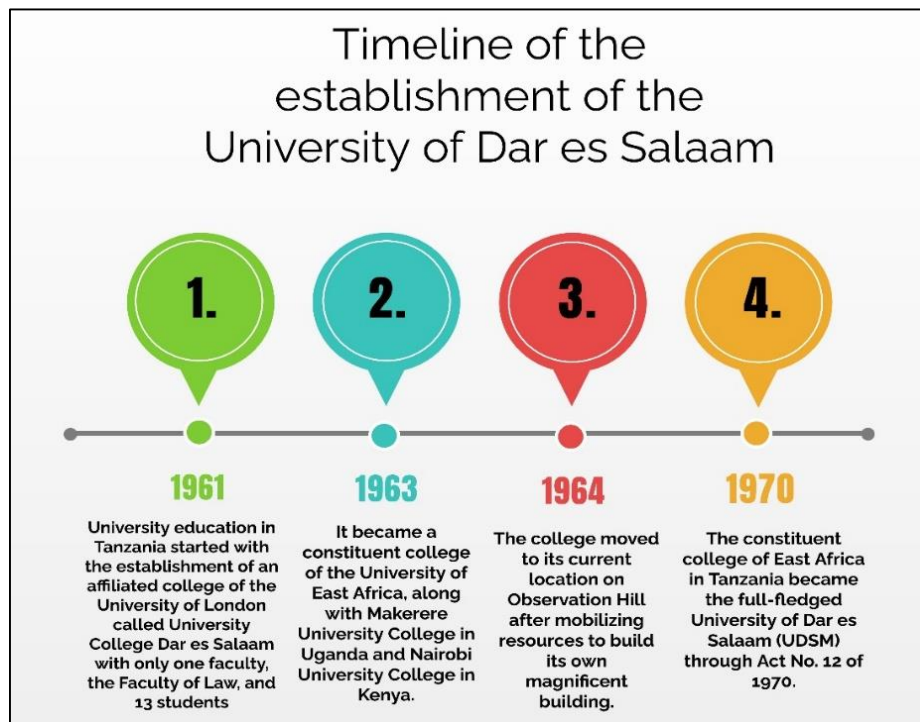


Figure 6.1: Timeline of the Establishment of the University of Dar es Salaam

6.3 Review of Tertiary Educational Policy Environment in Tanzania

The Tanzania education system operates in a 2+7+4+2+3+ system whereby secondary school which is the current basic education takes a total of 6 years (4 years in ordinary level education i.e. form I to form IV and 2 years in advanced level education i.e. form V and form VI). Thereafter begins the post-secondary education alias tertiary education which can be at least 3 years depending on a particular area of specialization for Higher Education. For example, Architecture degree and Medicine take 5 years, while other courses like in Humanities take a maximum of 3 years. Tertiary education in Tanzania mainly refers to university or university college and technical schools' education that offers diplomas and degrees. Currently, the policy for education in Tanzania is the *Education and Training Policy of 2014*, which was developed after the revision of the *Education and Training Policy of 1995*, and serves as the main policy framework for the education sector. The *Education and Training Policy* is the result of the harmonization and subsequent repeal of the *Education and Training Policy (1995)*, the *Technical Education and Training Policy (1996)*, the *National Higher Education Policy (1999)*, and the *Information Technology and Communication for Basic Education Policy (2007)*. The mission stipulated in the policy is to improve the quality of education and training and put in place structures and procedures that will enable the country to get educated Tanzanians who are longing to continue learning to add value in achieving national development goals. This education policy is also in line with Tanzania National Development Vision 2025, and the National Five-Year Development Plan 2016/2017–2020/2021. There is no specific policy for Higher Education, but rather, guidelines that are provided by the regulatory body namely TCU established through the enactment of the Universities Act No. 7 of 2005 and mandated to oversee institutional management processes in all universities in Tanzania to foster a harmonized Higher Education management system and regulate quality aspects.

6.4 Major Changes Within the University Education Over the last Decade

Over the last decade, changes have occurred within the HES in the country. These changes include an increase in university institutions and constituent colleges. There has been a vast expansion of degree programmes

(blended courses/disciplines), also, increased collaborative programmes in various public universities, for example Nelson Mandela African Institute of Science and Technology and Muhimbili University of Health and Allied Sciences. This allowed for exchange programmes among students and faculty.

6.5 Classification of Tertiary Institutions in Tanzania

Tanzania HEIs are classified into two categories namely public and private. In each category, there are three groups, namely full-fledged universities, university colleges and public university campuses, centres and institutes. To this extent, there are 12 full-fledged public universities and 20 full-fledged private universities. There are also 7 public university colleges and 10 private university colleges. Finally, there are 2 public university campuses, centres and institutes whereas there are 3 private university campuses, centres and institutes. In these universities, university colleges, campuses, centres and institutes, a total of 17 clusters of programmes guide student admissions. The clusters of programmes are Agriculture, Architecture and Planning, Business, Education, Engineering, Environmental Science or Studies and Forestry, Humanities and Arts, Information and Communication Technology or Engineering. Others are Journalism, Media Studies and Communication, Law, Library, Archives and Museum Studies, Life Sciences, Medicine and Health Sciences, Mining and Earth Sciences, Physical Sciences and Mathematics, Social Sciences and Tourism and Hospitality Studies.

6.6 Accreditation of University Education in Tanzania

The Universities Act, Cap 346 of the Laws of Tanzania, section 10(d) stipulates accreditation of universities and programmes as a function of TCU. It is a three-stage process consisting of (i) Provisional License, (ii) Certificate of Accreditation and (iii) Re-accreditation. For provisional license, any person or entity that wants to establish a university in Tanzania should apply to the Commission to be granted a license and should comply with the standards and guidelines issued by the Commission. The general (universities) regulations, 2013 prescribe procedures for accreditation of universities together with the *Handbook for Standards and Guidelines for University Education in Tanzania of 2019*.

6.7 National Vision and Plan for University Education in Tanzania

The national vision and plan for university education in Tanzania is to produce well-trained human resources to respond not only to the national development needs stipulated in the *National Development Vision 2025* and other national development blue prints, but also to the existing and emerging regional and global labour market demands. In order to achieve its vision for university education, Tanzania is striving to create efficient environments which will enable the country to get educated and continuous learning citizens who contribute and/or add value to national development.

6.8 National Policy (Norms) on Tertiary Education in Tanzania

The TCU in Tanzania is mandated to regulate, monitor and foster quality of Higher Education in the country. It is the TCU that promotes gender equality in admissions to various degree programmes, as well as providing guidelines for teacher-student ratio in all university degree programmes in the country. Unfortunately, the TCU does not strictly provide a gender equality ratio, rather emphasizes that every university should strive to establish affirmative strategies for the achievement of at least 50% gender parity (TCU Standard 1.13, page 34). It is therefore the role of universities to see to it that gender equality is attained. This may not always be possible considering university admissions particularly to certain degree programmes depend on some criteria, commonly known as admission criteria for a programme. As such, there are no enrolment norms, personnel

norms, financial norms or students' accommodation norms. However, TCU has provided to some disciplines, a teacher-student ratio and technical staff-student ratio as shown in Table 6.1.

Table 6.1: Teacher-Student Ratio Per Institution and Programme

Item	Conventional University	Open and Distance Learning (ODL) University
Staff/Student ratios per Institution and Programme		
Arts, Social Sciences and Humanities	1:50	1:120
Science and Technology	1:30	1:50
Health Science	1:25	1:30
Health Science (Clinical Sciences)	1:10	1:10
Engineering	1:25	1:30
Technical staff-Student ratios per Institution and Programme		
Arts, Social Sciences and Humanities	1:100	1:100
Science and Technology	1:60	1:60
Health Science	1:50	1:50
Engineering	1:50	1:50

Source: Handbook for Standards and Guidelines for University Education in Tanzania, 2019

6.8.1 Trend in Students' Enrolment into University Institutions 2015/2016 – 2021/2022

Generally, students' enrolment into university institutions showed an increasing trend particularly from 2016/2017 academic year. The trend maintained a constant to slight increase from 2017/2018 towards 2021/2022. There was a sharp increase in enrolment from 2016/2017 to 2017/2018 as shown in figure 6.2.

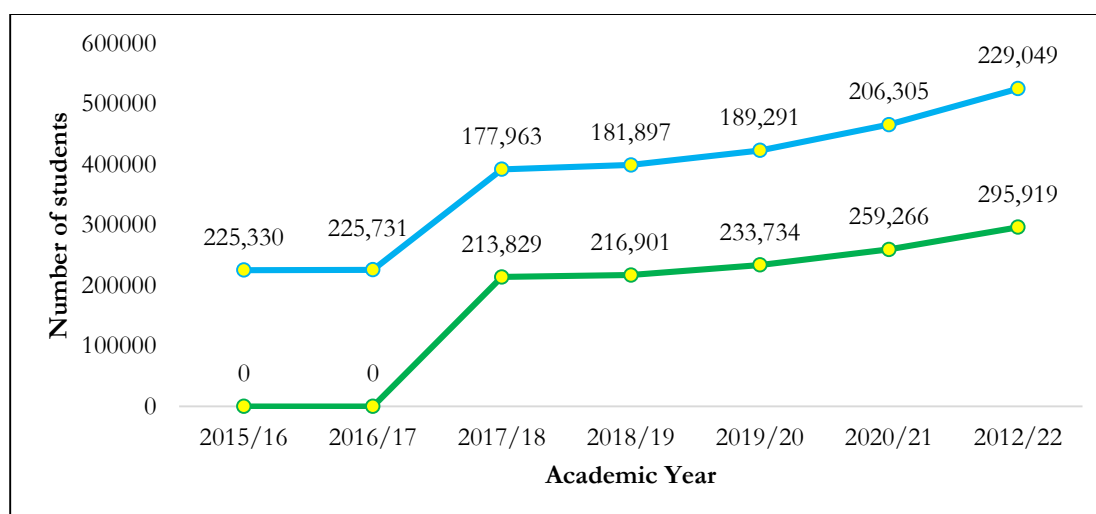


Figure 6.2: Trend in Students' Enrolment into University Institutions 2015/2016 – 2021/2022

Source: Vital Stats (TCU, 2021)

6.8.2. Recent Trend in Students' Enrolment in Tanzania (2015/2016-2021/2022)

6.8.2.1 Trend in Male-Female Ratio in Enrolment (Country Figures) into University Institutions, 2015/2016 – 2021/2022

It is paramount to highlight the trend in male-female ratio in enrolment for some years in order to reveal the trend and hence strategize how to improve the general admissions in to address any existing gender imbalances. Data was obtained from the TCU for this purpose and yielded the trend shown in figure 6.3.

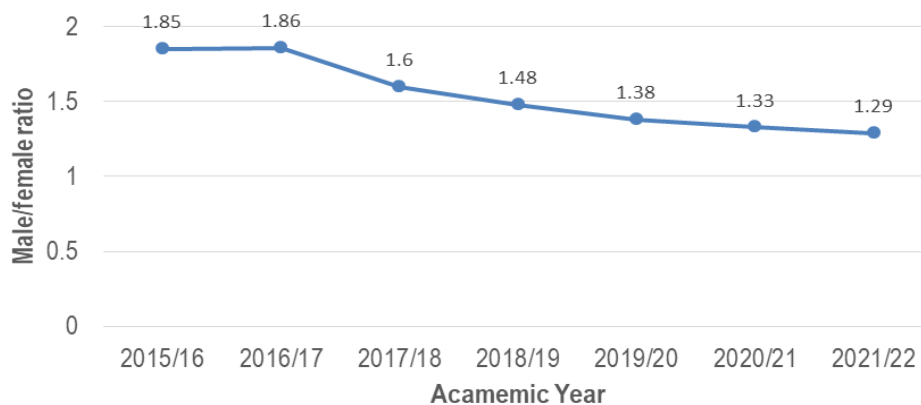


Figure 6.3: Trend in Male-Female Ratio in Enrolment (Country Figures) into University Institutions, 2015/2016 – 2021/2022

Source: Vital Stats (TCU, 2021)

6.8.2.1 Enrolment Distribution across Disciplines

This section presents statistics for students' enrolment by field of education and ownership of institution which are on aggregate as recorded in 2021 for the entire country. Generally, the results in Table 6.2 show that the enrolment was higher in public universities than in private universities. In some disciplines, private universities had no admissions, such as Mining and Earth Sciences, Life sciences and Environmental Sciences. However, programmes such as Journalism, Media Studies and Communication attracted a higher number of students in private universities than in public ones.

Table 6.2: Student Enrolment by Field of Education and Ownership of Institution, 2021

Discipline	Public university	Private university	Total	Percent
a) Mining and Earth Sciences	1,318	0	1,318	0.58
b) Life Sciences	1,535	59	1,594	0.70
c) Library, Archives and Museum Studies	983	746	1,729	0.75
d) Physical Sciences and Mathematics	2,732	84	2,816	1.23
e) Environmental Sciences	2,889	0	2,889	1.26
f) Tourism and Hospitality Studies	1,985	1,043	3,028	1.32
g) Architecture and Planning	2,804	271	3,075	1.34
h) Journalism, Media Studies and Communication	1,033	3,442	4,475	1.95
i) Information and Communication Technology	5,963	1,285	7,248	3.16
j) Agriculture	8,519	0	8,519	3.72
k) Arts and Humanities	10,078	1,020	11,098	4.85
l) Engineering	11,036	613	11,649	5.09
m) Law	6,818	11,090	17,908	7.82
n) Medicine and Health Sciences	10,586	13,766	24,352	10.63
o) Social Sciences	20,541	6,033	26,574	11.60
p) Business	28,928	15,666	44,594	19.47
q) Education	38,196	17,987	56,183	24.53
Total	155,944	73,105	229,049	100.00

Source: VitalStats (TCU, 2021)

6.9 Faculty

6.9.1 Number of Faculty (Aggregate data)

Data on the number of faculty per type/status of employment i.e. full time, part time, contract, visiting lecturers and volunteers, were obtained through documentary reviews. This data was captured only from full-fledged universities and university colleges. The data was segregated by gender, and in university colleges there were no volunteers or visiting lecturers. A total of 6,460 (93.9%) were established to be full time lecturers in full-fledged universities, meaning that only 6.1% of the faculty in these universities are distributed to the other groups of part timers, volunteers, visiting and contract lecturers. Similarly, in university colleges, a greater proportion, 89.8%, was established as full time. Table 6.3 shows the distribution of the number of faculty aggregated nationwide across the listed types/status of employment and gender.

Table 6.3: Number of Faculty by Employment Status and Gender

Employment status	Full-fledged universities			University colleges		
	Female	Male	Total	Female	Male	Total
a) Full time	1,609	4,851	6,460	239	745	984
b) Part time	29	203	232	24	80	104
c) Contract	26	150	176	-	8	8
d) Volunteer	3	7	10	-	-	-
e) Visiting lecturer	2	3	5	-	-	-
Total	1,669	5,214	6,883	263	833	1,096

Source: TCU, the State of Higher Education in Tanzania, 2019

6.9.2 Faculty by Gender

Figure 6.4 shows a graphical representation of the distribution of academic staff in university institutions by ownership and by gender. In general, 67.6% of the faculty serve in public, while 32.4% serve in private HEIs. Further, the male faculty are more at 70.2% on aggregate compared to their female counterparts at 29.8%. The results are similar when comparing across university institutions by ownership, where for the public institutions, 70.4% of the faculty are male and 29.6% are female; and for the private institutions, 69.6% are male and 30.4% are female.

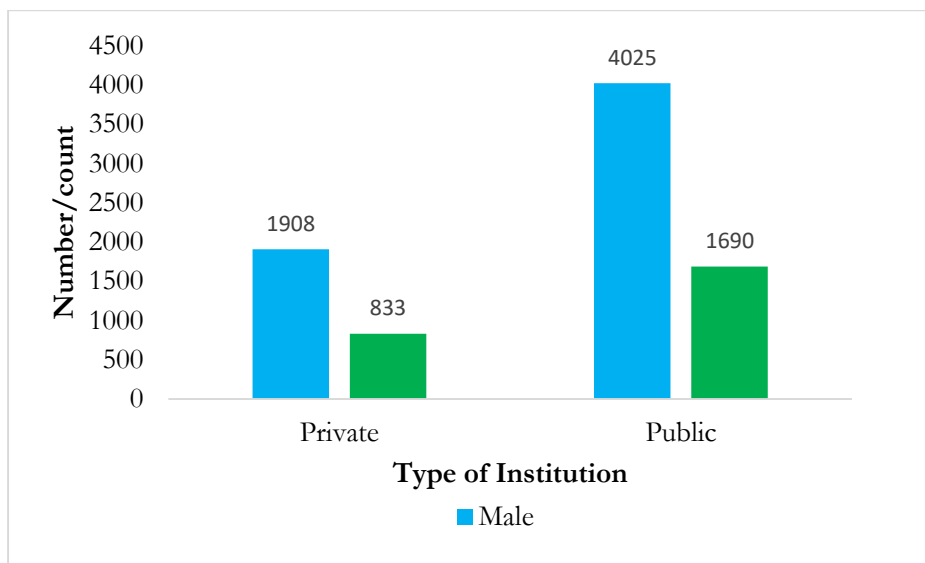


Figure 6.4: Academic Staff in University Institutions by Ownership and Gender, 2021
 Source: VitalStats (TCU, 2021)

6.9.3 Faculty by Discipline

The data gathered on academic staff was collated by field of education and gender. Figure 6.5 is a horizontal bar chart showing the distribution of the academic staff by disciplines and gender. The key to the numbers in the vertical line is provided. Medicine and Health Sciences had the highest number of academic staff of both gender, followed by Social Sciences and Education. On the other hand, Mining and Earth Sciences had the least number of academic staff followed by Tourism and Hospitality Studies. Notably, the male faculty dominated all disciplines, where significantly imbalanced faculty-gender ratios were observed in some disciplines such as Engineering and Medicine and Health Sciences.

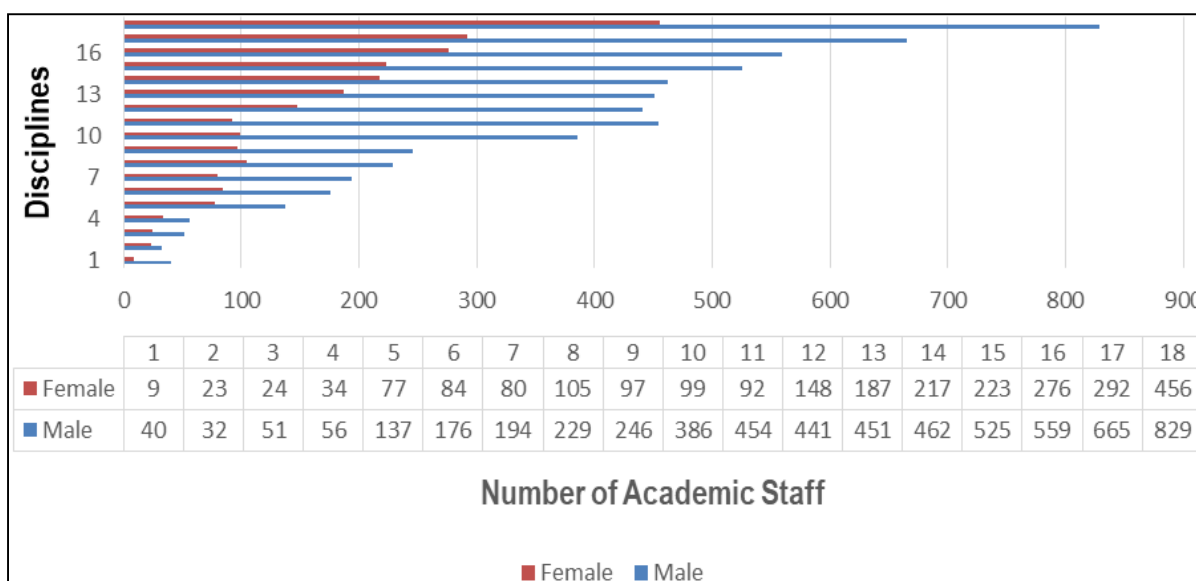


Figure 6.5: Academic Staff in University Institutions by Discipline and Gender, 2021

Source: VitalStats (TCU, 2021)

Key to the numbers in vertical axis of figure 6.5:

- | | |
|---|--|
| 1: Mining and Earth Sciences | 10: Physical Sciences and Mathematics |
| 2: Tourism and Hospitality Studies | 11: Engineering |
| 3: Journalism, Media Studies and Mass Communication Mining and Earth Sciences | 12: Information and Communication Technology |
| 4: Library, Archives and Museum Studies | 13: Not specified |
| 5: Life Sciences | 14: Humanities and Arts |
| 6: Environmental Science or Studies and Forestry | 15: Business |
| 7: Architecture and Planning | 16: Education |
| 8: Law | 17: Social Sciences |
| 9: Agriculture | 18: Medicine and Health Sciences |

6.10 Projection from DAF Model

The analysis expected to produce the projections for student’s enrolment and additional faculty needed after ten years. Assuming that the student enrolment is projected to grow at the same rate as the population ages 18 – 21; the age group typically associated with Higher Education, the DAF model used the projected growth rate produced by the UNPD. The model projected that students’ enrolment in 2030 would be 297,987, an increase from 229,049 in 2021, the base year, as shown in figure 6.6. However, additional faculty needed after ten years will be 33,291 (Table 6.7).

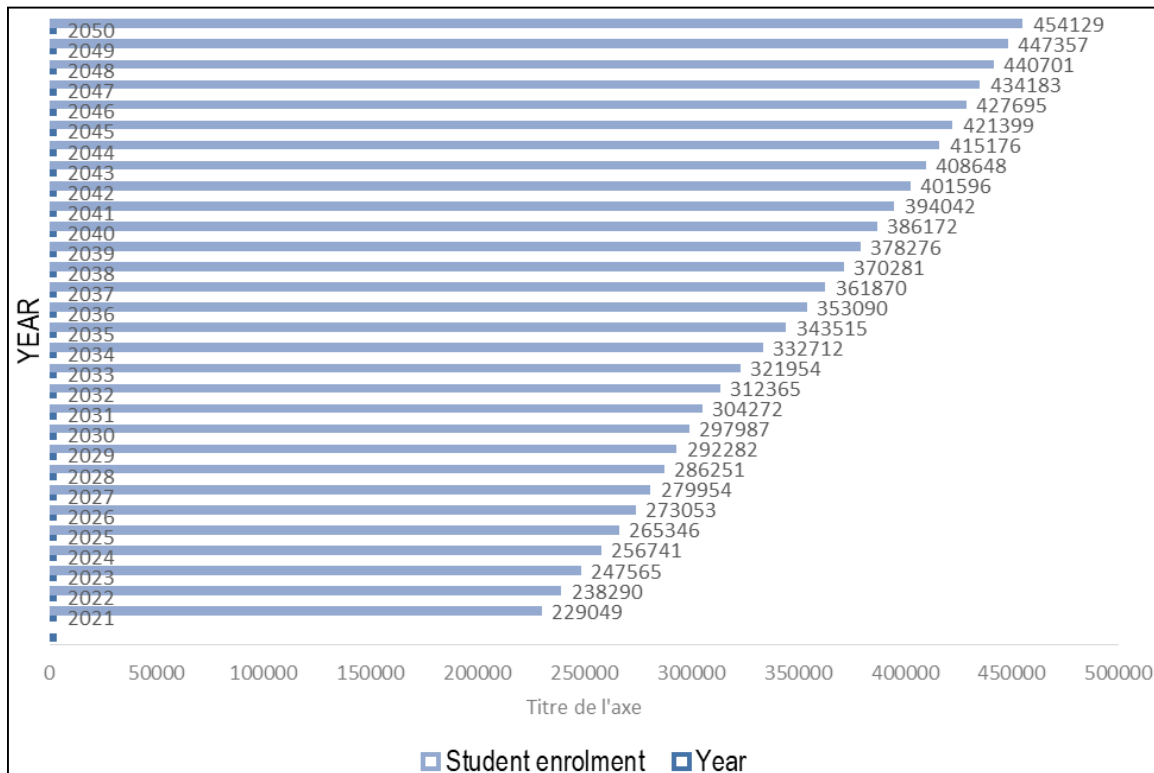


Figure 6.6: Projected Student Enrolment (2021 - 2050)

6.10.1 DAF Model Analysis

To describe the challenges facing Higher Education in Tanzania moving forward, data on student enrolment and faculty disaggregated by discipline and aggregated on annual basis was used. The latest data of 2021 available

at TCU was used. The data includes both private and public higher learning institutions in the country. No sampling was done considering all the available data were used for the analysis. Specifically, the data were from degree-granting universities which are overseen by TCU.

Five disciplines which were developed based on UNESCO’s International Standard Classification of Education Fields of Education and Training 2013 were used as categories in the analysis, to make it more feasible while allowing the results comparability across the EAC countries.

- a) Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services
- b) Education
- c) Health and Welfare
- d) Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs
- e) Agriculture/ Forestry/ Fisheries/ Veterinary

Although the Ghana pilot analysis on which the current analysis is based examined the impact of meeting four policy norms relevant to Higher Education, those goals were not available in Tanzania upon verification among stakeholders. In fact, no country in EAC has goals set for the rate of growth of student enrolment nor the distribution of student enrolment across disciplines. Only Kenya and Tanzania have policy norms for STRs, though the ones for Tanzania are not disaggregated by discipline in a way that is comparable with UNESCO’s. Kenya is also the only country in EAC to have set the gender-ratio for faculty. Given the lack of these goals specific to Tanzania the analysis adopted the goals from Kenya for the STR and faculty-gender ratio from its Commission for University Education as benchmarks.

Tables 6.4 and 6.5 describe the actual STRs by discipline and the faculty-gender ratio in the baseline year, 2021, and their corresponding policy norms. It is evident that there is still a challenge in matching the policy norms versus realities for the STRs as presented in Table 6.4. In the Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Laws / Services, the country is behind by half the target. This is due to the fact that the policy norms to be achieved is set at 18:1 while the country is at 36:1. It is even far behind in the Education discipline, where the ratio is approximately 4 times higher than the reality. At least for Natural Sciences and Agriculture, the situation is not as alarming. Regarding the Faculty-gender ratio, Tanzania is in a good position as she has attained a 2:1 ratio as shown in Table 6.5.

Table 6.4: Policy Norms Versus Realities for STR by Discipline in 2021

Discipline categories	Student enrolment	Number of faculty	Actual STRs	Policy goals for STRs
a) Arts & Humanities/Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	106,910	2,938	36:1	18:1
b) Education	56,183	835	67:1	18:1
c) Health & Welfare	26,574	1,285	21:1	7:1
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	30,863	2,157	14:1	10:1
e) Agriculture/ Forestry/ Fisheries/ Veterinary	8,519	603	14:1	10:1

Note: The policy goals are adopted from Kenya.

Sources: 1) Commission for University Education, Tanzania, VITALSTATS, 2021; 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

Table 6.5: Policy Norm Versus Reality for Faculty-Gender Ratio (Male-to-Female Ratio) in 2021 (Baseline Year)

Male faculty	Female faculty	Actual male-to-female Ratio	Policy goal for male-to-female ratio
5,933	2,523	2: 1	2: 1

Note: The policy goal is adopted from Kenya.

Sources: 1) Commission for University Education, Tanzania, VITALSTATS, 2021

(<https://www.tcu.go.tz/sites/default/files/VitalStats%202021.pdf>); 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014

Table 6.6 presents the faculty that was needed so as to have achieved the STR policy in 2021, considering both the number of faculty who are expected to exit teaching in the course of the year (switching jobs, retiring, moving overseas, etc.) and the number overestimated, that is, the faculty who are registered on the payroll at universities as teaching but cannot be verified for whatever reasons. It is observed that additional faculty to meet STR goals by disciplines is needed across all disciplines, though emphasis is on the disciplines of Arts and Humanities/Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services, Education and Health and Welfare. Less effort may be exerted for the remaining disciplines namely STEM and Agriculture. The actual number by the five disciplines at present are 2938, 835, 1285, 2157 and 603 respectively as presented in Table 6.4.

Table 6.6: Total Additional Faculty Needed to Achieve Policy Norms for STR in 2021 (Baseline Year)

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet STR goals*	8,977
b) Additional faculty needed to replace the ones projected to exit during the year**	1,621
c) Additional faculty needed to account for overestimation***	391
Total	10,989
Panel B: Breakdown of the additional faculty needed to meet STR goals by discipline	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	3,001
b) Education	2,286
c) Health & Welfare	2,511
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	929
e) Agriculture/ Forestry/ Fisheries/ Veterinary	249
Total	8,977

Notes: *The policy norms are adopted from Kenya.

**Assumption: 5% of professors and 10% of academic teaching staff exit each academic year and need to be replaced.

*** Assumption: The faculty is overestimated by 5%.

Sources: 1) Commission for University Education, Tanzania, VITALSTATS,

2021(<https://www.tcu.go.tz/sites/default/files/VitalStats%202021.pdf>); 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

Table 6.7 shows the faculty needed to meet the goals for STRs by 2030, given the projected growth in student enrolment due to population growth. The student enrolment is projected to grow at the same rate as the

population ages 18 – 21, the age group typically associated with Higher Education, according to UNPD. The table also shows the number needed to replace the ones projected to have exited teaching each year by 2030 and faculty overestimation.

Table 6.7: Total Additional Faculty Needed to Achieve Policy Norms for STR in 2030, Given Increased Student Enrolment

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet the increased enrolment due to population growth*	2,418
b) Additional faculty needed to meet STR goals, taking account of population growth**	11,614
c) Additional faculty needed to replace the ones projected to exit during the year***	18,868
d) Additional faculty needed to account for overestimation****	391
Total	33,291
Panel B: Breakdown of the additional faculty needed to meet the increased enrolment due to population growth by discipline	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	911
b) Education	272
c) Health & Welfare	444
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	550
e) Agriculture/ Forestry/ Fisheries/ Veterinary	241
Total	2,418
Panel C: Breakdown of the additional faculty needed to meet STR goals by discipline, given population growth	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	3,878
b) Education	2,954
c) Health & Welfare	3,210
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	1,308
e) Agriculture/ Forestry/ Fisheries/ Veterinary	265
Total	11,614

Notes: *Assumption: Student enrolment will grow annually at the same rate as the population age group 18 – 21 projected by the UNPD.

**The policy norms are adopted from Kenya.

***Assumption: 5% of professors and 10% of academic teaching staff exit each academic year and need to be replaced.

****Assumption: The faculty is overestimated by 5%.

Sources: 1) Commission for University Education, Tanzania, VITALSTATS, 2021

(<https://www.tcu.go.tz/sites/default/files/VitalStats%202021.pdf>); 2) United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022; 3) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

There is need to attract more faculty given the shortage highlighted in Table 6. 6. It is clear from the current data or baseline that the country requires more faculty in the next ten years in order to address the STR norm.

It is also clear from Tables 6.6 and 6.7 that across all disciplines, the demand for faculty has not yet been met. However, there is a relief for STEM and Agriculture disciplines based on the 2021 baseline data, though more is required for the Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services, Education and Health and Welfare.

Finally, Table 6.8 presents the additional female faculty needed to meet goals for the faculty-gender ratio, both in the baseline year, 2021, and in 2030. The assumption is that the goal for the gender ratio is achieved by increasing the number of female faculty, rather than decreasing the number of male faculty. The number of additional female faculty needed to meet the goal in the baseline year in 2021 is estimated at 3,355. Assuming that the faculty-gender ratio in 2030 will be the same as what is observed in the baseline year, a total of 5,125 additional female faculty will be needed to meet the goal in 2030.

Table 6.8: Additional Female Faculty Needed to Meet Policy Norms for the Faculty-Gender Ratio

Description	Female Faculty Needed
To have met the goal in 2021 (baseline year) *	3,355
To meet the goal in 2030**	5,125

Notes: *The policy norm is adopted from Kenya.

**Assumption: The 2030 faculty projections will reflect the same gender ratio as in the baseline year and that an additional increase in female hiring is needed to meet the policy norm for the faculty gender ratio, rather than decreasing the number of male faculty.

Sources: 1) Commission for University Education, Tanzania, VITALSTATS, 2021 (<https://www.tcu.go.tz/sites/default/files/VitalStats%202021.pdf>); 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014.

6.10.2 Conclusion

The DAF model analysis provided very important findings on the three key aspects that the study focused on namely; faculty demand, STR and the faculty-gender ratio. In general, there is a remarkable deficit and imbalance among these aspects as shown in the analysis summary tables. It is evident from the results that there are significant challenges ahead in terms of recruiting the faculty needed to meet the policy norms for STRs and gender ratio in both 2021 the baseline year, and 2030 (projected year), as well as retaining them once recruited. Results reveal additional faculty needed to achieve policy norms goals for STR in 2021 (baseline year) would have been 10,989. Student enrolment increase is projected to reach 297,987 in 2030 and 454,129 in 2050, while the corresponding additional faculty needed to achieve policy norms for STR in 2030 is 33,291. Further, the findings show that the faculty is currently male-dominated, where a total of 840 additional female faculty was needed to meet the policy norm for the faculty-gender ratio in the baseline year 2021, and a projection to the year 2030 reveals a requirement of additional 1,093 female faculty. These numbers, however, do not consider other ways in which student enrolment will likely evolve, including the distribution of students across disciplines and the growth in student enrolment due to increases in student enrolment ratios in the future.

It must be noted also that universities will not avoid catching up with the rapidly increased student enrolment by attracting the required number of faculty. Without doing so and with insufficient faculty number, the ambitious goals of the continental framework for tertiary education will not be attained. Also, it is important to achieve the STR for all disciplines despite the existing challenges in Higher Education in the country. Not

achieving the STR creates room for compromising quality, thereby producing graduates who may not be competitive in the job market, nor will they be self-employed. Finally, beyond the challenge of quantity, another notable challenge ahead will be quality, as all future faculty recruited will need to perform in teaching and research. Everything must be done in such a way that it does not jeopardize the quality of education, training and research in general.

6.11 Recommendations

- a) Short term recommendations;
 - i. Data on faculty distribution by gender, faculty distribution by disciplines, faculty distribution by ranks should be collated at the institution level, and aggregated figures at both the TCU and the Ministry of Education to easily inform future analyses like the DAF modelling;
 - ii. There should be adequate yearly data records of faculty exit rate by rank and gender in the HEIs;
 - iii. TCU should ensure that admissions to higher learning institutions and to various academic disciplines factor in the 50:50 gender ratio, or as close to it as possible;
 - iv. There is a need for provision to organise the exercise of data collection on yearly bases in all the EAC countries to enhance the status of Higher Education in East Africa as a whole;
 - v. There is a need to categorise academic disciplines according to UNESCO format as a standard in order to facilitate the DAF analysis and similar analyses in the future;
 - vi. University Commissions are recommended to work with policy makers to establish policy norms for HEIs;
 - vii. Staff and experts of data collection for DAF studies should be regularly trained at all the levels (national and/or regional); and offices in charge, particularly within HEIs, should be more operational or created where they do not exist; and
 - viii. There should be Inter-regional physical workshops/ meetings for output dissemination and sharing of lessons learnt to foster collaboration among key players as required by the DAF study.
- b) Long term recommendations;
 - i. There is a need to organise the available data to be in the same format across universities, education commissions, ministries of education and across all EAC countries;
 - ii. A single data source should be established for the agreed format across all EAC Countries on the agreed variables.
 - iii. There is a need for TCU to impose the STR for disciplines such as, Journalism and Information/ Business Administration/ Law/ Services, Education and Natural Sciences/ Mathematics and Statistics/ Manufacturing/ Construction/ ICTs in order to reach the target policy. Stable norms, policies and goals should be defined and clarified at national and regional levels, and institutions involved in HESs must collaborate to generate regularly updated data on DAF;
 - iv. Based on the data collection experience for the DAF study, it is important to define a template file for data collection on faculty, students, academic disciplines and norms for all stakeholders to harmonise and facilitate the exercise, and to achieve vigorous and valuable results for future DAF studies and any other similar study; and
 - v. There should be annual training for data collectors and analysts on the DAF study or similar studies to strengthen their understanding and gain experience in capturing the data to fit the DAF Model, inter alia.

6.12 References

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PARTICIPANTS IN A DAF-EAC WORKSHOP

CHAPTER 7

UGANDA REPORT

By

Aisha Nazziwa and Joseph Brian Kasozi

7.1. Introduction

This section presents the Higher Education history and development in Uganda and the analysis results and projections from the DAF model generated.

7.2. Historical Background of Higher Education in Uganda

Makerere University is the oldest university in East Africa. It was founded by the British Colonial Office in 1922 to train "talented natives" for subordinate jobs in the colonial civil service. Until 1950 it was the only publicly funded university in all of East Africa. It achieved full university status in 1970. Makerere University was the only university in Uganda until 1988 when the Islamic University in Uganda (IUIU) was established in the eastern part of the country by the Organization of Islamic Conference. Further, it remained the only public university until 1989 when Mbarara University of Science and Technology (Mbarara University) was established in western Uganda. Mbarara University, as is evident in its name, specialised in science-based disciplines. It was the second institution in Uganda, after Makerere University to have a medical school. To date, the following public universities have been established: Gulu University, Lira University, Muni University in Northern Uganda, Soroti University in the East, Kabale in Southwestern Uganda, Mountains of the Moon University in the Mid-western, Kyambogo University in Kampala and Busitema University in the near East.

In 1998, Makerere University Business School was established as a constituent college of Makerere University. The school which was an upgrade from Uganda College of Commerce Nakawa remains a semi-autonomous tertiary institution and a school of Makerere University offering Diplomas, Bachelor and Graduate programmes. In 2006, following an amendment of the UOTIA, the Uganda Management Institute (UMI), which was founded by the Ugandan government in 1969, was elevated to a degree-granting institution. The elevation of UMI brought the number of degrees awarding public universities and institutions to seven. Moreover, following the enactment of the Universities and other Tertiary Institution's Act of 2001, a substantial number of private universities were chartered. By May 2011, the total number of private universities in Uganda had grown to 29. This implies that Makerere University has to compete with other public and private institutions for faculty from the limited pool of appropriately trained professionals.

7.3 Higher Education System and Admission Policies in Uganda

In Uganda, postsecondary or Higher Education refers to education that is post-Advanced level standard. Only students who have successfully completed Advanced level standard and passed their Uganda Advanced Certificate of Education or hold its equivalent are eligible to enter postsecondary institutions of Higher Education. Publicly supported institutions are of three types; autonomous universities, institutions run by the Ministry of Education, and institutes administered by the Public Service Commission. All the public universities in Uganda including Makerere University and Mbarara University of Science and Technology are autonomous universities. The Institute of Teacher Education, the Uganda Polytechnic which were merged to form

Kyambogo University is also autonomous, the National College of Business, four technical colleges, five colleges of commerce, and 10 national teachers' colleges are administered by the Ministry of Education. The Institute of Public Administration, the Uganda Law Development Center, the School of Radiography, the School of Medical Laboratory Technology, the School of Psychotherapy, four agricultural colleges, the Fisheries Training Institute, two veterinary training institutes, Kigumba Cooperative College, the Soroti Flying School and 10 paramedical schools are all administered by the Public Service Commission. These are all considered postsecondary institutions of Higher Education in Uganda.

The National Council for Higher Education has developed Statutory Instrument for requirement for admission to Certificate, Bachelors, Masters and Doctoral degree programmes. Admission to Uganda's universities and institutions of Higher Education is based upon passing the Uganda Advanced Certificate of Education. "High pass" is the ideal. A student who is over 25 years of age may apply for admission based upon "mature entry admissions." Such students must have completed the Uganda Advanced Certificate of Education. Students who have completed diploma and certificate courses are also eligible for admission. If a student has completed four years of teacher training, then they can apply for admission to Makerere's School of Education or its Institute of Education.

7.4 Quality Standards and Regulation of Higher Education and Accreditation of HEIs

The National Council for Higher Education (NCHE) is a statutory agency in Uganda, a watchdog for quality and relevance of Higher Education, established under "The Universities and Other Tertiary Institutions Act of 2001". The Council is mandated to among others: (a) regulate and guide the establishment and management of institutions of higher learning, and (b) regulate the quality of Higher Education, equating of Higher Education qualifications and to advise government on Higher Education issues. The other functions of NCHE are: to advise the Minister of Education on Higher Education issues; to establish an accreditation system (and do the accrediting); to investigate Higher Education complaints; to evaluate national manpower requirements; to set national admission standards; to ensure that institutions of higher learning have adequate physical structures (and education facilities); to publish information on Higher Education; to determine equivalences of academic and professional awards and credits between institutions as well as tertiary education policy formation.

The NCHE provides accreditation of both universities and their academic programmes leading to the award of bachelor's degree, master's degree, doctoral degrees, postgraduate diplomas and certificates, diplomas and certificates. Programmes are reviewed for renewal at set intervals. The NCHE's Accreditation and Quality Assurance Committee is involved in the establishment and accreditation of public and private Tertiary Institutions, private Other Degree Awarding Institutions and private Universities; and the accreditation of the academic and professional programmes of those institutions in consultation with professional associations and regulatory bodies.

7.5 Levels of Higher Education in Uganda

Table 7.1 shows the levels of higher education in Uganda as extracted from the Uganda Higher Education qualifications framework. The higher education is phased into six levels; level 4 to level 9, where level 4 is the lowest with a certificate qualification and level 9 is the highest with a doctorate qualification.

Table 7.1: Levels of Higher Education in Uganda

Levels	Typical Qualification at this level
Level 4	Higher Education Certificate/ University Foundation Programme
Level 5	Ordinary Diploma
Level 6	Advanced/ Higher Diploma
Level 7	Bachelors
Level 8	Master's degrees/ Post Graduate Certificate/Diploma
Level 9	Doctorate

Level 4: Higher Education Certificate

The Higher Education Certificate (HEC) provides learners with the basic introductory knowledge, cognitive and conceptual tools, and practical techniques for further Higher Education studies in their chosen field. The knowledge emphasizes general principles and application. Attainment of a HEC signifies that the learner has attained a basic level of Higher Education knowledge and competence in a particular field or occupation and is capable of applying such knowledge and competence in an occupation or role in the workplace. Generally, holders of HEC are expected to be better prepared for further studies and the world of work.

Level 5: Technical Diploma Level /Non-Technical Diploma

At this level, there are Technical and Non-Technical Diplomas. Technical Diploma programmes are generally designed to prepare candidates for direct entry into a particular occupation or trade. Programmes leading to this qualification tend to have a strong vocational, professional or career focus and as a result they tend to comprise of 70 – 75% practical and 25 – 30% theory instructions. A Non – Technical Diploma normally tends to integrate/emphasize academic disciplines in the curriculum coverage and is awarded to an individual who completes a technical education and training programme comprising of 70 – 75% theory and 25 – 30% practical instructions.

Level 6: Advanced/Higher Diploma Level

An Advanced/Higher Diploma or an equivalent award qualifies individuals who apply specialized knowledge in a range of contexts to undertake advanced skilled or mid-career professional work and as a pathway for further learning.

Level 7: Bachelor's Degree Level

A bachelor's degree or an equivalent award qualifies individuals for general employment, entry into postgraduate programmes and research as well as highly skilled careers. It enables the individuals to perform responsibilities which require great autonomy in professional decision-making.

Level 8 Master's Degrees

A Master's degree or an equivalent qualification provides for the advanced knowledge, skills and abilities beyond the Bachelors level.

Level 9: Doctoral Degree Level

A doctoral degree provides for a further enhancement of knowledge, skills and abilities. The degree qualifies individuals who apply substantial body of knowledge to research, investigate and develop new knowledge, in one or more fields of study/investigation, scholarship or professional practice.

7.6 Classification of HEIs in Uganda

In Uganda, HEIs are divided into 3 categories namely; Universities, Other degree Awarding Institutes (ODAI) and Other Tertiary Institutions (OTI). The 3 categories include public as well as private institutions. The universities recognized by law are qualified to award degrees, diplomas and certificates. The institutions under the ODAI category are not universities, but are also authorized to issue certificates, diplomas and degrees. This category has existed since 2006. The institutions that fall into the OTI category are qualified to award certificates and diplomas.

The total number of HEIs in Uganda increased by 4 from 233 in 2017/2018 to 237 in 2018/2019, where the public universities remained 9, private universities remained 44; ODAI remained 10 and OTI increased by 4 from 172 to 176. On the other hand, the 2019 – 2020 data shows that there was a decrease in private universities from 44 to 42. This study however mainly focused on universities.

7.7 Major Changes Within the University Education Over the Last Decade

Since the establishment of the first university in Uganda, a number of changes have been seen in Higher Education and these include but not limited to; establishment of more universities and grooming of more qualified academic staff. The number of PhD holders and those on PhD track has significantly increased over the years. Further, the number of students enrolling in Higher Education has also grown. This may be attributed to the availability of HEIs and lower costs of Higher Education in the country, among others. Recently, Higher Education in Uganda has taken a major twist from the traditional face to face classes also known as physical classes converted to blended teaching and learning. This has seen HEIs boost their infrastructure especially ICT.

7.8 Qualification for Appointment of Academic Staff in Universities

Recruitment, appointment and promotion of highly trained and experienced staffs are central to building a strong and well-functioning university. This means recruitment, appointments and promotion of potential candidates and existing ones must be done professionally. In Uganda, the University and Other Tertiary Institutions Act, 2001, section 119 provides that ‘no University or Tertiary institution shall employ a lecturer or other person recruited for the purpose of teaching or giving instructions to students whose qualifications do not conform to the standards set by the NCHE by regulations’. The standards are provided in Statutory Instrument No. 50 of 2010. All universities are required to have publicly known rules and regulations for hiring, promotion and firing staff. The compliance to this statutory instrument enables universities to design quality assurance mechanisms and maintain quality control.

There are six entry points into the academic service of the University namely; Teaching Assistant, Assistant Lecturer, Lecturer, Senior lecturer, Associate Professor and Professor. Most entrants are at the levels of either Teaching Assistant or Assistant Lecturer. Within four years of being appointed as an Assistant Lecturer, one is required to enroll into a PhD program. While some enroll into programmes within the University, for one reason or another, others enroll into programmes abroad. Employees from the position of Assistant Lecturer and above are either given a study leave to pursue their training or required to resign from their positions. All employees on study leave continue receiving their salaries. Additionally, the University may pay for the tuition and upkeep of some, and only upkeep for others. For others yet, the University secures funding from its development partners to fund the training programmes.

According to the Makerere University manual, the qualification of PhD for Lecturer position shall be applied for appointment and promotion to all positions and disciplines. Applicants who hold a third class (pass) Bachelors degree plus a PhD degree are eligible for appointment to the position of lecturer since the PhD qualification is an indicator of academic maturity. Other requirements for promotion and faculty positions are found in section 6 of the Makerere University manual. Table 7.2 shows a summary of the various academic positions in the Ugandan universities and the respective qualifications for appointment or promotion. The lowest position for academic staff is the Teaching Assistant position, a post that requires an applicant to be a holder of a First Class Bachelors degree (or Upper or Lower Second Class in special circumstances). The highest academic staff rank is the Professor which requires an individual to have attained a PhD, acquired at least 7 years of teaching experience and published in peer reviewed journals for appointment.

Table 7.2: Qualification for Academic Staff in Universities

Academic position	Qualification
a) Teaching Assistant	First Class Degree / Upper Second or Lower Second (in Special Circumstances)
b) Assistant Lecturer	Master's Degree
c) Lecturer	Master's Degree but on PhD track
d) Senior Lecturer	PhD, original contribution to knowledge through research & publication
e) Associate Professor	PhD, teaching experience of at least 7 years, publication
f) Professor	PhD, teaching experience of at least 7 years, publication

7.9 Faculty Attraction, Reasons for Exit and Proposed Interventions

- a) The following are some of the most common factors that attract faculty to specific HEIs;
 - i) Rate at which students graduate – faculty prefer universities where students complete PhD in 3 years;
 - ii) Availability of scholarships;
 - iii) Conducive work environment;
 - iv) Popularity of the university; and
 - v) Geographical location.
- b) The following are some of the most common reasons why faculty exit academic positions;
 - i) General working conditions where some faculty are not comfortable with the institution's management. Governance structures and staff development policies were found to increase the likelihood of faculty leaving the University to go and work at institutions that have more favorable environments;
 - ii) Greener pastures - some faculty are offered better pay elsewhere;
 - iii) Funding cuts in academic infrastructures, science and technology subjects or teaching/learning materials and equipment drive a growing number of graduates and researchers out of academia to take up lucrative posts in the private sector (UNESCO, 2007). This trend accelerates as university salaries fall behind those of senior managers in private companies; and
 - iv) Disparities in salary scales across universities.
- c) The following are some of the proposed interventions that can contain the exodus of faculty from the teaching function;

- i) Development of deliberate policies to retain faculty by discouraging brain drain;
- ii) Creation of conducive and enabling working environment for academic staff and promotion of a sense of ownership and cooperation with the management;
- iii) Provision of sandwich programmes;
- iv) Recognition and awarding of well performing faculty;
- v) Enhancement of salaries;
- vi) Keeping contact with and engaging faculty while away for further studies; and
- vii) Allowing multiple academic affiliations particularly among universities within the EAC.

7.10 Attraction of Students to Specific HEIs

The following are some of the most common factors that attract students to specific HEIs;

- i) Quality of education;
- ii) Affordability i.e. cost effectiveness;
- iii) Prestige e.g. studying at Makerere is perceived as prestigious;
- iv) Closeness to place of work;
- v) Degree programmes that are offered – students will apply to universities offering the programme of interest;
- vi) Availability of scholarships;
- vii) Geographical location of the University;
- viii) Availability infrastructure (e.g. laboratories, library etc.); and
- ix) The rate at which students graduate. Students prefer universities one can complete PhD in 3 years.

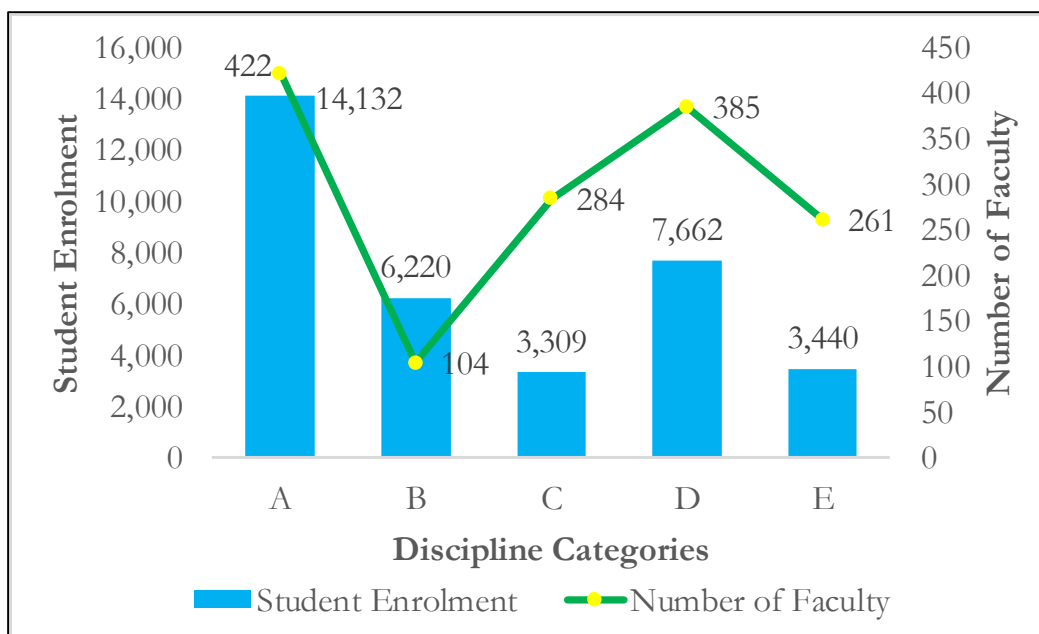
7.11 University Policy Norms in Uganda

According to the Ministry of Education and Sports, the ideal STR in Uganda is 1:15. Further, the target gender ratio is 50:50, as it aims at promoting equitable quality and relevant education and sports for all boys and girls, women and men in the country. Uganda plans to achieve gender parity by 2030 (Gender in Education Sector Policy). However, the country does not have a standalone policy document on STR and faculty-gender ratio in Higher Education. Therefore, given the lack of policy goals specific to Uganda, the Kenya's policy goals for the STR and faculty-gender ratio were adopted and used as benchmarks in the analysis.

7.12 The Situation of Makerere University

7.12.1 Student Enrolment

In 2019/2020, student enrolment at Makerere University was recorded at 34,763 supported by a total faculty of 1,456 as shown in Figure 7.1. The highest number of students enrolled was in the Arts and Humanities discipline with a total of 14,132, followed by Natural Sciences with 6,220. The discipline with the highest number of faculty was the Arts and Humanities.



Discipline Categories

A: Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services

B: Education

C: Health & Welfare

D: Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs

E: Agriculture/ Forestry/ Fisheries/ Veterinary

Figure 7.1: Total Student Enrolment and Faculty Across Discipline in 2019/2020 the Base Year

Source: Tables 8 and 14 of Makerere University fact book

7.12.2 Student Enrolment Student Enrolment by Gender

Between 2017/2018 and 2019/2020, the gender gap in student enrolment remained narrow in Makerere University with each gender recording more than 40% representation. However, the number of male students continued being higher than the number of female students enrolled as shown in Table 7.3.

Table 7.3: Total Student Enrolment by Gender at Makerere University 2017/2018 – 2019/2020

Year	Male		Female		Total
	Number	Percent	Number	Percent	
2017/2018	18,519	55.1%	15,116	44.9%	33,635
2018/2019	19,294	55.8%	15,272	44.2%	34,566
2019/2020	19,382	55.8%	15,381	44.2%	34,763

Source: Makerere University Fact book Figure10

7.12.3 Academic Staff/ Faculty

Academic staff are key personnel in the academic processes; learning, teaching, research and community engagement at HEIs. The quality of academic staff greatly influences institutional ability to achieve its goals of excellence in research and innovations. The availability of qualified and competent academic staff contributes largely to the quality of research outputs and graduates trained at HEIs. Universities employ both permanent and part-time academic staff, but at a controlled ratio of 70:30 respectively. This excludes institutions which offer programmes through distance learning or electronic media {Statutory instruments 2008 no.34}.

7.12.4 Staff Availability

Makerere University full time faculty decreased from 1,492 in 2018/2019 to 1,456 in 2019/2020. This is due to high academic staff exit rates in the country. Figure 7.2 shows faculty distribution by rank and gender for the year 2019/2020. During the year, there were 85 Professors in Makerere University, while the other ranks constituted the remaining 1,371 members of the faculty. The male faculty were 1,054, while the female were 402 yielding a male-to-female faculty ratio of 3:1.

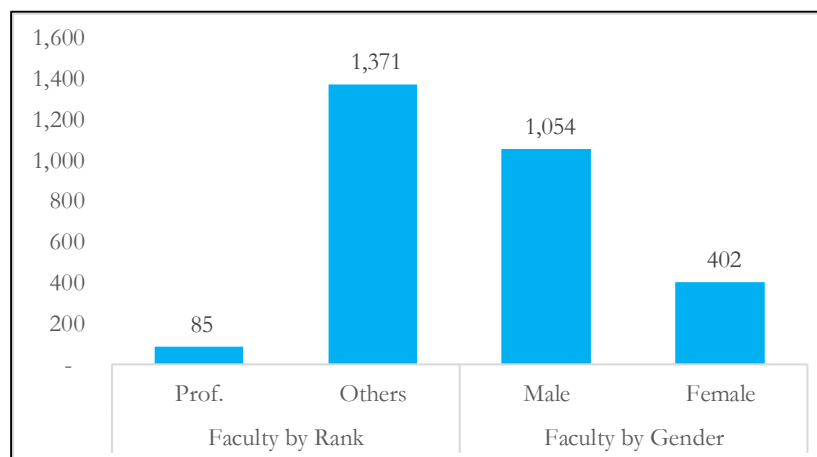


Figure 7.2: Academic Staff Distributed by Rank and Gender in 2019/2020

7.13 DAF Projections: The Case of Makerere University

7.13.1 Student-Teacher and Faculty-Gender Ratios

Table 7.4 present the actual STRs by discipline and the faculty-gender ratio in the baseline year, 2019, and their corresponding policy norms. The discipline that needs more numbers of faculty is Education with actual STR of 60: 1 as opposed to the policy norm of 18:1. This is followed by the discipline of Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services with an STR of 33:1 against a policy norm of 18:1.

Table 7.4: Policy Norms Versus Realities for STR by Discipline in 2019 (Baseline Year)

Discipline Categories	Student Enrolment	Number of Faculty	Actual STRs	Policy Norms for STRs
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	14,132	422	33:1	18:1
b) Education	6,220	104	60:1	18:1
c) Health & Welfare	3,309	284	12:1	7:1
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	7,662	385	20:1	10:1
e) Agriculture/ Forestry/ Fisheries/ Veterinary	3,440	261	13:1	10:1

Note: The policy norms are adopted from Kenya.

Sources: Makerere University Fact Book 2019/2020; Published by the Planning and Development Department; 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014

Table 7.5 shows the actual faculty-gender ratio and the corresponding policy norm. It is observed that the actual male to female ratio is 3:1 against a policy norm of 2:1. This situation is however better than the current situation in South Sudan where ratio of Male to female Faculty is 8:1 and Burundi where it is 6:1.

Table 7.5 Policy Norm Versus Reality for Faculty-Gender Ratio (Male-to-Female Ratio) in 2019 (Baseline Year)

Male Faculty	Female Faculty	Actual Male-to-Female Ratio	Policy Norm for Male-to-Female Ratio
1,054	402	3: 1	2: 1

Note: The policy norms are adopted from Kenya.

Sources: 1) Makerere University Fact Book 2019/2020; Published by the Planning and Development Department; 2) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014

7.13.2 Additional Faculty Needed to Achieve the Policy Norms

Table 7.6 presents the faculty that was needed so as to have achieved the student-teacher ratio policy norm in 2019. The analysis takes into consideration the number of faculty who are expected to exit teaching in the course of the year (switching jobs, retiring, dying, moving overseas, etc.), and the number of faculty who are overestimated, that is, the faculty who are registered on the payroll at universities as teaching but cannot be verified for whatever the reasons.

The size of Makerere University in 2019 was 1,456. As observed in Table 7.6, the University would need an additional faculty of 1,258 if it was to meet the STR goals in 2019. The faculty needed to replace the ones projected to exit during the year was 263 and to account for over estimation was 73. Also, to meet STR goals by discipline, it would need an additional faculty of 381 members for Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs discipline, 363 for Arts and Humanities/ Social Sciences/ Journalism and Information/ Business administration/ Law/ Services and 242 for Education.

Table 7.6: Total Additional Faculty Needed to Achieve Policy Norms for STR in 2019 (Baseline Year)

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet STR goals*	1,258
b) Additional faculty needed to replace the ones projected to exit during the year**	263
c) Additional faculty needed to account for overestimation***	73
Total	1,594
Panel B: Breakdown of the additional faculty needed to meet STR goals by discipline	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	363
b) Education	242
c) Health & Welfare	189
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	381
e) Agriculture/ Forestry/ Fisheries/ Veterinary	83
Total	1,258

Notes: *The policy norms are adopted from Kenya.

**Assumption: 5% of professors and 10% of academic teaching staff leave each academic year and need to be replaced.

***Assumption: We assume the faculty to be overestimated by 5%.

Sources: Makerere University Fact Book 2019/2020; Published by the Planning and Development Department

Table 7.7 shows the faculty needed to meet the goals for STRs by 2030, given the projected growth in student enrolment due to population growth. The student enrolment is projected to grow at the same rate as the population ages 18 – 21, the age group typically associated with Higher Education, according to the UNPD. The table also shows the number needed to replace the ones projected to have exited teaching each year until 2030 and faculty overestimation.

The results in table 7.7 show that by 2030, there will be a demand for additional 5,785 faculty members. The additional faculty needed to meet the increased enrolment due to population growth in 2030 will be 476 and additional faculty needed to meet STR goals, taking account of population growth is 1,669. If the faculty projected to exit are taken into consideration and replaced, there would be a demand for faculty of 3,566. Lastly, additional faculty needed to account for overestimation is 73. Regarding the specific disciplines, in 2019, Natural Sciences/ Mathematics and Statistics/ Engineering/ Manufacturing/ Construction/ ICTs had 385 faculty members but will require the highest number of additional faculty to meet the STR goals by 2030 at 506. Arts and Humanities/ Social Sciences/ Journalism and Information/ Business Administration/ Law/ Services had a faculty of 422 members, but by 2030 an additional 482 will be needed to meet STR goals, given population growth. Education discipline will also need an additional 321 up from the 104 that was available in 2019.

Table 7.7: Total Additional Faculty Needed to Meet Increased Student Enrolment and STR Goals in 2030

Description	Faculty Needed
Panel A: Total	
a) Additional faculty needed to meet the increased enrolment due to population growth*	476
b) Additional faculty needed to meet STR goals, taking account of population growth**	1,669
c) Additional faculty needed to replace the ones projected to exit during the year***	3,566
d) Additional faculty needed to account for overestimation****	73
Total	5,785
Panel B: Breakdown of the additional faculty needed to meet the increased enrolment due to population growth by discipline	
e) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	138
f) Education	34
g) Health & Welfare	93
h) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	126
i) Agriculture/ Forestry/ Fisheries/ Veterinary	85
Total	476
Panel C: Breakdown of the additional faculty needed to meet STR goals by discipline, given population growth	
a) Arts & Humanities/ Social Sciences/ Journalism & Information/ Business Administration/ Law/ Services	482
b) Education	321
c) Health & Welfare	250

Description	Faculty Needed
d) Natural Sciences/ Mathematics & Statistics/ Engineering/ Manufacturing/ Construction/ ICTs	506
e) Agriculture/ Forestry/ Fisheries/ Veterinary	110
Total	1,669

Notes: *Assumption: Student enrolment will grow annually at the same rate as the population age group 18 – 21 projected by the UNPD.

**The policy goals are adopted from Kenya.

***Assumption: 5% of professors and 10% of academic teaching staff leave each academic year and need to be replaced.

****The faculty is overestimated by 5%.

Sources: Sources: 1) Makerere University Fact Book 2019/2020; Published by the Planning and Development Department; 2) United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022; 3) Commission for University Education, Kenya (2014). Universities Standards and Guidelines 2014

Finally, Table 7.8 presents the female faculty needed to meet faculty-gender ratio goals, both in the baseline year, 2019, and in 2030. It shows that 233 additional female faculty should have been recruited to meet the 2:1 gender ratio in 2019 and 309 will be required in 2030. The faculty gender ratio in 2030 is assumed to be the same as what was observed in the baseline year. The assumption is that the goal for the faculty-gender ratio is achieved by increasing the number of female faculty, rather than decreasing the number of male faculty.

Table 7.8: Additional Female Faculty Needed to Meet Policy Norms for the Faculty-Gender Ratio

Description	Faculty Needed
To have met the goal in 2019 (baseline year)*	580
To meet the goal in 2030**	902

Notes: *The policy norm is adopted from Kenya.

**Assumption: The 2030 faculty projections will reflect the same gender ratio as in the baseline year and that an additional increase in female hiring is needed to meet the policy norm for the faculty gender ratio, rather than decreasing the number of male faculty.

Sources: Makerere University Fact Book 2019/2020; Published by the Planning and Development Department.

The above findings have demonstrated that there are significant challenges ahead in terms of recruiting the faculty needed to meet the policy norms for STRs and gender ratio by 2030, as well as retaining them once recruited. These numbers, however, do not consider other ways in which student enrolment will likely evolve, including the distribution of students across disciplines and the growth in student enrolment due to increases in student enrolment ratios in the future.

7.13.3 Data Collection Challenges

The following challenges were experienced during data collection exercise for the study;

- a) At the time of the study, the publication from NCHE i.e. ‘The state of Higher Education and training’ was not current/up to date. As such, the study made reference to the 2017/2018 edition;
- b) Inadequate research articles on Higher Education; and
- c) Some of the key data required for successful completion of the DAF study were missing. Some of the missing data for faculty that was needed for the DAF model were;
 - i) Faculty distribution by discipline
 - ii) Faculty distribution by rank

- iii) Faculty exit rate (faculty exiting academia and switching positions).

7.13.4 Conclusions

The study highlights a significant increase in Makerere University's student enrolment in response to the growing population and demand for Higher Education. However, the increase in enrolment has not been met with a corresponding increase in faculty, resulting in high STRs that are above the policy norm. Further, the gender imbalance among faculty is not in line with the policy norms. The study projects that a substantial number of additional faculty members are needed in the University to meet the increased enrolment and policy norms. However, it is clear that addressing the University's challenges of high student-teacher ratios and gender imbalance among the faculty will require a concerted effort from all stakeholders to ensure that Higher Education remains accessible, of high quality, and able to meet the needs of students and society.

7.13.5 Recommendations

- a) Short term recommendations;
 - i) Increase funding for Higher Education: Adequate funding for Higher Education institutions is critical in hiring more faculty members to match the growing number of students; and
 - ii) Increase the number of faculty members: HEIs should actively seek to employ more qualified faculty members to address the growing student population. To achieve this, the government and universities should invest in faculty development programmes to build a pipeline of qualified faculty.
- b) Long term recommendations;
 - i) Optimise the use of existing faculty members in terms of teaching, research, and community service;
 - ii) Use technology to enhance teaching to improve the staff-to-student ratio. In addition, technology can also be adopted to collect, manage and access Higher Education data;
 - iii) Encourage international faculty and student exchange programmes to tap into international resources, including faculty members, thus addressing the shortage in faculty and promote diversity and multiculturalism in the country;
 - iv) Encourage public-private partnerships in terms of providing scholarships, funding, and supporting infrastructural development; and
 - v) Apply the DAF methodology and analysis to other universities other than Makerere university and extended it to the national level when data becomes available.

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CHAPTER 8

OVERALL CHALLENGES, CONCLUSIONS AND RECOMMENDATIONS

8.1 Overall Challenges

Generally, the following challenges were encountered when carrying out the study:

- a) Lack of proper coordination of Higher Education data. Some countries had data sources spread across several ministries and government departments;
- b) Data on faculty distribution by disciplines at the national-level was not available from most of the countries. This posed a challenge in calculation of the STRs and the resultant DAF models for these Partner States;
- c) Lack of internal data management, coordination, processes and procedures and among Partner States;
- d) Lack of standard classification of disciplines across HEIs in the region, hindering effective comparisons among Partner States;
- e) Moonlighting or teaching part time in several universities by university lecturers posing a problem of double-counting; and
- f) Lack of/no clear standardized Policy Norms among Partner States.

8.2 Overall Conclusions

The coverage of Higher Education in the East African region is still low. There is excessive masculinisation in Higher Education in the Universities within EAC. Gender inequality persists among faculty academic ranks and student enrolments across Partner States. Moreover, lack of clear policy norms, particularly on enrolments, Student-Teacher Ratios and Gender Balance, constitute a big challenge that would impede any effort to the achievement of all country policy objectives. There's a clear cut under staffing of the Higher Education Institutions in the EAC Partner States. As such, policy and operational interventions are required to address the observed gaps in the African faculty demographics within the EAC.

8.3 Overall Recommendations

To address the diverse data challenges, the study recommends following interventions at regional and national levels.

a) At Regional Level

- i) Awareness creation on the status and importance of Higher Education data collection and management in the region;
- ii) Coordination of development of harmonized data collection and management guidelines in the region;
- iii) Capacity building on use of data collection and management guidelines;
- iv) Development of a regional Higher Education management system; and
- v) Collaboration in data collection and management in the region.

b) At National Level

- i) Provision of legal frameworks to institutionalize collection and sharing of up-to-date Higher Education data from universities to national commissions/councils of Higher Education;
- ii) Establishment of policy guidelines on collection and management of Higher Education data;

- iii) Development of and awareness creation on relevant and clear Higher Education policy norms;
- iv) Establishment of data management offices for continuous update and effective management of Higher Education data management systems in universities and commissions/councils of Higher Education; and
- v) Provision and promotion of continuous capacity building on data handling in universities and commissions/councils of Higher Education.

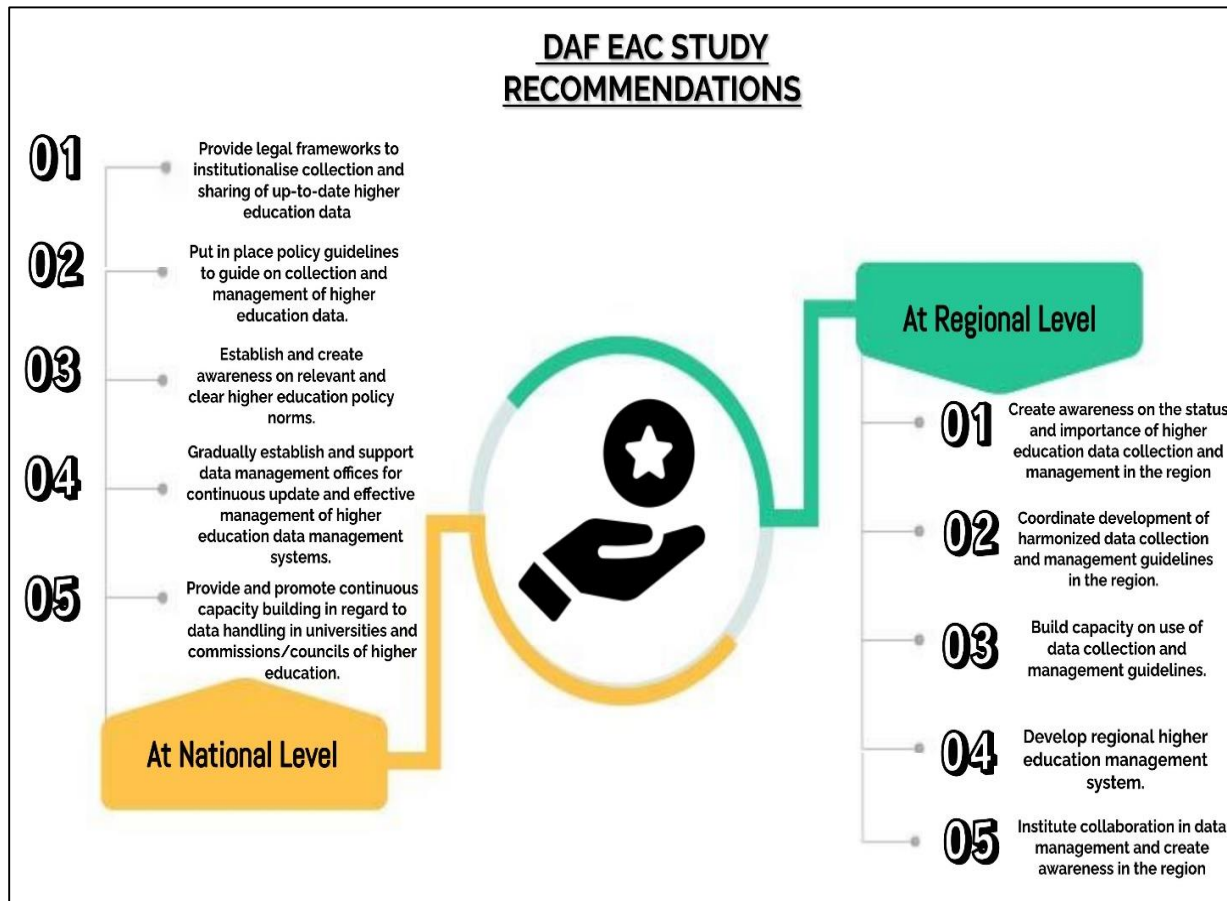
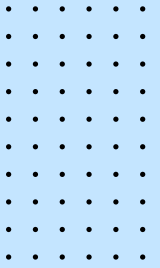


Figure 8.1: DAF-EAC Study Recommendations

Stakeholder Engagement and Co-creation Workshop on the Study of Demographics of African Faculty in East Africa Community (DAF-EAC)

18th May 2023 at Nairobi Safari Club Hotel - Kenya





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