



Research and Innovation: Reflecting on 50 years of Higher Education Development in the EAC

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DID YOU KNOW?

- ▶ That in 2019/2020 the Government of Uganda awarded Makerere University USD 8.1M under the Research and Innovation Fund to support high impact research and innovation
- ▶ That a CARTA PhD fellow receives KES 10million for doctoral training
- ▶ That Ifakara Health Institute in Tanzania attracts grants from 58 development partners for testing and validating innovations for health
- ▶ That on average lecturers in Kenya contribute less than half a publication each year

Down Memory Lane – 1970 - 2020

- ▶ Post independence higher education landscape was characterized by low manageable numbers and prestige
- ▶ By 1970, the newly established UoN had close to 1,000 students (Southhall, 1974)
- ▶ The EAC collapsed in 1977 – and frustrated the establishment of a higher education area for the region similar to the EHEA which was actualized through the Bologna process
- ▶ In 1981 the Arusha Convention paved way for student mobility and professionals. DAAD supported QA systems and qualification frameworks (UNESCO, 1981)

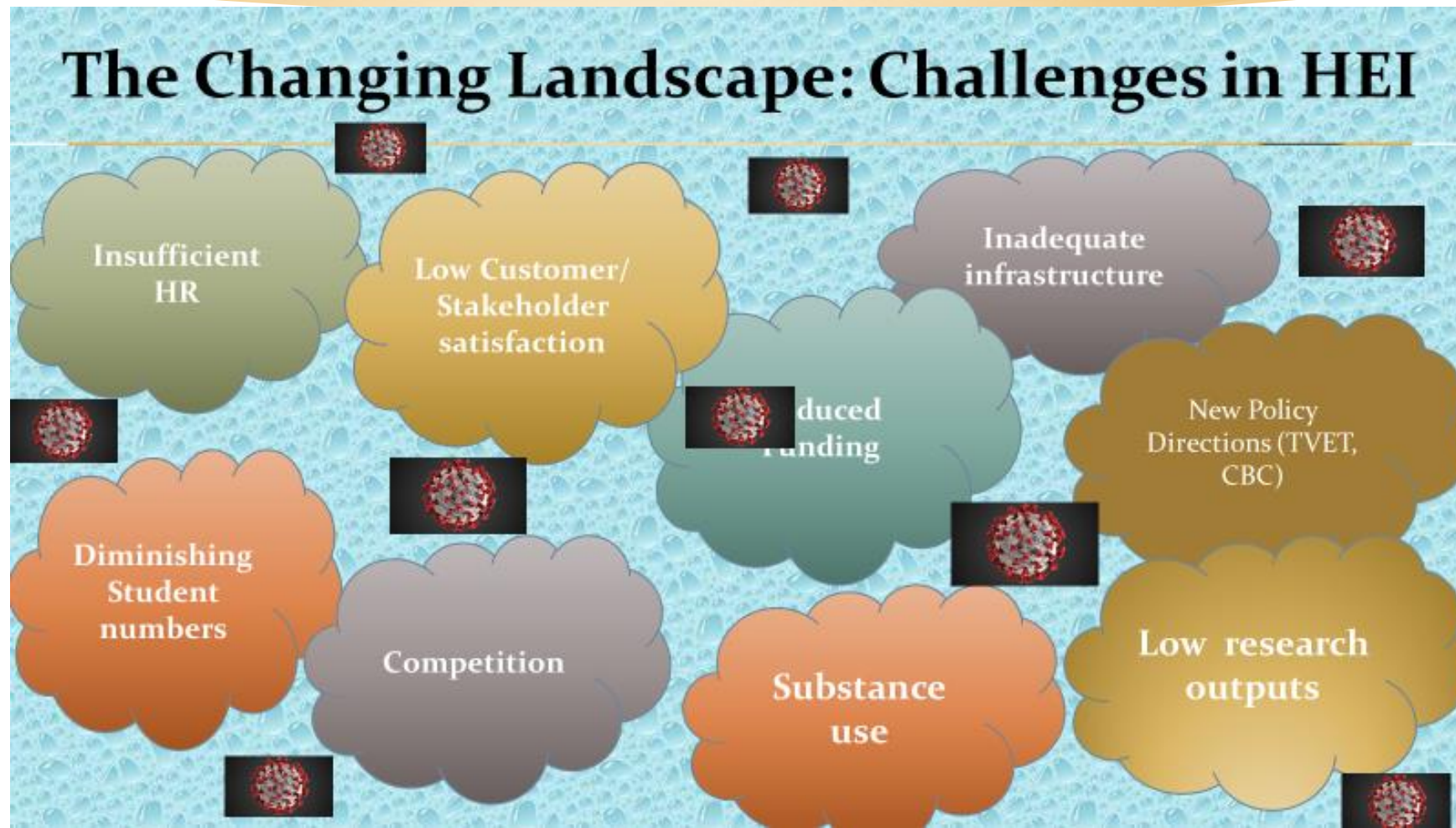
Down Memory Lane – 1970 - 2020

- ▶ In the 1980's efforts to re-establish a common higher education space were rekindled. IUCEA survived through funding obtained from the Commonwealth Higher education Management Services (CHEMS)
- ▶ With EAC re-establishment in 1999, IUCEA was back on course to steer the aspirations of a EACHEA
- ▶ 2009 – IUCEA Act by EALA and by 2014, was placed under the oversight of EALA
- ▶ EAC is by donors (69%) and 31% by partner states
- ▶ EACHEA was realized on 20th May, 2017 (35 years later) – IUCEA played a crucial role (IUCEA, 2017)

Down Memory Lane – 1970 - 2020

- ▶ EACHEA's work was to encourage collaborative research. Academic and staff mobility and restructuring of the governance of the higher education space
- ▶ Student mobility has attained reasonable success with Kenya having the highest – 14,017 in 2016
- ▶ IUCEA had targeted uniform tuition fees across the region by 2014 but it was rejected
- ▶ Student mobility was fueled by tuition wars at the expense of quality – KIU, Bugema etc.
- ▶ 2005 – 2015 universities experienced significant decline of public funding leading to mushrooming of campuses and duplication of programs (Oanda and Matiang'i , 2018)

THE HEI LANDSCAPE – Christine Onyango

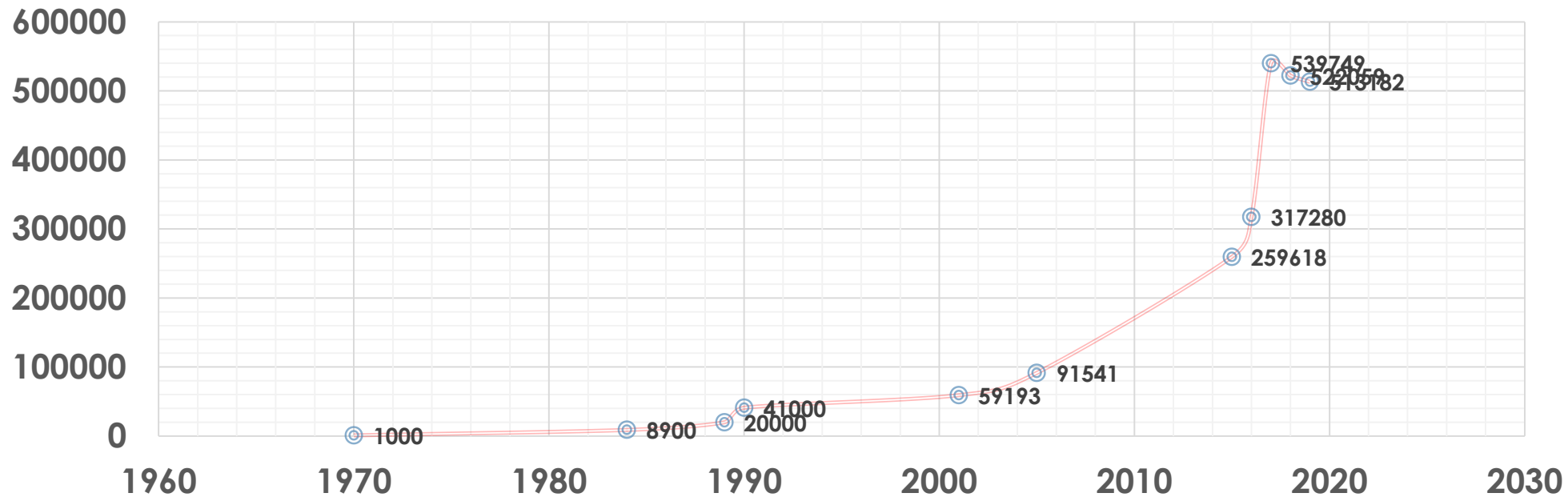


Down Memory Lane – 1970 - 2020

- ▶ University funding has reduced with EAC governments providing less than 35% of operational budget
- ▶ Competition for students and the need to generate funds for operations have meant little investment in innovation
- ▶ The population of postgraduate students increased but time-to-degree and completion rates remain a significant challenges
- ▶ PhD students constitute 1% of students, while Masters account for only 10%. The appetite for postgraduate studies is lower compared to West African countries

Student Enrollment in 1970 - 2020

Number of University Students



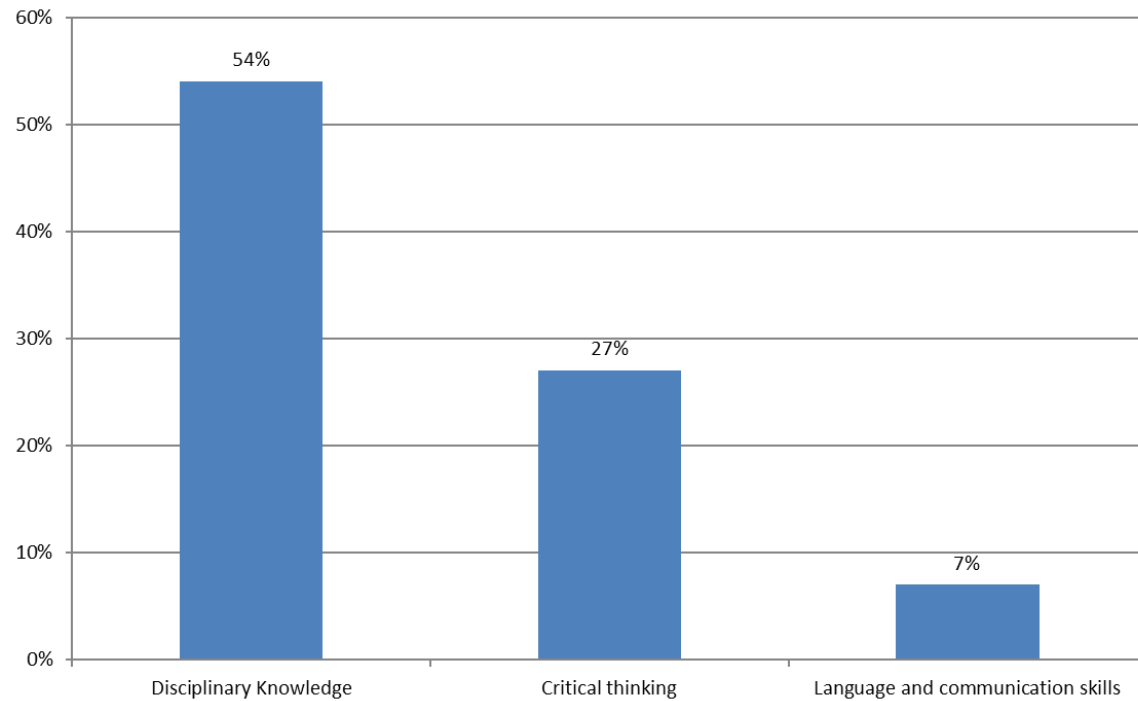
Employability of Graduates - Kenya

- ▶ Number of degree graduates employed in their year of graduation has plunged from 79% in 2011 to 13% in 2017
- ▶ During the same period, the number of Masters students employed in their graduation year rose from 10% to 79%
- ▶ The number of diploma students employed in their graduation year nosedived from 20% to a paltry 3%
- ▶ Employers citing skills mismatch and lack of labour market information by university graduates

What matters?

- ▶ Only 49% of graduates are fit for jobs
- ▶ Universities must work towards enhancing the credibility of their certifications. This is possible through offering quality coursework, having proper infrastructure, qualified lecturers and market-driven courses, so as to produce quality graduates and gain employers' trust," said the survey carried out by CPS
- ▶ Quality of learning, reputation, relevance of courses and preparedness of students for the labour market are critical

Skills and competencies



Concerns about our graduates

- ▶ Significant gaps in IT skills, personal qualities (reliability), and transferable skills (team work and problem solving)
- ▶ Negative attitude to work



Research and Innovation landscape in EAC



The African Union Commission's Science Technology and Innovation strategy for Africa (2014) called for all African governments to spend 1% of GDP in R&D

Global Innovation Index Vs. R&D Expenditure (Country Ranking)

77. Kenya – 31.1%

94. Rwanda – 27.4%

97. Tanzania – 26.6%

102. Uganda – 25.6%

128/129 Burundi – 17.7%

45. Kenya – 0.79%

64. Tanzania – 0.53%

88. Sudan – 0.3%

106. Uganda – 0.17%

115. Burundi – 0.12%

***Global Innovation Index WIPO 2019

Who are the Champions?

Best university in research
(Scimago, 2020)

- ▶ Makerere (17)
- ▶ **Mbarara (21)**
- ▶ Muhumbili (28)
- ▶ Aga Khan (32)
- ▶ JKUAT + UoN (36)



Critical Issues on Research and innovation in EAC

- ▶ What is the place of R&I in EAC universities? Is R&I a priority in our universities?
- ▶ How relevant is the research done in the region?
- ▶ To what extent do universities work with research institutes in R&I?
- ▶ Why is R&I not attractive to faculty and staff in universities?
- ▶ What challenges do we face in R&I?
- ▶ How can we mitigate the challenges?
- ▶ What can IUCEA contribute in the next 5 years?

Is R&I a priority in our universities?

- ▶ R&I is captured in strategic plans (to fulfill regulatory requirements?)
 - ▶ Number of staff dedicated to research is less than 10%
 - ▶ Research directorates merged with BPGS and neglected
 - ▶ % of budget from internal sources – always below 3%
 - ▶ Research outputs in Kenya – 6, 662 publications against 14,000 lecturers, less a paper per lecturer (CUE, 2016)
 - ▶ 42 patents from public universities and 2 from private (CPS, 2018)
- ▶ Minimal support for research capacity building initiatives
- ▶ R&I staff are loaded with other administrative and teaching assignments
- ▶ Grants acquisition and management is wanting – lack of trained staff and limited knowledge by admin staff on how best to support R&I

Relevance of Research and Innovation in Universities

- ▶ Are our universities' outputs/outcomes in research and innovation relevant to the university, society, and government?
- ▶ To what extent do universities appreciate national research agendas and align their R&I strategies to it?
- ▶ Are universities generating new knowledge or simply supervising students' compositions? Which questions do our research seek to answer? Are they relevant to policy development?
- ▶ How much does the government allocate for R&I in universities in the EAC?
 - ▶ KEMRI - 2.5 billion KMTC - 7.4 billion NRF - 3 billion
 - ▶ Should all universities focus on R&I?

Why Research is Not Attractive among faculty in the EAC Universities?

- ▶ There is no promise of quick returns – bouncing proposals
- ▶ Very competitive - for NACOSTI (75%) of proposals are not funded , and it is tighter with external grants
- ▶ University administrators don't understand R & I
- ▶ It is viewed as personal enterprise for the researcher -
Hostility towards researchers and innovators by the university administrators
- ▶ Complexity of research - the NIH guidelines for applying for a research grant- 240 pages

Challenges of research and Innovation in EAC

External (political) environment

Underfunding by governments

- ▶ Governments mainly fund salaries, wages and operations – existing relationships between universities and government bureaucrats is suspicious and hostile
- ▶ There is also little investment in research and infrastructure (labs, equipment, and teaching space)
- ▶ Little on-going preoccupation with how government's development/transformation agendas connect with research & quality of teaching at universities is another challenge facing African universities

Challenges of research and Innovation in EAC

- ▶ **Uncontrolled expansion of higher education sector** – characterized by more student numbers (massification and mushrooming of universities mainly due to political reasons. Three effects of expansion & massification are evident:
 - ▶ Division of the ever smaller resource envelope among many resource-poor universities undermining on the triple mandate of universities
 - ▶ Growth in undergraduate numbers leaving little time for faculty to conduct research
 - ▶ **Poor remuneration** – academics and researchers have been forced to make ends meet through moonlighting (having more than one job to supplement income) and consultancy work.

Challenges of research and Innovation in EAC

Internal challenges (governance of universities)

- ▶ **Limited creativity (looking beyond government and donor funding)** - Opportunities for income generation via investment are not always fully explored by African universities. The potential of Alumni is also largely neglected as a potential source of resources (the University of Witwatersrand has for instance identified their alumni all over the world and part of these monies are channeled to research) and policies on overhead charges are also not always implemented; the money could be invested in research
- ▶ **Accountability issues** - laxity in performance evaluation whether in teaching or research is a major problem in African universities.
- ▶ **Leadership and management capacity** - there are limited skills in fundraising, research management, financial management, estates management etc

Success Stories

- ▶ **Resilient Africa Network (RAN)** – at Makerere SPH (www.ranlab.org) a network of 20 African universities in 13 countries which nurtures and scales innovations from different universities – climate change, conflicts, food security, solar technology, health technologies e.g. non-invasive malaria diagnostic technology
- ▶ **RUFORUM – Regional Universities’ Forum for capacity Building in Agriculture** – a consortium of 126 African universities in 38 countries (www.ruforum.org) – academic exchanges, small holder farmers, policy and pG training in agriculture and research
- ▶ **APHRC – transforming lives through research** – (www.aphrc.org) – generates evidence that informs policy in health, education, urbanization, ageing and research capacity building

Possible interventions/solutions

- ▶ **Develop a research culture** - support universities to identify their niche in research and focus on it. **Invest in research capacity building –join hands**
- ▶ **Lobby with politicians and policymakers** - African politicians seem not to see universities as a priority for research funding. This hampers the progress of universities. They forget universities need capital and funding for research activities.
- ▶ **Create centers for excellence** - The ecosystem around the centres of excellence must be kept alive for the research centres of excellence to survive. Universities cannot do it on their own, but collectively with support from Governments, they can get support from development partners.
- ▶ **Establish research consortia** speak about systemic and ecosystem issues with universities and are likely to get funding then direct it to universities rather than development partners funding universities directly. Universities should therefore consider collaborating and forming consortia like CARTA, RUFORUM

Possible interventions/solutions

- ▶ **Create research agendas in tandem with government priorities** - there is a big challenge in terms of mindset today in public universities. Universities must think differently and deliberate on funding of research based on government priorities. Each university represents some value proposition for a country that should be the center of focus.
- ▶ **Be transparent and accountable:** before universities start asking for more money, there is need for proof that they are using the money they already have in the most efficient way. This means that universities should look back at the value of the outcomes of the research and development work done. This brings out the issues of quality and efficiency.

Possible interventions/solutions

- ▶ **Establish research-intensive universities** - governments should allow some universities to be research excellence centers. Certain institutes or centers can be made to be research intense to purely focus on research and this will promote Research and Development.
- ▶ **Engage funders jointly** - How do African universities really start to move in terms of the research leadership? This calls for creation of conversations with some of the critical funders of research in Africa.

Possible interventions/solutions

- ▶ **Industry partnerships should be explored.** Universities should have industry partnerships with multinationals like IBM. For instance, the University of the Witwatersrand's innovation startup of a new diagnostic for TB was taken up by IBM and has already started earning profits within 18 months. The industry partners will help to incubate great ideas from students.
- ▶ African universities must pay a lot of attention to **monetizing intellectual property** and encouraging their academics to do so in order to generate more research funds. Researchers must think entrepreneurially.
- ▶ There is a disconnect between research centres and universities in Africa, hence synergies and areas of intersection should be sought.

Food for Thought for IUCEA

- ▶ Collaboration and partnerships – establish a community of practice in the EACHEA and **strengthen the link between universities and research institutes**
- ▶ **Champion gender equity** in postgraduate training and student mobility – 71% of PhD students in Kenya are males. Support breastfeeding mothers (CARTA Model)
- ▶ Quality Assurance –
 - ▶ focus on postgraduate training and research to protect the academy from fake PhDs and research outputs.
 - ▶ Provide expert advise on how university structures can be optimized for effectiveness and efficiency
 - ▶ Restructuring universities towards specialization in degrees that they offer

Food for Thought for IUCEA

- ▶ Support universities in adoption of new technologies for teaching and learning – e.g. the best LMS
- ▶ Commission a study on the critical needs for the EACHEA e.g. number of PhDs required, research needs and funding, market needs for graduates
- ▶ Provide advisory services on how universities can leverage on human resources and technology to reduce overdependence on tuition fees and government funding
- ▶ Be the go-to place for best practice in management and governance of universities to mitigate against disruptive transitions and foster business continuity

Food for Thought for IUCEA

- ▶ Re-visit student mobility initiative to cater for the wider spectrum of internationalization
- ▶ Be the stop-shop for big data on higher education in EACHEA
- ▶ Bridge the gap between universities, multilateral and bilateral organizations to address research and innovation needs

Thank you very much

What you do has far greater
impact than what you say.

STEPHEN COVEY
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