

ACE II NEWSLETTER

ACE II
Project has
developed
human
capital for
the region



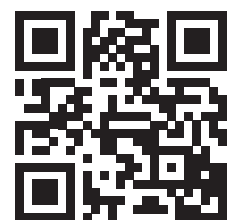
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TACE hosts hosts five-day course to empower tutors in entrepreneurship



The Center of Excellence, Transformative Agriculture Commercialization and Entrepreneurship (TACE), in collaboration with German Sparkassenstiftung (DSIK) and UNESCO organized a five - day Student Training for Entrepreneurial Promotion Program (STEP)-Train the Trainer at the Lilongwe University of Agriculture and Natural Resources (LUANAR) from 12 to 16 February 2024.

Regional participants from Kwame Nkrumah University, Copperbelt University, Mukuba University, Kabwe Institute of Technology, MZUNI, MUBAS, University of Lilongwe, Bwaila secondary school and LUANAR were in attendance.

STEP trainer, Ms. Janina Peschman of Leuphana University, Germany, highlighted that STEP differs from other entrepreneurship trainings because it is action oriented, evidence based and scientifically evaluated. She explained the objectives of the STEP training, which are: to enhance entrepreneurial skills through the STEP program; to promote STEP program implementation in partner universities focused on addressing youth unemployment; and to foster entrepreneurship in the Southern African region. ■

<https://www.luanar.ac.mw/tace/>

Beneficiary testimonies

Precious Chiombankhanga a lecturer in Entrepreneurship at LUANAR said that his favourite part of the training was learning how to start and manage a business with limited starting capital, using the Canvas Business Model for promoting one's businesses to stakeholders, writing a business plan, managing financial records, analyzing financial statements, and maintaining control over business operations.

Oscar Sandado from Kabwe Institute of Technology said that he was looking forward to passing on the knowledge to his students.

Ms. Siachinzi Beenzu, one of the trainees from Copperbelt University hailed the STEP training for being practical. She said that unlike theoretical trainings on entrepreneurship STEP training made it very easy to grasp the entrepreneurship concept as each participant was tasked to deliver each of the 12 STEP Training Sessions. She noted that the training taught her to make calculations on return on investment even for small scale businesses while in the past she thought only big businesses needed such calculations.



ACE II Project has developed human capital for the region

The Africa Centers of Excellence (ACE II) project was launched by participating African countries, Inter-University Council for East Africa (IUCEA) and the World Bank in October 2016 to support selected universities in Eastern and Southern Africa to deliver quality postgraduate training and build collaborative research capacity in five priority sectors to address pressing regional development challenges. Through broad consultations at both the regional and national levels, Agriculture, Industry, Health, Education and Applied Statistics were identified as the priority sectors for the region.



ACE II is an opportunity to scale up regional integration and collaboration in higher education in Eastern and Southern Africa. Over 2,500 faculty and PhD students have participated in staff and student exchanges to share innovations and good practices in teaching and learning and to enhance cross-border research networks.

to effectively engage with industry, and the industry lacked confidence in universities' capacity to produce graduates capable of solving real-world problems. The ACE II Project was designed with the overarching goal of aligning higher education with labour market demands and increasing skilled professionals in areas experiencing critical shortages.

Since it started in 2016, the program has supported 29 specialised regional centers hosted at 18 universities in eight countries

to develop sufficient capacity to become sustainable regional hubs for excellent training and research, capable of leading efforts to address priority development challenges and improve lives in the region. Through the program, 7,226 students – more than one third of whom are female – have enrolled in Masters and PhD programs and short courses in the key development sectors producing a critical mass of graduates that are a foundation to a better-educated workforce capable of driving economic growth and social progress.

The ACEs have undertaken applied research in priority fields such as health, agriculture, ICT, water, transport, energy, education, sustainable mining, environment and engineering. The centers have been at the frontlines on challenges related to Ebola, Covid-19, sustainable

energy, water management, drug development, digital technologies, food security, and climate change.

Through a series of three projects (ACE I, ACE II, and ACE Impact), the ACE program is the first large scale regional program funded by the World Bank in the higher education sector in support of African governments. The regional approach of the program promotes cross-border academic and industry partnerships within and outside Africa through peer-learning opportunities; sharing of specialized research facilities and equipment; and exchange of faculty and students in specialized fields.

ACE II is an opportunity to scale up regional integration and collaboration in higher education in Eastern and Southern Africa. Over 2,500 faculty and PhD students have participated in staff and student exchanges to share innovations and good practices in teaching and learning and to enhance cross-border research networks.

The centers have published more than 3,251 research papers in internationally recognized journals and signed 338 research collaboration MoUs with the private sector and other institutions and generated over USD 43 million in external revenue.

By investing in people through quality higher education and innovative research, the ACE II project has developed human capital, crucial for boosting economic growth, reducing poverty and creating more inclusive communities ■

<https://ace2.iucea.org/>

Studies had shown that the the Eastern and Southern African countries did not produce enough graduates in science and technology needed to expand and diversify their economy. As a result, firms faced difficulties in filling technical and managerial positions as the proportion of the expertise was inadequate. Universities were unable

ACENUB Highlights Sustainable Agricultural Practices at National Agriculture Fair

The African Centre of Excellence in Neglected and Underutilised Biodiversity (ACENUB) participated in this year's Agriculture Fair at Chichiri Trade Fair Grounds in Blantyre, Malawi which took place from August 29 – 31, 2024 themed "Driving Towards Export-oriented Agriculture Through Commercialisation and Innovation".

The Agriculture Fair was graced by their excellencies Dr. Lazarus McCarthy Chakwera, President of the Republic of Malawi and Mr. Filipe Jacinto Nyusi, President of the Republic of Mozambique.

Dr. Chakwera, who is also Chancellor of Mzuzu University (MZUNI), was visibly impressed by the products and innovations displayed after being briefed by Dr. Mavuto Tembo who is Director of ACENUB.

Dr. Tembo said the maiden appearance at the Agriculture Trade Fair was an opportunity to showcase what the ACENUB and MZUNI offer.

"ACENUB plays a significant role in promoting the conservation and sustainable utilisation of neglected and underutilised plant species. We displayed the importance of maintaining biodiversity in agriculture for instance, we emphasized the value of preserving different plant varieties for the resilience of agricultural ecosystems," he said.

Dr Tembo said adding value to the neglected and underutilised species has

nutritional benefits too.

"Many plant species often possess high nutritional value. By diversifying crop options, the country can enhance food security. These plants can serve as alternative food sources, especially in times of climate change or crop failures," he said.

Aligned to the theme of the Agriculture Fair, Dr. Tembo said there are some market opportunities that must be explored.

"There is a market potential of these neglected and underutilised plant species. By promoting the cultivation and commercialization of these plants, they can open up new economic opportunities for farmers and entrepreneurs in the agricultural sector," he said adding that science and technology are important aspects that ACENUB and MZUNI have utilized.

"We are so innovative in our approach bringing together Science and Technology. We have developed sustainable agricultural practices and models using technology and artificial intelligence because we believe these two aspects are the future of the agriculture



sector," he said.

The products that were displayed by ACENUB depicted smart agriculture systems and applications employing principles of artificial intelligence, internet of things and machine learning, insect farming, agri-food and feed products, neglected and underutilized agri-food products and value added agri-food systems products, with potential of commercialisation and import substitution.

The products were from various fields including: Chemistry, Biological Sciences, Agri-Sciences, ICT, Tourism and Hospitality Management, Fisheries and Aquatic Sciences, Energy Systems, under the three faculties which

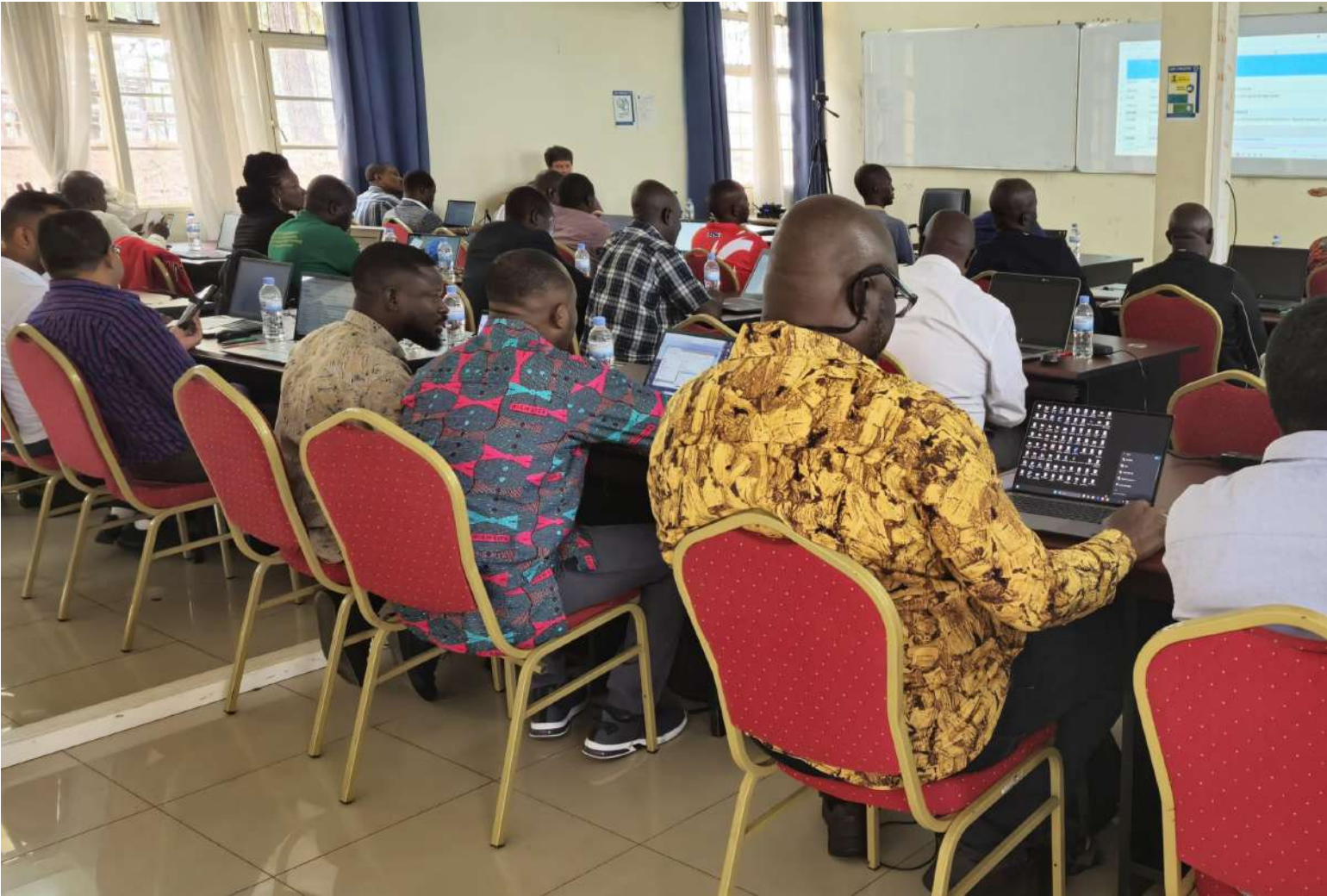
are Science, Technology and Innovation; Environmental Sciences, and Tourism, Hospitality and Management.

The objectives of ACENUB are strengthening conservation and value-addition to indigenous knowledge in the utilisation of neglected and underutilised biodiversity in Malawi; enhancing skills development in agri-food systems using trans-disciplinary approaches and applied research; establishing Mzuzu University linkages with the national, regional and international agricultural sector, private and public entities related to agri-food systems through ACENUB, and providing a platform for high level research and postgraduate

training in Malawi and the region.

ACENUB is collaborating with organisations and businesses specializing in the following: Valorisation of agri-food products, value added food products; ICT assisted - AI, machine Learning and internet of things driven applications and systems, technologies and innovation; renewable energy systems; soil health improvement products and plant catalysts; botanical pesticides, insecticides and herbal/medicinal products; seeds; essential oils and antimalarial products; food and feed supplements for humans, animals, fisheries and aquatic species, and circular economy and nanotechnology based products ■





Center for Energy hosts Mini-Grid Training for Sustainable Energy Access

The African Centre of Excellence in Energy for Sustainable Development (ACE-ESD) hosted a Mini-Grids Training Workshop from September 4 to 11, bringing together 49 lecturers from 17 universities across Africa, Asia, and the Indo-Pacific.





This event aimed to deepen participants' understanding and teaching skills in mini-grid technology. This initiative was a collaboration between the University of Rwanda (UR), ACE-ESD, and the Transforming Energy Access Learning Partnership (TEA-LP) from the University of Cape Town, South Africa.

TEA-LP is committed to equipping a highly qualified workforce to support the global transition to sustainable energy access. The workshop blended theoretical learning with practical experience, providing participants with training in advanced mini-grid software tools, including Xendee, HomerPro, and COMET.

Dr. Emmanuel Ufiteyezu, Acting Director of ACE-ESD and lecturer at UR, explained that the workshop focused on teaching essential skills such as system sizing, energy storage, distribution, smart metering, and tariffing for mini-grids. This training empowered lecturers to incorporate cutting-edge technology into their curricula and design effective energy solutions for their communities.

Participants gained knowledge in modern software for Mini-Grid System Design, becoming proficient in designing and implementing systems like solar, hydropower, and wind turbines to bring electricity to remote areas. Dr. Ufiteyezu emphasized the critical role of mini-grids in addressing gaps in national electricity coverage, particularly in underserved regions.

“As these professors return to their home institutions, they will carry with them new perspectives and skills, ready to inspire and educate the next generation of energy professionals, and that will enhance energy education, standing as a statement to the power of global cooperation

in tackling the world's energy challenges,” he said.

According to Lesley Ashburner, capacity-building lead for TEA-LP, the lecturers not only mastered mini-grid technology but also demonstrated their expertise by designing and presenting their own mini-grid systems.

Ramendra Prasad, a senior lecturer at the University of Fiji, found the workshop highly beneficial for

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developing new energy projects and teaching students crucial skills for off-grid systems. Uche Ogbiefi, Associate Professor at the University of Nigeria, highlighted the practical applications of the training in solving real-world energy challenges.

Dr. Bernard Munyazikwiye, Head of the Mechanical Department at UR, stressed that the workshop provided valuable networking opportunities and hands-on experience in deploying smart grids to improve energy access in rural areas ■

<https://acesd.ur.ac.rw/>

CESAAM's Breakthrough in Cassava Beer Production

At the heart of agricultural innovation in Africa, the Centre of Excellence in Sustainable Agriculture and Agribusiness Management (CESAAM) is making groundbreaking strides toward food security and poverty reduction. A recent achievement highlights the commitment to this mission: the development of cassava beer.

This exciting venture, led by Dr. John Nduko and supported by CESAAM, began as a research project aimed at exploring alternative uses of cassava, a staple crop in many parts of Africa. Traditionally used for food, cassava has been seen as a low-value crop with limited commercial applications. However, through in-depth research and a passion for

finding innovative solutions, Dr. Nduko's team discovered a novel way to brew high-quality beer from cassava.

The research journey wasn't without its challenges, but CESAAM provided the necessary resources, expertise, and infrastructure to turn the idea into reality. From fermentation trials to flavor profiling, the research team overcame

numerous technical hurdles. Their hard work paid off, and they successfully developed a premium cassava beer that has garnered attention for its unique taste and potential to transform the local agribusiness landscape.

This cassava beer, now undergoing registration, is on the brink of commercialization. With the support of CESAAM, a state-of-the-art bottling machine is being procured, bringing this innovative product one step closer to reaching consumers. This development holds immense potential for local farmers, as it creates new demand for cassava, thereby increasing incomes and providing a sustainable livelihood.

The cassava beer initiative is not only an example of agricultural innovation but also a powerful tool in the fight against food insecurity and poverty. By adding value to cassava and transforming it into a marketable product, the initiative has the potential to contribute significantly to rural development and economic growth.

As this product moves toward full-scale production and distribution, CESAAM remains committed to its goal of improving lives through cutting-edge research and practical solutions. The success of cassava beer demonstrates how agricultural innovation can drive economic transformation, offering hope for sustainable food security across Africa ■



Prof John Nduko

www.cesaam.egerton.ac.ke



CESAAM
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ABOUT

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- Cow Signaling
- Livestock



Center in Internet of Things to commercialise Smart Hive Technology to Boost Honey Production

The University of Rwanda's African Center of Excellence in Internet of Things (ACEIoT), on 30 March conducted an awareness seminar for beekeepers in Huye District about the newly invented Smart Bee Hive Technology (SBHT). Mr Elias Ntawuzumusi, a doctorate student at the African Centre of Excellence in Internet of Things(ACEIoT), invented the technology.



SBHT is a technology which tracks temperature, humidity, sound, movement inside and outside the hives. By utilizing sensors, beekeepers can remotely control these parameters through their smartphones. This technology was developed to enhance beekeeping activities and ultimately boost honey production.

The technology which got funding from the International Centre of Insect Physiology and Ecology (ICIPE), is being implemented in partnership with NARADA Electronics Limited, a Rwandan

private company dedicated to embedded systems development, training, and consultancy.

"The device is equipped with a digital siren to deter animals and intruders, smoke detectors to notify beekeepers of forest fires, and an air ventilation system to protect bees from harmful external air," said Ntawuzumusi. He says his inspiration comes from honey's health benefits and the untapped potential of Rwanda's beekeeping industry.

Beekeepers like Wellars Munyaneza have already expressed

their interest in the innovation

"During the rainy season most of bees die due to humidity. With this technology, we will be able to monitor this ahead of time and take action to avoid the losses. Consider including a feature where instead of getting only an alarm we also get an image of the object passing by the beehive so that we know how to deal with it."

One device costs Rwf 150,000. Prof. Damien Hanyurwimfura, the Principal Investigator of the project and the Director of ACEIoT acknowledged that this price may



be prohibitive but assured that he will advocate for subsidies to make it more affordable for all beekeepers.

“We will continue to mobilize more funds for the improvement of the device, multiplication and affordability.”

“NARADA LTD in collaboration with the involved researchers at ACEIoT will continue to update the product adding more features as suggested by beekeepers before commercialization,” he added.

After the awareness workshop, the project team conducted a site visit to Nyaruguru District, Ngoma Sector

where the SBHT has been recently installed for testing.

“The device is working very well, we are notified through a phone alarm whenever an intruder enters the farm which assures that the security of our hives is guaranteed,” said Mr. Rutiyomba Ismael, a beekeeper.

“We are also able to see the beehives conditions such as temperature, humidity and how much honey is in the hive through our smart phones and this will help us to know when the honey is enough to harvest,” he added.

With funding from the the partnership for skills in applying sciences, engineering and technology (PASET) with the Africa regional scholarship and innovation fund (RSIF) through International Centre of Insect Physiology and Ecology (ICIPE), ACEIoT has been improving the Smart Bee Hive Technology project for the past two years.

Information about the device has already been disseminated to more than 50 beekeepers in Rwanda ■

<https://aceiot.ur.ac.rw/>

Cat Scent Inspires Innovative Rodent Repellent Technology



Rats have the best sense of smell, probably more than any other species of mammals. This is something that helps them to avoid predators and other natural enemies. Because of the relatively poor sight, particularly in the dark, being able to sniff the volatile substances emitted by different natural enemies enables them to run and avoid them or keep away from a dangerous environment.

The ability to sniff different types of smell is also advantageous for identifying the right and nutritious foods and to avoid poisons which have been purposely placed to kill them. Researchers at the Africa Centre of Excellence for Innovative Rodent Pest Management and Biosensor Technology Development (ACE IRPM & BTD) at Sokoine University in Tanzania realized early on that this special sniffing trait in rodents could be exploited in many ways to our advantage. One very successful application is the use of rats (Hero Rats) to sniff out landmines left behind in the ground after wars in various parts of the world.

To date, hero rats, which are trained to sniff land mines have been deployed in Mozambique, Angola and Cambodia where millions of acres of

land which were heavily mined and too dangerous for farming, grazing etc. have been opened for these activities.

The story does not end there. Sniffing the bacteria that causes tuberculosis enables trained rats to diagnose the disease in human sputum at the rate of 6-7 sputa per minute or about 42 sputa in 7 minutes. A trained technician using microscopy will be able to do 42 specimens in one full working day. Still there are many other potential applications that are feasible including the diagnosis of other diseases such as Salmonellosis (caused by the bacteria, Salmonella species), detection of illegal concealment, transportation and exportation of endangered species such as Pangolins, etc.

When you keep a cat in the house rats disappear. “We had the evidence



that many were killed by cats but also some evidence that if there were five rats in a house probably only two were killed but the others simply disappeared. So the question was why do they disappear? How could they recognize the presence of a cat even when the cat was not in sight and was not making any noise to warn the rats?" said Prof Rhodes Makundi, one of the investigators. With these unanswered questions the researchers focused on potential volatiles emitted by cats that the rats could sniff and avoid these predators.

"We assumed that if such volatile materials were some physiological discharge then they must be abundant in the faeces and the urine of cats. So our next step was to extract most of the volatiles which were in the urine of cats and test each volatile as a repellent for rats," said Prof. Makundi. "This

became successful as we were able to identify one specific volatile that was highly repellent to rodents. Our next step was to synthesize the volatile, formulate it in powder form and apply it in houses and other rat infested structures to keep them away."

The powder formulation emits the volatile, which rats sniff and because they smell a cat they keep away from the house. This has been a big success in domestic rodent management. The powder formulation creates an atmosphere of fear for rodents without the presence of cats. The Principal Investigator was Professor Loth Mulungu (deceased). The other researchers involved in the study are Prof Apia Massawe, Prof. Rhodes Makundi, Dr Kichuki all at Sokoine University of Agriculture ■

<https://afrirodents.sua.ac.tz/>

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IUCEA Introduces Modules for Postgraduate Supervisor Training Programme



The Inter-University Council for East Africa (IUCEA) has intensified efforts to build the capacity of higher education stakeholders by launching a new initiative aimed at harmonizing quality standards across the East African Community (EAC) and the Africa Centers of Excellence.



Since 2006, IUCEA, in collaboration with national higher education commissions, has been developing policy frameworks to ensure consistent and high-quality higher education in the region. In partnership with the German Academic Exchange Service (DAAD), IUCEA initiated training workshops for postgraduate supervisors in 2017.

The new Training Programme for

The training program aimed to enhance supervisors' knowledge and skills in postgraduate education, introduce contemporary supervision and mentorship practices, foster continuous professional development

postgraduate supervisors addresses the crucial role of effective and efficient supervision in postgraduate education. The program targets common supervision challenges, including limited supervisor availability, inadequate feedback, and lack of research grounding. Additionally, it tackles issues faced by students, such as poor concentration, deficient writing skills, and low emotional intelligence, as well as environmental factors like

inadequate infrastructure.

"The programme will help empower supervisors with the relevant skills, improve the quality of graduate training and completion rates," said Prof. Gaspard Banyankimbona, IUCEA Executive Secretary. "It is also our expectation that the training will culminate in the development of modules that will be a blueprint for subsequent trainings. We intend to continue to roll out such trainings to ensure more people benefit," he said.

The training program aimed to enhance supervisors' knowledge and skills in postgraduate education, introduce contemporary supervision and mentorship practices, foster continuous professional development among supervisors, improve communication skills to facilitate better student interactions and develop standardized training modules for future use.

Over three days, participants explored current trends and challenges in postgraduate supervision, collaboratively developed training modules, and presented their drafts for review. By the end of the training, participants were expected to have a clear understanding of their supervisory roles, possess advanced skills in mentorship and supervision, and be well-versed in various research methodologies.

The training program benefits include enhanced professional skills, improved institutional quality, alignment with regional and international standards, and valuable networking opportunities. Through this initiative, IUCEA aims to foster a cohesive and high-standard postgraduate education environment in the region ■

ACEII-PTRE Alumnus Researches Textile Modification Using 3D Printing in Germany



Dr. Sharon Nonsikelelo Mpofu, a Zimbabwean graduate of Moi University's Africa Centre of Excellence in Phytochemicals, Textile, and Renewable Energy (ACEII-PTRE), is advancing research in Germany on modifying textile surfaces using 3D printing.



Dr. Mpofu earned her PhD in Materials and Textile Engineering in 2023 with her thesis focusing on multifunctional cotton fabrics, including enhancing antibacterial properties through potato peel extracts. Her current research primarily explores the adhesion of 3D-printed elements to textile substrates, which remains her core area of interest.

During her doctoral studies, Dr. Mpofu encountered challenges due to limited access to 3D printing and analysis equipment. Now, through a research fellowship, she is expanding her work in Germany at Hochschule Bielefeld – University of Applied Sciences and Arts (HSBI), under the guidance of textile researcher, Prof. Andrea Ehrmann. She is conducting her research at HSBI's Faculty of Engineering and Mathematics until September 2024, focusing on how 3D printing can enhance the properties of fabrics.

Dr. Mpofu's research explores methods to modify fabrics by printing polymers onto them, transferring properties like conductivity or antibacterial effects

to the textiles. A key challenge is achieving strong adhesion between the polymer and the fabric, which Dr. Mpofu is addressing through experiments with different fabric types and polymer compositions. A tensile tester then measures the strength of the bond between the textile and the polymer, with the goal of increasing durability. "Simply put, my research is about improving the properties of textile fabrics through special coatings," she says. "This allows the fabric to be adapted for other uses such as medical textiles or outdoor clothing."

Her research stay in Germany is supported by the New Horizons Fellowship from HSBI's Central Gender and Diversity Office. This fellowship is awarded annually to scholars from the Global South working on projects related to equal opportunities. Dr. Mpofu's research also focuses on promoting access for women in STEM fields, drawing from her own experience as a woman in science. She emphasizes the need for more women in STEM to break down stereotypes and inspire future generations.

Dr. Mpofu first learned about

the HSBI fellowship through the Organisation of Women in Science for the Developing World and was already familiar with the work of Prof. Ehrmann's research group. She had previously reached out to Prof. Ehrmann after reading one of her scientific articles. Joining the research team at HSBI has been a "dream come true" for Dr. Mpofu, as she greatly admires their work, particularly in integrating electronic components into textiles and developing conductive coatings and solar cells made of fabric.

Beyond her technical research, Dr. Mpofu is deeply committed to increasing the representation of women in STEM fields in Africa. She plans to learn from Germany's educational initiatives that encourage both girls and boys to pursue STEM subjects from an early age. Dr. Mpofu advocates for mentoring programs that connect female students with successful women in STEM and educational campaigns aimed at promoting STEM careers in schools. She also supports culture-sensitive programs that prepare both women and men for workplaces traditionally dominated by men ■

ACEITLMS Unveils New Resource Center

The African Centre of Excellence for Innovative Teaching and Learning Mathematics and Science (ACEITLMS) has constructed a new resource centre aimed at fostering a more conducive environment for teaching and learning. This facility is part of the Centre's ongoing commitment to excellence in all areas of education.



The newly built resource centre is designed to improve the educational experience by providing better access to information, supporting academic engagement, and offering a range of essential amenities. These include study spaces, accommodation for students and visiting faculty, and other key facilities that promote learning.

During the official handover ceremony, Acting Director of

ACEITLMS, Prof. Jean Uwamahoro, highlighted the centre's potential to streamline academic activities in alignment with the institution's pursuit of excellence.

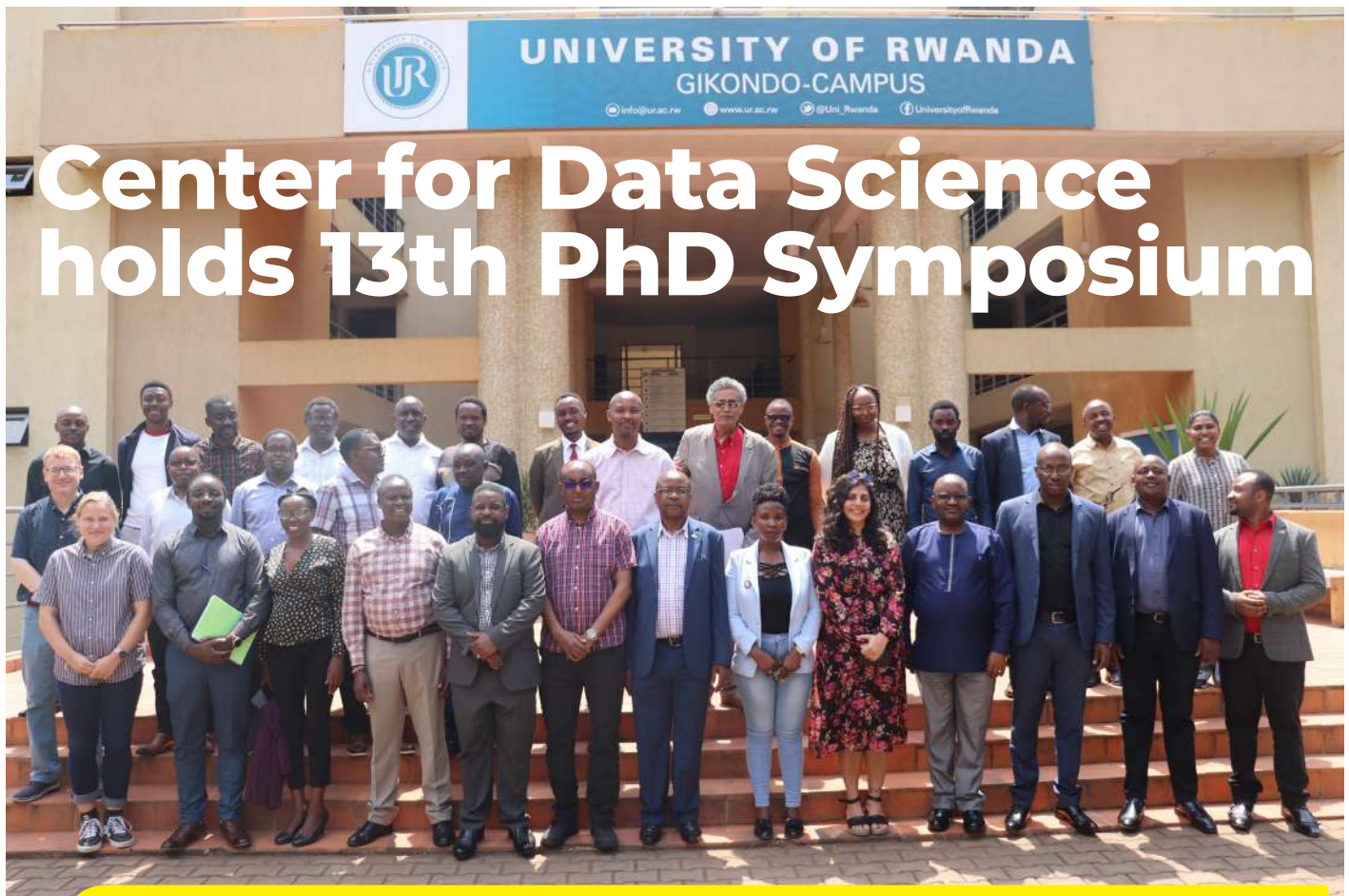
"We used to face challenges securing accommodation for visiting lecturers and international students due to the location of ACEITLMS. This will no longer be an issue," Prof. Uwamahoro remarked.

Previously, students had to travel long distances to learn at the Centre

which is located outside of Kigali, but with the new resource centre, they will now be housed nearby, allowing them to participate more fully in academic activities.

Beyond its academic benefits, the resource centre is also expected to generate income and contribute to the long-term sustainability of ACEITLMS ■

<https://aceitlms.ur.ac.rw/>



Center for Data Science holds 13th PhD Symposium

PhD students and their supervisors at the Africa Center of Excellence in Data Science (ACE-DS) conducted a three-day symposium from September 25 to 27, 2024, where they interacted and discussed their research projects. The symposium was organized to ensure rigorous supervision, aimed at producing the best PhD students capable of addressing the pressing challenges faced by the country and the region.

The main objectives of the symposium were to build relationships between supervisors and their supervisees, understand the general rules and procedures of supervision at the University of Rwanda, strengthen coordination within the supervision team, and exchange views on the challenges encountered by both supervisors and supervisees.

In his remarks, Dr. Joseph Nkurunziza, Principal of the College of Business and Economics and host of the Centre, commended all participants for positively

responding to the invitation, highlighting that such symposiums contribute to increasing the number of graduates.

“In the last graduation, we had three PhD graduates, and we expect to have eight in the next ceremony, all of whom attended previous symposiums,” said Dr. Nkurunziza. He urged students to ensure they complete their research within the allocated time, noting that the university will continue organizing such meetings for guidance.

“Completing your research on time is a challenge, but some of

your colleagues have done it, which means it is possible. After World Bank support ends, the Centre will continue to support these activities regularly,” he said.

Students who participated in the symposium expressed satisfaction with the opportunity to interact in person with their supervisors, as many previously received guidance online. They noted that meeting face-to-face adds significant value to the experience. The PhD symposium is organized every six months ■

www.aceds.ur.ac.rw

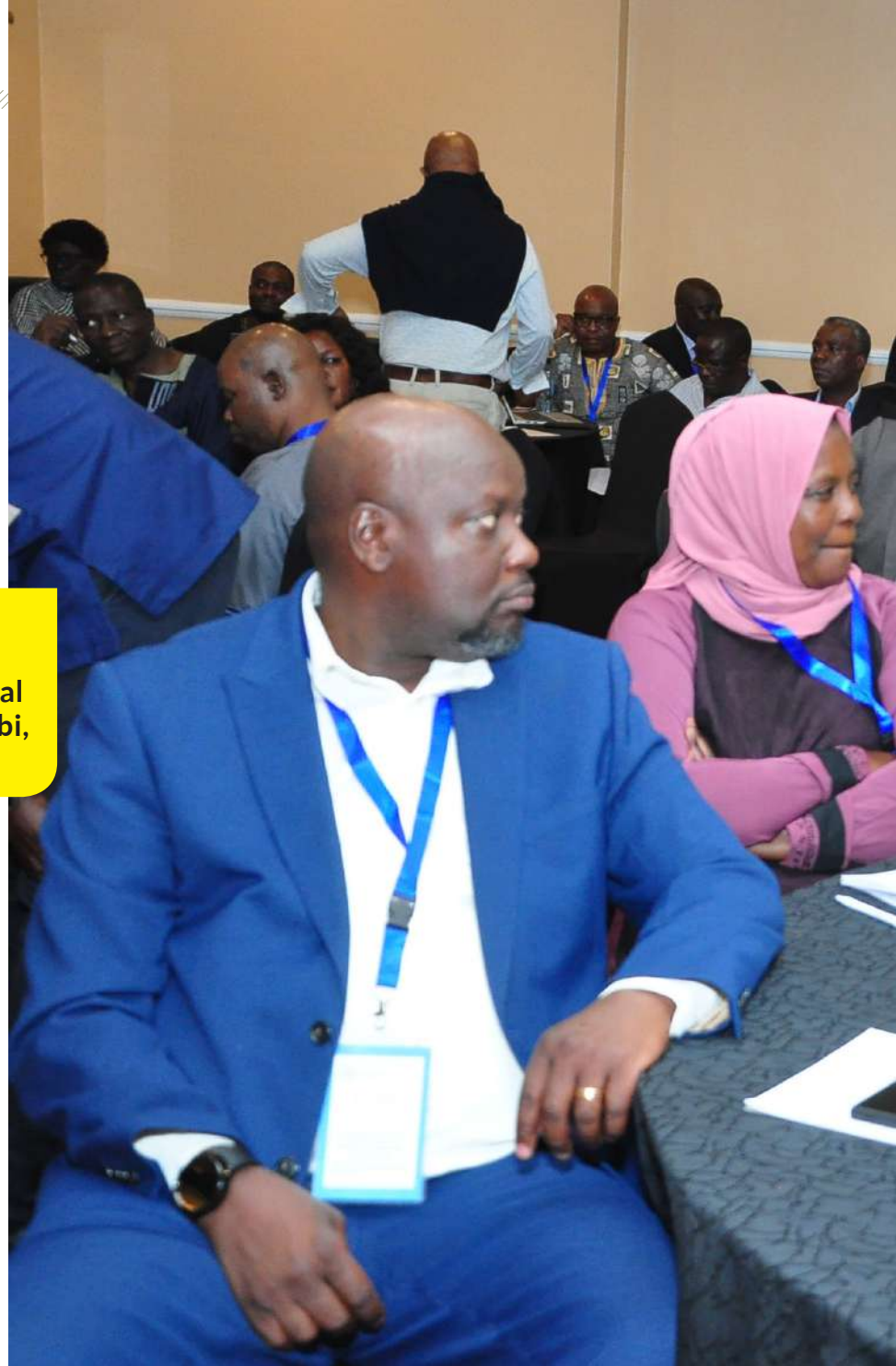
IUCEA Trains Assessors for Regional Programme Accreditation

The Inter-University Council for East Africa (IUCEA) held a training workshop for Assessors for Regional Programme Accreditation in Nairobi, Kenya.

The training, held on May 23 – 24, 2024, was organized to equip the assessors with the necessary knowledge and skills to utilize the developed standards, guidelines, norms and tools to ensure that the assessment and review processes are objectively and professionally done.

“This training is not only about producing regional experts in programme assessment but also to build your capacity as programme developers and experts in your own institutions,” said Prof Gaspard Banyankimbona, IUCEA Executive Secretary. The participants were drawn from various higher education institutions in East Africa and at Africa Centers of Excellence hosting universities in Malawi and Mozambique.

Since 2006, IUCEA has been developing a regional Quality Assurance system as part of its mandate to harmonise standards of



higher education in the region. In 2020, IUCEA embarked on the development of a framework for regional programme accreditation built on the Quality Assurance Framework. In 2023 IUCEA made its first call for assessors to express interest to train as regional programme accreditation assessors.

The response to the call was

overwhelming and as such all qualified assessors could not be trained at the same time. IUCEA decided to have cohorts and this training was the second cohort. The selection of participants was based on seven key thematic areas: Human health, animal science, engineering, ICT, Education, Pharmacy, Agricultural Sciences and Data Sciences.



Dr Dorothee Weyler, the Africa Regional Director for German Academic Exchange Service (DAAD) noted that DAAD's interest in the workshop was a big one. "We are mandated to assist universities on the ground in internationalization, support high standards in the region and in the harmonization of higher education across the EAC," she said. DAAD supports the training with

international experts in programme accreditation.

To attain regional accreditation, a programme must be accredited at the national level by the National Council or Commission for higher education in the respective country.

The regional accreditation is expected to provide a hallmark of excellence and improve the quality of programmes, pedagogical

approaches, quality of facilities, quality of teachers and ultimately the quality and relevance of graduates in the region. It will also ensure recognition of qualifications and mobility of students, staff and labour and ultimately promote regional integration ■



Center for Internet of Things to Host Drones Knowledge and Skills Hub

The African Centre of Excellence in Internet of Things (ACEIoT) will host a Drones Knowledge and Skills Hub, following the signing of a Memorandum of Understanding (MoU) between the Government of Rwanda, represented by the Rwanda Development Board, and Auterion Ltd, a leading tech company specializing in drone operating systems and software solutions.

As part of this collaboration, Auterion Ltd conducted a three-week training of trainers' programme on drone operations. During the official opening of the training, Assoc. Prof. Ignace Gatare, Principal of the College of Science and Technology, encouraged the participants to fully embrace the skills they were learning and to focus on long-term goals that would benefit society in this era of emerging technologies.

He urged the trainees to think beyond just flying drones. "Think

of the end at the beginning. How can we leverage drone technology to solve specific problems and contribute to the National Strategy for Transformation 2 (NST2)?" he asked. Prof. Gatare emphasized that the trainees would play a key role in developing the entire value chain of the drone industry and become agents of change.

The training covered a range of topics, including flight planning, drone assembly, programming, and operational deployment. Ms. Ester Poli, one of the trainees, shared her experience, saying, "We conducted

simulations using existing software to control flights, and we were able to successfully simulate with our machines."

The Drones Knowledge and Skills Hub aims to equip Rwandans with essential knowledge and skills in drone operations. It will be based at the College of Science and Technology within the ACEIoT, which already offers related modules in its curriculum.

Trainees came from a variety of institutions involved in drone operations in Rwanda, including the University of Rwanda, the Ministry of Defense, Zipline, Locus Dynamics, the Rwanda Space Agency, the Ministry of ICT and Innovation, and the Rwanda Information Society Authority (RISA) ■

<https://aceiot.ur.ac.rw/>

Addis Ababa University to Issue Diploma Supplement to Water Management Graduates

The Addis Ababa University (AAU) Registrar will begin issuing Diploma Supplements to graduates of the Africa Centre of Excellence for Water Management (ACEWM). ACEWM made history as the first Ethiopian higher education institution to achieve international accreditation for all five of its MSc programs and three PhD programs.

In 2020, the German-based accreditation agency AQAS awarded this accreditation according to European Union Standard Guidelines. By December 2022, ACEWM had fully met AQAS conditions and secured unconditional accreditation for its programs under the European Standards and Guidelines (ESG).

As part of the accreditation process, ACEWM developed a Diploma Supplement to enhance the international transparency and recognition of its graduates' qualifications. This supplement provides detailed information on the nature, level, context, content,

and status of the studies completed, complementing the original degree.

After review by AAU's Graduate Program Director Office and the Academic Standards Program Review Committee, the document was approved by the AAU Senate for implementation. The AAU Registrar has now finalized preparations to issue the Diploma Supplement to all ACEWM graduates, available upon request. This supplement serves to elaborate on the specific programs graduates completed, facilitating broader academic and professional recognition ■

acewm-aau.org



AquaFish Hosts Short Courses on Integrated Aquaponics and Black Soldier Fly Production

The Africa Center of Excellence in Aquaculture and Fisheries Science (AQUAFISH) hosted a short course titled Integrated Aquaponics and Black Soldier Fly Production. The course, held from 4th to 8th March 2024, aimed to train participants on innovative methods of sustainable agriculture and waste management.

Pease Mnelemba, the lead facilitator, emphasized the short course's significance in promoting local innovation and capacity building.

"This five-day short course, sponsored by the AquaFish center and facilitated in collaboration with Hilfe für Malawi's support, aimed to equip participants with skills for producing fish feed using waste

and implementing recirculating aquaponics systems," Mnelemba stated.

Attended by a diverse group of extension workers, students, and farmers, the course covered various aspects of aquaponics systems and the integration of black soldier flies for waste management and nutrient cycling, fish and plant species selection, and practical applications

of black soldier fly technology.

Fasika Bekele, an MSc student from Ethiopia, expressed enthusiasm about implementing the technology in her home country.

"When I return to Ethiopia, I will implement this technology and share it with my community," she affirmed.

Agnes Msekandiana, another participant, highlighted the practical insights gained from the course.

"I have learned how to set up a backyard aquaponics system and explore alternative feed options like black soldier fly. This knowledge will have a significant impact, as I can now promote the use of black soldier flies as feed for fish and poultry," Msekandiana shared.

One of the highlights of the course was the hands-on experience provided at the Aquaponics for Life Village, where participants had the opportunity to develop their aquaponics systems. The village, established with support from Hilfe für Malawi, served as a practical learning environment for applying the knowledge gained during the course.





“I have learned how to set up a backyard aquaponics system and explore alternative feed options like black soldier fly. This knowledge will have a significant impact, as I can now promote the use of black soldier flies as feed for fish and poultry,” Msekandiana shared.

BSF Fabrication for Sustainable Food Production

AQUAFISH also organised a five-day Black Soldier Fly (BSF) fabrication Short Course held from 11th to 15th March 2024 at the Lilongwe Technical College.

The course which was attended by Lilongwe Technical College students, LUANAR students, farmers as well as entrepreneurs, emphasised practical skills and theoretical knowledge around BSF fabrication. The course aimed to equip participants with the necessary expertise to design, fabricate, and troubleshoot integrated BSF-aquaponics systems.

AquaFish Director, Professor Daud Kassam, emphasised the importance of such initiatives, stating, “The basic idea is to enhance the capacity of our participants so that wherever they go,

they can apply what they have learnt here. We desire to see the knowledge gained here to be implemented.”

The training covered various topics ranging from the fabrication of biofilters and larval rearing units to the construction of aquaponic grow beds and plumbing systems, as well as system integration and testing, culminating in discussions on maintenance and long-term care. The practical sessions, which included fabrication exercises and troubleshooting simulations, provided a hands-on approach to learning, ensuring that participants left the course equipped with practical skills ready to be applied in real-world scenarios ■

<https://luanar.ac.mw/aquafish/>

Key Takeaways from the First African Centers of Excellence International Partnerships Workshop

The Inter-University Council for East Africa in collaboration with partners organised the first African Centers of Excellence International Partnerships Workshop which took place from May 8 - 10, 2024 in Mauritius.

The event themed “Building Pathways Towards Sustainability through Collaborative Research and Innovation,” aimed to facilitate peer-learning opportunities among Centers of Excellence from Africa and Europe, identify potential areas of collaboration in research and innovation, and engage private sector representatives and investors to support the commercialization of research outputs.

The workshop featured several panel discussions that generated insights into the innovations that have been developed by the ACEs. A discussion on research and innovation within the health sector, moderated by Ms. Muna Meky, Education Practice Manager for Eastern & Southern Africa at the World Bank, highlighted some of these developments. For example, the EMOTIVE Intervention developed by the Africa Centre of Excellence in Population Health and Policy (ACEPHAP) hosted at Bayero University in Nigeria, which significantly reduced postpartum haemorrhage mortality rates by 60% in five countries. The takeaways

from the discussion emphasized the pivotal role of Centers of Excellence in driving healthcare innovation in Africa.

In another panel discussion of university presidents that was moderated by Professor Goolam Mohamedbhai, the presidents’ explored the influence of Centers of Excellence on their respective institutions. Professor Svein Stølen, the Rector of the University of Oslo and Chair of The Guild of European Research-Intensive Universities, provided an example from Norway, where five generations of Centers of Excellence have contributed to long-term planning, institutional commitment, prioritization, and transformation of national and institutional perspectives within universities, thus fostering excellence.

Speaking at the opening of the workshop, the Executive Secretary of Inter University Council for East Africa (IUCEA) Prof Gaspard Banyankimbona, expressed his gratitude to the African Union and the European Union for adopting a joint agenda focused on strengthening Research and

Innovation (R&I) cooperation.

Dr. Daniel Dulitzky, Regional Director, Human Development, World Bank, noted,

Our workshop’s goals are ambitious yet attainable. We are here to foster peer-learning among Centers of Excellence, to delve into common topics of interest that are vital for our collective advancement. We are here to uncover and forge new pathways for collaboration in research and innovation, pathways that lead to the commercialization of our intellectual pursuits. And crucially, we are here to draw in the private sector, to engage with those who have the means to elevate our research from theory to practice, from the lab to the lives of our people.

Mr. Hans Stausboll, Director for Africa at the European Commission’s Directorate for International Partnership said,

We are also working on better connecting the access of innovation through the establishment of an African Union - European Union innovation platform, which will be operational from 2025.



Workshop Outcomes

The partnerships workshop served as an excellent platform for knowledge sharing and networking between African and other centers from around the world. Several centers identified potential areas for collaboration. For instance, the Center for Studies in Oil and Gas Engineering and Technology (CSOGET) signed a Memorandum of Understanding with the Center of Excellence for Environment and Mining (CEA EMIG) in Niger. As a result, 12 students from Niger will pursue a MSc in Petroleum Engineering at Eduardo Mondlane University in Mozambique. Additionally, CSOGET is preparing to sign another agreement with SONIDEP (Société Nigérienne du Pétrole), Niger's National Oil Company, for short courses and joint research in oil and gas ■

UniPod Leverages Centers of Excellence to Promote Youth Innovation

On November 10, 2023, the University Innovation Pod Rwanda (UniPod) was launched at the University of Rwanda. This new design and maker-space offers workshops for prototyping and innovation.

This aligns with the University of Rwanda's vision to become a leading institution that nurtures enterprising graduates who are committed to building a sustainable society locally, nationally, and globally, through innovations that improve the quality of life.

The maker-space is supported by the United Nations Development Program's (UNDP) Timbuktoo initiative, which aims to mobilize and invest one billion dollars of public and private capital over ten years to drive Africa's start-up revolution.

Located at the Centre of Excellence in Energy for Sustainable Development within the College of Science and Technology, the UniPod was established in collaboration with the University of Rwanda, the Ministry of ICT and Innovation, and UNDP Rwanda. The space is designed to foster innovation and entrepreneurship, encouraging creativity, talent development, and competence among students and the wider community.

"The investment builds on the success of the Grid Innovation and Incubation Hub (GIIH), funded by the World Bank through IUCEA," said

Pascal Nyiringango, Head of the Grid Innovation and Incubation Hub. GIIH is now channelling talented students into UniPod.

UniPod's mission is to provide a collaborative environment with access to resources, mentorship, and connections to potential investors and partners. It aims to help students turn their innovative ideas into successful businesses.

During the inauguration, the Minister of Education, Gaspard Twagirayezu, emphasized, "Investing in young people is investing in the future of the nation. This maker-space bridges the gap between schools and the community."

UniPod offers a co-working space open to students, researchers, and the local community. It also features a variety of technology labs, including those for GreenTech, AgriTech & FoodTech, Design, Prototyping, Electronics, Virtual Reality, and more.

A similar initiative, UniPod Makuba, was established in Zambia at the Copperbelt University's Africa Center of Excellence for Sustainable Mining (ACESM), which already had infrastructure and experience in managing donor-funded projects.



"Investing in young people is investing in the future of the nation. This maker-space bridges the gap between schools and the community."
~ Gaspard Twagirayezu





ACE II Project

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