

This brief highlights events happening within the RUFORUM Network and its partners

Transformation and Relevance of Higher Education in Africa

About RUFORUM

The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), is a consortium of 163 African universities operating in 40 countries of the continent. RUFORUM is coordinated by a Secretariat hosted by the Government of Uganda, at Makerere University. RUFORUM has two Regional Nodes in Benin and Malawi.

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Africa's Higher Agricultural Tertiary Education must transform in order to meet the labour market and development need of the continent, Agriculture being a key sector underpinning Africa's economic growth.

Upcoming Events

- Workshops
- Trainings
- RUFORUM AGM 2023

Annually, 10 million young people are ready to enter Africa's labour market and yet the continent can only create 3 million jobs. Africa, with the world's youngest population is currently having an underperforming labour market. As such, the widely proclaimed population dividend that the continent can benefit from may not happen unless the youth are skilled for the present and future development needs. Africa's higher and tertiary agricultural education sector must play a significant role in

skilling the next generation of workers and entrepreneurs. Doing so, requires that Africa's education ecosystem is fit for purpose. Hence the need to transform the sector. RUFORUM is championing the transformation of Africa's higher agricultural education sector in order to contribute to rebalancing Africa's human resource pyramid, affected by under investment in the past. Agriculture and other sectors of the economy increasingly have more skilled graduate personnel with Bachelors and Masters degrees, and yet

effective development delivery requires proportionately more technical professionals with diplomas and certificates. This is a result of the transformation of Technical Vocational Education and Training into Universities. RUFORUM aims to support transformation of the education sector through its member Universities in their respective countries by strengthening the whole value chain of the human resource development. This way, a more balanced human resource pyramid needed to unlock development is created.



Message from the Executive Secretary of RUFORUM

Prof. Okori Patrick

accounting for 5.2 per cent of global FDI.

Such interest in the continent, impacts Africa's key sector of agriculture, that underpins livelihoods of 60% of its 1.4 billion people and the average Gross Domestic Product of 20%. The Higher Education sector especially for Agriculture and its related disciplines, must cease the opportunity of the moment to develop the relevant human capital that will drive economic transformation. African Universities, the anchor for agriculture, higher and tertiary education must also play leading roles in developing innovations, and creating business opportunities for its young graduates and economy. This is more agent given the fact that the future of jobs across Africa show that only 20% of graduates will ever find a job in formal employment. The vorse majority must therefore engage in the economy through self employment, agriculture and service delivery being the bedrock for that process.

It is in that regard, that RUFORUM is focusing its 19th Annual General Meeting, on transformation of Agricultural , Higher and Tertiary Education. and this newsletter highlights some of the work that Africa's universities are doing in that regard. In this Issue, we reflect on the future of higher education in Africa given the opportunity and challenges it faces: Strategic partnerships with Africa's private sector to create jobs and wealth;

conversations and dialogue on the need for integrated training programming across university programmes; Inclusive training of the next generation of Africa's Scientists and human resources, and; strategic research in climate science. The issue also contains voices from the field in which Africa's young workforce shares the worklife transition from studentships supported by RUFORUM and implemented by Member universities and communities. This is an interesting development as it demonstrates the African spirit of ubuntu (humanity) with the young people giving back to their communities, by enhancing resilience to climate change, skilling farming communities in productive agriculture while creating jobs and wealth.

All this has been made possible, by the unweaving support of our member universities and their partners, African Governments, Development Partners, diverse communities and partners, and friends in the global south and north. to these partners, we say Thank you and pledge our comitment to collaboratively work in enabling Africa build an equitable and thriving place, the aspiration of Agenda 2063: The Africa we want.

“ We must transform how we train the next generation given that 80% must be their job and wealth creators.”

In this second edition of our newsletter, the focus is on transformation of Agricultural Higher and Tertiary Education in Africa. The interest in this topic arises from the fact that our continent is currently able to create new jobs for one-third of its annual 10 million workforce entrants. While the continent is endowed with several bio-physical resources, including 65% of the world's remaining land suitable for arable agriculture, productivity of the sector is still low. According to various reports including apex agencies on the continent like the African Development Bank, Africa's economy remains resilient even after the COVID-19 economy lockdown and ongoing externalities.

Collectively, Africa has demonstrated ability to grow even under unfavourable conditions in part due to its endowments, especially, its most precious assets, the human capital and growing conducive investment environment. In 2022 for example, Foreign direct investment (FDI) flows to Africa reached \$83 billion – a record – from \$39 billion in 2020,

Teaching and Learning (Transformative Education)



The future of higher education in Africa

Author: Ms. Acan Evaline

Africa is the world's youngest continent with 70% of its population under 30 years of age. Sixty percent of the young people are under 25 years old and therefore are with the higher and tertiary education and demographic. Many African countries have responded by increasing the number of higher education institutions. According to the African Development Bank, between 1999 and 2009, the number of university graduates in Sub-Saharan Africa has more than tripled, rising from 1.6 million to 4.9 million. However, Africa's economy can only employ 3 million people annually, according to the African Development Bank. Studies by the Brookings Institute show that three-quarters of new entrants into Africa's labour market will be self-employed or in microenterprises and only 20 % will be wage-employed by the service sector, while about 4 to 5 % will be wage employed by industry. Overall, only 100 million of the 450 million young Africans expected to reach working age by 2035, will find decent

work. African higher education sector must therefore develop the appropriate training/skilling programmes that produce workers for today and tomorrow.

Agriculture being the largest sector where most of these youth are, and with a high potential to create wealth and self-employment, should invariably be the target for skilling tomorrow's workforce. However, Africa's Agricultural and Tertiary Higher Education sectors face several challenges that hinder their development and potential impact due to a number of factors;

Insufficient funding and investments is a major challenge to the Agricultural and Tertiary Higher Education sector in Africa, affecting delivery and quality of graduates.

The under investments include: Inadequate financial support for research, infrastructure development, faculty recruitment, and student

scholarships constrains the growth and quality of these sectors. according to the African Development Bank, World Bank and other sources. Without adequate funding, institutions struggle to provide quality education, conduct impactful research, and address emerging needs in the economy.

The mismatch between skills and labour market demands that the continent is facing calls for urgent and strategic action. The lack of alignment between curricula and industry needs limits the employability and entrepreneurial potential of graduates. As a result, unemployment rates among university graduates remain high, hindering the sector's contribution to economic development.

Many African Agricultural and Tertiary Education Institutions are not significant players in the Research to Innovation and Development spaces of their countries. In many countries the national agricultural innovation systems do not fully integrate institutions of higher

learning in their investments. This leaves many young people out of the innovation and apprenticeship training spaces of the economy. Accordingly, Africa's capacity to engage its young population in research and development is limited resulting in a weak pipeline of critical science human resources.

Furthermore, inadequate investments in Research and Development, the limited collaboration between academia and industry, and a shortage of highly qualified researchers constrain the generation and dissemination of knowledge according to a recent study by Brookings Institution. This hinders the development and adoption of context-specific solutions to agricultural challenges.

Teaching and learning infrastructure must also be brought in sync with contemporary technologies that improve access to and the utilization of knowledge from local to global spaces. The COVID-19 pandemic was an awakening for many education institutions to embrace digital solutions for teaching and learning.

The large number of youth and adult learners (workers) seeking new skills requires that Africa institutions innovate and invest in digital open education resources to meet the high demand. Indeed, many institutions face shortages of teaching and learning equipped classrooms, laboratories, libraries and ICT infrastructure. This infrastructure insufficiency affects access, quality of learning experiences and

research capabilities of learners.

The limited capacity of the continent to absorb nearly two thirds of annually generated young workforce compounds the challenge of skilled talent emigration from Africa. Within countries, the limited career prospects is a disincentive for youth to engage in education especially in agriculture. The Agricultural sector therefore end up with a large unskilled labour force who can not fully harness science solutions to increase productivity. Labour emigration has equally affected the education sector with many trained young people not returning to their countries after training from abroad. This drain of skilled talent affects the capacity of Agricultural and Tertiary Higher Education institutions to deliver quality education and conduct impactful research.

Notwithstanding these challenges, Africa's Higher Agricultural and Tertiary Education holds immense promise for driving socioeconomic development and transformation of the continent. The sector must however embrace transformation of its teaching, learning and research ecosystems in order to deliver inclusive, relevant and accessible opportunities for young people.

As Africa continues its renaissance journey, the future of higher agricultural education shines bright. Agriculture remains the sector that will drive development by offering jobs and creating wealth. The RUFORUM Network and other like-minded networks

recognise this opportunity hence the intense focus on transforming of the higher tertiary education sector to create a highly skilled workforce that can contribute to the continent's growth.

Africa's Agricultural and Tertiary education sector must harness both strategic and emergent opportunities if the sector is to remain a relevant and strong contributor to development. These include; Integration in national innovation systems. Universities must leverage their fulltime equivalent of staff and students and strategic partnerships with different stakeholders to strengthen their development to delivery of agricultural innovation to enhance productivity and address food security challenges.

Research and Development: African Tertiary Higher Education institutions can contribute significantly to agricultural research and development. Universities must strengthen their research agenda and build strong research programmes in different areas of agriculture (bio-physical, economics, markets and futures, policy and social transformation, among others).

African universities must expand their partnerships in research including strengthening south-south and north-south partnerships. Collaborative research partnerships between academia, industry, and international organisations can enhance technological advancements and address specific challenges faced

by African agriculture and their economies, according to International Food Policy Research Institute.

Strengthening outreach: Tertiary Higher Education institutions have the opportunity to strengthen capacity building and extension services in agriculture. By offering training programmes, workshops, and extension support to farmers, universities can transfer knowledge, best practices, and technologies to local communities. This can enhance farmers' skills, improve productivity, and contribute to rural development and poverty reduction.

Entrepreneurship and Agribusiness Development: The agricultural sector in Africa offers vast opportunities for entrepreneurship and agribusiness development. Given that many youths will be self employed, skilling them in agribusiness development

and leadership will improve their worklife transitions.

Tertiary education institutions can foster an entrepreneurial mindset and provide training in business management, value chain development, and market analysis. By nurturing entrepreneurship and facilitating access to financing and market networks, universities can empower graduates to start their own agribusinesses, create employment opportunities, and drive economic growth, according to International Fund for Agriculture Development, thus, reducing poverty and unemployment rates in the continent.

Policy and Governance: African tertiary higher education institutions can contribute to shaping agricultural policies and governance frameworks. Through research-based policy advice, universities can inform evidence-based decision-making, advocate for inclusive

agricultural policies, and support the formulation of strategies that promote sustainable agriculture. By engaging with policymakers and stakeholders, academia can influence policy reforms and foster an enabling environment for agricultural development.

Africa's Agricultural and Tertiary Higher Education sectors present numerous opportunities for sustainable development, economic growth, and knowledge generation.

By embracing agricultural innovation, fostering entrepreneurship, conducting research, strengthening capacity building, and influencing policies, African universities can contribute to transforming the agricultural landscape and creating a prosperous future for the continent.



Students in one of the R-Programming sessions during the RUFORUM Annual General Meeting and Scientific Conference in Harare, Zimbabwe

Academic institutions urged to work with the private sector to develop joint curricula to promote graduate employability



In today's world, the private sector plays a crucial role in shaping the job market and influencing the skills needed for success in the workforce. As a result, academic institutions need to adapt to these changes and work closely with the private sector to develop joint curricula that promote graduate employability.

Speaking at the 12th Academia-Public-Private Partnership Forum and Exhibition held in Dar es Salaam, Tanzania, the Minister of Education, Science and Technology, Hon. Prof. Adolf Faustine Mkenda, urged educational institutions, and the private sector to work together to produce market-driven programmes that are responsive to the dynamic needs of the labour market and train graduates that are relevant for the socio-economic development of the region.

One of the most significant advantages of a joint curriculum is that it allows students to acquire practical skills and knowledge that are relevant to the current job market. By working with the private

sector, academic institutions can gain valuable insights into the skills that employers are looking for in new graduates. They can then tailor their curricula to ensure that students develop these skills, making them more attractive to potential employers.

Moreover, joint curricula can help students gain a deeper understanding of the real-world applications of the concepts they learn in the classroom. This can be achieved through internships, work placements, or projects that are designed and supervised by industry professionals. By working on such projects, students can develop their problem-solving and critical thinking skills, which are highly valued by employers.

Another benefit of joint curricula is that they can help academic institutions stay up-to-date with the latest industry trends and developments. The private sector is constantly evolving, and by collaborating with industry experts, academic institutions can ensure that their curricula remain relevant and meet the changing needs of

the job market. This can also help institutions attract more students who are interested in gaining practical experience and staying ahead of the curve in their chosen field.

Employers also benefit from joint curricula, as they are able to recruit graduates who possess the skills and knowledge needed to succeed in the workforce. This can reduce the time and resources needed to train new employees, making them more productive from day one. Additionally, by working closely with academic institutions, employers can identify top talent early on and develop relationships with potential future employees.

"To achieve greater productivity, countries must focus on demand-driven technical and vocational education, entrepreneurship, and business training programmes tied to sectors such as agriculture and manufacturing," said Mr John Bosco Kalisa, Chief Executive Officer of the East African Business Council during the 12th Academia-Public-Private Partnership Forum.

The 19th RUFORUM AGM 2023 Webinar Series, Article 1

Universities to consider integrated and multidisciplinary approaches as they revamp their role in solving societal problems

Universities in Africa have been challenged to consider integral and multi-disciplinary approaches when developing solutions for community challenges. This was the message during a webinar on *Transforming university processes, systems and learning experience* organised by RUFORUM on 31st May 2023.

In a keynote address he made, Prof. Francis Petersen, Rector and Vice-Chancellor, University of Free State, South Africa said that the challenges confronting societies today are becoming increasingly complex in nature and hence the need for practically implementable and sustainable integrated solutions; well aligned to a multi-disciplinary and/or a transdisciplinary strategy that confronts communities and higher education sector from all angles of expertise, fields and contexts.

“Through discussions and engagements like these, we can co-create knowledge and arrive at solutions that are more effective in addressing the challenges at hand. We can provide those solutions to not only individual institutions but to the entire higher education sector in Africa,”

According to Prof. Petersen, the world today is constantly changing with visible increase

in the inter-related challenges such as economic disparities, food insecurity, environmental degradation, climate change and political instabilities hence the role of universities as engines of social mobility and drivers of economy is more critical than ever.

He therefore stressed the need for universities to provide knowledge and skills across all sectors of development. To him, the mission for institutions of higher learning has shifted from purely being an academic focused, to a more society focused role. And this calls for universities to use their core functions to engage communities in a scholarly fashion to address society needs and build powerful bridges between knowledge systems and cultural, social, political and economic spheres. Highlighting the role of institutions of higher learning in generating universal knowledge, Prof. Petersen urged universities to continuously renew and reimagine themselves as a way of ensuring retention of vitality, agility and relevancy. The world is living in a time of rapid and vast unprecedented changes, for example in the realm of technology and its influence. Workplaces requirements are in time of constant fluxes and it is vital that institutions via learning constantly evaluate and update themselves in order to produce graduates who are sought after at the global market place. This particular adaptability cuts across the universities

teaching and learning practices, curriculum content and research focus. Prof. Petersen therefore called for the constant review of systems, policies and processes to ensure institutional efficiency.

“As African universities, we should aim to grow, develop, and thrive. We should also continue to influence and impact the world both locally and globally. While celebrating the Africa Day on 25th May, as academia, we had an opportunity to reflect on Africa’s contribution to global knowledge and our focus was on how Africa knowledge can access their rightful place on the global platform,”

Reflecting on the emerging transformations at University of Free State, Prof. Peterson informed experts that adapting a society focused role spurred by the rapid growth and developments in technologies has led to the digitization of learning as well as the massification of higher education.

More than ever, African universities must become spaces that encourage new ideas, controversy, inquiries and arguments to challenge orthodox ways of teaching. The COVID-19 pandemic was a turning point for institutions of learning, and Peterson says there is need to re-evaluate and adopt to new changes and produce employable graduates.

The Webinar on “Transforming university processes, systems and learning experience” is part of the Transforming Higher Education Webinar series initiated by RUFORUM as prediscussions platforms geared towards the 19th RUFORUM Annual General Meeting (AGM) slated in October/November in Yaounde, Cameroon.

With the first one held in April 2023, the second Webinar on “Transforming university processes, systems and learning experience” explored the unfolding patterns within higher education in Africa focusing on often under-attended to issues. It sought to discuss the need to rethink university entry and admissions requirements and processes with intent to break the status quo that currently appears to ingrain inequality and exclusion.

Africa’s higher education has grown rapidly over the last two decades with more than double the number of students in the system. Most of this growth is driven by the completion of the full cycles of universal primary and secondary education. While entry into higher education ramped-up leading to massification questions of low quality of education, low levels of integration of the education with the economic and social sectors leading to persistently high unemployment among graduates as well as rising inequalities and exclusion at entry at various levels.

According to the Executive Secretary of RUFORUM, the underlying constraint in most African higher education institutions is that student numbers have not matched pace with teaching, learning

and research infrastructure, personnel and financing resources. These limitations are pushing higher education institutions in Africa to perform dismally in global comparisons with strong intra-continent disparities. Africa’s working age is growing at about 3% per annum and is expected to generate 450 million youth ready to work by 2035. The continent by 2050 will be the largest contributor to the human resources. With the largest population of working age the biggest question is where will they work? Conversations on how universities and their graduates can become more relevant have intensified with the urge to reshape and transform the higher education systems and process and a louder call towards practical skills as a way of cubing down the rising edginess in the labour market is being enhanced.

In her welcome remarks, Prof. Florence Uphie Chinje- Rector, Université de Ngaoundéré, Cameroon, said there is need for higher education institutions in Africa to rethink and restrategize how to embrace modernity with its advancement processes. To her, we live in a globally competitive world and shifts have overtime define the importance of education and science in shaping modern societies and this has increased between the 20th and 21st centuries.

Prof. Uphie Chinje also mentioned that science, innovation and technology have become the game changers in re-defining the job context across various economic sectors. She therefore challenged universities to be aggressive and committed to change and adapt to the emerging trends such as Artificial Intelligence driven learning, citing

the ChatGPT app as the most common in institutions of higher learning.

“We need to change the ways and processes we deliver our learning services to students with the intent to break the status quo. Processes like admission, re-entry, and requirements need to be modernised.”

Pointing out the need for universities to build functional entrepreneurship structures and systems across universities, Mr. Matthias Möbius, a co-founder Start Hub Africa, underlined the mismatch between the present and past ways of teaching and learning as implemented by higher institutions. Especially over the last decades.

“Years back, the curricular were basically tallied to transferring knowledge. Currently we need practical skills for the future. There is need to encourage students skilling programmes and Universities have a bigger responsibility to adjust their way of working and find ways to teach skills that can equip the future.”

In a presentation he made on rethinking the higher education, Dr. Jimmy Spire Ssentongo a Senior Lecturer at Makerere University, was concerned about how most of the African Universities are purely exam oriented with their learning and teaching process streamlined to basically test the memory of students rather their abilities. With reference to the looming debates in Uganda on the relevancy of natural sciences compared to social sciences, Dr. Spire Ssentongo noted that the

contestation is not well framed to the extent that the response from universities is not calling for more discussions to direct the debate and highlight the relevance of all courses either in social sciences or natural sciences.

“What universities are doing currently is to adjust and adopt the interests of the political will in this matter. Before will rethink the higher education we should be able to understand what education is, its purpose and the world it is targeted to.”

When speaking about Rethinking the entry/ admissions into higher education: breaking status quo: Ariel Sánchez, Director of Admissions, EARTH University, Costa Rica, reflected on how the university adopted a new mission that equips leaders with ethical values to contribute to sustainable development and construct a prosperous

just society. According to him, the university has migrated to a competence based education model with a great focus on skills, ability and knowledge.

“Most African Universities use standardized tests to measure a student’s potential of achievement and the usual criteria is to admit students with the highest score.”

Emphasizing the importance of creating an enabling learning environment for students, Prof. Justine J. Namaalwa, Head Mastercard Scholars Programme at Makerere University, cited the need for African universities to understand the increasing concerns and emerging needs to address the different risks and safety of students, staff and all the other stakeholders that operate within the institutional frameworks. She therefore called upon universities to re-consider their social safeguard strategies

towards inclusivity and diversity and encouraged them to have a holistic evaluation process in terms of compliance to the broader understanding of social safeguards.

“If we want these young people to have meaningful engagement at the university and come out as people that are skilled, equipped and ready to transform societies, they must thrive in an environment that is conducive.”

Prof. Ernest Molua, Deputy Vice Chancellor at University of Bamenda, Cameroon, moderated the Webinar. It attracted primarily educator including; University Vice Chancellors, Rectors, Presidents, Principals and Deans of respective universities in Africa. It also drew the attention of development practitioners in education and development as well as researchers.



Prof. Patrick Okori



Prof. Uphie Chinje



Prof. Francis Petersen



Mr. Matthias Möbius



Dr. Jimmy S. Ssentongo



Mr. Ariel Sánchez



Prof. Justine Namaalwa



Prof. Ernest Molua

Research, Innovations & Development Practice

Research and innovation is crucial for building economies by developing solutions that enable society to be proactive rather than reactive to emerging crisis, among others. Strong capacity to undertake research and manage knowledge delivery systems is essential for science to underpin development. RUFORUM recognises this important statement that was echoed at the dawn of Africa's independence by one of the founding fathers H.E. Kwame Nkrumah, President of Ghana, who said *"We shall accumulate machinery and establish steel works, iron foundries and factories; we shall link the various states of our continent with communications; we shall astound the world with our hydroelectric power; we shall drain marshes and swamps, clear infested areas, feed the undernourished, and rid our people of parasites and disease. It is within the possibility of science and technology to make even the Sahara bloom into a vast field with verdant vegetation for agricultural and industrial developments."*

African agricultural universities, therefore have a pivotal role to play in strengthening Agri-Food Systems to feed Africa and the world, create jobs and wealth, while sustainably using the continent's natural environment of land, water and biodiversity. In this section we highlight progress being made by African universities to contribute to science solution for the continent's development.

Inclusive training of the next generation of Scientists in conflict region in Sudan

Author: **Eng. Nada Siddig**



Prof. Patrick Okori, the Executive Secretary of RUFORUM with CARP students from Sudan

Famine is occurring in various parts of Africa. According to the world Food Programme, over 22 million people currently face a severe hunger crisis after four

consecutive failed rainy seasons. Alarming, this figure is expected to increase, with a fifth poor rainy season forecast by the end of 2023. Disruptions to grain supplies and rising prices caused by the

war have pushed more people to the brink in regions already reeling from skyrocketing costs resulting from the combined effects of climate change, conflict, and the COVID-19 pandemic.

According to the World Food Programme, the number of acutely food insecure is expected to increase by 2 million to 2.5 Million to a total of 19 Million across Sudan, if the current conflict continues.

Darfur, is one of the States in Sudan, with highest level of food insecurity, The State has over 1 million people are exposed to hunger and malnutrition. African Universities are contributing to solve this problem by harnessing local indigenous knowledge and packaging them for scaling up and out of Sudan.

Through the Community Action Research Programme (CARP), RUFORUM, supports universities in Africa to better support rural communities to improve their production systems, contribute in addressing the challenges facing the rural communities and provide applicable and accessible solutions. The University of



Khartoum, one of RUFORUM member universities in Sudan, is implementing a CARP project in Darfur titled “Improvement of indigenous coping strategies of famine-stricken in Darfur states, Sudan.” The aim of the project is to identify and promote indigenous famine survival strategies based on native foods; plants, crops, and fruits in Darfur state using local knowledge and advanced biotechnological approaches.

This was achieved through the fermentation of grains, legumes, vegetables, and other foods. All of these foods, when fermented traditionally, become more nutritious than in their regular state. Although fermentation is being practiced in Darfur to preserve and improve the nutritive value of foods in a traditional way, but the indigenous fermented foods is not yet scaled out to fill the food-gaps during the repeated happened famine-stricken in the areas of great Darfur.

Under this project, a number of indigenous food processing techniques from locally available plants and insects sources from the wild were studied and validated for nutrition quality and food safety as well as amenability

to processing and storage. The technologies most of which are associated with coping strategies during famine and for prolonged droughts included; Wild rice, Furundu fermented Hibiscus, Khemiss Tweira Fermented pearl Millet, Fendo

Fermented Locusts, Damsora fermented Sorghum Flour. Corape seed obtained from a highly resilient wild plant found in many dry places in Africa was also studied. These food sources have now been well characterised and are ready for packaging and investments by the private sector and other actors.

Capacity for undertaking such research was also developed, graduating 12 Masters Students, nine (9) out of whom are female at the University of Khartoum.

The project also built local

capacity in communities for safer food processing by training 112 farmers and food vendors, most of whom are women. The training include fortification of the food products to enhance their nutrition quality and market competitiveness.

The graduates demonstrated immense skills in communication and leadership and appreciated exposure to new challenges. Majority of them said that it was their first time to travel to Darfur and learn other people’s culture in another part of their country. Mrs. Mhasin Ahmed Ibrahim, commended the RUFORUM-Mastercard project for improving her confidence and equipped her with leadership skills that helped her to be come a News Anchor.

The key message from the project is;

Higher education institutions should promote entrepreneurship as a way to address food security and create jobs as well as encourage African universities to protect the university and students’ enterprises through intellectual copyright.



Ahmed Mohammed Saeed Balolo (centre) and his team holding the Damsora product

Building capacity for climate change mitigation and adaptation

Author: **Mr. Waswa Moses**

Climate change and weather variability is one of the world's and Africa's 21st century grand challenges. It threatens to reverse development achievements gained over the previous two decades and may limit Africa's ability to meet the Sustainable Development Goals by 2030. Climate change has especially a negative impact on agriculture, the main livelihood mechanism for 70% of the continent's population.

Significant adaptation and mitigation measures are required to maintain and/or increase agricultural yields for livelihoods and development needs.

It is worth noting that agriculture, while essential, is a major contributor to the climate change through processes that generate carbon dioxide and other gases. Globally, agriculture emits 19-29% of carbon dioxide produced annually. The information on the emission levels of carbon dioxide by Africa's agriculture is limited and this affects design of appropriate mitigation measures.

This can affect the planning by Africa to actively participate in the net-zero

carbon economy planning for which the rest of the world has set 2050 as the target. Advances in data science, provide opportunity for Africa to study and project its carbon futures using diverse datasets across Africa and from other global sources.

RUFORUM and its partners, Global Research Alliance, recognise this opportunity and together with West African Science Service Centre on Climate Change, Adapted Land Use, AKADEMIYA2063 and International Development Research Corporation are piloting the use of Artificial Intelligence to study Africa's climate change futures.

The research consortium has created 11 Artificial Intelligence hubs in nine African countries who are generating data that will inform carbon planning for Africa.

The Alliance has assisted universities in developing capability for assessing carbon stocks and greenhouse gas emissions. As a result, an African pool of expertise in agricultural greenhouse gas measurement has emerged, broadening the area of greenhouse gas research that African institutions may do and strengthening their potential to convert science into reality.



Two MSc students, Nasuru Kusiima and Ritah Anyait, sampling forages for botanical composition, yield, and chemical composition analyses.

From Theory to Practice

Voices from the field: Touching lives, creating opportunities



Touching lives and creating opportunities is a documentation of voices from the field impacted by TAGDev, a project implemented by RUFORUM across Africa supported by the Mastercard Foundation. RUFORUM member universities, and agricultural communities and their governments are critical implementers of Transforming African Agricultural Universities to Meaningfully Contribute to Africa's Growth and Development (TAGDev). The TAGDev programme invests in individuals who become change agents in society. In this series of voices of impact, RUFORUM profiles personal stories of young women and men who are emerging as agents of hope and change in their communities. Through giveback to community and own-entrepreneurships, these young people are emerging as change agent leaders.

4 Pillar Give Back is a joint effort led by Anthony Emaru involving six other students from Kenya, Uganda, Rwanda, Burundi and Democratic Republic of Congo. The initiative runs a Field Demonstration Unit for training farmers and intern students. Further, the team runs routine farmer open training days and organizes mentoring activities for high school students. 4Pillar Give Back also links farmers to a sustainable market for their

produce and it has reached over 2,000 smallholder farmers in Kenya under the vegetable value chain. With the initiative, Anthony has initiated agricultural projects and dug a water well to help village people from water troubles in rural Uganda.

“ My thirst to give back to the community still lives with dreams to start agricultural enterprises, consultancy and aggregate produce.”



Link to published stories : <https://ruforum.wordpress.com/2023/05/26/voices-of-impact- touching-lives-and-creating-opportunities-part-3/>

Inspiring youth leadership in tackling environmental challenges in Kenya

Ms. Lilian Onyango, Egerton University, Kenya



“As a team, we are dedicated to environmental improvement that fosters a sustainable future and leads to social and economic empowerment of communities. We envision achieving this through engaging in programmes and projects that create environmental awareness and education.”

Youths for Green Action Kenya is targeting to plant over 100,000 tree seedlings yearly, and making higher learning institutions in Kenya clean by collecting waste. YGAK has an inclusion agenda and aims to marginalised and excluded members of their community.

The organisation will build strong partnerships with like-minded institutions.

To date, YGAK has successfully planted over 79,000 tree seedlings in the counties of Narok, Nakuru, Mombasa, Kakamega and Kisumu in Kenya within three years of partnership.

“We have also collected over 10 tons of waste during the different cleanup activities.”, and value partnerships aware that they are key to realising our goals.

A youthful population defines Africa. More than 60% of the population is below the age of 25 and by 2030, young Africans are expected to constitute 42% of the global youth population. Accordingly, young Africans must be part of the solution to the continent’s challenges. It is therefore time for African youth leaders to engage in shaping the desired future of the continent.

YGAK, has successful implemented projects that enhance community resilience to climate change and weather variability.

The team has conducted tree planting, youth leadership training workshops, environmental education in primary and high schools and in stakeholder meetings, among other giveback to community activities.

A team of young Africans from Kenya came together in 2018 to establish Youths for Green Action Kenya (YGAK), a youth organisation championing environmental conservation. Ms. Lilian Onyango, a TAGDev beneficiary, led the creation of YGAK.



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Voices from our Alumni

Experiential learning is increasingly an essential part of skilling practically oriented graduates. RUFORUM member universities implement experiential learning through the community action research projects that provide an environment for students to learn by doing as they conduct research and outreach activities. This process equips graduates with the necessary abilities to assist key stakeholders, such as agricultural practitioners and farming communities. Knowledge products and innovations are translated from complicated technical language into forms that can be used easily by communities and practitioners. In this Issue we share a voice from South Sudan.

Solutions from Nature

Dr. Lina Sara Mathew Alonga, Lin-Rayon General Trading Company Ltd, South Sudan

Lina Sara Mathew Alonga is a South Sudanese mother of three and beneficiary of the RUFORUM Agricultural Enterprises Challenge Programme (RECAP) project. The Project was implemented in Mbarara University of Science and Technology as part of her PhD studies in Pharmacognosy and Natural Medicine Science. “I am an incubate at the PHARMBIOTRAC – Natural Products Business Incubator (PNPBI), supported by the RUFORUM Entrepreneurship Challenge Programme (RECAP)” said Lina.

“ I was inspired by my mother to study Pharmacognosy, because she had good knowledge of plant medicinal products. Through her innovativeness, my mother created amazing culinary and skin care products for home use. Some of her creations have been effective so much so that I have relied on them for treating my skin rashes and soothing my own skin.”

It was from such an experience that Lina started the Lin-Rayon General Trading Company Ltd, which specializes in manufacture of skin and hair care natural



products. The business produces skin care products for treatment of acne.

Lin-Rayon General Trading Company Ltd produces a number of skin care products including body cleanser known as Lirayon Carrot Face & Body Cleanser for rejuvenating dull looking skin, Lirayon Rosemarinus Hair

Boosting Oil for hair growth and prevention of baldness and dandruff and LINJAM T Tree Face & Body Lotion for acne. The company aims at producing affordable and accessible high quality products using modern technologies while conserving the environment. The skin care products targets both male and female adolescents and adults

who have skin issues such as acne.

“We aim to reach our clients through radio stations, social media, word of mouth, fliers and brochures, among others. The company is formally registered in Juba, South Sudan,”

“As a female running the Lin-Rayon General Trading Company Ltd, I have become a role model to many, my social network has expanded to both young and adults and I am able to cover for my living expenses and provide for some school requirements for my children and family members. My company has created opportunities for some of the community members

who supply raw materials” Lina stated.

Lin-Rayon General Trading Company Ltd, is a success story that has been able to translate ideas into products. The products have successfully entered the skin care products market where they have found a niche. The products have been receiving favorable reviews from clients. The company continues to experiment on different formulations while soliciting feedback from potential users for improving the final products.

The company aims to finalize the formulation of the LINJAM T. Tree for acne management product with a possibility of having it on the market in Uganda and South Sudan

and have it registered with the Q Mark from the Uganda National Bureau of Standards.

For the improvement of the incubation programme at Mbarara University of Science and Technology, the team recommends that the incubation centre continues to fund and support the existing innovators with additional grants, until they can stand on their own and produce on a large scale and compete on the international market.

“When you fail, it doesn’t mean that you should stop dreaming. All big things always start small”. She therefore encourages young people to start businesses, remain committed to them and always seek help. Foremost, they should always have mentors.

African scientists converge to discuss solutions to adapt to and mitigate climate change through Artificial Intelligence (AI)

Author: **Mr. Ekepu David**

African scientists under the umbrella of the “Responsible Artificial Intelligence Network for Climate Action in Africa (RAINCA)” met in Kampala, Uganda, from 3 to 5 April 2023. The aim of the meeting was to oriente Principal Investigators of the RAINCA initiative on its implementation. RAINCA, involves independent research projects in agriculture, forestry, electricity, and the blue economy. The meeting attracted participants from several institutions from different parts of Africa such as Cameroon in Central Africa; Ghana, Senegal, Cote d’Ivoire, Nigeria, and Benin in West Africa; and Ethiopia, Tanzania, and Uganda in Eastern Africa.

The main objectives of the meeting were to provide proper orientation to the successful grantees on climate change, opportunities in artificial intelligence research, artificial intelligence community building

and to share knowledge and experiences from the different grantees under the RAINCA consortium. The programme was also primed to develop the capacity of RAINCA grantees to track progress, document, report and share lessons on the implementation processes.

RAINCA is coordinated by a consortium of three partner African organisations, namely, West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL), Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) and AKADEMIYA2063. The three organisations have vast experiences and capacities in climate change, agricultural research and artificial intelligence.

Participants at the programme noted that with the increasing build-up of greenhouse gases in the atmosphere, the resulting variability and change in climate has led to the occurrence of

extreme temperatures and larger mean and maximum one-day precipitation around the world. According to Intergovernmental Panel on Climate Change (IPCC), Various studies show that Africa will experience severe effects of climate change compared to pother continents. If not mitigated, climate change will affect the livelihoods of the most vulnerable communities in Africa due to the inherent low adaptive capacity and projected impacts of climate change. However, participants also noted that climate change provides ample opportunities for Africa to strengthen its scientific capacity. It also noted that climate change has stimulated more African research institutions and experts to explore new frontiers of science to mitigate the impacts of climate change and increase the adaptive capacity of the most vulnerable populations, such as smallholder farmers who depend on rain-fed agriculture.



On this note, participants emphasised the fact that research in artificial intelligence remains an untapped “gold mine” for Africa to better respond to the challenges of climate change. It was also happy to note that interest in artificial intelligence is growing among policymakers and development partners.

Through artificial intelligence, researchers in the RAINCA initiative will be able to use sophisticated models to predict the impacts of climate change and provide decision-support tools to allow policymakers respond appropriately climate change issues. Furthermore, innovations enable communities better adapt and mitigate climate change impacts. The organizers of the programme stated that RAINCA will create a network of Climate Champions in Africa who will be empowered to apply artificial intelligence to predict and respond to climate change. The hub will also continue to create climate awareness and resilience and also build research capacity in Africa through the use of artificial intelligence.

According to the participants, the programme enabled them to gain additional skills in research in artificial intelligence, learn inclusive strategies to engage marginalized groups including women and youth and fostered a community of artificial intelligence researchers in Africa. One of the

participants from the University of Bamenda, Cameroon who is using artificial Intelligence for modelling climate change in the Congo Basin remarked that “the orientation meeting has provided me the opportunity to network with other scientists and discuss modalities to share knowledge and resources such as the use and development of unmanned vehicles for data collection”. Another participant from Nelson Mandela African Institution of Science and Technology, Tanzania noted that “through this orientation meeting, I have gained new insights to involve communities is collecting audio and text data to build an artificial intelligence model that will help to predict and mitigate forest fires”. Michele Leone, the Programme Officer at International Development Research Centre (IDRC) who attended the meeting physically noted that “the orientation meeting has provided me with a better understanding of research being undertaken by the research teams and gives insight for scaling responsible artificial intelligence in Africa to improve livelihoods and build resilience to climate change”.

RAINCA focuses on climate change because it presents both a challenge and an opportunity for Africa. According to the Intergovernmental Panel on Climate Change (IPCC), climate change refers to any change and variability in climate over a

long period of time, whether due to natural variability or human activity, that is statistically significant. The issue of climate change is particularly significant for Africa as the continent also emerges from the COVID-19 pandemic, which increased the population’s vulnerability to existing shocks such as climate change and other emerging and re-emerging shocks.

The RAINCA initiative is being implemented to advance climate action in Africa through the responsible development and deployment of AI innovations. Specifically, the initiative will deepen understanding of how to develop and scale responsible AI innovations for climate action in sub-Saharan Africa, build the capacity of 11 groups of African innovators and researchers to develop, deploy, and scale responsible AI applications in climate action. It will also facilitate the contribution of African research to international AI policy and practice conversations.

RAINCA is funded by the Artificial Intelligence for Development-Africa (AI4D) programme, a joint initiative funded by Canada’s International Development Research Centre (IDRC) and the Swedish International Development Agency (SIDA). Visit <https://rain-ca.org/> for more information.

Zamzam University Rector pays a courtesy visit to the RUFORUM Secretariat

Author: Ms. Acan Evaline

In a bid to foster collaboration and explore opportunities for academic and research partnerships, Prof. Mohamud Mohamed Hassan, Rector of Zamzam University of Science and Technology recently paid a courtesy visit to the RUFORUM. During the meeting, Prof. Hassan and the RUFORUM management discussed potential areas of mutual interest and collaboration between the Zamzam University of Science and Technology and other RUFORUM member universities. Prof. Hassan, in his presentation of the university said

“ours is the largest private university in Mogadishu a leader in many first in a country that has experienced political and security challenges for long.”

We are happy to be a new member of RUFORUM and look forward to engage with our new African family of predominately agricultural based universities.

RUFORUM management presented the network as a mechanism to foster collaborative teaching, learning and research as well as policy and advocacy especially in the agricultural

sector and its allied disciplines.

During the visit, the Zamzam University delegation noted that RUFORUM’s activities encompass a wide range of areas such as agricultural research, capacity building, curriculum development, and knowledge exchange that a crucial to their university’s mission. Another area of interest was RUFORUM’s agripreneurship and leadership activities that are essential for sustainable development in Africa.

Zamzam University of Science



The Vice Chancellor of Zamzam University in Somalia, Prof. Mohamud Mohamed Hassan, paid a visit to the RUFORUM Secretariat at Makerere University in Kampala to know more about RUFORUM as a new member of the Network.

and Technology, on the other hand, is a renowned institution of higher learning located in Mogadishu, Somalia. Established with a vision to provide quality education, research, and community service, Zamzam University has made significant contributions to various fields, including agriculture, health sciences, engineering, and social sciences. The university is committed to producing highly skilled graduates who can address the challenges facing their communities and contribute to national development.

During the discussions, the Zamzam University Rector highlighted the institution's

expertise in agricultural sciences and emphasised the importance of collaborative efforts to address food security and promote sustainable agriculture in the region. The delegation also shared information about Zamzam University's green house, academic programmes, and incubation hubs, showcasing the university's commitment to impactful and relevant research.

Both RUFORUM and Zamzam University recognized the value of working together to enhance higher education and research in agriculture and related fields. The discussions centered on potential collaborative research projects, joint academic programmes,

faculty and student exchanges, and the sharing of best practices and resources. The two institutions acknowledged the mutual benefits that would arise from such partnerships, including the opportunity to leverage each other's strengths, access funding opportunities, and broaden the scope of their research endeavors.

In appreciation of RUFORUM's pivotal role in Agricultural and Higher Education in Africa, Prof. Hassan, presented a plag to the network. it will be formally handed over to the board chair in Cameroon during the 19th AGM 2023.



Group photo: The Somalia delegation with the Executive Secretary and a RUFORUM staff.

RUFORUM Happenings



Dr. Mohamed Anouar Jamali (second right), the Chief Executive Officer of OCP Africa in Morocco paid a visit to the RUFORUM Secretariat in Kampala, Uganda



The RUFORUM Management team; Prof. Okori Patrick, the Executive Secretary, Dr. Nakayiwa Florence, the Deputy Executive Secretary and Dr. Sokono Dagnoko, the Executive Assistant, paid a courtesy visit to Prof. Barnabas Nawangwe (Left), the Vice Chancellor Makerere University



RUFORUM delegation meeting with Arab Organisation for Agricultural Development (AOAD) team in their headquarters in Khartoum, Sudan



RUFORUM delegation meeting with Arab Bank for Economic Development in Africa (BADEA) Director General, Dr. Sidi Ould Tah, and his team in their headquarters in Khartoum, Sudan



Dr. Rukarwa, the Community Engagement Officer at the RUFORUM Secretariat handing a book titled Transforming Agricultural Tertiary Education in Africa, published by RUFORUM, to the State Minister for Higher Education, Dr. John Chrysestom Musingo at the 1st National TVET Skills Exhibition at Uganda Insitute of Communication Technology (UICT) in Kampala Uganda



The RUFORUM delegation with the International Centre for Biosaline Agriculture (ICBA) delegation during the the ICBA-RUFORUM Workshop in Kampala, Uganda



Group photo: Prof. Akenga Teresa (middle), the Chairperson, Forum for African Women Vice Chancellors (FAWoVC), with the RUFORUM staff during her visit at the RUFORUM Secretariat in Kampala, Uganda.

Appreciation

Eid Special



RUFORUM staff handing Eid packages to the muslim staff at the RUFORUM Secretariat, wishing them a happy Eid.

Farewell and Good Luck



The Knowledge Hub Unit staff wishing Dr. Otto Francis (third left), the former Manager of the Khub Unit farewell.

Events Announcements

May- September 2023



19TH ANNUAL GENERAL MEETING
29 Oct-03 Nov. 2023

PRE-AGM WEBINAR SERIES

#RUFORUMAGM2023

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19TH ANNUAL GENERAL MEETING
28 Oct- 02 Nov. 2023

RUFORUM Annual General Meeting
Yaounde Conference Centre, Cameroon

Theme: Transforming Higher Education to Sustainably Feed and Create Prosperity for Africa

Hosted by the Government of Cameroon and RUFORUM Cameroon Member Universities

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SAVE THE DATE
28 Oct- 02- Nov 2023

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