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Mapping of Existing Higher Education Data Sources in Africa

HAQAA2 PDU Development Team

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ABBREVIATIONS

AArU	Association of Arab Universities
AAU	Association of African Universities
ADB	African Development Bank
ADEA	Association for the Development of Education in Africa
AfCFTA	African Continental Free Trade Area
AISA	African Institute in South Africa
AMU	Arab Maghreb Union
AU	African Union
AUC	African Union Commission
AUF	Agence Universitaire de la Francophonie
CAMES	Conseil Africain et Malgache pour l'Enseignement Supérieur
CEMAC	Economic and Monetary Community of Central Africa
CEN-SAD	Community of Sahelo-Saharan States
CESA	Continental Education Strategy for Africa
CHE	Commission for Higher Education
CHEA	Council for Higher Education Accreditation
COMEDAF	Conference of Ministers of Education of the African Union
COMESA	Common Market for East and Southern Africa
CSO	Central Statistical Office
CWUR	Center for World University Rankings
EAC	East African Community
EAQFHE	East African Qualifications Framework for Higher Education
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EdStats	Education Statistics
EHEA	European Higher Education Area
EMIS	Education Management Information Systems
ESS	European Statistical System
ESSA	Education Sub-Saharan Africa
ETER	European Tertiary Education Registry
EU	European Union
EUA	European University Association
GDP	Gross Domestic Product
HAQAA	Harmonization of African Higher Education Quality Assurance and Accreditation

HE	Higher Education
HEI	Higher Education Institution
HEMIS	Higher Education Management Information System
HERANA	Higher Education Research and Advocacy Network in Africa
HSRC	Human Science Research Council
ICT	Information and Communication Technology
IGAD	Intergovernmental Authority on Development
IGO	Inter-Governmental Organizations
ISCED	International Standard Classification of Education
ITS	Information Technology System
IUCEA	Inter-University Council of East Africa
MoE	Ministry of Education
MoHE	Ministry of Higher Education
NEPAD	New Partnership for Africa's Development
NSI	National Statistical Institutes
NSO	National Statistical Office
OECD	Organization for Economic Cooperation and Development
PDU	Policy Data Unit
QA	Quality Assurance
QSWUR	Quacquarelli Symonds World University Rankings
REC	Regional Economic Communities
RI	Regional Integration
SACU	Southern African Customs Union
SADC	Southern African Development Community
SANORD	Southern African – Nordic Centre
SARUA	Southern African Regional Universities Association
SDG	Sustainable Development Goals
SHaSA	Strategy for the Harmonization of Statistics in Africa
SPI	Statistical Performance Indicators
THE	Times Higher Education
UIMS	University Information Management System
UIS	UNESCO Institute of Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization

1. INTRODUCTION TO THE DATA MAPPING PROCESS

Why map data sources?

Data is needed both to provide the context of the present as well as the trends and opportunities in a dynamically changing world so that states can adequately respond to the changing reality around them. Given the inherent nature of policy choices, particularly those in the education sector, seeing the fruits will take a significantly long time and a sustained commitment to choices already made. This requires tremendous resources during the implementation period. Hence, it is imperative that each step of the implementation process be carefully planned and, along the way, reviewed for results consistently. To this end, high-quality and accessible data must be relied upon by all relevant stakeholders. Otherwise, it is inevitable that the policy goals will be difficult to meet and an already scarce resource would have been aimlessly wasted.

Especially for Africa as a continent and the African nations the repel effect of such failure will have a drastic effect in all aspects of life. Hence, as an integral part of higher education (HE) policy making and implementation, the reliability and availability of relevant data have to be prioritized. As it is, the value of HE data in Africa is increasing as the continent gears to implement the African Continental Free Trade Area (AfCFTA) and other high-level HE initiatives and strategies like CESA.

Unfortunately, however, the availability and accessibility of quality and timely HE data on the African continent is minimal and is evidently crippling policy and development discourse. In recognition of this, one of the strategic objectives of CESA is to 'improve management of the education system as well (as) build and enhance capacity for data collection, management, analysis, communication, and use'.[1] Numerous attempts have been made to remedy the problem of HE data availability and accessibility in Africa, albeit with very limited success. As a first step to address this anomaly, this report profiles the five regions in Africa and some selected national jurisdictions with respect to their Higher Education Data capabilities to identify gaps and develop a continental approach to fill such gaps. The mapping exercise will contribute to the establishment of a regional/continental policy data unit (PDU) with a view to better inform the formulation and implementation of African HE policy and Strategy.

Mapping Methodology

The mapping report employed methods including desk research, and focus groups, to scan current initiatives and actors and the role they play in data collection at different levels. Already existing research and literature, relevant databases, reports, and institutions and organizations were used as the primary sources of the information. Relevant experiences from other jurisdictions outside of Africa are also explored and examples of data collection at the regional level, linked to regional policy processes, are studied, as a means of comparison. The overlapping multilevel institutional and legal frameworks of continental, regional, and national definition and implementation of HE policies are analyzed in order to articulate the data collection processes existing at each level.

1. AUC CESA Strategic Objective 11, in addition to being one of the strategic objectives of CESA, the need for monitoring and evaluation of the strategies envisioned in CESA makes an effective and systematic data collection and management at the continental level mandatory.

Mapping Framework

The mapping framework will be predicated on the basic functions of a statistical system which are to gather data, organize data, interpret data and utilize data.[2] This will be done in the context of a basic policy cycle where data is crucial at all steps of the policy cycle. We trace policy imperatives from regional agreements right through to their implementation on the ground and examine if there are any challenges, gaps, caveats, and opportunities in the current state of play in the data collection landscape in African higher education systems. Higher education data in Africa are primarily collected by institutions at the national level. More specifically, data collection is done by a national statistics body/agency, through census along with other socio-economic and demographic data and/or under ministries or agencies tasked with the administration of the education sector in general or that of higher education in particular. However, due to limiting factors, the current mapping exercise will mainly focus on data collections, or efforts thereof, done at the regional level. This notwithstanding selected international data collection mechanisms and once off data collection initiatives are also covered in the report with two particular objectives in mind: First, to map available data collections in the region. And secondly, to assess what data relevant for African HE in general and CESA Objective 9 in particular is collected so far and examine what caveats may exist.

Based on the evidence that has been gathered through the literature review and continuing engagements in focus groups and questionnaires, evidence has been classified according to the level of action (systemic vs systematic) and the distance from planning to outcomes. This can be summarized in a matrix shown below.

	Systemic Issues	Systematic Issues
Literature Review (Data Issues)	Data Issues- Relevance, Reliability/Completeness, Accuracy Timeliness/Relevance	Data Collection Issues- Operational, Resources Methodology, Process etc.
Focus Groups **Interviews** **Questionnaires** **(Policy Issues)**	Political, Legal Technological, Economic	Structural, Functional, Organisational Issues

Each region is going to be compared according to the classifications shown above to explain the differences from a concrete empirical basis, helping to identify challenges and opportunities in each subregion. This will be used to justify investments that will be made to address those challenges and finally a roadmap shall be made that is going to articulate different approaches to data collection per each region. The logic that proceeds from the key data analysis is that it is difficult to control data collection processes and outputs if there are practical issues outside of the HEMIS systems control. So, in a typical strategic matrix we have the vertical axis indicating the distance from planning at the bottom to the output at the top. The horizontal axis shows systemic issues to systematic issues in a typical hierarchy of issues above the HEMIS system at a regional level as well as systematic issues that are inside the HEMIS system at a national level.

This matrix will be used to analyse policy (Section 2) and data (Section 3-6) issues in continental, regional and national HEMIS systems (Section 2 -7), as well as creating a region-specific strategic intervention towards data collection in these regions (Section 8).

2. Kasser, J. 2019 The Systems Thinker's Toolbox: Tools for managing complexity, 1st Edition, Taylor and Francis. Pp 67

2. CONTINENTAL POLICY BACKGROUND

The last few decades have seen a significant rise and expansion both in the number of higher education institutions (HEIs) and students enrolling in such institutions in Africa. With globalization and the need for a qualified and nationally and internationally competent human resource, the demand for access to quality HE will rise even more. African states along with their continental Organization are cognizant of this reality as a response to which significant focus is being made to the development of the education sector as a whole and HE particularly. This focus has led to the adoption of policies and strategies by individual nation-states, the Regional Economic Communities (RECs), and the AU to realize specific objectives that will help improve African HE.

Governments around the world are giving priority to data in their efforts to improve the services they provide to their citizens and to determine how best to adjust their policies to take advantage of new possibilities. Furthermore, the effective implementation and assessment of global, regional, and sub-regional strategies and policies make data collection and management beyond the national level important. In the African context, education data availability and access remains a persisting problem and requires a coordinated and systemic approach to solving it if HE is to play its indispensable role in the Continent's developmental aspirations.

Efforts at solving the African HE data problem must be informed by and contribute to the realization of goals and strategies set at the regional and continental level. Particularly, these efforts need to be rooted into the wider continental developmental and integration processes like Agenda 2063 (AUC, 2015), the continental free trade agreement, the Protocol to the Treaty Establishing the African Economic Community Relating to Free Movement of Persons, Right of Residence and Right of Establishment (AUC, 2018) and more importantly, the CESA (2016-25).

Agenda 2063, a forward-looking 50-year continental framework, is founded on the Pan-African vision of "an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the international arena". This shared strategic framework enshrines seven aspirations covering a wide range of socio-economic and political matters of both national and continental relevance. The first aspiration – 'A prosperous Africa based on inclusive growth and sustainable development' – includes, among other things, the education goal where "Well educated and skilled citizens, underpinned by science, technology, and innovation for a knowledge society is the norm and no child misses school due to poverty or any form of discrimination".

To help implement the goals of Agenda 2063 and in an acknowledgment that realization of its visions hinges on the availability of competent and qualified human resources, the AU adopted the Continental Education Strategy for Africa (CESA 2016-25) detailing a concrete set of actions under twelve strategic objectives. Among the 12 strategic objectives of CESA, which cover a very wide spectrum of dimensions of education development in Africa, are an expansion of higher education and research, education management systems, and data analysis. Particularly CESA Strategic Objective 9 aims to:

"Revitalize and expand tertiary education, research and innovation to address continental challenges and promote global competitiveness."

Essential in this endeavor is evidence-based policy decision in the expansion and improvement of African tertiary education. It is important that policy choices at the national, regional and continental level assess and respond to the peculiar needs of African countries and the continent while at the same time preparing the continent's human resource to be able to compete in an increasingly globalized and knowledge-based economy. This can only be achieved through a continued process of monitoring and evaluation of policy choices at the different levels and proactively adopting corrective measures so as to meet the objectives set in CESA. This requires, among other things, the collection, dissemination and use of timely and relevant HE data at the different levels of policy making in the continent.

It is for this reason that CESA Strategic Objective 11 aims to:

> "Build and enhance capacity for data collection, management, analysis, communication, and improve the management of the education system as well as the statistical tool, through capacity building for data collection, management, analysis, communication, and usage.
>
> a. Establish regional and continental Education Management Information Systems (EMIS) and education observatories
>
> b. Produce and disseminate regular publications, such as digests and outlooks
>
> c. Identify and provide support to educational think tanks
>
> d. Support educational research, dissemination, and communication."

In order to facilitate the monitoring and evaluation of the implementation of CESA's strategic objectives, the AU adopted in March 2018 the CESA indicator manuals.[3] The indicator manuals are aimed at empowering education managers both inside and outside of African Ministries responsible for Education to perform their jobs more effectively. It is stated that the selection of indicators for inclusion under the CESA 16-25 Monitoring and Evaluation Framework has been done with 'participation of Member States officials, representatives from Regional Economic Communities, key agencies working in education in Africa including ADEA, UNESCO and special interest groups, under the auspices of the CESA Education Planning Advisory group'.[4] The indicator manuals are intended to be used, among other things, to measure, monitor, and track education performance in member states in light of the CESA objectives.

As such, the manual contains 8 distinct indicators for measuring countries performance in relation to CESA strategic objective 9 – tertiary education. It also provides for the definition, purpose, calculation method as well as method of data collection proposed for each indicator.

The following table presents a summary of the indicators relevant for HE along with the data required and the source of data at the national level.

3. A**U, CESA Indicators Manual. March 2018. Addis Ababa, Ethiopia.** https://community.edu-au.org/downloads/Guides_and_Toolkits/CESA_Indicators_ManualCESA_Indicators_Manual_final_July_en.pdf
4**. Ibid P.2**

Table 1: AU CESA Indicators Manual HE Indicators

HE INDICATOR	DATA REQUIRED	DATA SOURCE
Number of earned doctoral degrees by field (This indicator is to be disaggregated by field, age and gender)	Total number of earned doctoral degrees by given year	HEMIS- Ministry responsible for Education
Expenditure on Research and Development as a Percentage of GDP	Gross domestic expenditure on R&D	HEMIS/NSO
	Gross Domestic Product	MOF/NSO
Enrollment of Students in Higher and Tertiary Education per 100,000 Inhabitants (This indicator is to be disaggregated by age and gender.)	Total number of full time students enrolled in higher and tertiary education by given year	HEMIS- Ministry of Education (Embassies abroad etc)/NSO
	Total population by a given year	CSO/NSO
Inbound Mobility Ratio (This indicator is to be disaggregated by country and region.)	Students from other countries studying in higher and tertiary education in the country	EMIS
	Total number of students in higher and tertiary education	EMIS
Outbound Mobility Ratio (This indicator is to be disaggregated by country and region.)	Number of students in higher and tertiary education studying abroad	EMIS
	Number of students in higher and tertiary education studying abroad	EMIS
The quality of graduates and their employability in the world economy (This indicator can be disaggregated by gender, tertiary institution, and geography.)	Location of graduate students	Ministry responsible for education/Alumni Associations
	Opinions of industry	Ministry of Industry/Trade or NSO
Conducive environment for research and innovation through the provision of adequate infrastructure and resources (This indicator is to be disaggregated by tertiary institution, geography and administrative level.)	Equipment, tools, policies, resources for Research and Innovation	HEMIS
	Norms and Standards, Policy Guidelines, International Standards	Policy Unit – Ministry responsible for Education
Proportion of Learners enrolled in: a. Distance Education, b. Open Learning, c. E-Learning Programmes (This indicator may be disaggregated by gender.)	Number of learners enrolled in Distance Education or Open Learning or E-Learning Programme	HEMIS-Ministry responsible for Education/NSO
	Number of Learners in Higher and Tertiary education	HEMIS- Ministry responsible for Education/ NSO

Source: Developed from the CESA Indicator Manual by authors.

In addition to the eight indicators specific to CESA strategic objective 9, the indicators for other CESA objectives contained in the indicator manuals are also to be disaggregated for data collection purposes and some of them contain indicators relevant for monitoring the performance of HEIs in the continent. Moreover, the indicator manuals also contain additional indicators pertaining to objectives set in Agenda 2063 like Aspiration 7: Africa with a strong cultural identity, common heritage, values and as well as finance indicators.

Table 2: HE related indicators under the other CESA Strategic Objectives

Disaggregated indicator	Type of disaggregation for the indicator	Data required
Indicators for other CESA Strategic Objectives		
Existence of a National Qualifications Framework	lower Secondary, Upper Secondary and Tertiary Education.	National Qualifications Framework
Percentage Distribution of Tertiary Graduates by field of study	gender, field of study, type of institution	Number of graduates in field of study from higher and tertiary education Total number of graduates in higher and tertiary education
Gender Parity Index for Gross Enrolment Ratio	urban and rural, geographic sub-division and level of education. The focus is on Secondary and Tertiary education in the post 2015 era	Male and female values of a given indicator
Percentage of Female Teachers	geographical location (region, urban/rural), public and private and level of education	Number of female teachers and Total number of teachers
Girls' dropout rate per reason of drop out	reason of drop out, level of education and by geographical location (region, urban/rural), public and private. The focus is on primary, secondary, tertiary.	Number of girls who drop out by reason and Total number of girls enrolled
Percentage of girls enrolled in STEM	level of education and by geographical location (region, urban/rural), public and private. The focus is on primary, secondary, tertiary.	Number of girls enrolled in STEM and Total number of enrolled in STEM
Percentage of teachers/lecturers qualified to teach in Science or Mathematics according to national standards	Gender and by level of education. The focus here is on Secondary and Tertiary Education.	Number certified teachers by level and Total number of teachers by level
Agenda 2063 Aspiration 7		
Percentage of Learners learning an African language as a subject	level of education (pre-primary, primary and secondary) and by type of higher and tertiary institution (teacher training colleges, technical colleges and universities)	Number of students taking an indigenous language as a curriculum subject and Total Enrolment
Finance Indicators[5]		
Public Expenditure on Education as a Percentage of Total Government Expenditure	national level only.	Government expenditure on education and Total government expenditure
Public Current Expenditure on Education as a Percentage of Total Education Expenditure by level	national level only.	Current Expenditure on Education and Government Expenditure on Education
Public Expenditure on Education as a Percentage of GDP	primary and secondary levels of education.	Total government expenditure on education and Gross Domestic Product

5. It is important to note that even though there is no direct finance indicator for tertiary education in the manuals, it can quite easily be calculated based on data gathered using the finance indicators adopted.

These indicators are particular to the CESA tertiary education strategic objective and, may require revision and addition of more indicators pertinent for monitoring and evaluation of other continental initiatives like the African HE harmonization in particular and the continental integration process in general. Such initiatives will certainly continue even beyond the completion of CESA. More importantly though, making use of the indicators for the purposes of M&E of CESA requires a) a capable data collection mechanism at the national – or even regional – level and, b) a functioning link with a continental mechanism to which data from national data sources can be transferred.

The HAQAA 2 Initiative, under the auspices of the Africa-EU Partnership, aims to assist the implementation of the strategies and goals set under AUC's CESA. As such the initiative is working towards the establishment of a mechanism for data collection in the continent that will play a critical role in solving the HE data problems in Africa and facilitates for an improved M&E of CESA and, ultimately improving policymaking in the African HE sector. The current mapping exercise on HE data sources in Africa is, therefore, underpinned on this policy background and a first step towards the establishment of such a mechanism.

3. AN OVERVIEW OF REGIONAL DATA SOURCES AND INITIATIVES IN AFRICA

3.1. Introduction

There are 8 regional economic communities recognized by the African Union. This mapping study only focuses on selected five regions and/or RECs. The selection is primarily based on the overall activity of a REC in a particular region in relation to the regionalization of higher education. Secondary consideration is made for regions where there isn't one outstanding REC that is undertaking the regionalization process. Overlapping membership and representation of jurisdictions in one or the other REC is also taken into account. As an example, all member countries of CEN-SAD are participating in one or more other regional economic communities. On the other hand, there is little regionalization in higher education, much less higher education data collection, in IGAD and COMESA. As such regional communities like COMESA, CEN-SAD and IGAD are left out of the mapping report.

3.2. Southern African Region/SADC HE Data Collection Initiatives

The Southern African Development Community (SADC) comprises Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. The Protocol on Education and Training, which was signed in 1997 and came into force in July 2000, provides the main framework for cooperation in the field of education and training in the region. Articles 7 and 8 of this Protocol explicitly refer to the sector of higher education and training, as well as research and development. Article 7(D)(h) in particular identifies the establishment of a regional database as one of the spheres of cooperation in higher education in the region. SADC Ministers of Education have also adopted in 2010 SADC EMIS Norms and Standards. The norms and standards were intended to serve two broad purposes: to guide countries in developing or improving and maintaining national appropriate, comprehensive and sustainable education management information systems; and facilitate harmonization of education management information as systems to contribute towards the development of regional and continental EMIS networks.

On the backdrop of the efforts at the REC level, the Southern African Regional Universities Association (SARUA) came into existence in 2007. SARUA remains to be the main actor in the SADC higher education sector.

Another sub-regional arrangement in the region is the Southern African Customs Union (SACU) composed of Botswana, Lesotho, Namibia, South Africa, and Swaziland. HE in SACU is at a higher level of harmonization than the remaining regions of Africa. SACU countries currently use HEMIS to collect HE data.

Current State of HE data collection in the region

As part of the mapping exercise, a focus group facilitated by HAQAA 2 was organized to assess the current state of HE data collection in SADC region. The focus group was organized under the auspices of the regional university association – SARUA. The discussions in the focus group attested to the current state of initiatives and activities being undertaken in order to improved HE data collection in the region.

SARUA has been actively engaged with SADC in establishing the groundwork for a REC wide HEMIS capability. Representations have been made to the SADC Higher Education Ministers and buy-in has been secured for a SADC EMIS system. Recent follow up meetings have been held where a working group between SADC and SADC HEMIS experts can convene to put the groundwork for a SADC HEMIS. It will begin meeting soon to drive the formation of an embryonic SADC database.

On the other hand, the SACU EMIS, though not formally connected, serves as a coherent state of statistics that deliver coverage and depth of data that enables monitoring of SDG 4 in the region. They are called SACU HEMIS as each of the 5 countries is closely affiliated to the customs union and share similar information technology system from the same provider.

The SACU HEMIS is said to be one of the more comprehensive and promising management information systems. However, it is inaccessible for the wider public and only those with login authorization can access the data on the system. This limits the usefulness of the system for researchers, policy makers and the wider public. As it stands now, it has an annual statistical data release that lags by two years and avails data through websites, and extracts for reports to their respective higher education councils. SACU HEMIS data is collected annually as part of government policies in each of the 5 countries. The dataset mainly encompasses data on SDG4 indicators and some more including funding, faculty and frameworks.

Following the discussion, the focus group participants identified the following challenges that currently exist in the region in relation to HE data collection: Data-less planning constraining the development of Higher Education in the region; The data gap in the SADC region is a known unknown. SADC University data is varied in its form and shape with others running functional UMIS while others still collect data on spreadsheets. Limited ITS capacity at institutional level will have to be mitigated by upgrading them over time. Private University data is difficult to collect due to commercial interests

Definitions on data are different across countries (Age Profile, Gender Profile, Attainment Status, Graduates, CESM categories) and will have to be harmonized at regional level. More implementation work is needed with respect to SADC norms and standards on HEI Data. Data has to begin to be collected to compare systems and begin to see how to scope the structure and operations of the PDU.

To meet these challenges, the focus group participants forwarded the following conclusions as well as potential opportunities and solutions:

- There is an opportunity to integrate SADC data systems through the IT provider channel
- There will be a need to harmonize definitions and categories across data sets. Definitions have to be set up upfront “People like to criticize a document”.
- Private University data does not include ISCED categories, and they don’t comply to National HEMIS systems;
- SADC data collection is at varied stages and capacity building will have to include individual, institutional, national and regional levels to create a regional data base, and
- the need to consistently develop more means to generate engagement to drive the data agenda forward.

3.3. West Africa/ECOWAS Higher Education Data Initiatives

West Africa is home to one of the most organized and considerably functional Regional Economic Communities (RECs) in Africa – the Economic Community of West African States (ECOWAS). ECOWAS was established in 1975 under the Lagos Treaty, with the stated aim of promoting socio economic integration and collective self-sufficiency of the member countries. Its membership comprises Benin, Burkina Faso, Cape Verde, The Gambia, Ghana, Guinea, Guinea-Bissau, Côte d'Ivoire, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo. The ECOWAS revised treaty of 1992 broadened the REC's mandate and, under its Article 27, calls on member states to harmonize the educational systems in the region. Particularly, key objective of ECOWAS's cooperation framework in Higher Education is provided under the 2002 Protocol on Education and Training and the General Convention on the recognition and equivalence of degrees, diplomas and certificates and other qualifications. The protocol in particular, identifies under article 7(D)(h), as one of the areas of cooperation, the creation of a data bank to facilitate the dissemination of information between universities in member states.

Furthermore, with the aim of improving and standardizing education information collection in the region, ECOWAS Ministers of Education adopted in 2012 the ECOWAS EMIS Norms and Standards Assessment Framework. An important and relatively successful initiative led by the African Union has been the roll-out of a continent-wide initiative on EMIS norms and standards, supported by the ADEA Working Group on Education Management and Policy Support. The initiative sets minimum levels of norms and standards to guide countries in improving their EMIS in order to contribute to regional and continental EMIS networking. The process in the ECOWAS region began following an EMIS awareness-raising workshop in Lome in 2010. The region conducted an EMIS assessment survey in the same year and identified obstacles such as weak institutional arrangement, inadequate skills and a lack of coordination among the different ministries in charge of education and training involved in the production of education statistics. The ECOWAS norms and standards were developed and adopted in 2011 and were validated by the ECOWAS ministers in charge of education and training in Abuja in October 2012.

Another important actor in assessing the HE regionalization process in Western Africa is the overlapping role plaid by other entities in addition to the ECOWAS, like African and Malagasy Council for Higher Education (CAMES). CAMES is an intergovernmental organization consisting of HEIs from 19 sub-Saharan francophone countries, including member states of the ECOWAS. The HE cooperation initiatives between francophone ECOWAS member states is largely undertaken by CAMES and this has its own implication for HE data collection in the region.

Current state of HE data collection in the region

Beyond the legal and policy frameworks in the region, this mapping report also explored the current state of HE data collection through a focus group organized the auspices of the AAU and facilitated by HAQAA II. More than 20 participants were present at the focus group representing AAU, Kogi State University (*Nigeria*), International Open University (*The Gambia*), Ghana Tertiary Education Commission, Afrobarometer (*Continental*), African Research Universities Alliance (*Regional*), The University of The Bamenda (*Cameroon*),

Université Gaston Berger (*Senegal*), Université Abdou Moumouni de Niamey (*Niger*), University of Benin (*Nigeria*), and Universite Cheikh Anta Diop (*Senegal*).

It is gathered from the focus group discussion that, in the absence of a data collection mandate at the regional level and due to lack of harmonized approach to data collection, almost all data collection in the region is done at the national level. However, the Ghana Tertiary Education Commission (GTEC) representative indicated that the Ministry of Education in Ghana would frequently ask GTEC to complete a template at the request of the ECOWAS Secretariat. On the other hand, CAMES has also been involved in HE data collection from francophone West African states. The participants have highlighted that CAMES gathers information on promotion of academics and accreditation of programs adding that the data collections are not done proactively and are usually several years behind. Besides these instances, HE data in the region is is primarily collected and consumed by national institutions.

In the Gambia data collection at the national level is done by two institutions – the Ministry of Higher Education and the Accrediting/Quality Assurance institution for the Gambia educational institutions. The accreditation body is responsible for collecting data on higher education institutions and the focus is on the relevance of higher education and the TVET programs. The Gambia Ministry of Education focuses on data to support policy decisions. For example, it was stated that when Gambia's new development plan was being developed, data was collected by the government of the Gambia as an input to this process.

In Senegal, data collection is primarily done by the national statistics and demographic agency which collects demographic and socio-economic data. For higher education, it is done through a system called Campusen. sn. It was also stated that the ICT Universities have procedures for data collection and are more interested in pedagogical data on students and lecturers. There are also initiatives such as the National Higher Education Management System that seeks to integrate information systems at the national level.

The National Universities Commission (NUC) in Nigeria focuses on collecting data on all the universities in Nigeria. The data collected is diverse and comprehensive. It was highlighted that there needs to be a regionally harmonized data definition to enable collection of comparable data. In Cameroon, the National Quality Assurance agency and the department of statistics in the Ministry of Higher Education are responsible for higher education-related data collection.

In Ghana, GTEC collects data from higher education institutions for accreditation purposes and as an input for the ministry of tertiary education. It was also stated that currently GTEC is prioritizing establishment of Centralized Applications and Processing Service (CAPS) and Tertiary Education Management Information System (TEMIS).

In terms of cooperation and coordination at the regional level and between the national systems, the participants highlighted several challenges hindering such cooperation and coordination. The two main challenges raised are the lack of regional policy guiding such coordination and the absence of agreed definition or set of criteria about data collection. Additionally, the participants identified the following challenges:

- lack of infrastructure to collect data through surveys and other methods;
- universities unwillingness to cooperate in national data collection;
- students lack of response for survey questions;
- lack of funding to conduct surveys, and
- Difficulty to collect certain types of data, for e.g. patents.

One glaring gap observed from the West African focus group is in relation to the extent to which CESA and AU's HE Regionalization initiatives are taken into account in HE data collection efforts in the region. Not only was there no reflection from the participants on this point but also many of the participants were not aware of the continental strategy. This highlights the importance of undertaking significant intervention about the nature and content of the CESA as well as what is expected of member countries in order for its strategic objectives to be implemented.

Finally, the focus group participants identified the following courses of actions to be taken going forward in order to create a better data exchange ecosystem in the region.

- Adoption of a regional data collection policy and strategy at the REC level,
- Adoption of a clear direction by ECOWAS head of states directing member states to report their data,
- developing a clear set of criteria and definition for data collection,
- devising strategies how to incentive responsiveness for surveys, and
- Provision of capacity assistance to improve data collection infrastructure.

3.4. Northern Africa Higher Education Data Initiatives

Unlike the other African Regions, there is no REC of Northern African states. Regional initiatives on higher education are conducted under the auspices of the Association of Arab Universities (AArU), which works under the general framework of the Arab League. AArU has been working on higher education policy harmonization initiatives, though not limited to only the Arab states of Northern Africa. Another higher education initiative, similarly covering the entire Arab region, is the network for quality assurance in higher education that was established in 2007. Therefore, due to the lack of any meaningful higher education policy initiatives particular to northern Africa, data collection in the region for the purposes of implementation of continental strategies can best be analyzed at the National level. The current mapping exercise has covered data collections made in Northern African states.

Current State of HE Data Collection in the Region

The state of HE data collection in North Africa remains a largely national affair. The various national systems in the region have adopted their own way of collecting and disseminating data. Information gathered through a focus group of experts in the region indicates that the data collection is made on yearly basis and made available to the public in various ways. The focus group participants included former and current university presidents, deans, professors and a director for research and innovation from HE ministry. In total, 11 participants from Egypt (4), Libya (1), Tunisia (1), Algeria (1), Morocco (3) and Mauritania (1) took part in the focus group. The focus group was facilitated by HAQAA 2 in coordination with the AAU and OBREAL Global. The secretary general of the AAU and other members of the two institutions also took part in the discussion.

The focus group participants highlighted two important messages. First, the lack of coordination and cooperation between the different HE systems in the region was highlighted and, the need for continued similar engagements was stressed on. Secondly, the participants focused on sharing the state of HE data collection in their respective national systems. For example, it was stated that the Egyptian HE landscape

comprises different categories of universities, including the traditional public universities, a new category of National universities that have a community vocation, the Private universities and the International universities. Oversight of these universities is assured through different Supreme Councils that ensure respect for quality in HE. Alongside these, the Egyptian quality assurance agency NAQAAE also collects relevant data and oversees the quality of HE in the country. Therefore, Egypt's HE data is primarily concentrated in the different universities with varying levels of performance. In terms of using data for policy making, the Supreme Councils assures the data pooling for a national perspective.

In Morocco, Data collected from universities is compiled and analyzed by the Moroccan MoHE Directotate for Strategy and Information Systems, and is available to the public on the website https://www.enssup.gov.ma/storage/statistique/النعليم%20العالي%20بالأرقام%202018-2019.pdf. An annual and fairly complete compilation is issued each year in Arabic and French, entitled L'Enseignement Supérieur en chiffres, which allows comparison of the current academic year with previous years. The last issue of the compilation is for the year 2022.

The data collected concerns:

- The list of Schools and institutes:
  - In Public Universities
  - Higher Specialized Schools
  - In Public-Private University
  - Private institutions of higher education
- On students:
  - Number of New students
  - Number of new students /area of study
  - All students/area of study
  - Total number of registered students
  - Number of students/university
- On faculty:
  - Full-time faculty
  - Full-time administrative staff
- Total number of graduated students
- Registered students with special needs
- Graduated students with special needs

MoHE also maintains the MASAR platform which maintains the record of each student from pre-primary entry level to university graduation.

A critical analysis shows that in general, the data is available to the public only as pdf files, but access is open. An information system exists within the MoHE, but is not unified at the level of universities, where the data originates. Thus, the only public source of national HE data in Morocco is that provided by the MoHE. Some other data (as facts and figures) are also available by universities regarding their own data.

The data is publicly available for free as a pdf file. It is quite relevant for macro and meso analysis. However, the

data lacks for example geographic level, type of education: full time, part time, distance learning, standardized fields of study eg, the UNESCO International Standard Classification of Education. Such standardization is important in making regional or international comparisons.

The sustainability of these data depends on their eventual compilation at a micro level and their availability in other formats. Data is also lacking concerning employability and insertion in the job market. However, gross youth employability data is available from the High Commission for Plan.

Presenting the state of HE data collection in his country, the participant from Tunisia noted that the situation is very similar to that in Morocco. Data collected at University level is compiled by the MoHE and made available to the public in Arabic and French, with an English summary, on its website.

Data is available under the rubric *Enseignement supérieur et recherche scientifique en chiffres*, an annual publication. The oldest available data are from the academic year 2011-2012 and the most recent are dated 2021-2022. Five-year evolution tables allow for comparisons.

Included in the data are financial resources (MoHE Budget, Share of GDP), Human resources, Universities (Public, Higher Schools, Private Schools), Student numbers (Female students, Male students, Foreign students), Diplomas delivered (Bachelor – Private/Public, Master – Private/Public), Students/Area of study/ male/female/Total; Foreign students/Sector: five-year evolution; Number of new students/area of study/ university; All students in public universities/sector/university; All students in public universities/sector/ governorate; All students in public universities/diploma/university; All students in private institutes/diploma/ governorate; All students in public universities/area of study/diploma; All students in private institutes/area of study/Diploma ; All students in public universities /university/School; All students in public universities / university/School; All students in public universities /School/Governorate; All teaching staff/rank/status; Full-time teaching staff/rank/university; Administrative/Technical personnel/ Type; Diplomas delivered by Public sector/supervising ministry/Level; Diplomas delivered by private sector/Area of study/Type; Scientific Research (Research Units/Area of research/Number of researchers/Rank, Research centers/ministry); Social Services (Social Services Offices/Number of scholarships, Student loans, Number of resident students/SS Office/Governorate, Meals served per day/Governorate, Health service contracts/SS Office/governorate) and, Number of student active in clubs/SS Office/Type of club. Like that of the Moroccan data, the Tunisian HE statitics data base is also missing employability and insertion data.

In Libya, there is a modest attempt at systematizing HE data collection. However, the system still needs substantial development, especially in terms of data collection and analysis. The Ministry of Higher Education has recently begun to reactivate the Information and Data Center (IDC), which is not yet in a position to offer reliable data. The IDC is the official platform for providing relevant data related to the HE system. However, it is stated that their data is not readily accessible at the moment. Currently, the data is only available in paper forms, and is challenging to access it and provide sound analysis. Furthermore, accessing the data requires getting in touch with the IDC, a process the informant described as 'a very prolonged process and can be relentless.' Universities and other HE institutions conduct their own data collection and storage. This data too is not digitalized yet. It is stated that there are efforts to create electronic versions of it. Further, to access the data, it takes individual efforts to officially contact each institution separately. This is because each institution keeps its own data. The IDC functions to link them at a hub. This is a good chance to create sustainable data collection practices in the country and further coordinate with regional mechanisms.

Similarly, the experience in the remaining Northern African states shows that HE data is made available as an annual statistical report either by national statistics institutions (e.g. Egypt and Algeria) or Ministries of HE (for e.g. Mauritania). Though the annual reports are made available online on the relevant institutions' websites, some are not always accessible (Algeria) while in the case of Tunisia there are only limited HE statistics online. On the other hand, HE data collection in Mauritania seems to lag significantly behind. It was pointed out that, since the announcement of a first Statistical Annals of Mauritanian HE, announced in 2015 by MoHE, progress has been limited.

At the conclusion of the meeting participants expressed their satisfaction with the initiative to share information and capacity in the North Africa region and recommended that the momentum created by the Focus Group meeting be maintained to allow for further exchanges and cooperation focused on common issues. The importance of reliable data in determining policy was stressed and the exchange and sharing of data and databases was encouraged as a means of common social development.

A call was made for closer attention to employability, through orientation and the promotion of marketplace skills and cooperation with industry, as well as through curriculum development. A closer follow-up of graduate insertion into the economy was also recommended.

All in all, the lack of regional instruments and institutions on HE in general and data collection, in particular, typify this region. At the same time, the national systems in the region exhibit similarity in how data collection is managed at the national level. As such, interventions aimed at solving the data problem in the region can be designed to fill the gaps observed at the regional level and use the existing domestic systems as a building block towards more harmonized national data collection mechanisms.

3.5. Eastern Africa/IUCEA Data Initiatives

According to the African Union the Eastern Africa region comprises 14 member states: Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, South Sudan, Tanzania, and Uganda. The most effective and functional REC in the region is the East African Community (EAC). However, only 6 countries from the region are members of the EAC. The remaining countries are members to one or more of a variety of other RECs including COMESA, IGAD and SADC. Therefore, since the case of some of the countries is covered under the section on SADC; and since the other RECs are excluded from the scope of the mapping report for luck of a meaningful regional activity on HE, this section will focus on EAC member countries.

The Treaty for the Establishment of EAC envisions the harmonization of higher education and training systems in member countries in order to enhance the development of human resources, and mobility of people, labor, and services. Article 5 (1) of the Treaty Establishing the East African Community states the objectives of the Community as: "to develop policies and programs aimed at widening and deepening co-operation among the Partner States in political, economic, social and cultural fields, research and technology, defense, security and legal and judicial affairs, for their mutual benefit." The EAC Treaty provides an elaborate legal framework for cooperation in the areas of Education and Training. Specifically, Article 102 of the EAC Treaty provides for education and training as follows:

1. ‘In order to promote the achievement of the objectives of the EAC as set out in Article 5 of the EAC Treaty, the Partner States agree to undertake concerted measures to foster co-operation in education and training within the EAC.

2. The Partner States shall, with respect to education and training:

(a) co-ordinate their human resources development policies and programmes;

(b) strengthen existing and where necessary establish new common research and training institutions;

(c) co-operate in industrial training;

(d) develop such common programmes in basic, intermediary and tertiary education and a general programme for adult and continuing education in the Partner States as would promote the emergence of well trained personnel in all sectors relevant to the aims and objectives of the EAC;

(e) harmonise curricula, examination, certification and accreditation of education and training institutions in the Partner States through the joint action of their relevant national bodies charged with the preparation of such curricula;

(f) revive and enhance the activities of the Inter-University Council for East Africa (emphasis added);

(g) encourage and support the mobility of students and teachers within the EAC;

(h) exchange information and experience on issues common to the educational systems of the Partner States (emphasis added);

(i) collaborate in putting in place education and training programmes for people with special needs and other disadvantaged groups;

(j) encourage and support the participation of the private sector in the development of human resources through education and training; and

(k) Identify and develop centers of excellence in the region including universities.’

Pursuant to this, the Inter-University Council for Eastern Africa (IUCEA) is enabled to play a critical role in the development and harmonization of HE in the region. Its mandates are clearly stipulated under the IUCEA Protocol 2002 and the IUCEA Act 2009. These two are the legal instruments that mainstreamed IUCEA into the EAC Framework. It currently has member universities from the 6 EAC countries and various areas of cooperation among these universities.

The 2009 IUCEA Act under Article 5 outlines the principal objectives for IUCEA, which are, among other things, to strengthen regional communication through networks; provide a forum for discussion on a wide range of academic and other matters relating to higher education in East Africa including assisting member universities with their academic staff in governance and management activities as well as develop quality assurance processes. These mandates require a significant level of coordination and cooperation between its members. One area of cooperation that cannot be avoided is coordination in the collection and management of higher education data in the region.

In recognition of this, the functions of IUCEA, provided for in Section 6 of IUCEA Act of 2009, states that the Council shall ensure *development of a comprehensive electronic network linking member universities* for use in supporting and promoting new methods of teaching and learning, information dissemination by the council and between member universities and research partners (Section 6(a)); and Section 6(b)(iv) provides that the council shall promote collaborative research and development programmes including helping to *establish a database on research capacity and current activities in the East African Community.* This gives the IUCEA the authority and legal mandate to develop a Regional Higher Education data collection mechanism such as a HE Information Management System (HEIMS). The IUCEA Strategic Plan for 2016-2021 also envisages a regional policy for Information and Data Management to be developed.

Other Academic regulatory activities undertaken by the IUCEA that might have some relevance to the question of data collection include: The development of a policy framework and principles for quality assurance in higher education in East Africa; Development of Regional quality assurance instruments contained in the 'Handbook for Quality Assurance in Higher Education; The establishment of the East African Quality assurance framework; the development of the East African Qualifications Framework for Higher Education (EAQFHE); A student mobility policy to enhance cross-border student mobility; and Benchmarks for academic programs, which have contributed to the emergence of the East African Quality Assurance system.

Current state of data collection initiatives in the region

Unlike the other regions covered in this mapping report, efforts to organize a focus group facilitated by HAQAA II and the IUCEA on the state of data initiatives in the region didn't materialize for various reasons. One of the reasons being that the IUCEA has already conducted a comprehensive study on the 'Status of the East African Community (EAC) Higher Education Information Management System' in 2020. This section on the current state of HE data collection initiatives in the region is based on the interpretation and contextualization of the findings of the IUCEA study in line with the objectives of this mapping report.[6]

As has been discussed above, the legal and policy frameworks as well as institutional settings in the EAC are much farther along in the regional integration process than those in other regions. Currently, the IUCEA is working towards establishing an EAC wide HE information management system that can interoperate with those at the national level. In line with the mapping framework adopted for this report, the following information will be critical in the endeavor to establish a regional HE data collection mechanism/HEMIS.

First, there needs to be a legal and policy framework that allows for establishment of a regional data collection mechanism. As has been shown under section 3.5 above, the legal and policy environment at the EAC level is permissive and enabling for such a regional HE data collection mechanism under the IUCEA. Furthermore, each national HE commission/council in EAC member countries has the legal mandate to collect data from HEIs under its regulatory purview (IUCEA, 2020). Likewise, there are also enabling policy instruments adopted at the regional level that generally promote the integration of the HE systems in the region. However, there is still a need to develop policy specific to HE information and data management at the regional level in order to assist the realization of a regional HEMIS.

6. IUCEA. June, 2020. Status of the East African Community (EAC) Higher Education Information Management System, A Study Report. The drafters of the report would like to acknowledge the IUCEA for permitting access and use of the study report.

Secondly, the existence of institutional mechanisms at the regional and national level will be critical. First and foremost, the establishment of the IUCEA, as an organ of the EAC is a major step in facilitating the broader regional integration process and for HE harmonization in the region in particular. The IUCEA is legally mandated to create linkage between HEIs in member countries and, as such, has the mandate to collect HE data at the EAC level. Furthermore, there are in each country national level HE commissions/councils endowed with the mandate to collect data from HEIs. This creates an opportunity to establish a regional data collection mechanism by linking the data collections to those at the national level. This requires, in the minimum, existence of HEMIS at the national Commission/councils for HE level. However, as things stand now, this is not the case for all EAC member countries (IUCEA, 2020). The following table shows the state of HEMIS in each member country.

Table 3: HEIMSs available in the commissions and councils for HE in the EAC

National Council/Commission for HE	Available HEMIS
Tanzania Commission for Universities (TCU)	Universities Information Management System (UIMS); Programme Management System (PMS); and Foreign Awards Assessment System (FAAS).
South Sudan	No HE information management system in place.
Commission for University Education (CUE) of Kenya	It is in the process of implementing the following online system: An Information Management System (IMS) that has key modules on Quality Assurance and Accreditation, Human Resources, Finance, Data Collection.
National Commission for Higher Education (NCHE) of Burundi	No HE information management system in place.
The Higher Education Council (HEC) of Rwanda	Is in the process of implementing the following online systems: Application and accreditation of programmes Information Management System; and application and accreditation of private universities Information Management System.
The National Council for Higher Education (NCHE) of Uganda	Is in the process of implementing the following online systems: Academic Programmes Information Management System and Universities Information Management System.

Source: IUCEA 2020

Furthermore, it is important for national HEIMSs, where they exist, to be interoperable with both those within HEIs and also, eventually, a regional one. This requires developing policy for data collection as well as harmonization of definitions of indicators to ensure comparability at the different levels. It is also important to make sure readability between the two systems by developing appropriate Application Programming Interface (APIs) if the two systems are to be linked. Ideally, the same interoperability will exist between HEMISs at the national and HEIs level. However, this is not an essential condition for a functional regional HEMIS to exist. In fact, almost all national level HEMISs in the EAC member countries are not yet fully interoperable (IUCEA, 2020). The national councils/commissions send a data collection format to collect data from the HEIs on annual basis.

Thirdly, it is essential to assess what data is collected and to what end. For the purposes of the mapping report the data collected in the EAC region is assessed in terms of the CESA objectives as well as the broader HE harmonization process at the regional and continental level. The general finding of the IUCEA study was that most Universities across the EAC Partner States have or are in the process of putting in place an information management system that captures information on academics (including admission data, student's enrollment, graduates, student drop-outs); human resources (academic, research, administrative, and technical/ support staff); assets (facilities and infrastructure); finances (revenue and expenditure data). The National Commissions and Councils for Higher Education have been documenting information on Universities annually in their annual reports. The information on universities was being requested from the Universities by the national commissions/ councils for higher education following a given format. These formats varied slightly from country to country and were biased towards the EAC quality assurance framework and national quality assurance frameworks. The commissions and councils also document information on accredited programmes and chartered/ accredited and licensed institutions/ universities. Therefore, even though some of the data collected by the institutions can be utilized for the M&E of the implementation of CESA HE objectives, the data collection in the EAC region is not, at least formally, linked to the CESA objectives.

3.6. Central African Region Data Initiatives

The Central African region largely comprises Francophone countries. The region is home to one of the eight RECs recognized by the African Union – the Economic Community of Central African States (ECCAS). ECCAS is currently comprised 11 member states. ECCAS began functioning in 1985, but was inactive for several years because of financial difficulties (non-payment of membership fees) and the conflict in the Great Lakes area.

Similar to the other RECs, ECCAS has broad political, social and economic objectives. The treaty establishing ECCAS provides under its Article 4(1) for the purposes of the Community:

> 'It shall be the aim of the Community to promote and strengthen harmonious cooperation and balanced and self-sustained development in all fields of economic and social activity, particularly in the fields of industry, transport and communications, energy agriculture, natural resources, trade, customs, monetary and financial matters, *human resources,* tourism, *education,* further training, culture, science and technology and the movement of persons, in order to achieve collective self-reliance, raise the standard of living of its peoples, increase and maintain economic stability, foster close and peaceful relations between Member States and contribute to the progress and development of the African continent.' (emphasis added)

To meet these purposes, the treaty sets as one of its aims the preparation of harmonized national policies on various strategic areas of focus – Education being one such area (Article 4(2)f). The treaty envisages the harmonization of education policies in a manner that is rooted in the specific economic and socio-cultural reality of the region and one that produces graduates that contribute to the social progress and development of the region. In addition to harmonizing education policies, the treaty calls on member states to take several specific steps to meet the objectives of a harmonized education policy. One such measure is promotion of the systematic exchange of experiences and information on education policy and planning (Article 61(2)d). This lays the legal ground for cooperation in the area of HE in general and HE data collection and exchange in particular.

As for data collection and exchange at the regional level, Article 69 of the treaty requires that:

> 'Member *States shall cooperate in standardizing and harmonizing* their accounting procedures with the two aims of:
>
> a) standardizing methods of recording accounts data, evaluating assets and liabilities and presenting results in order that they may be comparable and that accounts may be consolidated at both national and sub-regional levels;
>
> b) *improving methods of management and control of the performances of undertakings, administrative units and State bodies.*
>
> 2. Member States shall harmonize existing and future accounting laws and plans and promote every effort and every instrument likely to help achieve the aims of paragraph 1 of this article.
>
> 3. Member States shall, within four years from the date of entry into force of this Treaty, harmonize their tax laws, in particular with regard to the rules of assessment and the rates applicable to indirect taxes not levied by the customs administration in order to encourage the establishment of undertakings in the Community.
>
> 4. *Member States shall make every effort to integrate and interconnect their data processing.* (Emphasis added)

Additionally, Protocol on Cooperation in the Fields of Human Resource Development, Education, Training and Culture between ECCAS Member States is integrated to the treaty establishing ECCAS. The protocol provides the basis for education policy harmonization and coordination in the development of joint projects and programs. ECCAS has also adopted Program on Education in 2009. The Program contains two strategic focuses in Centers of Excellence and Education Management Information Systems. However, to date, there is not much progress registered in in the area of Education Management Information system that is relevant for HE data collection.

Current state of HE data Collection initiatives in Central African/ECCAS region

This mapping study has undertaken a focus group to assess, among other things, if, to what extent and at what level HE data is being collected in the region; whether there are regional initiatives and mandates to this end, and whether HE data collection in the region is linked to CESA objectives. The focus group was facilitated by HAQAA 2 and hosted by Association of Francophone Universities (AUF) for Central Africa and the Great Lakes.

The AUF focus group had 8 participants from three countries Cameroon, Tchad and DRC. The DRC contact was via phone. The participants highlighted that HE data collection is limited to the national level and, the data collection system and practice at the national level varies from country to country. Though a national structure with a ministry of higher education, a NHCE and an NSO was reported in all three countries. It was also noted that there is no linkage between data collection at the national level and policies and strategies set at the regional or continental level. Data is collected at the national level directly from universities using different method. But there is no automated data collection system at the national level.

Though the participants stated that HE data is utilized for policy making purposes at the national level, they identify several challenges in the system. It was stated that data collection experiences show the need of a regional coordinating policy to coordinate the collection of HE data for continental purposes. At a national

level respondents raised, the need for policies to strictly define the ownership of HEMIS activities among stakeholders in the data ecosystem. As it stands, there is no policy clarity on whom, among the ministry of education, the national statistical office and the higher education accrediting authority has ownership of the process and the product.

Bureaucratic controls also hinder the dissemination of data. The data on Higher Education is tightly regulated and available to "key" people in policy circles. Verification process like triangulation also takes long time due to lags in response time from other ministries and statistical entities in the countries. There is a shortage of funding and expertise to collect and analyze the data and, as soon as such capacity is developed, it is robbed to organizations doing similar work on similar issues on the continent. So, coordination of resources was encouraged by respondents to mitigate the risks of duplication of activity and sharpening focus on collecting data on drivers of higher education dynamics in the region.

For the purposes of the current mapping report, the focus group was an informative exercise in terms of highlighting the lack of data initiatives at the regional level; the absence of impact full application of regional legal and policy frameworks to enable a better cooperation towards a regional HE data collection system; the lack of active engagement on HE at the regional level, and the need to aware about CESA objectives to policy makers at the national and regional levels. However, due to absence of participants in the focus group representing the majority of the countries in the region as well as lack of response for follow up questions, the current mapping report is not able to present the full picture at the national level.

Over all, the differences in the regions vary in terms of legal and political environment, institutional arrangements available at the regional level as well as the ability for data collection at the national level. Although there are certain commonalities in the challenges and opportunities present in the regions, theses too greatly vary in extent from one region to the other. Hence, these differences also dictate for a varied intervention strategy for each region. The following table summarizes the differences observed between the regions and the desired interventions as identified by the desk research and the focus group discussions.

Table 4: Comparison of the state of HE data collection in the Five African Regions

Criteria for Comparison	Southern A.	Eastern A.	Central A.	Western A.	Northern A.
Existence of regional policy instrument relevant for data collection	Available and being implemented	Available and being implemented	Available but not effective	Available	Not Available
Existence of Regional legal instrument on HE and HE Data collection	Available and being implemented	Available and being implemented	Available but lacks effective domestic application	Available	Not Available
Existence of regional institution with the mandate to work on HE regionalization	Available and acknowledged by the REC (SARUA)	Available and legally acknowledged by the REC (IUCEA)	Not available	Not Available	Not available
Regional Data collection mechanism	In the process of being established	In the process of being established	Not Available	Not Available	Not Available
Challenges	- Incomparable nature of data being collected by universities - definition of data not similar in different countries - data not informing policy making -difficulty to collect private HEIs data - limited capacity at individual, institutional, national and regional level - some institutions not having ITS	- Data collection not linked to CESA objectives - concerns on comparability of data - Absence of policy specific to data collections -lack of adequate human resource and infrastructure to run national and, eventually regional HEMIS - some domestic data privacy laws negatively affecting exchange of data	- HE data collection is limited to the national level - data collection system and practice varies from country to country. - there is no linkage to policies and strategies set at the regional or continental level. - shortage of funding and expertise to collect and analyze the data	- Data collection not linked to CESA objectives -lack of awareness about continental strategies and objectives (including CESA) - lack of a clear set criteria for data collection - lack of clear policy on data collections -lack of data collection mandate at the regional level - limited responses for surveys -limited funding for surveys -infrastructure problem	- Data collection not linked to CESA objectives - concerns on comparability of data - Absence of policy on data collections - relative lack of inter-country cooperation on HE in the region -significant delay in timely collecting data especially in Mauritania

Opportunities	- the possibility of integrating SADC data system through the network provider - enabling legal and policy frameworks - political buy-in at the REC level for a SADC HEMIS - existence of national level bodies mandated with HE data collection	- willingness to work closely by HEIs -data is being used for policy making at the national and regional level -Existence of national mandate to collect HE data -most of the data collected in many of the states is relevant for CESA M&E – like enrolment, finance, graduates (including doctoral students)… -the HE harmonization process is deeply rooted in the RI process	-Active presence of the AUF as a forum for HEIs in the region -some countries in the region have a relatively effective national data collection practice (Cameroon)	- existence of political commitment at the REC level for a regional HEMIS - existence of national level institutions mandated with HE data collection	- willingness to work closely by HEIs - most national HE authorities/councils have mandate to collect data - most national systems have ability to collect data -data is being used for policy making at the national level -most of the data collected in many of the states is relevant for CESA M&E – like mobility, finance, doctoral graduates
the state of data collection at the national level	- existence of national level bodies mandated with HE data collection -Most National CHE have adequate capacity to collect data -most HEIs use ITS for data collection	- most national HE Councils/ commissions have HEMIS and ability to collect HE data - HEMIS at HEIs level and at the national level not yet interoperable - data collection and dissemination in a number of countries not automated at the national level -national HE authorities/councils have legal mandate to collect data	Not enough data	Not enough data	-data collection and dissemination in some countries not automated -disparity with international standards in the data collected -most national HE authorities/councils have mandate to collect data - most national systems have ability to collect data -data is being used for policy making at the national level

Intervention needed	- supporting the establishment of the regional HEMIS and creating linkage between national and regional system -Adopting definition for indicators - identifying need and targeting capacity assistance at individual, national and regional level -creating or supporting policy dialogue forums to drive the data agenda at the regional level	- adoption of a regional policy on HE information and data management -Promotion of CESA objectives to policy makers - Capacity building scheme to enhance human resource and infrastructure capability for a regional HEMIS - assisting the development and definition of indicators pertinent for regional and continental HE objectives - developing an EAC level access to information and data law to enhance better exchange of data	-creating awareness about the CESA and its strategic objectives -creating or supporting policy dialogue forums to drive the data agenda at the regional level - supporting the process of creating linkage between national and regional system -Capacity assistance in terms of infrastructure development	- creating awareness about the CESA and its strategic objectives -creating or supporting policy dialogue forums to drive the data agenda at the regional level - supporting the process of creating linkage between national and regional system -Adopting definition for indicators - Capacity assistance in terms of infrastructure development	- supporting trans country HEIs dialogue and engagement -bringing HE authorities in the region to work towards creating a common understanding on data collection and exchange -Promotion of CESA objectives to policy makers - devising a capacity building scheme for countries in the region with particular focus on national systems with glaring gap in data collection like Mauritania -Participants insisted that regional cooperation needs to be reinforced

3.7. Towards a regional HE data collection: A focus on EAC and SADC

The comparison between the regions attest to the existing disparity in terms of existence of political will as evidenced by the adoption of legal and policy measures enabling the broader HE regionalization and data exchange initiatives; existence of regional institutions with the mandate to work on HE regionalization; availability of trained personnel for data collection and analysis at the different levels; availability of technology and facilities for data storage and retrieval; availability and adequacy of funding for research and data collection; the state of data collection at the national level in the respective regions as well as the existence of active regional initiatives towards setting up a regional data collection mechanism. (See table 4 above for summary of the comparisons between the regions.) These differences hinder the establishment of a continental data collection mechanism in a 'one size fits all approach'.

The current move towards Continental Integration in Africa, in which the regional economic communities serve as important pillars, puts HE harmonization as one of its focus areas. This presents a unique opportunity to devise a new approach towards solving the HE data problem in Africa. The approach identified as most suitable and preferable is one based in the regions, building upon their own regional political structures, processes and plans. Hence, the interventions in the regions will have to be designed in a manner responsive to the data and capacity building needs of the particular regions while at the same time having the required commonality in order to serve as the building blocks for a continental database as envisaged under CESA.

This requires, first of all, establishing data collection mechanisms in the regions, one that is imbedded in the HE regionalization process under the respective RECs. Once such mechanisms are set up at the regional level, under the auspices of the RECs, interventions to address the key challenges identified above can be tailored specific to the needs of the particular region. The already advanced state of HE regionalization in the regions will help address the lack of political will on the part of member states or, at least, make securing political buy-in less restricting. It should be noted, however, this too will require careful sensitization, consultation, and negotiation. And the setting up of regional mechanisms at the RECs level can be used as a building block towards the setting up of a continental data collection mechanism, fitting perfectly well with the overall approach being followed for integration in Africa. This "regional approach" is not new as it has already been utilized in areas of relevance for HE regionalization like quality assurance, accreditation, qualification and recognition of studies and awards.

Practically, such an approach presents multiple opportunities in solving the HE data collection problem at the continental level. For instance, the regional mechanisms need to be linked to national HE data collection mechanisms in a manner that facilitates the timely transfer of data. This will require setting up such mechanisms in countries where one doesn't exist or enhancing the capacity of existing mechanisms. Since it will be targeted at a relatively small number of states in a particular region, building facilities and infrastructure as well as data collection, management and maintenance will be relatively easier to undertake. Furthermore, putting to work adequate and skilled human resources, familiar with the education systems of the regions, and with the needed specific knowledge of languages, would be helped by the setting up of regional data collection systems. It will also help provide comparable and disaggregated data accurately representing the reality of each region and countries in the region.

As it is, the respective RECs in Eastern and Southern Africa are already in the process of establishing such mechanisms. Particular attention, at least in the short term, in these two regions and provision of the necessary capacity assistance supporting these initiatives will have diverse and far-reaching benefits. First, it is advantageous from resource and time stand point. Building up on and supporting these initiatives, rather than starting anew in all the regions, will help avoid redundancy and duplication of efforts thereby saving significant time and resource. Secondly, once this approach is tried and tested, the lessons and out puts from interventions in these regions can be built upon and contextualized to expand similar experiences to the other regions. There is already a trend for this, for instance, where EMIS Norms and Standards developed in one African region have served as the basis for similar efforts in other RECs and at the Continental level. Thirdly, and in the meantime, effort can be made to create an enabling environment in the other regions to ensure the experiences from the two regions can be effectively transplanted. This allows a targeted deployment of resources in a manner that is reflective of the current needs of the different regions.

4. INTERNATIONAL INITIATIVES

4.1 UNESCO Institute of Statistics (UIS)

The UIS was established in 1999 as an autonomous organization with the mandate to develop and deliver timely, accurate and policy-relevant data needed to meet the challenges of increasingly complex and changing social, political and economic environments. To produce internationally comparable education indicators, the UIS uses administrative data, house hold survey data, learning assessments, population censuses, and financial and public expenditure data as its main sources. The UIS database works in conjunction with National Statistical Offices (NSOs) in member countries and collect, store utilize and disseminate data concerning Higher education performance and structure in a country. The relationship between UNESCO and the NSOs offers an existing data pathway that can inform future continental/regional data collections.

According to the Institute, countries are currently reporting slightly less than half (49%) of the data needed to produce the SDG 4 global monitoring indicators.[7]Hence, from the get go, it is evident that the overly relied upon UIS database might not necessarily enable a fully informed policy analysis.[8] As a result, the UIS resorts to other methods to fill the gap - including initiatives to enhance reporting countries' capacity to improve their data coverage. This indicates where exactly lie the problem and the need to devise new approaches to close/mitigate this gap.

The UIS database provides education statistics in two categories. The first set of indicators is developed for collection of data on Countries' performance on the SDGs. The second set provides data on Other Policy Relevant Indicators (OPRI). This category includes, among other things, indicators pertinent for higher education policy like academic staff composition by sex, percentage of female teachers by level of education, school life expectancy by level of education, mean years of schooling, number of international mobile students (inbound or outbound), Number of students and enrollment rates by level of education, Graduation ratio from tertiary education, Percentage of graduates by field of education (tertiary education), Educational expenditure by nature of spending in public educational institutions, Percentage of students by programme orientation, Percentage of enrollment in private institutions by level of education, Government expenditure on education (amount), and government expenditure on education as a percentage of GDP can be accessed.

The database is openly accessible to the public and offers a variety of ways to search and download a set of data the user is interested in. This remains one of the strengths of the database that similar databases may have to immolate.

As has been noted above, the UIS indicators are very much disaggregated by sex, level of education, fields of study and several other criteria. However, the CESA indicator manuals present specified sets of indicators to measure the successful implementation of its strategic objective 9. Hence, it is worth comparing between the two.

7. http://uis.unesco.org/en/news/uis-releases-more-timely-country-level-data-sdg-4-education
8. Education researchers and many of the outstanding international databases directly or indirectly rely on this database as a source of the most accurate education data.

Table 5: Comparison between UIS HE Indicators with CESA Indicators Manual HE Indicators

CESA Indicator Manual HE Indicators	Directly Corresponding UIS Indicator
Number of earned doctoral degrees by field	Not Available
Expenditure on Research and Development as a Percentage of GDP	Not Available
Enrollment of Students in Higher and Tertiary Education per 100,000 Inhabitants	Available
Inbound Mobility Ratio	Number and rate of Internationally mobile students
Outbound Mobility Ratio	Number and rate of Internationally mobile students
The quality of graduates and their employability in the world economy	Not Available
Conducive environment for research and innovation through the provision of adequate infrastructure and resources	Not Available
Proportion of Learners enrolled in: a. Distance Education, b. Open Learning, c. E- Learning Programmes	Not Available
Public Expenditure on Education as a Percentage of Total Government Expenditure	Available
Public Current Expenditure on Education as a Percentage of Total Education Expenditure by level	Available
Public Expenditure on Education as a Percentage of GDP	Available
Percentage of Learners learning an African language as a subject	Not Available
Existence of a National Qualifications Framework	Not Available
Percentage Distribution of Tertiary Graduates by field of study	Available
Gender Parity Index for Gross Enrolment Ratio	Available
Percentage of Female Teachers	Available
Girls' dropout rate per reason of drop out	Not Available
Percentage of girls enrolled in STEM	Not Available
Percentage of teachers/lecturers qualified to teach in Science or Mathematics according to national standards	Not Available
Existence of a National Qualifications Framework	Not Available

As demonstrated in the above table, there is only one directly corresponding HE indicator on the UIS database that can be used to monitor the implementation of CESA's strategic objective 9 – Number and Rate of Internationally Mobile Students. There are several indicators on the UIS database from which information for some of the indicators relevant for CESA may be deduced through a combined reading of different UIS indicators - though probably not fully and accurately. For instance, UIS data on enrollment in tertiary education for ISCED 8 programs combined with other relevant indicators can provide an insight into the performance of a given country with respect to CESA indicator 9.1 – assuming, of course, that data on all other indicators are also available. However, even for those indicators that are, at least, indirectly relevant to measuring CESA objectives, data on the UIS database is scarcely available and shows inconsistency from year to year – particularly in relation to African countries. On most of the indicators full data is only available

for very few countries, for instance, for the period covering 2015-2020. Though data availability varies from country to country, the number of countries for which no data is available is alarming. This can be showcased by the following example.

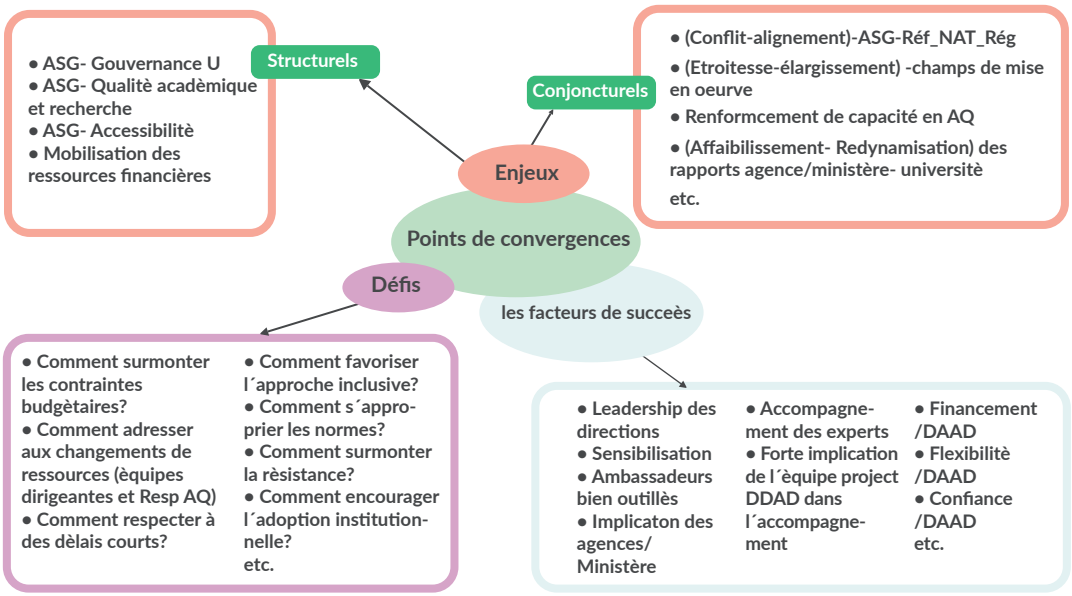
Table 6: African HE data availability on UIS for 6 years (2015 - 2020)

	Number of countries for which data is available for the period covering 2015 -2020						
Indicators	6Yrs.	5Yrs.	4Yrs.	3Yrs.	2Yrs.	1Yr.	0Yr.
Government expenditure on tertiary education, US$ (millions)	2	1	5	5	4	8	29
Government expenditure on tertiary education as a percentage of GDP (%)	2	1	5	4	5	8	29
Current expenditure as a percentage of total expenditure in tertiary public institutions (%)	1	0	3	5	4	7	34
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, both sexes (%)	0	0	1	1	0	11	40
Educational attainment rate, completed Master's or equivalent education or higher, population 25+ years, both sexes (%)	0	0	0	1	0	12	41
Educational attainment rate, completed Doctoral or equivalent education, population 25+ years, both sexes (%)	0	0	1	0	1	10	42
Gross graduation ratio from first degree programmes (ISCED 6 and 7) in tertiary education, both sexes (%)	0	4	4	4	1	6	35
Percentage of enrolment in tertiary education in private institutions (%)	5	6	8	5	0	8	22

Source: Author's own calculation based on data on the UIS database.

Most of these indicators correspond to very basic information without which even a bare minimum understanding/evaluation of a higher education system can be difficult, if not near impossible. Additionally, lack of adequate data on these indicators greatly reflects in socio-economic policy choices and the overall development of the countries. For instance, as much as emphasis is made on the importance of research and HE in realizing the continent's economic potential and technological competitiveness, this cannot be realized without having a good sense of, as an example, where education attainment rate lies. This is critical, among other things, as evidence as to the availability or lack thereof trained labor force to meet these economic objectives. However, data on educational attainment rate, at the first degree, masters or doctoral levels, for the five years covering 2015 to 2020 is unavailable on the UIS database for more than 40 African Countries.

Figure 1: Availability of UIS data for African countries on education attainment rate



Source: UIS Database, organized by author

Furthermore, this gap should be a source of concern for different reasons. First, some of the national jurisdictions for whom there is no data are among those considered the more developed ones and known for the high number of higher education institutions and students like Nigeria. Hence, any policy making at the regional/continental level without an adequate input about the state of play in these systems cannot be said to be an informed one.

This gap persists in relation to almost all indicators of significance for higher education policy. The following indicators on the UIS database are the more relevant ones for higher education policy making: Government expenditure on tertiary education, Government expenditure on tertiary education as a percentage of GDP, Current expenditure as a percentage of total expenditure in tertiary public institutions (%), Gross graduation ratio from first degree programmes (ISCED 6 and 7) in tertiary education, Percentage of enrollment in tertiary education in private institutions (%), Enrollment in tertiary education in numbers by program and sex, inbound internationally mobile students from Africa, both sexes (number), Inbound internationally mobile students from sub-Saharan Africa, both sexes (number), Outbound mobility ratio, all regions, both sexes (%), Inbound mobility rate, both sexes (%), Net flow of internationally mobile students (inbound - outbound), Educational attainment rate (completed Bachelor's or equivalent education or higher, Master's or equivalent education or higher, completed Doctoral or equivalent education population 25+ years, both sexes (%)),Gross enrolment ratio for tertiary education by sex, Government expenditure on education as a percentage of GDP (%), and Gross graduation ratio from first degree programmes (ISCED 6 and 7) in tertiary education for both sexes.

Secondly, aside from lack of data on indicators on the UIS database, another glaring problem with the database is that indicators that are of relevance for decision makers on issues of harmonization of HE in the

continent, recognition of qualifications, mobility of staff and students, accreditation and quality assurance frameworks and the likes are lacking. The indicators used in the UIS database are exclusively performance measuring indicators that may not provide meaningful information about higher education systems and the impact and efficacy of policy choices of the past with respect to, for instance, harmonization efforts. This will, again, hinder informed policy making going forward.

Overall, given the level of reliance made on the UIS data for policy making at the international, regional and national level, addressing the gaps in data availability as well as limited nature of indicators should be the primary goal of any data initiative in the continent.

4.2. World Bank – EdStats

The World Bank collects and maintains data at the macro level and on a sector basis. The Development Data Group[9] at the World Bank coordinates statistical and data work and maintains a number of macro, financial and sector databases. Much of the data comes from the statistical systems of World Bank member countries. As such, EdStats (Education Statistics)[10] portal is one such portal where data and analysis on key topics in education can be accessed by interested people. The portal provides data on such topics as access, completion, learning, expenditures, policy, and equity. In addition to national statistical bodies, EdStat sources its data from UIS, national surveys, international and regional learning assessments, other World Bank Databases and Projects.

Educational data on the World Bank portal is available online with an interface that can be utilized to select requested data and periods. In terms of coverage, there is broad country coverage. Though broad country coverage allows for observations over a long period of time data on many indicators for a significant number of years is missing in the data. Furthermore, since most of the relevant data for EdStat comes from the UNESCO data, the same shortcoming observed in relation with UIS also holds true for World Bank's EdStat. However, the database remains important in that it provides a good list disaggregated indicators on higher education divided in to 8 thematic areas.

The breadth and depth of the indicators on the EdStat database can be an important baseline for definition and categorization of indicators for any continental or regional data collection that is interested in collecting comparable policy data for large number of countries. The data pathway assumed by the EdStats database also contains weaknesses similar to the UIS database. EdStats works in conjunction with NSOs to collect data on higher education performance and structure under a similar data pathway. As such it also is pertinent to create a more focused and robust data pathway at regional level to circumvent the operational weaknesses of the EdStats data pathway.

However, in similar fashion with that of the UIS database, the indicators for Edstat also fail to adequately capture the specific indicators developed for the monitoring and evaluation of CESA tertiary education objectives. The following table demonstrates the mismatch between the two sets of indicators.

9. https://data.worldbank.org/about/contact
10. https://datatopics.worldbank.org/education/

Table 7: EdStat indicators in light of CESA indicators manual indicators for tertiary education

CESA Indicator Manuals HE Indicators	Directly Corresponding Tertiary education indicators on Edstat
Number of earned doctoral degrees by field	Not Available
Expenditure on Research and Development as a Percentage of GDP	Not Available
Enrollment of Students in Higher and Tertiary Education per 100,000 Inhabitants	Available
Inbound Mobility Ratio	Mobility
Outbound Mobility Ratio	Mobility
The quality of graduates and their employability in the world economy	Not Available
Conducive environment for research and innovation through the provision of adequate infrastructure and resources	Not Available
Proportion of Learners enrolled in: a. Distance Education, b. Open Learning, c. E- Learning Programmes	Not Available
Public Expenditure on Education as a Percentage of Total Government Expenditure	Available on other Edstat Indicators
Public Current Expenditure on Education as a Percentage of Total Education Expenditure by level	Not Available
Public Expenditure on Education as a Percentage of GDP	Available on other Edstat Indicators
Percentage of Learners learning an African language as a subject	Not Available
Existence of a National Qualifications Framework	Not Available
Percentage Distribution of Tertiary Graduates by field of study	Available
Gender Parity Index for Gross Enrolment Ratio	Available
Percentage of Female Teachers	Not Available
Girls' dropout rate per reason of drop out	Not Available
Percentage of girls enrolled in STEM	Not Available
Percentage of teachers/lecturers qualified to teach in Science or Mathematics according to national standards	Not Available

4.3. International Rankings

There are a wide variety of international university rankings that can be assessed as data collection/ transparency tools. International rankings have been criticized both conceptually and from methodology perspectives. Conceptually, it can be questioned whether international rankings are relevant in assessing data collection on African Higher Education. Rankings are by and large seen as transparency tools, which do enable

consumers and policy makers alike to assess the status and performance of higher education institutions. However, the data problem in Africa is more foundational and systemic than one that can be easily addressed by such tools devised without necessarily taking national and system peculiarities in to account. Particularly, since there is no, and more importantly, there cannot be an all-encompassing legal or policy requirement for higher education institutions to engage with such rankings, it is self-evident that African policy makers cannot rely on such tools alone to monitor and evaluate policies and strategies set at the continental, regional and national levels. Furthermore, rankings can only show, at best, individual instructions' excellence in certain aspects and not how the overall national education system is functioning.

Methodologically, international rankings are criticized for not taking into account policy motivations in the various national systems and more importantly, are overly focused on research outputs and related dimensions of higher education. As important as research and development is, rankings are generally criticized for not taking already existing challenges and hurdles in global knowledge production. Particularly, academics and researchers in the global south face peculiar challenge in this regard due to editorial policies alien to the social, economic and developmental interests that drive research activities in the global south.[11]

These criticisms aside, transparency tools like international rankings are and will likely continue to play a significant role in shaping consumer and policy makers' decisions. Hence, it is important to see how much relevant data can be accessed from selected international rankings on African higher education institutions. Selected international rankings are examined in the following section mainly focusing on availability of data on African HE in these rankings.

QS World University Rankings

The QS World University Rankings is another widely used international higher education ranking. The QS World University ranking is compiled using six metrics that are believed to measure university performance. These metrics are:

- academic reputation,
- employer reputation,
- faculty/student ratio,
- citations per faculty,
- international faculty ratio and,
- International student ratio.

Each metric is assigned its own weight and a university's performance is ranked based on its overall score. Of all the metrics, academic reputation carries the highest weight, 40%, and is assessed based on global survey of academics on their opinion as to which university is the top universities in their field. Employer satisfaction is also measured based on a survey of opinion of recruiters who hire graduates from a certain university. This carries 10% of the overall assessment. The least weight is assigned to international faculty ratio and international student ratio each carrying 5%. Faculty/student ratio and citations per faculty carry 20% each.

11. Damtew Teferra. 29 August 2015. The blunder of ranking African universities. University World News accessed at https://www.universityworldnews.com/post.php?story=20150828122639186

The 2022 ranking features 1300 universities from around the world out of which 31 are from African countries. As is the case with most international rankings, universities from South Africa and Egypt feature prominently in the 2022 QS World University rankings as well – representing 22 out of the 31 African universities. The remaining nine universities are from Tunisia (3), Sudan (2) and one university from each of Morocco, Kenya, Uganda and Ghana. However, overall score is available only with respect to five of the universities from Africa. The QS ranking is openly accessible. However, data on the performance of the universities is not available/accessible and one can only access and compare the individual university's score in relation to one or all of the metrics. Additionally, even though the website provides the option to download the results in Excel format, this requires[12] provision of personal information and university email.

Table 9: Top Ranking African Universities: QS World University Ranking 2022

University	Overall Score	Intl. Students Ratio	Intl. Faculty Ratio	Faculty student ratio	Citations per faculty	Academic reputation	Employer reputation
University of Cape Town, South Africa	**40.3**	31.7	50.7	19.9	51.2	44.1	41.7
University of Witwatersrand, South Africa	**27.1**	9.5	76.1	12.4	36.4	24.9	30.3
University of Johannesburg, South Africa	**26.7**	55.9	92.1	40.7	16.9	14.5	18.6
The American University in Cairo, Egypt	**26.1**	3.7	92	37.8	4.2	26.8	20.9
Stellenbosch University, South Africa	**24.6**	9.7	8.9	3.6	51.7	24.5	27.4

Source: QS World University Ranking 2022

THE's Rankings

The Times Higher Education (THE) World University rankings are among the widely referred to HEI rankings in the world. THE rankings employ 13 performance indicators that are grouped into five areas. Supposedly, the 13 indicators span the core functions of higher education institutions. The indicators are:[13]

1. Teaching (the learning environment)
    - Reputation Survey – Teaching
    - Academic Staff-to-Student Ratio
    - Doctorates Awarded / Undergraduate Degrees Awarded
    - Doctorates Awarded / Academic Staff
    - Institutional Income / Academic Staff

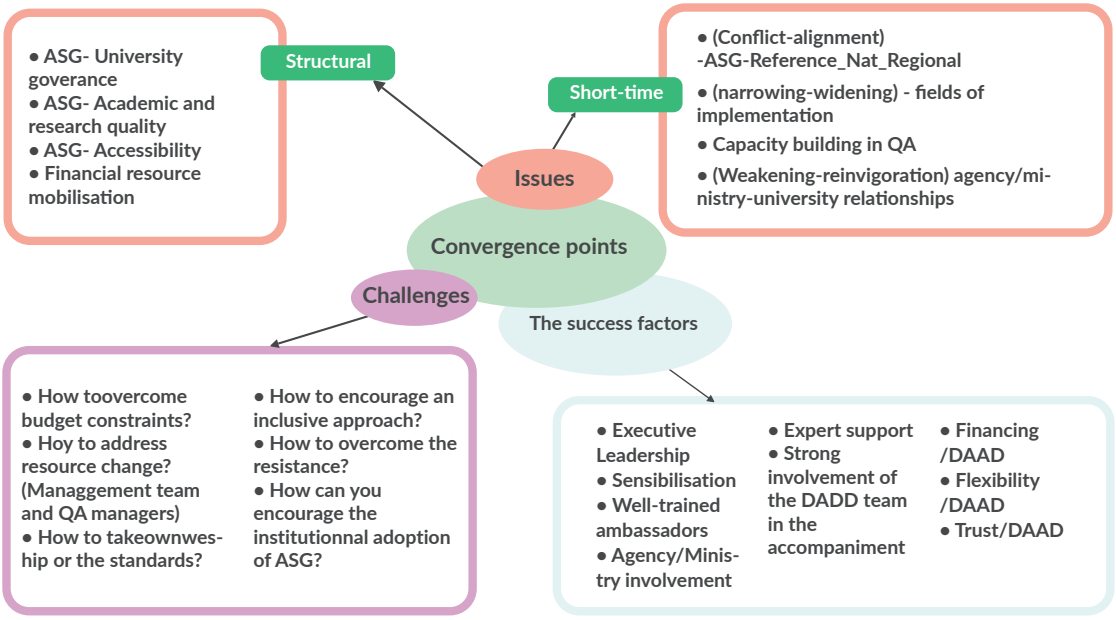
12. https://www.qs.com/portfolio-items/qs-world-university-rankings-2022-result-tables-excel
13. Times Higher Education (THE). August, 2021. Methodology for Overall and Subject Rankings for The Times Higher Education World University Rankings 2022. Accessed at https://www.timeshighereducation.com/world-university-rankings/world-university-rankings-2022-methodology

2. Research (volume, income and reputation)
    - Reputation Survey – Research
    - Research Income / Academic Staff
    - Publications / Staff (Academic Staff + Research Staff)
3. Citations (research influence)
    - Field Weighted Citation Impact
4. International outlook (staff, students and research)
    - Proportion of International Students
    - Proportion of International Academic Staff
    - International co-authorship (International Publications / Publications Total)
5. Industry income (knowledge transfer)
    - Research income from industry & commerce / Academic Staff.

Despite the node to teaching as one of the parameters and the appearance of other indicators other than research, the THE ranking is overwhelmingly based on research output and related aspects of higher education institutions' activities.

The Times Higher Education World University Rankings 2022 includes more than 1,600 universities across 99 countries and territories. Compared to the previous year, two new African countries feature in the 2022 ranking – Ethiopia and Tanzania. Overall, 1,662 universities are ranked and a further 452 universities are listed with "reporter" status, meaning that they provided data but did not meet the ranking's eligibility criteria to receive a rank. The inclusion and the exclusion criteria are once again heavily focused on research activities.

Figure 2: The THE World Ranking Methodology



Source: THE World University Ranking, World University Ranking 2022: Methodology.

A total of 83African HE institutions reported to THE Ranking for the year 2022. Out of these 83, 22 of these institutions are listed as 'Reporters' and are not ranked because their submissions did not meet the eligibility criteria set by THE Rankings. The 83 institutions come from 11 African countries of which more than half of them are only from three countries – Egypt (35), Algeria (15) and South Africa (11).

The limitation in coverage aside, the THE ranking, though a potentially good source of information for prospective students in choosing which university to enroll into, its potential to serve as a data source for policy makers, particularly in Africa, is very limited. Mainly because, what can be accessed from the ranking is the rating against a particular criterion and not the data the universities have sent to the ranking. Furthermore, due to THE's criteria on the basis of which universities can be excluded from the World University Rankings, for example, if their research output amounted to fewer than 1,000 relevant publications for a period under consideration, the chance of many of Africa's fledgling universities being excluded from the ranking is very high. This will render the information from the THE rankings of limited utility to understanding the African HE landscapes.

Center for World University Rankings (CWUR)

Since 2012, CWUR has been publishing academic ranking of global universities that aims at assessing the quality of education, alumni employment, quality of faculty, and research performance. Unlike the international rankings discussed above, the CWUR ranking assesses university performance without relying on surveys and university data submissions. CWUR ranks global universities based upon seven criteria, which is claimed to be a shift towards 'a quantitative approach to world university rankings' by using 'verifiable data' to assess university performances.[14] These criteria are:

- the quality of education,
- alumni employment,
- quality of faculty, and
- Research performance (as measured by Research Output, High-Quality Publications, Influence and Citations).

The CWU Ranking, despite attempting to depart from the trend followed by other international rankings, has its own limitations. First, it is still influenced by the undue focus on research outputs as a measure of a university's performance. Four out of the seven criteria adopted has to do with research performance. Secondly, the remaining indicators are to be measured in terms of indicators that are limiting, at beast, if not arbitrary and irrelevant to the comprehensive assessment of a university's performance, let alone a country's higher education system. In the least, the measurements have the potential to confuse individual achievements with institutional performances. For instance, measuring alumni employability by the number of a university's alumni who have held top executive positions at the world's largest companies completely obscures the role of individuals' personal effort. Besides, this assessment disregards the role of socio-economic and geographical backgrounds and historical marginalization that have significant effect in life outcomes. Such measurement can only be merited, even for the seemingly limited objectives of the CWUR, in a purely egalitarian corporate environment where only merit determines out comes. The

14. Nadim Mahassen, A quantitative approach to world university rankings. Center for World University Rankings. Retrieved from https://cwur.org/methodology/preprint.pdf

measurement is limiting in that, even in the ideal scenario all the universities and their alumni excelled, there are only so much top executive positions at the world's largest companies, that the ranking will lose meaning to a broader audience.

The defects in the criteria are reflected in the 2022 ranking release by the CWUR in which 19,788 institutions were ranked. Those that placed at the top made the Global 2000 list and not all universities even in the top 100 are fully ranked on all the criteria.[15] As for Africa, a total of 60 universities from the continent made it into the global 2000 list representing 15 countries. Out of those, only 11 African universities are ranked based on one other criterion other than research performance.

Overall, these international rankings, aside from the criticisms labeled against them, cannot be used as data sources for monitoring and evaluation of the CESA strategic objectives in particular for several reasons. First, the criteria for ranking are one that is substantively different from the ones developed to measure CESA's implementation. Secondly, data submitted to the rankings is not publicly available and policy makers at the continental, regional and national level cannot, adequately and accurately, deduce whether a certain CESA target has been mate or not from a rating of a HEI's annual performance. Thirdly, the CESA objectives are set with the particular benefit expansion and strengthening of tertiary education would bring to the socio-economic development of the continent and what measures member states need to take in order to realize this potential. However, most international rankings set criteria based on the performance of individual HEIs. This, in addition to not being able to show the full scale of the performance of a country's HE system, completely disregards the role of the state in the implementation of the CESA objectives. Furthermore, these international rankings do nothing to alleviate the lack of a reliable database of information about higher education institutions and programmes in Africa since only a handful institutions partake in those rankings.

4.4. American Data Initiatives

Open Doors Initiative

Open Doors Initiative is a database on the movement of international students into America. It is the primary source of data on international students studying in America and American students studying abroad. The database contains statistics going as far back as the year 1949/50 and contains a relatively significant amount of data on the movement of African students into America. The data available covers almost all African countries and is accessible in excel format. The database can be accessed at https://www.opendoorsdata.org.

The data collection is primarily funded by the United States government and collects data from -different data sources through various means. Among the sources an important one is institutional reports and surveys.

15. Center for World University Ranking, Global 2000 List. 2022 – 23 Edition. Retrieved at https://cwur.org/2022-23.php

Table 10: Mobility of international students into America from East Africa (2015 - 2021)

Country Name	2015	2017	2018	2019	2020	2021
Burundi	148	180	134	141	164	149
Djibouti	9	10	9	9	6	6
Eritrea	109	138	151	117	81	53
Ethiopia	1,517	1,847	2,118	2,061	2,356	2,166
Kenya	3,019	3,189	3,322	3,451	3,710	3,502
Rwanda	928	1,088	1,232	1,292	1,444	1,333
Seychelles	20	16	11	16	11	9
Somalia	35	50	67	76	68	97
South Sudan	36	48	76	63	102	95
Sudan	253	324	331	319	318	324
Tanzania	840	811	824	834	859	699
Uganda	776	779	818	848	870	886

Source: Open Doors Initiative

Table 11: Mobility of international students into America from Central Africa (2015 - 2021)

Country Name	2015	2017	2018	2019	2020	2021
Cameroon	1,210	1,334	1,382	1,188	1,027	930
Central African Republic	13	15	14	17	12	13
Chad	52	66	75	65	51	52
Congo, Republic of the (Brazzaville)	337	268	298	284	255	280
Congo, Dem. Rep. of the (Kinshasa)	949	1,137	1,123	1,164	1,198	1,125
Equatorial Guinea	339	360	335	280	247	226
Gabon	410	363	332	327	280	272
São Tomé & Príncipe	1	2	3	0	1	1

Source: Open Doors Initiative

Table 12: Mobility of international students into America from Southern Africa (2015 - 2021)

Country Name	2015	2017	2018	2019	2020	2021
Angola	1,296	1,257	1,183	1,014	814	673
Botswana	246	296	233	214	246	218
Comoros	32	10	12	18	40	23
Eswatini	192	183	188	181	174	181
Lesotho	61	59	55	58	69	69
Madagascar	126	143	132	159	181	181

Malawi	289	317	306	311	315	287
Mauritius	250	283	288	311	332	323
Mozambique	109	120	111	113	127	131
Namibia	76	93	101	105	121	122
Reunion	5	2	6	1	2	4
South Africa	1,813	1,911	2,040	2,042	2,224	2,079
Zambia	473	469	450	445	464	440
Zimbabwe	1,295	1,330	1,324	1,343	1,377	1,304

Source: Open Doors Initiative

Table 13: Mobility of international students into America from Western Africa (2015 - 2021)

Country Name	2015	2017	2018	2019	2020	2021
Benin	259	248	234	246	234	210
Burkina Faso	540	533	567	514	483	420
Cabo Verde/Cape Verde	102	80	67	52	61	63
Côte d'Ivoire/Ivory Coast	1,229	1,353	1,349	1,392	1,257	1,115
Gambia	274	299	261	243	239	219
Ghana	3,049	3,111	3,213	3,661	4,221	4,229
Guinea	94	94	98	107	92	104
Guinea-Bissau	18	9	10	16	13	9
Liberia	205	221	262	255	260	232
Mali	331	310	302	291	285	270
Mauritania	97	103	106	84	67	53
Niger	246	177	288	257	277	197
Nigeria	10,674	11,710	12,693	13,423	13,762	12,860
Saint Helena	3	1	1	8	2	0
Senegal	603	569	544	504	485	430
Sierra Leone	167	209	200	181	199	201
Togo	209	210	199	189	214	196

Source: Open Doors Initiative

Table 14: Mobility of international students into America from Northern Africa (2015 - 2021)

Country Name	2015	2017	2018	2019	2020	2021
Algeria	158	192	212	238	239	219
Egypt	3,442	3,715	3,701	3,675	3,859	3,672
Libya	1,514	1,311	1,064	884	720	563
Morocco	1,495	1,634	1,563	1,461	1,499	1,294
Tunisia	692	692	728	703	665	534
Western Sahara	158	192	212	238	239	219

Source: Open Door Initiative

The database also provides for chosen fields of study, primary sources of funding, US institutions hosting international students, overall trend in international students' movement into America as well as academic level trends.[16] As important as this database is in tracking the movement of skills and people outside the continent, it remains important to have adequate data, among other things, to track the impact of such international study opportunities inside the continent.

In terms of providing data for monitoring and evaluating CESA objective 9, this data source provides important information on outward mobility of African students for interested policy makers. However, even though the raw data for outward mobility from African countries can be accessed from this data source, it is quite difficult to apply it to the relevant CESA indicators for various reasons. Mainly data on inward mobility and mobility between African countries, two of the most important CESA indicator pertaining to mobility, cannot be accessed from this data source.

16 https://opendoorsdata.org/wp-content/uploads/2021/11/OD21_Fast-Facts-2021.pdf

5. European Union Data Initiatives

U-Multirank Project

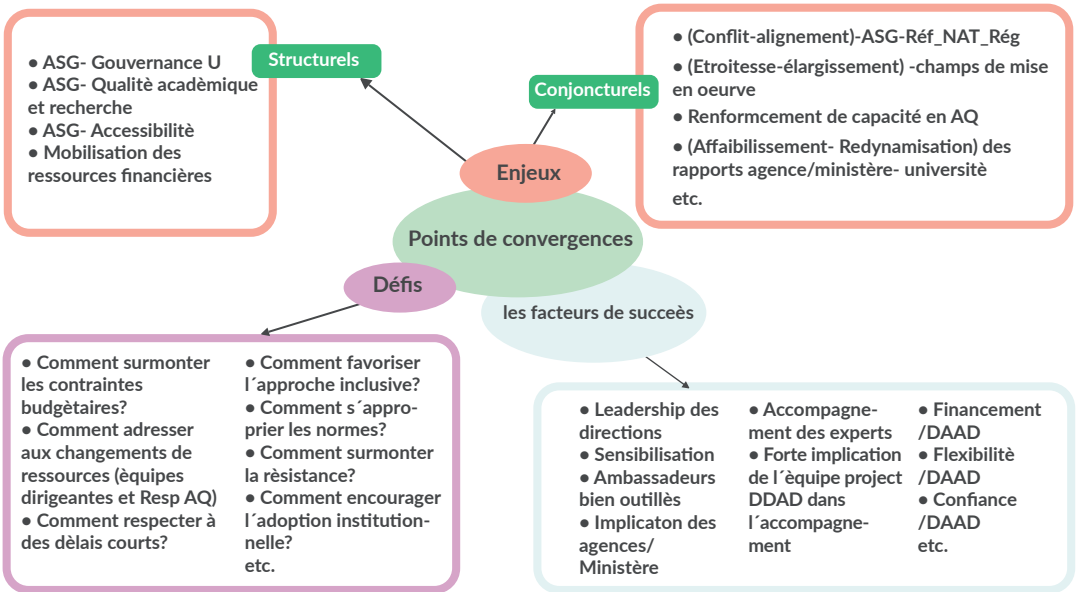
U-Multirank stands for "multi-dimensional ranking of higher education institutions". Unlike most international rankings U-Multirank is created to serve as a multidimensional, user-driven approach to international ranking of higher education institutions. It is a European Union supported initiative and compares the performances of higher education institutions in terms of the following five dimensions of university activity: teaching and learning, research, knowledge transfer, international orientation and regional engagement. Under the U-Multirank ranking, comparison is possible both at the level of HEIs as a whole and at the level of specific study programmes. Under each dimension are covered detailed indicators pertinent for measuring HE performance.

The first U-Multirank ranking was the 2014 edition, covering more than 850 higher education institutions from more than 70 countries. Universities from African countries constituted around 2% (17 Universities) out of the 850 universities covered in the 2014 survey.

The 2021 U-Multirank report contains data on some 34 African Univrsities. These 34 HEIs come from 10 countries and more than half (20) of them come from only two countries – South Africa and Egypt. The small number of universities from African countries in itself adequately highlights the HE data problem in Africa. However, a closer look into the details of the data available even for those 34 universities also reveals its own story. Firstly, there is no comprehensive data on all five dimensions for any of the 34 universities. Secondly, there seems to be a clear pattern in terms of data availability or lack thereof it. Out of the five dimensions on the basis of which U-Multirank compares universities, almost consistently data is highly likely to be available on those more related with research, publication and knowledge transfer.[17] Whereas, data on dimensions like teaching learning, student mobility, internationalization (except joint publication), graduate employability in the region and so on are highly likely to be unavailable. The U-Multirank, despite being taught as multi-dimensional and different from other university rankings as such, it can safely be said that, at least for African Universities, owing to data availability or other reasons, it is no more different from the other research and publication focused rankings. Above all, though one potential source for African higher education data, U-Multirank, like the others, is inadequate to address the higher education data problem in Africa.

17. U-Multirank, University Rankings, 2021. Retrieved at: https://www.umultirank.org/compare?section=compareSubject&mode=-likewithlike&name=null

Figure 3: Comparative availability of data on some basic indicators for 34 African Countries (U-Multirank 2021 ranking)



This limitation aside, the U-Multirank can be taken as a good benchmark for any data collection initiative in Africa. First, the multidimensional nature of the indicators makes it extremely valuable for policy relevant data collection and analysis. Secondly, the mixed methodology and user generated nature of the data can inform future data collection initiatives. Particularly, it can serve as a benchmark for future HE performance ranking system in Africa – an important aspect of solving the HE data collection problem as well as in enhancing the competitiveness of African HEIs at the continental and global stage.

EU-Eurostat

Another European initiative with importance in addressing the higher education data problem in Africa is the Eurostat. Eurostat, the European Union's statistical office, has as its main mission the provision of quality statistics for Europe. However, the development of harmonized methodologies for the collection of comparable data at a regional level as well as the experience of collecting and disseminating data for member countries at a regional level will be an experience worth exploring for Africa, be it in its effort in higher education harmonization or the wider continental integration process.

The Eurostat is embedded institutionally and legally in the regional integration process in Europe. However, it is important to note from the outset that a continental level statistical organization, like that of the Eurostat, may probably need a significant period for growth and may not, practically speaking, arise from a single policy decision or adoption of a legal instrument to that effect. Development of such a comprehensive and complex system usually takes a long period of time, accompanied by the changes and currents of the various dimensions of an integration process. The Eurostat finds its genesis in 1953 with the establishment of the Statistics Division for the Coal and Steel Community. Though not prescriptive, the evolution of Eurostat since its early days can be informative for similar initiatives in other regional integration processes.

Table 15: The historical evolution of the Eurostat

Year	Event
1953	The Statistics Division for the Coal and Steel Community is established.
1958	The European Community is founded and the forerunner of Eurostat is established.
1959	The present name of Eurostat as the Statistical Office of the European Communities is adopted. First publication on agriculture statistics is issued.
1960	First Community Labour Force Survey takes place.
1970	The European System of Integrated Economic Accounts (ESA) is published and the general industrial classification of economic activities (NACE) is established.
1974	The first domain in the Cronos databank is installed.
1988	The European Commission adopts a document defining the first policy for statistical information.
1989	The Statistical Programme Committee is established and the first programme (1989-1992) is adopted by the Council as an instrument for implementing statistical information policy.
1991	Eurostat's role is extended as a result of the agreement on the establishment of the European Economic Area and the adoption of the Maastricht Treaty.
1993	The single market extends Eurostat's activities, e.g. Intrastat is established for statistics on intra-EU trade. Eurostat starts issuing regular news releases.
1994	The first European household panel is held, analysing income, employment, poverty, social exclusion, households, health etc.
1997	Statistics is added for the first time to the Treaty of Amsterdam and the Statistical Law is approved by the Council.
1998	Eurostat issues the first set of Euro indicators related to the launch of the European Monetary Union (EMU).
2004	Start of free of charge dissemination of all statistical data, except microdata for research purposes.
2005	Adoption of the European Statistics Code of Practice.
2007	The European Statistical Governance Advisory Body is established to provide an independent overview of the implementation of the Code of Practice in the European Statistical System (ESS).
2008	The European Statistical Advisory Committee (ESAC) is established to ensure that user requirements are taken into account in developing the Statistical Programmes.
2009	Regulation N°223/2009 on European statistics is adopted.
2012	Commission Decision on Eurostat, defining its role and responsibilities within the European Commission.
2014	The 'ESS Vision 2020' is adopted.
2021	Adoption of the European Statistics Programme as part of the Single Market Programme 2021-2027.

Source: Eurostat at https://ec.europa.eu/eurostat/web/main/about/overview/history

The table above demonstrates that Eurostat's institutional and legal character as well as areas of focus has undergone significant changes over the years, mainly through the adoption of political and legal instruments at the continental level and their subsequent emulation in member states. For example, its role was expanded following the agreement of establishment of the European Economic Area and adoption of the Maastricht treaty in 1991. This led to the establishment of Intrastat for the production of statistics on intra-EU trade within the context of the single market. It is also important to note that, in its early days, Eurostat started by releasing European statistics on particular sectors and only in time did it evolve into a more comprehensive statistical system.

Role of Eurostat

Eurostat's main role is to process and publish comparable statistical information at European level. As a regional statistical body, Eurostat does not collect data directly but relies on national statistical authorities of the member states who collect and send the data to Eurostat. This requires, in the least, a harmonized statistical system and mandate at the continental level and, capable statistical systems at the national level. In the case of the Eurostat, broadly speaking, the National Statistical Institutes (and Other National Authorities (ONA)) undertake the task of collecting, verifying and analyzing national data before sending it to Eurostat. The Eurostat then undertakes the consolidation of the data it received from the national statistical system and ensures its comparability through the use of harmonized methodology. In addition to its main role as the official statistics body, Eurostat also plays a critical role in the monitoring of the continental integration process as a whole. Mainly because, quantitative measurement of progress made in the RI process requires quality and comparable data and Edstat is the primary tool devised to this end.

Eurostat data on Higher Education

Eurostat's Education and training statistics provide information on the participation of individuals in education and training activities, education financing and teaching staff as well as on outcomes of education. Aspects covered by the Education and training statistics on Eurostat include Participation in education and training (Pupils and students – enrollments, Pupils and students – entrants, Adult learning, Continuing vocational training in enterprises); Learning mobility (Mobile students from abroad, Degree mobile graduates from abroad, Credit mobile graduates); Education personnel (Teachers and academic staff, Distribution of teachers and academic staff); Education finance (Expenditure on education, Expenditure of/on public and private educational institutions, Financial aid to students, Funding of education, Funding of vocational education); Education and training outcomes (Graduates, Educational attainment level); Transition from education to work, Young people by educational and labour status (incl. neither in employment nor in education and training - NEET), Early leavers from education and training, Labour status of young people by years since completion of highest level of education (incl. employment rates of recent graduates) and Underachieving 15-year-old students (PISA survey), and on Languages (Language learning, Self-reported language skills)

European Tertiary Education Register (ETER) is another EU-funded initiative that collects qualitative and quantitative data on higher education institutions in Europe, including their basic characteristics, educational activities, staff, finances and research activities. The significant substantive difference between Eurostat and ETER can be found in the level at which the two mechanisms collect data. Unlike Eurostat, which collects and disseminates national level data, ETER is more particular in that it collects data at the institutional level. This structure could be used to develop the links (through policy and legislative clarity) between higher education institutions, National Statistical offices and a regional statistical office and or HEMIS system in a CESA context.

6. National EMIS (Education Management Information Systems)

HE data collection for regional, continental or international consumption can be collected in various ways. One approach is centrally administered survey of HEIs. The experience from data collection efforts covered in this report and other similar projects shows that this approach is time and resource intensive and that it is difficult to conduct such surveys on a regular basis in a manner that assures the quality of data to be collected. These challenges, coupled with the infrastructural, HR, ICT and other similar constraints faced by African HEIs, render this approach, at least for the immediate future, all the more undesirable for an African HE data collection mechanism. The second approach is to have data collected at the national level from HEIs by a national authority with the relevant mandate and create the necessary structure where such data can then be transmitted to a regional or continental mechanism. As discussed in the preceding sections of this report, there is already a largely permitting legal and policy environment at the various levels for such an approach. Furthermore, there are, at least in most of the Countries, national bodies with the necessary mandate for HE data collections. For these reasons, an initiative for HE data collection in Africa would greatly benefit from adopting the second approach.

However, it needs no mentioning that there remain several challenges that need to be addressed for such an approach to have a meaningful impact. The state of education data collection at the national level greatly varies from country to country. There are also variations in the number of ministries or bodies tasked with the administration of education. In some jurisdictions various ministries are set up to undertake the administration of different levels of education. This leads to different ministries collecting education data and information for the respective education level over which they have a mandate. Additionally, most of the countries in the continent have limited statistical capacity. According to the World Bank Statistical Performance Indicators (SPI), the overall SPI score of statistical systems in most African Countries are in the bottom 20%. Therefore, assessment of and coordination with national level HE data sources requires identification of national ministries relevant for HE, identifying capacity development needs and provision of targeted support to alleviate the challenges. The following table contains information on such national bodies responsible for the administration of HE in each country. The institution's websites and/or education management information systems are also included when available.

Table 16: List of National Institutions and/or ministries responsible for administration of HE and data collection in African states

Region	Country	National institution	Ministry Website and EMIS/HEMIS Website
Central	Angola	Ministry of Higher Education, Science, Technology and Innovation of Angola	https://www.mescti.gov.ao
Central	Cameroon	Ministry of Higher Education	https://minesup.gov.cm/
Central	Central African Republic	Ministry of Higher Education	https://www.enseignementsuperieur.gouv.cf
Central	Chad	Ministry of Higher Education, Research and Innovation	
Central	Democratic Republic of the Congo	Ministry of Higher and University Education	www.minesu.gouv.cd/
Central	Equatorial Guinea	Ministry of Education and Science	
Central	Gabon	Ministry of Higher Education and Scientific Research	http://www.enseignement-superieur.gouv.ga
Central	Republic of the Congo	Ministry of Higher and University Education	http://www.minesu.gouv.cd
Central	São Tomé and Príncipe	Ministry of Education, Culture and Science	
Eastern	Burundi	Ministry of Higher Education and Scientific Research	https://mesrs.gov.bi
Eastern	Comoros	Ministry of National Education, Training and Research	www.education.gov.mg/
Eastern	Djibouti	Ministry of Higher Education and Research	http://www.education.gov.dj
Eastern	Eritrea	Ministry of Education	www.shabait.com
Eastern	Ethiopia	Ministry of Education[18] Higher Education Strategic Centre	http://www.moe.gov.et/
Eastern	Kenya	Ministry of Education	https://www.education.go.ke/ www.nemis.education.go.ke
Eastern	Madagascar	Ministry of Higher Education and Scientific Research	www.mesupres.gov.mg
Eastern	Malawi	National Council for Higher Education	http://www.nche.ac.mw/, https://hemis.nche.ac.mw
Eastern	Mauritius	Ministry of Education, Tertiary Education, Science and Technology	https://education.govmu.org
Eastern	Mozambique	Ministry of Higher Education, Science and Technology	www.mct.gov.mz
Eastern	Rwanda	Ministry of Education	https://www.mineduc.gov.rw/
Eastern	Seychelles	Tertiary Education Commission	https://www.tec.sc/
Eastern	Somalia	Ministry of Education, Culture and Higher Education	https://www.somalia.gov.so/ministries/

18. Administration of HE in Ethiopia was briefly transferred to a Ministry of Science and Higher Education in 2018. However, following the restructuring of federal administrative bodies in 2021, administration of HE is returned to Ministry of Education.

Eastern	Tanzania	Ministry of Education, Science and Technology	https://www.moe.go.tz/en
Eastern	Uganda	Ministry of Education and Sports	https://www.education.go.ug/
Eastern	Zambia	Ministry of Higher Education	https://www.mohe.gov.zm/
Eastern	Zimbabwe	Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development	http://www.mhtestd.gov.zw/
Northern	Algeria	Ministry of Higher Education and Scientific Research	www.mesrs.dz
Northern	Egypt	Ministry of Higher Education & Scientific Research	http://mohesr.gov.eg
Northern	Libya	Ministry of Higher Education and Scientific Research of Libya	https://csc.gov.ly
Northern	Morocco	Ministry of Higher Education, Scientific Research and Professional Training of Morocco	https://www.enssup.gov.ma/en
Northern	Sudan	Ministry of Higher Education, Scientific Research and Professional Training	http://www.mohe.gov.sd/
Northern	Tunisia	Ministry of Higher Education and Scientific Research	www.mes.tn
Northern	Western Sahara		
Southern	Botswana	Ministry of Tertiary Education, Research, Science and Technology of Botswana	https://www.gov.bw/en
Southern	Lesotho	Ministry of Education and Training	https://www.gov.ls/directory/council-on-higher-education/
Southern	Namibia	Ministry of Higher Education	http://www.mheti.gov.na http://www.nche.org.na/statistics
Southern	South Africa	Ministry of Higher Education, Science and Technology	http://www.dhet.gov.za https://www.dhet.gov.za/sitepages/Higher-Education-Management-System.aspx
Southern	Swaziland	Ministry of Education and Training	http://www.gov.sz/index.php/ministries-departments/ http://emis.co.sz
Western	Benin	Ministry of Higher Education and Scientific Research	https://enseignementsuperieur.gouv.bj
Western	Burkina Faso	Ministry of Secondary and Higher Education	http://www.mesrsi.gov.bf
Western	Cape Verde	Ministry of Higher Education, Science and Innovation	http://www.caast-net-plus.org/
Western	Gambia	Ministry of Higher Education, Research and Science and Technology	https://www.moherst.gov.gm
Western	Ghana	Tertiary Education Commission	https://gtec.edu.gh
Western	Guinea	Ministry of Higher Education and Scientific Research	https://www.mesrs.gov.gn

Western	Guinea-Bissau	Ministry of National Education and Higher Education	
Western	Ivory Coast	Ministry of Higher Education and Scientific Research	https://www.enseignement.gouv.ci
Western	Liberia	National Commission on Higher Education	http://www.nche.gov.lr
Western	Mali	Ministry of Higher Education and Research	http://www.enseignementsup.gouv.ml
Western	Mauritania	Ministry of Higher Education and scientific Research	https://www.education.gov.mr
Western	Niger	Ministry Of Tertiary Education Science And Technology	www.niger-gouv.org/ministeres
Western	Nigeria	Federal Ministry of Education	https://education.gov.ng https://education.gov.ng/national-education-management-information-system-nemis/
Western	Senegal	Ministry of Higher Education and Research	https://mesr.gouv.sn
Western	Sierra Leone	Ministry of Technical and Higher Education	https://www.mthe.gov.sl https://mbsse.gouv.sl/emis/
Western	Togo	Ministry of Higher Education and Research	https://edusup.gouv.tg

An important tool of data collection at the national level is the Education Management Information System (EMIS). As can be seen from the table above, not all national administrative bodies run education management system. All in all the development and implementation of the Education Management Information System (EMIS) in African states is still fraught with significant challenges. Moreover, there is so far limited development in the area of HEMIS in Africa. The development of an efficient HEMIS at the national level is crucial to resolve the HE data gap in Africa. Unlike general education, stakeholders that will take part in the administration of a HEMIS will be limited to national level institutions and HEIs. Hence, the amount of human and technological resource required to establish and run a HEMIS will be significantly lower than that of EMIS. This ease will create a conducive environment for linkage and coordination with a continental mechanism. Furthermore, with a particular focus on HE, it is possible to collect disaggregated data on the sector and enable more efficient monitoring and evaluation of the implementation of CESA at the national and regional levels.

While being deeper than continental and global databases, national HEMIS systems are not broad enough to provide a comparative picture of what factors are affecting a national education system. They do form a key block of a regional data collection activity and as such must be aligned at regional level to accommodate comparative analysis and coordination of human resources in an area greater than a nation.

7. Once Off Data Collections and/or Initiatives

A comprehensive and exhaustive enumeration and assessment of one-off data collections and initiatives is beyond the scope of the current mapping exercise. However, the report attempts to assess the spatial and temporal coverage; the thematic focus as well as the caveats and strengths of such initiatives. For the purposes of the current report, 'Once off Data Collections and/or Initiatives' refers to initiatives and studies aimed at the collection of data/statistics on higher education in general or any one or more dimensions of higher education administration and policy in Africa. Focus is made on such initiatives and studies that target a region of the continent or a group of countries in one or more regions. Such focus is preferred with the objective and approach of the current mapping exercise in mind – that is, among other things, to present a clearer image of higher education data collection in Africa in general with a particular focus on the building blocks of the regional integration process – the regions.

The current mapping exercise has covered a number of such initiatives undertaken or being undertaken in Africa. In general the initiatives tend to focus on a limited number of countries or HEIs in selected countries as well as focus on a specific dimension of HE policy and not HE data as a whole.

Education Sub-Saharan Africa (ESSA)

ESSA (Education Sub-Saharan Africa) runs the demography of African Faculty Database. This tracks the development and movement of faculty across the continent. Due to a surge in students attending universities and colleges across sub-Saharan Africa because of population growth, economic development, and increased participation rates in education. For universities and colleges to meet this demand, the supply of quality professors, tutors and academics is key. Education sub-Saharan Africa (ESSA) has been working alongside the Government of Ghana, the Association of African Universities (AAU), the Population Reference Bureau (PRB) and Ghana's National Council for Tertiary Education (NCTE) to pioneer a pilot study on this topic in Ghana. The study was supported by funding from the Mastercard Foundation.

The African Education Research Database[19] is another initiative run in collaboration with ESSA. The database is a result of a collaboration between the Research for Equitable Access and Learning (REAL) Centre at the UK-based University of Cambridge and Education Sub-Saharan Africa. The AERD hosts collection of research undertaken in the years from 2007 onwards by scholars based in sub-Saharan Africa. It is an updatable bibliographical database of education research in SSA, searchable by country, thematic foci and research methods and is openly accessible for users.

Methodologically, researches are collected by searching academic databases to identify relevant researches based on the inclusion/exclusion criteria, Scopus being the primary database used. Secondary databases like Web of Science, and the field-specific databases Education Resources Information Center (ERIC), British Education Index (BEI), and AfricaBib: Education in Africa are also used in the identification process.[20]

19. The database can be accessed at https://essa-africa.org/AERD
20. Mitchell, R., Rose, P.5, 2018. Literature search protocol for the African Education Research Database. Methodological Note. REAL Centre, University of Cambridge. https://doi.org/10.5281/zenodo.1245521

In determining relevant literature, it uses inclusion and exclusionary criteria in identifying research for inclusion in the database. Though it is not, as such, a data collection mechanism where data is supplied by African HE systems to the database, such database plays crucial role in making African research outputs on education more accessible. In addition, by focusing on education research, this database can also serve as both a source of and a means for dissemination of data on African education.

Table 17: Inclusion and exclusion criteria for determining relevant research for ESSA AER Database

Inclusion criteria	Exclusion criteria
Social science research	Not social science research
Evidence-based	Theoretical/not evidence-based
Implications for education policy and practice of relevance to African and global frameworks	No implications for education policy or practice of relevance to African and global frameworks
Date range 2007-present	Before 2007
Conducted by at least one SSA-based researcher	Not conducted by SSA-based researcher/organization
Identified through literature search strategy	

Source: REAL Centre, University of Cambridge

The database, as of the writing of this paper, contains close to 3400 education researches including theses and working papers from 49 African countries. It covers social science research with 'implications for educational policy and practice'. 'Implication for education policy and practice' is understood, according to the Literature Search Protocol for the AERD, is understood 'within the context of the African Union's Continental Education Strategy for Africa (CESA) and Agenda 2063, and the global priorities and targets expressed in Sustainable Development Goal 4.'[21] Though a deeper analysis is necessary, it is worth noting that many of the thematic areas applied to classify the researches contained in the database by and large fit with the thematic areas of the CESA. This aspect makes the database very crucial for the monitoring and evaluation of continental strategies like CESA, for which data is very rarely available. Users can browse the database based on one or a combination of thematic areas, language, methodology and access type. It is also possible to use keywords and phrases to narrow down search results to particular thematic areas. The following table illustrates how many results appear for the keyword 'higher education', for all countries, all languages, all methodologies and access types by thematic area.

21. **Ibid P. 4**

Table 18: Number of research outputs available on AERD for all 49 Countries by thematic area

S. No.	Thematic Areas	Number of search results for the keyword: Higher Education
1	All thematic areas	1310
2	Access to education	199
3	Students learning assessment	273
4	Equitable, inclusive education	231
5	Teachers and teaching	463
6	Language and curriculum	499
7	Institutional leadership, culture and facilities	383
8	ICT	405
9	Policy and finance	288

Source: Author's own calculation based on data accessed from https://essa-africa.org/AERD

However, as relevant as the database is, there are certain draw backs to it that highlight the need for a more comprehensive HE data collection mechanism in Africa. First, as a bibliographical database, it only covers research out puts and, hence, the data that can be harnessed through the database will be of limited use for monitoring and evaluation of, say, the implementation of CESA. Secondly, the researches collected by the database are only those authored by researchers from SSA. Despite its merit in enhancing the visibility and contribution of researchers from the region, by excluding researches authored by researchers outside the region the database will significantly limit the breadth of research outputs relevant for the assessment of the performance of the continental strategy. Thirdly, the database covers all levels of education and, as such, not all the research accessible through the database can be relevant for HE. As such, as shown in the table above, out of the close to 3,400 researches accessible from the database, only 1,310 results appear for all thematic areas with 'higher education' as the keyword.[22] Fourthly, there is not formal (legal or institutional) linkage between the database or the Center running the database and relevant institutions in African countries and at the continental level. Though such relation is not mandatory for the AERD or similar databases to collect research outputs, it would have created for a more institutionalized and robust collection of education researches had there been such collaboration. Fifth, the database only focuses on SSA Countries and, as a result, research outputs from countries in Northern Africa are not included in the database. This limitation also affects the database's relevance for continental level assessment of the state of education in Africa.

22. See at https://essa-africa.org/node/501?term=Higher%20education&action=searchbasic&page=1 last accessed on 6 July 2022.

African Institute in South Africa (AISA) - HSRC

African Institute in South Africa (AISA) is a department of the Human Science Research Council (HSRC). AISA in the HSRC undertakes basic, applied, and comparative research devoted to the study of Africa and African Diasporas. Additionally, the Centre collaborates with and provides research-based policy advice to African multilateral organizations on public affairs. AISA leads, provides strategic direction to and coordinates the HSRC's existing Pan-African programme of work, and stimulates new streams of research which are informed by the vision of transforming African societies into dynamic, prosperous and safe and secure spaces. AISA's research and datasets are managed by the HSRC. These datasets provide research data that is used to conduct research that advises governments, multilateral institutions, and academia on issues of public affairs in south Africa and the broader SADC region. The data sets are available on the website and by request from the HSRC.

HAQAA 1

HAQAA 1 has developed indices for the performance framework for universities where they can self-assess or be assessed externally. These indices were a result of consultancy visits under the Pan-African Quality Assurance and Accreditation Framework (PAQAF). These visits and pilot reviews utilised the newly developed African Standards and Guidelines for Quality Assurance (ASG-QA) and the review methodology developed within the framework of the HAQAA Initiative. This process produced useful comparative data among participating universities. Another data collection exercise under HAQAA 1 worth mentioning is the mapping of quality assurance agencies and the internal and external quality assurance standards in the continent. It is worth noting at this point that data about higher education system governance and the instruments and institutions employed in the administration of a country's HE system is as scarce in Africa as data on the overall performance of the higher education systems. Funding for the initiative was provided by the European Union under the EU-AUC partnership.

HERANA I - III

The focus areas include research in HE (Higher Education Research and Advocacy Network in Africa (HERANA).8 The eight universities are: Botswana, Cape Town (South Africa), Dar es Salaam (Tanzania), Eduardo Mondlane (Mozambique), Ghana, Makerere (Uganda), Mauritius, and Nairobi (Kenya.). Funding for HERANA I (2007-10) was provided by four donors in these time periods, Ford Foundation Carnegie Corporation, Kresge, Rockefeller. The focus of the research was on links between universities and economic development.

HERANA II (2010-2013) saw the internalization of focus to collecting data within institutions to gain a better understanding of the internal workings of these universities. Growth in research and innovation was a key objective of the exercise. Key findings were published in two reports namely Knowledge Production and Contradictory Functions in African Higher Education.

HERANA III (2014-17) aimed to support the development of a group of research-intensive universities as a model for other countries on the continent. The data from the third phase of the project, published recently in An Empirical Overview of Emerging Research Universities in Africa 2001-2015, shows that all the HERANA universities registered an increase in enrolments, with the University of Nairobi in Kenya, Eduardo Mondlane

University in Mozambique and the University of Ghana growing the fastest. In addition to the University of Cape Town, the two HERANA universities that showed the most improvement on the journey to becoming research universities were Makerere University and the University of Ghana (Legon).

The data that was generated shows how HEIs operate in the chosen jurisdictions. The data collected in this initiative was utilized to monitor and evaluate the actions of these universities against benchmarks like the Millennium Development Goals and other key measures to assess their relevance to global as well as local challenges. The project highlighted the need for data for planning and strategic purposes as well as increasing research capability in universities. The data is available for planners and researchers upon request.

SA-NORD

Southern African – Nordic Centre (SANORD) is committed to advancing strategic, multilateral academic collaboration between institutions in the Southern African and Nordic regions, as we seek to address new local and global challenges of innovation and development. Its activities are based on fundamental values of democracy, social equity and academic engagement, and on the relationships of trust built between the regions over time. SANORD was launched in December 2006 and officially established in January 2007 by seven founding members. The founding universities are from three Southern African and four Nordic countries: Aarhus University (Denmark), University of Bergen (Norway), University of Malawi (Malawi), University of Namibia (Namibia), University of Turku (Finland), Uppsala University (Sweden), and University of the Western Cape (South Africa). SANORD is governed according to its Statutes and its Council consists of the principals of all member institutions or their nominees. It operates a database of student scholarship opportunities in Nordic countries and helps students from Southern Africa go and learn abroad. Their website however does not show the mobility data of their students.

Most importantly, such studies and initiatives, aside from serving as a benchmark for building a better data collection mechanism, have little to offer in terms of institutionalizing each level of HE data collection in a manner that will be relevant to the continental policy making and implementation. They also suffer from a lack of continuity due to being project-based initiatives or lacking funding.

The focus areas include research in HE (Higher Education Research and Advocacy Network in Africa (HERANA)), data on scholarship providers and demography of faculty in African HE (ESSA), research, development and innovation (Human Sciences Research Council and African Institute in South Africa), quality assurance and enhancement (UNESCO, HAQAA 1 & 2), human capacity building (SANROD). Most importantly, such studies and initiatives, aside from serving as a benchmark for building a better data collection mechanism, have little to offer in terms of institutionalizing each level of HE data collection in a manner that will be relevant to the continental policy making and implementation.

Once off initiatives while very rich in information suffer from limited coverage. As a future option, their sustainability is also questionable as funding sources that go into numerous once off initiatives could be pooled together to fund ongoing development of regional HEMIS systems.

8. CONCLUSION

Since the adoption of Agenda 2063, CESA and other continental and global goals, the AU has been working on overhauling the continental tertiary education systems so that they would able to contribute to the economic development and competitiveness of the continent. In order to facilitate the monitoring and evaluation of the implementation of CESA's strategic objectives, the AU adopted in March 2018 the CESA indicator manuals. The indicator manuals are aimed at empowering education managers both inside and outside of African Ministries responsible for Education to perform their jobs more effectively. The indicator manuals contain 8 distinct indicators for the M&E of implementation of CESA's Objective 9 – tertiary education. With the end of CESA implementation period approaching fast, it is important now to assess countries performance based on the relevant indicators.

In addition to CESA and as part of the broader RI process, Africa has also embarked on the process of harmonization of HE systems in the continent. The problem of ensuring that information about higher education institutions and programmes can be compared in meaningful ways is one of the biggest challenges any such regional harmonization process will face. Hence, creation of a system in which HE data from different countries can be meaningfully compared can be beneficial to policy makers at different levels, students, employers, and academics as well as anyone interested in the harmonization process.

The collection of higher education data in Africa is in dire need of overhauling if it is to enable the effective monitoring and evaluation of the continental education strategy. Though a more comprehensive assessment of the national level data collection and data sources is needed, the efforts made at the regional and global level indicate that much of the gaps in data availability emanate from lack of capacity at the national level as well as lack of linkage and coordination between the national and the regional/continental systems. Particularly, data on HE seems to have been affected most by these factors. Furthermore, the various initiatives covered in this assessment lack institutional quality.

The data collections conducted at the international level by the likes of UIS and the World Bank largely focus on general education and there is a significant gap in higher education data. The gap exists both in terms of focus, i.e. targeting collection of higher education data relevant for M&E of the CESA in particular and, in the effective collection of HE data even in cases where it was the focus of the data collection initiative. Additionally, the indicators used by such global data collections are based on global development goals like the SDGs. Therefore, as important as such data and indicators can be, there is no data collected on the basis of indicators relevant to monitor and evaluate the implementation of the CESA objectives of the African Union.

The mapping exercise also identified the existence of significant differences between the regions in terms of HE regionalization and harmonization; institutional arrangements; adoption of political and legal instruments as well as the current state of data collection. There is also a disparity in the level of reception of continentally set agendas and goals. While some of the regions have adopted legal and policy instruments underpinned by CESA and Agenda 2063 others are lagging behind in this respect. This underscores the need to design an intervention specific and responsive to each region's needs and level of preparedness. Moreover, even in the presence of legal and policy instruments at the RECs level, the focus groups conducted in the different

regions show a disconnect between continentally set objectives and the practice at the regional and national level. Additionally, it was also observed from the focus groups that there is significant lack of awareness about CESA and other Continentally set agendas on the part of HE stakeholders from some of the regions. Unless adequately and urgently addressed, such gap will hinder both the implementation and M&E CESA and other Continentally set objectives.

Particularly, despite the adoption of Protocols on education and training under the auspices of the relevant RECs; as well as the existence of active higher education harmonization efforts in the regions, the data collections so far conducted are not adequately and institutionally intertwined in the regionalization process of the RECs. In this regard, the experiences of the IUCEA (EAC) and SARUA in Southern Africa (SADC) show relatively significant progress. Over all, the report has found that there is a general consensus in the various regions on the need for a collective action to resolve the HE data problem and, moreover, the political will at the RECs level is demonstrated in the adoption of various legal and policy instruments pertaining to regional data collection and exchange.

However, as demonstrated in the regional focus groups, translating these in to practice is thwarted by multiple challenges including lack of financing, poor infrastructure, lack of trained human resource and, in some cases, lack of political will to translate regional commitments into domestic policies. An important gap worth focusing on is the fact that not all states in a particular region are members to the respective RECs and, therefore, any data collection via the RECs in a particular region will not necessarily be representative of the whole of the region. The EAC – IUCEA membership is a good example of such a gap. Furthermore, there isn't so far a central database where comparable country data are available for public consumption under any of the RECs in Africa.

The lack of a timely and relevant data on African HE has also affected the overall standing and competitiveness of African HEIs at the world stage. As can be seen from the results of the various world university rankings, African Universities barely feature in the rankings and, when they do, only a handful of institutions from very few countries make the list. This, among other things, is directly related with their limited ability to collect and timely transmit data to global systems. Establishing the necessary institutional systems for data collection and dissemination at the national, regional and continental level would go a long way in preparing the way for institutions to participate more actively in such global schemes. Moreover, the international rankings are unresponsive, or at least disinterested, to the priorities of African HE systems and the real-life context within which the HEIs function. Hence, the competitiveness induced by such rankings has the potential to push African HEIs to aim at meeting requirements set by such rankings at the expense of policies and strategies set at the regional and continental levels. An enhanced continental data collection system, in addition to aiding global competitiveness, can also be a basis to compare the performance of African HEIs between themselves. This will serve both as a means to disseminate data on African HEIs and, in a way, an incentive for the institutions to focus on African priorities.

The one-off data collection initiatives assessed in the current mapping activity show huge gaps in all dimensions of a relevant and timely data collection that can meaningfully contribute to the HE policymaking in Africa. Mainly, the data collections made so far are by and large limited to either a small number of countries or a limited aspect of education data. Moreover, the data collections only span a limited period of time and do not

necessarily provide a relatively full image of the little geographic area they cover. In terms of funding, almost all such data collection initiatives are either fully or significantly financed by partner organizations or states outside the continent.

Over all, the data collection efforts in Africa explored in this mapping phase clearly show the need for a systematic and organized data collection mechanism at the regional and continental levels. This can best be achieved through the development of a "Policy Data Unit" in Africa, which will drive a new approach and process for generating comparable higher education data across the continent, rooted closely in CESA and the different African Union structures which support it.

However, owing to the existing disparity between the regions, such an intervention should be adopted in a sequenced manner. The establishment of a continental data collection mechanism should be the long-term goal while focusing, in the short term, on devising ways to collect HE data relevant for the M&E of CESA HE strategic objectives as well as strategically assisting the regions in accordance with their needs and level of preparedness. This approach will put all the regions on a path towards a continental mechanism but in a manner commensurate with their peculiar needs.

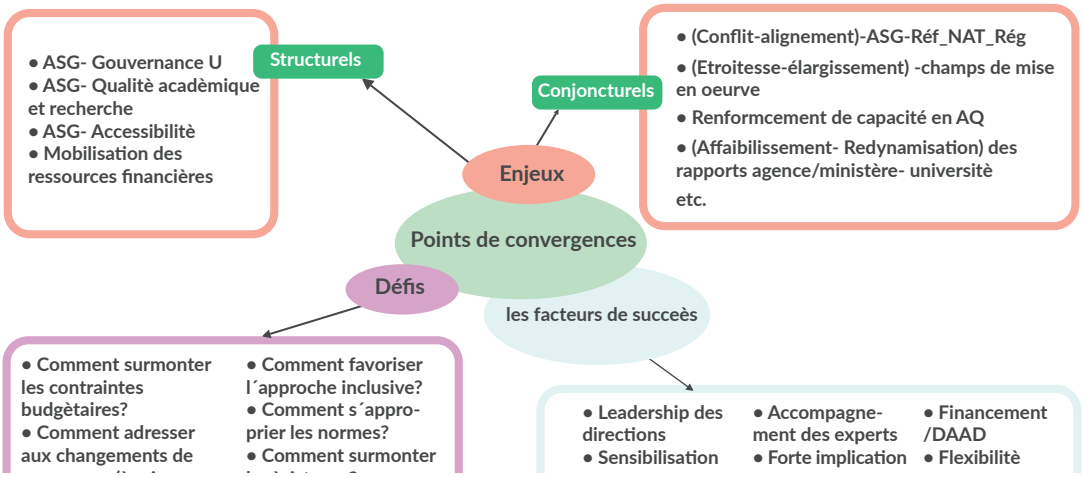
Institutionalized data collection that is embedded in the regional blocks or the AU at large has wide-ranging implications for the efficacy and sustainability of data collection in the regions. Among other things, the absence of it creates a scattered and decentralized data ecosystem; preconditions data collection on the availability of funding; hinders effective data management and curation, and makes difficult, if not impossible, the collection of relevant and continentally representative data. An AU/REC based institutional system, on the other hand, can be linked with national systems in member states, which will, in turn, enhance the quality of the data. Besides, compared to the political buy-in such an institutional system might garner, national-level data sources have a lesser likelihood of compliance with decentralized or scattered data collection initiatives. Additionally, such a mechanism will have a good opportunity to be imbedded in the overall regional integration process and, both facilitate and benefit from such process.

The experience from other regions also supports such an approach. For instance, the establishment and development of the Eurostat, as the main statistical agency of the European Union has benefited from such a process. Admittedly, given the RI process approach adopted in Africa – i.e. one that uses the RECs as a building block, as well as the differences in terms of size and challenges faced by African and European integration process, a direct transference of the EU experience might not be advisable to Africa. However, the principle that such an approach imbedded in the RI process, but by first utilizing data collection at the RECs level as a building block, is most suitable to resolving the African HE data collection problem.

The HE harmonization process, as well as the implementation of CESA, will also greatly benefit from such an institutionalized data collection. It will enable decision-makers in the regions and at the continental level to access disaggregated data on the state of HE in the continent; provide timely and relevant data to assist the M&E of CESA's implementation and indicate potential areas of intervention in line with the continental development strategies and goals. Furthermore, given the significant public funding put into HEIs in Africa, dissemination to the wider African populace of detailed statistics on the activities of such HEIs will considerably contribute to the development of the culture of accountability in the continent. In the short term, particular focus must be paid for the M&E of CESA as the end of its implementation – 2026, is fast approaching.

The evidence matrix has thus far helped us to identify dynamics in HEMIS systems in African regions, it has also helped us to identify the differences in development among the regions, now it will help us to map a way forward concerning the collection of data in each region. Data collection strategies on the regions are not going to be a "one size fits all" affair. The different stages of development are each associated with differing problems and hence different strategies going forward. Transforming our evidence matrix into a strategy matrix yields the matrix below. This in conjunction with the differences challenges and opportunities identified in the matrix closing Section 3, will identify strategies to be followed in each region and concomitantly a work plan to the effect of reversing the issues that prevent collection of timely, accurate complete and consistent data.

The boxes in the 1st matrix have been transformed to show representative action areas that concern a policy cycle as well as a statistical cycles. Six strategies/relationships are identified that are going to be used to map existing interventions as well as propose future interventions and develop a pathway towards a data collection approach in a regional context. This framework will form the basis of the workplan for the Policy Development Unit when it is functional. Current interventions can be mapped onto this framework. The strategies/relationships outlined are Goal-Output, Goal Structure, Goal -Process, Output-Process, Output-Structure and Process-Structure. The tactics in each strategy are outlined and recommendations for each region shall be made along this structure.



Goal-Output Strategies

Consistent reflection occurs between the goal setters and the data outputs that they obtain with a view to improve the relevance of statistics that are being collected to regional goals. A key intervention in this strategy is the adoption of Norms and Standards to help with the collection of data. SADC and EAC have already gone through this process. Continentally, the AU standard and guidelines have been promulgated and there is a need to have them adopted at a regional level in NA, WA and CA.

Interventions

i) Develop regional norms and standards that define data to be collected and the set standards
ii) Lobby for the standards to be accepted at regional level and implemented at national level
iii) Benchmark regional strategies and approaches to data collection

iv) Monitor improvement in data outputs.
v) Lobby and implement rigorous data governance strategies e.g open data 2.0

Goal-Structure Strategies

Regional legal mandates and policies are utilized to create policy clarity at nation level, clearly defining the role of the Ministry of Higher Education, National Statistical Office and National Higher Education Council as to how data is collected and transmitted in the context of a regional HEMIS.SADC has developed such a strategy, EAC is in the process of creating one WA,NA and CA are yet to develop regional policies or strategies that clarify the role of ownership of the HEMIS system at national level to create a clear link with a regional HEMIS. Interference in statistical structures also comes when they shift focus to donor related work, this distracts statistical departments from collecting data well as such work gets preference due to the availability of technical and other resources.

Interventions

i) Lobby for the creation of regional HEMIS policies and strategies to be adopted and implemented at regional level.
ii) Develop regional database and database holding organisation where one does not yet exist.
iii) Ring fence statistical department resources to enable them to solely focus on collecting HEMIS data.
iv) Strengthen governance to connect the structure and functioning of the HEMIS system to regional and continental goals.
v) Draft collaboration agreements around cross cutting issues of interest in regions where regional databases will be too complicated to establish.

Goal-Process Strategies

The evolution of regional HEMIS goals calls for the continuous improvement of statistical methods, processes, and practices. Technological advancements are likely to present opportunities that create different ways to collect, store and analyse data. Technology can be utilised to overcome lethargic political will. Clear regional goals are beginning to create progress in EAC where IUCEA is forging the way forward towards a strategy that will delineate data pathways that connect university, national and regional HEMSI systems. SADC is implementing a top-down process that will facilitate for the transfer of university data to a regional HEMIS.

Interventions

i) Strengthen oversight over methodologies and operations through a national HEMIS champion (ETER,2021)
ii) Improve the general quality of staff through training and exchanges.
iii) Engender research collaboration in regions that do not have regional structures in place.

Process-Output Strategies

The relationship between processes and outputs is such that the quality of the process predicts the quality of the output. Creating a consistent high quality of data requires rigorous quality checks done by trained

staff on a good budget. Connecting the universities to the NHCEs or the regional HEMIS can create ease of communication and quicker response to data requests and queries. These issues are influenced by technology that can be taken advantage of. All five African regions need funding and support in these regards. All 5 African regions must focus on this area especially in bottom-up development of data pathways.

Interventions

i) Implement latest technological tools to help in collecting and transmitting data.
ii) Increase the ability of personnel to utilise advanced statistical equipment to increase the capacity to handle and analyse data
iii) Emphasise training on internal quality controls at university level and each level up a data pathway. (i.e., institutional, national regional).

Structure-Output Strategies

HEMIS system structures might hinder the data output that comes out at the end of the statistical cycle. The HEMIS holding organizations might need to be streamlined for maximum performance. The structure to the national HEMIS system/holding organisation must be determined by the data to be produced. All 5 African regions must focus on this area especially in bottom-up development of data pathways.

Interventions

i) Train HEMIS managers to organise HEMIS departments with the ease of producing relevant statistics in mind.
ii) Constant feedback to improve the structure of the organisation through e.g., ISO standardisation
iii) Exchanges with more mature HEMIS systems to ensure collaboration and cross pollination of ideas.

Process-Structure Strategies

There are perennial operational, structural, and functional issues that plague national HEMIS systems. Lack of funds and personnel affect the implementation of methodologies. This leads to data that is of a low quality. Statistical departments at national levels are used for procurement processes where technical and financial resources availed to them are channeled to other “important” departments or ministries since statistics are not deemed important to the running of Higher Education. Stronger alignment of processes to the structure and vice versa are needed, they can be achieved in the following ways.

Interventions

i) Recruit and organise staff to make the best use of available resources.
ii) Recruit more staff and add more resources to capacitate the HEMIS system
iii) Train extensively in the internal organisation, operation and management of a HEMIS system.

The next section will focus on the consolidated recommendations for this report.

9. RECOMMENDATIONS

1. CESA has been in place for more than 6 years now. It is important to assess the implementation of its tertiary education objectives so that countries' status can be determined and necessary actions would be taken to enhance the achievement of the objectives in the remaining years of the CESA implementation period. Therefore, In the short term, it is important to initiate data collection from member states on the implementation of CESA's SO 9 for the years 2016-2022. By:

1.1. Developing a CESA HE Data Collection tool specifically designed on the basis of the CESA indicator manuals;

1.2. Working towards endorsement of the CESA HE Data Collection tool by continental, regional and national bodies in charge of HE;

1.3. Securing Commitment from Key University Associations at the continental and RECs level;

1.4. Disseminating the CESA Data Collection tool and collecting and analyzing data from member states on the implementation of CESA SO 9 and, disseminating results through different publications;

1.5. Providing targeted capacity assistance aimed at enhancing member states' ability to respond to the CESA HE Data Collection tool, and

1.6. Through the data collection process, identifying capacity needs at the different levels for future intervention.

2. In the medium term, development and maintenance of a regional higher education data collection process should be given prior attention. This has to be done in accordance with the current needs and level of integration in the respective regions. Hence,

2.1. In regions where cooperation in the area of HE is still lacking, creating networking opportunities between HEIs and administrators from countries in the regions with a particular focus on cooperation on HE statical data exchange;

2.2. In regions where progress has already been made on HE regionalization, Creation and Promotion of networking meetings for ministries, agencies and other HE stakeholders towards establishment of a regional data collection mechanism;

2.3. Organizing training programs on areas relevant for the collection of HE data for personnel from public authorities, other relevant agencies and HEIs;

2.4. Provision of support to countries and regions in enhancing their data collection capacity at the national and regional levels, and

2.5. Establishment and maintenance, through RECs, of regional higher education data collection processes that are aligned with regional and continental policies and strategies.

3. In the long run, establishment and maintenance of continental and regional political commitment to a sustainable data collection initiative that can serve for continued M&E of CESA and Agenda 2063 as well as for the long-term administration of the continent's HE systems. Hence:

3.1. Working towards the adoption of policy and legal instruments at the regional and continental levels for the creation of the structure necessary for reporting data from the national to the regional and ultimately to the continental level;

3.2. Workshops on harmonization of methodology and development of a meaningful and collectable

core data set with experts on HE statistical data in collaboration with relevant partners at the international and regional levels;

3.3. Establishment and maintenance of a continental HE data collection mechanism to be hosted by an agreed institution and collects data on HEIs performance, accredited programmes and institutions as well as HE systems;

3.4. Conduct HE policy research and analysis on the basis data collected by the continental mechanism that can serve as an input for policy makers at the different levels of the decision-making process, and

3.5. Development and implementation of an African system to measure performance of HEIs to create an informative, accountable and competitive HE system in the continent.

10. ANNEXES

Annex 1: Regional Plans of Action

	Regional HEMIS Strategy	Regional HEMIS Protocol/Legal instrument	Regional HEMIS Policy	Regional Organisation	Regional Database
CA	Commission HEMIS strategy to be developed	Adopted in 2007	Regional HEMIS policy to be developed	Identify and commission organisation AUF?	To be developed
EA	Under development, details to be sent out soon	Adopted in 2002	To be developed	IUCEA is set up and working on the issue	Support IUCEA pilot database under development
NA	HEMIS strategy to be developed	Instruments to initiate engagement to be developed	To be developed	To be identified and commissioned	To be developed
SA	Adopted in 2010	Adopted in 1997	Regional Policy agreed in mandate of 2007	SARUA is set up and working in the issue	-Support SARUA pilot Database under development -Accelerate Regional HEMIS integration through ITS
WA	Commission Regional HEMIS strategy to be developed	Articles if ECOWAS incorporation allow for the development of a regional database	To be developed	AAU?	To be developed

ANNEX 2: Report on HAQAA 2 Activities in the SADC

Higher education management in Southern Africa is a function of the various higher education ministries in member countries with coordination from the SADC secretariat.

Table A2.1: Summary of HAQAA 2 activities in SADC.

Dimension	Detail
Programme	HAQAA 2-SARUA Collaboration on HE in SADC
Premises	SADC Protocol on Higher Education 1997, implemented in 2000. African Union Agenda 2063 SADC RISDP 2020–2030 CESA 16-25 Strategy Agenda 2030
Goals	Create and implement a new data collection approach in SADC that aligns to world standards whilst engendering the local context.
Purpose	To address strategic weaknesses identified in said strategies about the lack of data for M&E systems that hamstrings evidence-based planning and action for sustainable change in the Higher Education Sector in SADC nations and the region. To align SADC Member States HEMIS data collection processes to CESA 16-25 objectives.
Objectives	Improve the quantity and quality of SADC higher education data Improving the Regional HEMIS policy environment to enable the creation and maintenance of sustainable data pathways that will increase the quality of data.
Activities	**SARUA** have been involved in key negotiations with the **Technical Committee on Education Management Information Systems** as well as the **Technical Committee on Higher Education and Training, Research and Development** with the intention to establish a SADC Higher Education data exchange. **A prototype for a data base is under development under the mandate of the SADC.** A list of definitions is being developed that captures the reality of what is practiced in HEMIS systems in other parts of the world while capturing the SADC reality.
Inputs	Policy Analyses on the interaction between regional level and national HEMIS environments with a view to support policy alignment at the two levels. Analyses to align data definitions at the regional and national level with to establish the basis for a common regional database.

Progress	Definitions to drive a common data base in line with Global, regional, and National standards. Development of roadmap towards implementing the regional Higher education warehouse.
Roadmap/Proposed Projects	The establishment of a regional data warehouse where the database shall sit. Training programs at university level to train people to utilise this database thereby creating a central repository of data and well-trained personnel that can ensure data is well collected at the coal face of Higher Education. Sensitisation and awareness creation for data collection initiative as well as quality assurance drive of HAQAA 2.
Recommendations	HAQAA 2 should continue to fund this project to its logical end.

THE HAQAA 2 – SARUA- SADC engagement report

Under the auspices of Agenda 2030, the African Union Agenda 2063 and the African Union's CESA 16-25 HAQAA 2 has engaged with the SADC Region through its partner SARUA in its role as an implementing agent of the EU Commission, to implement the improvement in the quality of education outcomes for economic development. This report details the context and contents of this engagement, the deliberations in this engagement as well as a roadmap going forward to improve the quality of the Human Resource.

Background

SADC is a Regional Economic community that is geographically located in the Southern Area of southern Africa. It began in 1980 as the Southern African Development Coordination Conference with 9 members. It transitioned to a development Community in 1992 with the signing of the Lusaka Declaration, giving the organisation a legal character. The main objectives of SADC are to achieve economic development, peace and security, and growth, alleviate poverty, enhance the standard and quality of life of the peoples of Southern Africa, and support the socially disadvantaged through Regional Integration. Key among the strategies that SADC would use to achieve this goal was through developing the education sector in the region.

In 1997 SADC as a region adopted the protocol on education. It came to force in 2000.This protocol allowed for cooperation and coordination among member states to develop the SADC human resource in a coordinated fashion. It envisages the coordination of human resources development among member countries to create an available and competent workforce to contribute to poverty alleviation and regional integration. In more recent times, the pertinence of education has also been extensively highlighted in the RISDP 2020-2030, with the delineation of the strategic goal geared towards ''increasing access to quality ad relevant education and skills development, including science and technology, for SADC Citizens'' which is expected to lead to enhanced equitable access to quality and relevant education and enhanced skills development for industrialisation.[23]

Despite all these developments, SADC education development has not been without its challenges. Key among these challenges is providing equitable access to education at all levels, limited access to High-level

23. ("Education & Skills Development | SADC")

Training and a mismatch in supply and demand of skilled labour; inequitable access to education, especially affecting disadvantaged groups such as women, disabled people, and people from rural areas and a lack of comparable Standards and Qualifications across all training institutions and countries. Strategies have been developed to mitigate against these issues, however a cross-cutting issue that emerges is a lack of relevant comprehensive data to evaluate the impact of strategies implemented to tackle these problems.

Problem Statement

To address this issue at a continental level, CESA 16-25 under its strategy sought to collect data to evaluate and monitor its interventions but a critical gap that has emerged is the lack of a means to verify the attainment of its objectives. This weakness was noted in regional strategies and regions being closer to the data made a better reference point for data collection. This obviated the need to create a regional Higher Education Management Information System to fulfil both SADC's needs as well as CESA 16-25 requirements. To this end, SADC under the Protocol on Education 2000 has developed HEMIS Norms and Standards to guide the collection of data in national systems. The implementation of these norms and standards has been tracked by multilateral organisations and the performance is satisfactory at best and spotty otherwise. To fulfil both the needs of the Global, Continental, and Regional agendas, HAQAA 2 engaged with the SADC Regional Economic Community to initiate, implement and maintain a process that will systematically collect comprehensive Higher education data in the SADC region.

HAQAA 2 ENGAGEMENT WITH SADC

The lack of a viable Data collection mechanism creates a gap in SADC's monitoring and evaluation cycle. For the CESA 16 - 25 strategy, it became apparent that a regional data collection mechanism needed to be set up. CESA 16-25 lacks the means to verify evidence of its interventions in the African Higher Education space, thereby hamstringing any activities that it is planning to do. HAQAA 2 having made such an assessment proceeded to set up regional data exchanges in Africa's 5 African Union regions namely North Africa, West Africa, East Africa, Central Africa, and Southern Africa.

SARUA's Agenda for participating in the PDU established as part of the HAQAA project should be in line with the SADC Agenda for developing a SADC Higher Education Database. The SADC Agenda was set in 2020 when a proposal was presented and accepted by the SADC Technical Committee on Higher Education. It was accepted that the data project would be guided by the UN Statistical Commissions' work on data collection, especially by the High-level Group for Partnership, Coordination and Capacity-Building (HLG-PCCB) for statistics for the 2030 Agenda for Sustainable Development that was established at the 46th session of the United Nations Statistical Commission meeting. The purpose of this body is to coordinate the quality and format of data to be collected related to the SDG's.

In Southern Africa, HAQAA 2 intends to fill in the gap of a missing data exchange by collaborating with SARUA a higher education association affiliated to the Regional Economic Community in Southern Africa. SARUA has 43 universities in its membership and is well positioned create policy changes in the universe higher education space in southern Africa. Its engagement with SADC falls under 3 pillars namely advocacy, collaboration, and

activities/operations. The next section outlines how SARUA has engaged SADC in the formation of a higher education data collection mechanism on the region.

Advocacy

SARUA through its Policy Data Unit (PDU from henceforth) has been spearheading engagements with key committees in SADC structures. Meetings have been held with the Committee on Higher Education Management Information Systems as well as the Committee on Economic Development for the SADC region to establish linkages and synergies that could be leveraged to accelerate higher education data collection in the region as well as integrate Regional Human Resource Policy. Main work in advocacy was to revive the data collection impetus implied in the protocol on Education of 1997. These engagements were also meant to rationalise the mandate that SADC has given to SARUA to set up the regional Higher education database. Are also highlighted they need to comply with global and continental data collection initiatives that would align SADC higher education development with the continent and the globe in general. SARUA enjoys the support of SADC structures in this respect and such political will energises further processes to set up a regional data collection mechanism.

The SADC Ministers responsible for Education and Training, Science, Technology, and Innovation (ET-STI) endorsed at their meeting on the 17th – 21st June 2019, in Windhoek, Namibia, that a comprehensive Profile and Database of Higher Education for the SADC Region should be developed by the Southern African Regional Universities Association (SARUA). The database should include the public and private education sectors and should be developed in consultation with all key stakeholders in the Region. The database development should follow a phased approach and complement existing databases. A complete profile must be developed to be used as an instrument assisting the SADC and the HE Ministers and Senior Officials in Ministries of HE, Science and Technology and Finance to develop a shared understanding of the role of HE in national and regional development. The data should also inform and assist the Private Sector in their economic forecasting as far as the Human Resources potential of the Region is concerned.

Collaboration

Having obtained the mandate collect higher education data in SADC, SARUA through the regional PDU, proceeded to layout project plans that are going to form the road map for higher education data collection in the region. The project was initiated by analysing the different Higher Education Student data collection practices within the SADC, and it became clear that data is only available at the National level. The data is not collected uniformly and would not enable the evaluation of Higher Education in an informed manner. The previous research by SARUA, in 2012, to develop a regional database provided a 'snapshot' of the situation in the period before 2012. To date, no comprehensive database exists that provides a comprehensive date view of SARUA's Higher Education Sector.

Key elements of the collaboration include continuing policy analysis which was focused on aligning national HEMIS systems to regional HEMIS system various political and legal challenges were anticipated from the analysis[24] and the road map to mitigate against these was jointly developed for presentation to the SADC Council of Higher Education Ministers.

24. Policy and Legal Analysis attached in Annex 2b

Technical issues were raised with respect to rationalizing definitions and standards for inputs into the data collections mechanism. Various metadata analysis[25] we conducted from the global to local level which highlighted aspects that the new system had to include to be globally relevant while being sensitive to local realties. The database for SADC Higher Education should rely on the principles that characterise the concept of Big Data. These principles are characterised by volume, variety, veracity, and value. To manage such a database requires powerful technology and skills to extract the actual value of these datasets. The results extracted from the datasets will ultimately guide the relevant SADC Governmental Institutions and the Private Sector to make informed decisions related to the role of Higher education in the overall holistic development of the SADC Region. The analyses of big datasets through technology and specific techniques will provide insights into the role of Higher Education as an economic and developmental driver of the SADC Region.

The database will provide data on all the Higher Education Institutions in the SADC Member States. It will be constructed in such a way that it will provide real-time data. A guiding principle would be that the data would be available at institutional, national, and regional levels. Each of these users would have access to their data. The data would be developed as a SADC Regional Datawarehouse. SARUA would maintain it on an ongoing basis. Access to the data would be available as an open-source database to specific users. Lessons were drawn from the European, United Nations and World Bank databases. Peculiarities from the Southern African region we also identified. Putting them together created a database that is reflects the dynamics in the SADC higher education space.

Activities/Operations

Having outlined the requirements for a static higher education regional data exchange, SARUA proceeded to report that it is going to be used to guide its actions the setting up education management information system. This road map developed by the PDU, is being presented to the SADC ministers of education committee for ratification and should start to be implemented in July of 2022.The road map which outlines the intended activities of the PDU focuses on three critical actions being i) sensitization and onboarding of universities in establishing the regional database, ii) development and operationalization of the database itself and iii) the commissioning of training programs and outreach campaigns that are going to help staff at the university and national level be able to interact with the database.

The program as developed is going to start with five pilot countries which are South Africa, Mauritius Namibia, Botswana, and Zimbabwe. These countries have been selected on the relative strength of their education management information systems. The process will respond training staff at universities in their use of university management information systems. a key part of this project we'll be to connect universities to the original education management information system. this will be done by creating a product with their front end at the universities in the back end at regional and national level. this will ensure data security concerns between the region and the national systems will be eliminated. The table[26] outlines the road map that the PDU intends to implement over the next three years, and it has been presented for ratification at the SADC committee of higher education ministers.

25. Meta data analysis included in Annex 2c
26. Table under Appendix 2d outlines SARUA's Policy Data Unit plan of action for the next three years.

ANNEX 2B: Policy Analysis

Detailed below is an analysis of the functioning of HEMIS systems in a pilot group of SADC members. Concluding from the analysis below SARUA's programme focus will be to intervene at the university, national and regional levels. A SADC mandated Regional Higher education management information system will develop resources at the institution level and link them to the national and regional domains. A regional data warehouse with an institutional and national level interface overcomes data governance and technical issues that have prevented the collection of relevant, comprehensive higher education data in the SADC region. A critical link that will be developed in the national and regional levels stimulating dissemination and consumption methods that encourage the incorporation of Higher education data and insights into national planning discourses. This ensures balance and sustainability in the system as a continuous equilibrium between the supply and demand of data will make the HEMIS system self-sustaining.

HEMIS IMPLEMENTATION IN SELECT SADC COUNTRIES	SOUTH AFRICA	BOTSWANA	NAMIBIA	MAURITIUS	ZIMBABWE
Higher Education Information System Policy	Higher Education and Training Information Policy	Mandate from Education Act – No Policy	Mandate from Education Act- No Policy	Mandate from Act - No HEMIS policy	Mandate from Act - No HEMIS policy
Legal Acts Supporting Data Collection	HEA: Higher Education Act, 1997 (Act 101 of 1997). FETCA: Further Education and Training Colleges Act, 2006 (Act 16 of 2006). AET: Adult Education and Training Act, 2000 (Act 52 of2000). NQF: National Qualifications. Framework. Act, 2008 (Act 67 of 2008). NSFAS: National Student Financial Aid Scheme, 1999 (Act ·s6 of 1999). SDA: Skills Development Act, 1998 (Act 97 of 1998). PAIA: Promotion of Access to Information Act, 2000 (Act 2 of: ·2000)	Education Act	Higher Education Act 26 of 2003	Higher Education Act (XX) 2007	Census and Statistics Act [Chapter 10.05] Article 23, Articles 17 of the Education Act [Chapter 25:04], Article 68 of the Manpower Planning and Development Act [28:02], and Public Service Regulations;

Policies/Processes driven by Data	NSFAS Student Funding Policy National Qualifications Framework Policy	Tertiary Education Policy (TEP) National Human Resource Development Strategy (NHRDS) Education and Training Sector Strategy Plan (ETSSP) Tertiary Education Policy goals National Vision 2036.	Evaluation and monitoring of progress in Manpower development		Manpower Planning and Development Policy
Organisation(s) Responsible	Statistics South Africa	Statistics Botswana	Namibia Statistics Agency	Statistics Mauritius	ZIMSTAT has overall Authority on education data and statistics
Collecting Agencies	Council of Higher Education	Human Resource Development Council	National Council for Higher Education	Higher Education Commission	Ministry of Higher and Tertiary Education, Science and Technology Development-(MHTESTD)
Process	Database with Electronic Input. ISCED compliant	Electronic (Excel Templates) Questionnaire sent to Higher Education Institutions ISCED compliant	Electronic (Excel Templates) Questionnaire sent to Higher Education Institutions ISCED compliant	Electronic (Excel Templates) Questionnaire sent to Higher Education Institutions ISCED compliant	Annual Census – Electronic (Excel) Questionnaire Non-ISCED Compliant
Coverage	Mostly Public, TVET, Staff Student, funding, Input	Public, Private, TVET, Colleges, staff, student	Public, Private, TVET, Colleges, staff, student		Public, TVET, Colleges, staff, student
Format	Electronic Data base with search functionality. Produces downloadable reports Annual Publication	Annual Publication – Digital and Hard Copy	Annual Publication - Digital and Hard Copy	Annual Publication - Digital and Hard Copy	Electronic Records (i.e., Excel, Word-Widely Distributed)
Data Confidentiality	POPIA Act 2019	-	-	Data Protection Act 2017	Protected under Official State Secrets Act
Reporting Frequency	Annual	Annual	Annual	Annual	Annual

UIS Time Lag	2 years	2 years	2 Years	2 years	2 Years
Action to be taken	- Collect data to launch pilot -Link National HEMIS system to Regional HEMIS	- Collect data to launch pilot -Link National HEMIS system to Regional HEMIS	- Collect data to launch pilot -Link National HEMIS system to Regional HEMIS	- Collect data to launch pilot	- Create links to have data captured directly into the Data warehouse at institutional level. - Training programs for university data administrators

APPENDIX 2C: META DATA ANALYSIS AND RESULTING DEFINITIONS

Comparing the ETER, UIS, EdStats and CESA 16-25 metadata sets, SARUA proceeded to compile the technical requirements for definitions that reveal SADC's education focus. The database to be constructed should be globally relevant while locally representative. Differences and similarities between the said databases and the envisaged goals of the SADC strategy were compared. Comparisons were drawn in 5 key areas of data collection among existing databases. These five areas being Institutional classification, Student Data, Staff Data, Internationalisation and Research and Development.

Key similarities and differences were noted, and the conclusion of the analysis is that the new database would have to include both national level and institutional level indicators at a similar level of granularity i.e., a national indicator should be connected to the data that the institutional level collection has achieved. Such a design will also make it easier to verify the collected data for greater accuracy and reliability. The resulting data structure is outlined in Appendix Section C 2.1 below.

	ETER[27]	UIS[28]	EdStats[29]	CESA 16-25 (envisaged)
Dimension				
Institutional Data	X	-	-	-
Articles of Incorporation	X	-	-	-
Legal Status of university	X	-	-	-
University Classification	X	-	-	-
National Tertiary Education expenditure	-	X	X	X
University level Expenditure	X	-	-	-
Student enrolment data by education level (ISCED 6-8)	X	X	X	X
Student Graduation data by education level (ISCED 6-8)	X	-	-	-
Student enrolment data by gender	X	X	X	X
Student graduation data by gender	X	X	X	X

27. European Tertiary Education Registry
28. UNESCO Institute of Statistics
29. EdStats is the World Bank and IMF education database tracking developments in education for economic development.

Staff Data by level of education	X	-	-	-
Staff Data by gender	X	X	X	X
Number of Foreign Students (Inbound)	X	X	X	X
Number of Foreign Students (Outbound)	X	X	X	X
National Expenditure on Research and development	X	X	X	X
Institutional Expenditure on Research and development	X	-	-	-

C.2.1 Data Structure

The data will be collected for all National Accredited and recognised Public and Private Higher Education Institutions of the SADC Member States.

The data to be collected would include the following:

C 2.1.1. Scope of the Higher Education Profile

The data will be collected per institution at the Member State level. The Institutions will be categorised following an agreed typology. The typology will include:

• At the Institutional Level data identifying the institution will be collected as follows:

¨ Public, Private

¨ Year of establishment

¨ Contact or Open/ Distance teaching mode (once defined offerings defined as mixed-mode teaching)

¨ University Governance and Structures

¨ University Classification (i.e., Research University, University of Technology, Specialised Institution, Open University)

¨ Establishment Act / Statutes and their key provisions;

¨ Chancellor and Vice-Chancellor and senior executive management information

¨ Sphere of operations: Single or multi-campus, single or multiple countries

¨ Faculties and schools and the disciplines represented;

• Student Enrolment and Graduate Data Per:

¨ Modes of Delivery: Campus-based and Distance Education

¨ Undergraduate and postgraduate per qualification types: Undergraduate: Certificate/ Diploma; Degree: PG Diploma/ Hons: Masters: Doctorate

¨ Major Fields of Study (STEM, Business and Management, Humanities and Social Sciences)

¨ Classifications of Educational Subject Matter (using agreed definition across SADC). It should be in line with the agreed Classifications as defined by the ISCED classification system. [i]

¨ National and International enrolment and graduation data per category and qualification

• Academic Staff Profile:

¨ Academic Staff

¨ Profile of Staff Qualifications: Doctorate, Masters and Other.

¨ Profile of Staff – International Staff per Nationality

¨ Academic staff by rank: % Professor, Associate Professors, Senior Lecturers, Lecturers.

• Research and Innovation:

¨ Overall research publications

¨ Publications per FTE academic staff member

¨ Research Institutes/ Centres (centres of Excellence and Specialisation according to SADC definitions).

¨ Independently funded and/or co-funded centres or institutes associated with the university.

APPENDIX 2D: CONCLUSIONS AND WAY FORWARD

Following the analyses that have been done to develop requirements for the SADC Regional HEMIS system, it follows that an implementation plan must be drawn and implemented.in the table below is a plan to initiate and extend the reach of the database first to the pilot countries analysed above and to the rest of the SADC countries as a time goes on. Attached below is a programme of action for the initiation and implementation of the SADC Regional HEMIS system.

SADC and the PDU collaboration.

The PDU project that forms part of HAQAA not only supplements the SADC project but also provides the opportunity to the PDU team to be part of a Regional Project and experience the difficulties and challenges in collecting data within an African – Regional context. Although the scope of the data to be collected was approved by the SADC – Technical Committee, detailed data definitions are required to assist the National Data Collection Agencies in providing the data.

The countries identified in the project's first phase provided data in such a way that it does not comply with the project principles. For example, it requires engagement with these agencies and in-person discussions and engagements. SARUA participated in the Higher Education Technical Committee's meetings and presented the data collection's first findings. This acted as an engagement similar to that of reference groups in other regions.

It was now suggested that a face-to-face meeting of the relevant Officials of the five countries identified in phase one be held. This would take the form of a workshop to clarify the data definitions and identify the capacity development needs of these countries in preparation for phases two and three of the data collection

process. The PDU – team should form part of these activities so that the experiences can be shared with the other Regions that have not advanced to the same level as far as regional decision-making in data collection is concerned.

Funding and continued support is needed to continue this project to its logical end. HAQAA 2 should expedite the funding of this project as it represents crucial strategic importance as a playbook to approach collaboration between partners and Regional economic communities. It also represents critical evidence of channels through which education drives regional integration. It would be of interest for HAQAA to continue funding this project in the next critical phase and to maintain this vein of engagement going into the future.

Project roadmap - Development of a SADC Higher Education DATABASE 2022 -2023			
Phase	**Deliverable**	**Narrative**	**Duration**
Phase 1			
Establish Database for Botswana, Mauritius, Namibia, South Africa and Zimbabwe	Mapping Report	Mapping Data sources and Initiatives in the SADC region	Jan 2022 – June 2022
	Workshop to align NHCEs in 5 countries to database initiative	Agreeing on definitions, what to collect. Identify capacity gaps in Data pathways from Institutions to RECs	July 2022
	Developing Data Pilot for Phase 1 Countries	Collecting Data for Pilot Database	Jul 2022 – Oct 2022
	Capacity Building Assessment in the 5 countries NHCEs and Institutions	Identify what level of data collection to equip to make sure there is credible data	End Sept 2022 Gaborone
	Final Pilot for testing and adoption 1st data collection	Make the database ready for delivery to stakeholders, sponsors, and funders	Nov 2022 – Dec 2022
Develop funding proposal.	Develop a detailed funding proposal to funders for Phases 2 and 3 of the projects and submit to identified funders by October 2022.		
Phase 2			
Expansion of Data Collection activities to all SADC countries aligned to the SADC NQF	Policy Analysis to gauge alignment with SADC NQF	Selecting the countries to add to SADC HE database	Jan 2023-Mar 2023
	Workshop to align selected countries NHCEs to database	Bringing next group of countries in congruence with NQF in their data systems	Apr 2023
	Capacity Building for identified countries	Identify what level of data collection to equip to make sure there is credible data	May 2023 – Jul 2023

	Working Review of Database	Asses the operational and functional stability of the database. Findings used to improve database	Aug 2023
	2nd collection and collation of countries on database	Census date for aligned countries to submit data	Sep 2023 – Oct 2023
	Release of 2024 SADC "Data Digest"	Disseminate Data	Nov 2023
Phase 3			
Expansion of Data Collection activities to the remaining SADC Countries	Policy Analysis and Review	Policy reviews to assess new and existing countries readiness to be on database	Jan 2024 – Apr 2024
	Workshop to align Remaining countries	Establish data pathways in remaining countries	Apr 2024
	Capacity building in remaining countries and aligned countries which are lagging	Continue to train and equip Institutions, NHCEs and RECs on data collection in the region and beyond	May 2024
	Working Review of Database	Asses the operational and functional stability of the database. Findings used to improve database	Aug 2024
	3rd Collection of Data from SADC Countries	Census Date for aligned countries and prompts for data dumps	Sep 2024 – Oct 2024
	Release of 2025 SADC "Data Digest"	Disseminate Data	Nov 2024
Launch of SADC Higher Education Database	Launch of Digital Database to SADC Ministers and other interested parties		1 December 2024

Annex 3: Focus group guideline and questions

Number and nature of participants

To compliment the desk research, at least one focus group (FG) will be held in each of the five African regions. The FG will be conducted with a representatively selected group of experts who have particularly good and broad knowledge and experience on the subject matter. 6 to 8 experts from each of the five African regions will participate in the regional FGs. The experts will be invited from key actors and organisations at different levels and regions. It aims to delve further into the findings and probe deeper regarding the caveats of current data collection practices and data collection capacity needs at different levels. This will be used to identify further potential sources and initiatives and who drives them, and assess how the data is built, its consistency, its relevance, its impact etc. Key questions would be how data is collected, perceived, and used by different institutions and policy bodies, if there are major gaps, if there are actors missing in the research, etc.

I. FG Questions[30]

1. Is there data collection mandate at the regional level? And which institution has that mandate? If no, how do you see the possibility of such a mandate?
2. Is there linkage between the national data collection mechanisms in the region? What are the challenges for a (more) efficient linkage between national systems?
3. Who are the key stakeholders actively taking part in driving and implementing data collection initiatives in the region?
4. Is there a regional policy or plan of action for data management? How do you asses its implementation so far?
5. What are the challenges for establishing a regional data collection mechanism? How do you propose such challenges can be resolved?
6. What opportunities do you see for the establishment of a regional data collection mechanism?
7. To what extent is CESA and AU's HE Regionalization initiatives taken into account in HE data collection efforts in the region?
8. How do you describe the state of national education management information systems (EMIS) in the region? What strengths and challenges do you observe in the use of EMIS?
9. At what level is HE data best utilized for policy making in the region? And what is the perception of decision makers about the data sources available in the region?
10. At what level is organized HE data available in the region? And by who or at what level is data interpretation being made?
11. How accessible and relevant is HE data collected in the region?
12. How do you view the sustainability of the current data collection practice in the region in light of serving the AU's CESA and other continental agendas?
13. How do you view the data collection practice of world higher education rankings? To what extent and at what level do you think is their outputs most utilized?
14. Is there anything else you would like to say about HE data collection in the region and how the problem of data accessibility can be addressed?

30. The questions will be used to guide the FG. All the questions (sub-questions) may not necessarily apply to all regions and will be administered taking the regional context into account.