MAKERERE UNIVERSITY

COLLEGE OF NATURAL SCIENCES

NEWSLETTER

CoNAS

July - September 2026: Issue: 3







FROM ENVIRONMENTAL MENACE TO LIVELIHOOD OPPORTUNITY:

CoNAS Researchers Transform Water Hyacinth into Valuable Products

Word from the Principal



Prof. Winston Tumps Ireeta, Principal

"We celebrate the achievements of our staff, students and alumni, whose leadership, dedication and ingenuity continue to strengthen the College. Their contributions remind us that institutional excellence rests on quality education, impactful research, professional competence and moral integrity.

It is my pleasure to present this edition of the College of Natural Sciences (CoNAS) Newsletter, which highlights our commitment to advancing science as a catalyst for national development, innovation and societal transformation.

At CoNAS, we are committed to producing graduates equipped with scientific knowledge, practical competencies, critical thinking and ethical values to address societal challenges and contribute to national development. Our ongoing transition to Competency-Based Education and Training (CBET), coupled with curriculum reviews in various programmes, reflects our determination to align university training with labour-market needs and emerging industry demands.

This edition highlights the impact of our research and innovation, from transforming invasive water hyacinth and plastic waste into valuable products to applying mathematical modelling to real-world challenges. These initiatives demonstrate the potential of science to improve livelihoods, create economic opportunities and support sustainable development. Our partnerships with industry, government and international institutions remain vital in strengthening practical training, advancing research and translating scientific discoveries into solutions.

We also celebrate the achievements of our staff, students and alumni, whose leadership, dedication and ingenuity continue to strengthen the College. Their contributions remind us that institutional excellence rests on quality education, impactful research, professional competence and moral integrity.

Following my re-appointment as Principal for a second four-year term, effective September 2026, I remain committed to building on the progress made and strengthening the College's contribution to scientific advancement and national development. We will continue to prioritize quality teaching and learning, research and innovation, staff and student development, and strategic partnerships.

I sincerely appreciate our staff, students, alumni, development partners, industry collaborators and the University leadership for their continued support.

I invite you to explore this edition and learn more about our ongoing efforts to advance science education, strengthen research and drive innovation.

EDITORIAL TEAM >>

Prof. Winston Tumps Ireeta, Principal | Ms. Hasifa Kabejja, Principal Comm. Officer | Mr. Kisitu David, IT Officer | Ms. Eunice Rukundo, Deputy Chief-PRO.

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Makerere Researchers Turn Invasive Water Hyacinth into Valuable Products.
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CoNAS Strengthens Capacity of Staff to Implement Competency-Based Education
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TEACHING AND LEARNING

CoNAS Strengthens Capacity of Staff to Implement Competency-Based Education

As the world of work continues to evolve, employers are increasingly seeking graduates who possess not only theoretical knowledge but also practical skills, problem-solving abilities, creativity, digital competence, and the ability to adapt to the rapidly changing technological and professional environments. In response to these demands, Uganda is embracing Competency-Based Education and Training (CBET), an approach that emphasizes the practical application of knowledge and skills needed to perform effectively in real-world settings.

Following the introduction of the Competency-Based Curriculum in secondary schools in 2019, the Ministry of Education and Sports directed institutions of higher learning to transition to competency-based education by 2027. The reform requires universities to redesign their curricula, adopt learner-centred teaching methods, strengthen practical training, and implement authentic assessment approaches that prepare graduates for both formal and informal employment.

Building Capacity for Competency-Based Education

In support of this national transition, Makerere University is strengthening the capacity of its staff to develop and implement competency-based programmes. From 21st to 23rd July 2026, the College of Natural Sciences (CoNAS) conducted a three-day capacity-building training for academic and technical staff to deepen their understanding of CBET principles and equip them with the skills required to design, deliver, and assess competency-based curricula.



Dr. Godfrey Kawooya Kubiriza, Coordinator of the training and the CBET Programme addressing participants on the first of the workshop at Ridar Hotel in Seeta

Held at Ridar Hotel in Seeta, the training was conducted with support from the Strengthening Commercial Aquaculture (SCA) programme, funded by the Embassy of the Kingdom of the Netherlands in Kampala (EKN) and implemented by the COFAD Consortium (COFAD–ThinkAqua–WUR). The SCA programme is also supporting the Department of Zoology, Entomology and Fisheries Sciences (ZEFS) to review its undergraduate and postgraduate aquaculture programmes to align them with competency-based education and the evolving needs of Uganda's growing commercial aquaculture sector.

The transition of ZEFS programmes to CBET presents a strategic opportunity for Makerere University to develop a flagship model for science-based competency-based education that could inform implementation across the University.

The Training Workshop

Officially opened by the Deputy Principal of the College of Natural Sciences (CoNAS), Prof. Juma Kasozi, the training was attended by staff from the Departments of Zoology, Entomology and Fisheries

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One of the teams discussing the competencies required for programmes in the Biosciences

Sciences; Plant Sciences; Microbiology and Biotechnology; Biochemistry and Systems Biology; Exercise and Sports Science; and Chemistry. It was coordinated by Dr. Godfrey Kawooya Kubiriza, Head of the Department of Zoology, Entomology and Fisheries Sciences and one of the coordinators of the Competency-Based Education and Training (CBET) Programme at Makerere University.

The facilitators included Mr. Joshua Kunya, TVET Specialist and Training Consultant; Mr. Richard Basalirwa, an associate consultant and process expert with Skills Initiative Uganda; Dr. Cyprian Misinde, Director of Quality Assurance at Makerere University; and Mr. Maurice Ssebisubi, Lead Consultant for the Diagnostic and Rapid Needs Assessment of the BSc Fisheries and Aquaculture and MSc Zoology (Fisheries and Aquaculture) curricula at Makerere University.

Throughout the training, participants explored the principles of competency-based education and examined how universities can move beyond traditional knowledge transmission towards teaching and learning approaches that develop and improve practical competence

Throughout the training, participants explored the principles of competency-based education and examined how universities can move beyond traditional knowledge transmission towards teaching and learning approaches that develop and improve practical competence, critical thinking, innovation, teamwork, communication, ethical leadership, digital literacy, and entrepreneurship.

Presentations also examined Makerere University's curriculum development framework, emphasizing the importance of aligning academic programmes with national quality assurance standards, labour market demands, and international best practices. Participants underscored the need for curriculum reform to be informed by industry requirements and designed to produce graduates who can effectively apply their knowledge and skills in professional, entrepreneurial, and community settings.

Recommendations from the Diagnostic Assessment of the BSc & MSc Fisheries & Aquaculture

A key highlight of the training was the presentation of findings from a diagnostic assessment of the Bachelor of Science in Fisheries and Aquaculture and the Master of Science in Zoology (Fisheries and Aquaculture) programmes, conducted under the leadership of Mr. Maurice Ssebisubi. The assessment involved curriculum reviews, surveys of alumni and students, and consultations with employers and other stakeholders. It found that, although the programmes provide a strong scientific foundation, they require further strengthening to fully meet the requirements of competency-based education.

The assessment identified several gaps, including limited opportunities for practical and workplace learning, inadequate digital competencies, insufficient enterprise and business management skills, heavy reliance on end-of-semester examinations, and learning outcomes that place greater emphasis on knowledge acquisition than on the demonstration of competence.

To address these gaps, the assessors

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recommended revising learning outcomes, strengthening partnerships with industry, expanding supervised workplace learning, integrating digital technologies, modernising technical content, and adopting continuous competency-based assessment approaches.

Programme Review

During the practical sessions, participants worked in departmental groups to review existing curricula and redesign programme objectives, learning outcomes, teaching strategies, and assessment methods in line with the CBET principles. These collaborative exercises enabled staff to begin developing curricula that are more learner-centred, industry-responsive, and aligned with Uganda's national development priorities.

Participants identified several institutional requirements for the successful implementation of CBET, including increased investment in infrastructure and teaching resources, continuous staff development, strengthened quality assurance systems, and closer collaboration with industry.



Mr. David Bargh, Team Leader of the Strengthening Commercial Aquaculture (SCA) programme.

While acknowledging that the transition to competency-based education will require significant institutional commitment and resources, participants noted that it presents an important opportunity to enhance graduate employability, foster innovation, strengthen industry linkages, and increase the contribution of universities to Uganda's socio-economic development.

SCA Programme Reaffirms Support for Aquaculture Education

Speaking at the training, David Bargh, Team Leader of the Strengthening Commercial Aquaculture (SCA) Programme, reaffirmed the programme's commitment to supporting Makerere University in strengthening aquaculture education



Dr Rosemary Nalwanga from the Department of Zoology, Entomology and Fisheries Sciences presenting their views on transforming the Bachelor of Fisheries and Aquaculture programme

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The COFAD Team engaging staff from ZEFS on the review of their programmes

and aligning its programmes with the evolving needs of the sector.

"A strong aquaculture sector requires skilled professionals. This is why curriculum reform is so important. Competency-based education focuses not only on what students know, but also on what they can do. Your role as lecturers and technicians is therefore central to producing graduates who are practical, innovative, and equipped to contribute meaningfully to Uganda's aquaculture development."

Appreciation to the funders

Addressing the participants, Prof. Juma Kasozi, Deputy Principal of (CoNAS), appreciated the funders for the support towards strengthening the quality, relevance, and impact of university education. He emphasized that Makerere University occupies a unique position in Africa's academic landscape and therefore has a responsibility to remain responsive to the changing needs of society and the world of work. While acknowledging the University's achievements and long-standing contribution to higher education, he noted that the rapidly changing social, economic, technological, and professional environment requires universities to rethink how they prepare graduates for the future. "Students should leave the university with more than academic qualifications - they should possess the practical skills, competencies, creativity, critical thinking, and problem-solving abilities needed to apply their knowledge effectively in the workplace and contribute meaningfully to national development."

During the practical sessions, participants worked in departmental groups to review existing curricula and redesign programme objectives, learning outcomes, teaching strategies, and assessment methods in line with the CBET principles.

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ZPEB Uganda Boosts Experiential Learning at CoNAS with Well Control Demonstration Model



Makerere University Vice Chancellor, Prof. Barnabas Nawangwe (R) signing an acceptance agreement for the donated equipment.

Makerere University's commitment to producing industry-ready petroleum professionals received a significant boost following the donation of a Well Control System Demonstration Model to the Department of Geology and Petroleum Studies by ZPEB Uganda Co. Limited.

The advanced training model was officially handed over to the University on 5th August 2026 at a ceremony attended by Makerere University Vice Chancellor Prof. Barnabas Nawangwe and representatives of the Department led by its Head, Dr John Mary Kiberu.

Designed as an educational training tool, the model provides students with a realistic and safe representation of the equipment and processes used to manage well pressures and prevent incidents during drilling operations. It will enable hands-on learning in areas such as kick detection, pressure management, well control procedures, drilling safety, emergency response and blowout prevention.

By complementing classroom instruction with practical demonstrations, the equipment will help students translate theoretical concepts into applied skills and build the technical confidence required in field environments.

The donation comes at an important time as Uganda develops its petroleum sector and strengthens efforts to build a skilled national workforce. It also highlights the value of industry-university partnerships in aligning academic training with professional and technological demands.

ZPEB Uganda Co. Limited, the donor of the equipment, is the Ugandan subsidiary of Zhongyuan Petroleum Exploration Bureau (ZPEB), a globally recognized Chinese drilling contractor with extensive expertise in oil and gas exploration, drilling, cementing, and engineering services. The company has been actively involved in supporting petroleum exploration and development activities in Uganda while contributing to capacity building within the country's oil and gas sector.

The Department of Geology and Petroleum Studies at Makerere University continues to play a pivotal role in developing professionals who contribute to the sustainable exploration and management of natural resources. Through its undergraduate and postgraduate programmes, the Department equips students with comprehensive knowledge and practical skills in geology, petroleum systems, exploration methods, reservoir characterization, and production technologies.

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Benchmarking Regional Mining Institutions to Strengthen Geology Training

Makerere University is drawing lessons from leading mining and geoscience institutions in Zambia and Zimbabwe to strengthen the relevance, quality and competitiveness of its Geology programmes.

A team from the Department of Geology and Petroleum Studies, together with a representative of the Ministry of Energy and Mineral Development, visited Copperbelt University (CBU) in Zambia and the Zimbabwe School of Mines (ZSM) as part of the ongoing review of Makerere's BSc, MSc and PhD Geology curricula.

The benchmarking exercise focused on competency-based and practical training, industry engagement, modern laboratories and equipment, digital technologies, industrial exposure, professional skills and short-course development.

At CBU, the team toured microscopy, metallurgy, analytical, environmental and mineral processing laboratories. At ZSM, they examined facilities for mineral processing, metallurgy, gemology and rock pulverisation, and observed practical training in gemstone cutting and polishing.

The lessons will inform Makerere's curriculum reforms under the Sustainable Development of the Mineral Sector in Uganda (SDMU) programme, supported by the Government of Germany and the European Union through GIZ, in partnership with the Ministry of Energy and Mineral Development.

The review seeks to produce graduates with stronger technical, practical and professional competencies aligned with Uganda's growing mineral sector, while expanding opportunities for industry-oriented short courses and continuing professional development.

The ultimate goal is to ensure Makerere's geology training keeps pace with the mineral industry-from exploration and extraction to processing, value addition and environmental management.





Left: Dr Denis Mutebi and Dr Arthur Batte handing over Makerere University souvenirs to the representative of the Dean of the School of Mines and Mineral Sciences, who also serves as the Head of the Department of Geology at Copperbelt University, Dr Gabriel Ziwa. Right: Dr. Joan Nakajigo from the Department of Geology and Petroleum Studies at Makerere University and Mr. Kevin Byamugisha from Uganda's Ministry of Energy and Mineral Development (right) touring the Rock pulverising facility at the Zimbabwe School of Mines

TEACHING AND LEARNING

Makerere Engages Industry to Align Geology Training with Uganda's Mineral Sector Ambitions



The project team with the stakeholders during the workshop held at Silver Springs Hotel, Bugolobi, Kampala on 6th October 2026

Makerere University convened a stakeholder workshop to review its Geology curricula and develop industry-aligned short courses as part of ongoing efforts to strengthen Geology training and respond to evolving industry needs and Uganda's national development priorities.

Organised by the Department of Geology and Petroleum Studies at the College of Natural Sciences (CoNAS), the workshop was held on 6th October 2026 at Silver Springs Hotel, Bugolobi, Kampala. It brought together representatives from government, industry, academia and other sectors to assess the relevance of the University's BSc, MSc and PhD Geology programmes in light of changing labour-market demands.

The review seeks to equip graduates with the technical, practical and digital competencies required by the mineral sector while creating opportunities for professionals across Uganda's mining and mineral value chain to upgrade their skills. Findings from the stakeholder needs assessment highlighted gaps in mineral processing and beneficiation, exploration and resource estimation, mineral economics, remote sensing, analytical techniques and practical field training. Among students and alumni, 84% expressed interest in short courses, while 77% had undertaken additional training after graduation.

Proposed reforms include transitioning to a four-year BSc Geology programme, strengthening competency-based training, industrial attachment and field-based learning, and updating postgraduate programmes to incorporate emerging areas such as

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geospatial data analysis, programming, machine learning, environmental management, geothermal energy and mineral value addition. The review also recommends investment in specialised laboratory facilities and stronger university-industry partnerships to enhance teaching, research and students' exposure to industry practices.

The needs assessment further confirmed demand for professional short courses, with 88% of artisanal and small-scale miners identifying Health, Safety and Environment (HSE) training as a top priority. Among women in artisanal and small-scale mining, 83% prioritised geological mapping and mineral marketing. Proposed courses cover mineral exploration and resource estimation, mineral processing and value addition, mineral economics and governance, HSE, environmental management, GIS and remote sensing, digital technologies, and entrepreneurship and business management.

Speaking at the workshop, Makerere University's Chief Quality Assurance Officer, Dr Cyprian Misinde, emphasized the need to integrate Competency-Based Education and Training (CBET) principles into the curricula, with greater emphasis on learner-centred teaching, practical skills, critical thinking and professional ethics. Dr Kurayish Ssebulime of the National Planning Authority highlighted the importance of aligning university training with labour-market demands and Uganda's Vision 2040 and Fourth National Development Plan (NDP IV). Meanwhile, Mr. Henry Mukasa, Advisor on Mineral Resources Governance at GIZ Uganda, called for stronger collaboration between academia, government and industry to develop the specialized skills required by the sector.

"The review seeks to equip graduates with the technical, practical and digital competencies required by the mineral sector while creating opportunities for professionals across Uganda's mining and mineral value chain to upgrade their skills"

Officially opening the workshop, CoNAS Deputy Principal, Prof. Godwin Kakuba urged the Department to strengthen the entire Geology training pathway, from undergraduate to postgraduate education. He also called for flexible learning arrangements for working professionals and formal partnerships with industry to support joint research, teaching, student exposure and access to professional expertise and facilities.

The curriculum review is being implemented under the Sustainable Development of the Mineral Sector in Uganda (SDMU) programme, with funding from the Government of the Federal Republic of Germany and the European Union through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), in collaboration with the Ministry of Energy and Mineral Development (MEMD)..





Mr. Henry Mukasa, Advisor on Mineral Resources Governance at GIZ Uganda with the geology curriculum review Consultant, Dr Betty Nagudi and Dr Aanyu. Right: The Coordinator of the project, Dr Denis Mutebi

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The students together with the Guest of Honour, Mr Jairus Mutebe (6th L), the Head, Department of Biochemistry and Systems Biology, Dr Agnes Nandutu Masawi (7th L), their Patron, Dr Barbara Nerima (5th L) and the trainers at the certificate award ceremony held at Makerere University on 13th August 2026

Biochemistry Students Trained in Servant Leadership

Leadership is not defined by the authority attached to a position, but by the willingness to serve, inspire and empower others. Servant leadership places people at the centre of leadership, emphasizing humility, integrity, empathy, accountability and a commitment to helping others grow. It is this approach to leadership that the Makerere University Biochemistry Society seeks to nurture among student leaders.

In line with this vision, students from the Department of Biochemistry and Systems Biology, particularly members of the Makerere University Biochemistry Society Cabinet and several Masters students, have undergone training in servant leadership.

Organised by the Biochemistry Society under the patronage of Dr. Barbara Nerima, the initiative sought to strengthen the students' leadership capacity and equip them with the values and practical skills needed to provide responsible and effective leadership within the University and beyond.

The programme was facilitated and co-funded by Development Associates International (DAI), Uganda Office, with additional financial support from Dr Isaac Ssewanyana of the Central Public Health Laboratories.

The training focused on the principles and practice of servant leadership, challenging participants to rethink leadership as an opportunity to serve others rather than an avenue for exercising authority. Participants were guided to appreciate the importance of listening, empathy, humility, integrity and accountability in building effective relationships and leading diverse teams.

Particular emphasis was placed on the responsibility of leaders to recognise and respond to the needs of those they serve. The participants were encouraged to use their leadership positions to create opportunities for others, promote teamwork, build trust and contribute to the growth and wellbeing of their peers.

Certificate Award Ceremony

On 13th August 2026, the students were awarded certificates in recognition of their participation in the globally recognized leadership programme.

The certificates were presented by the Centre Director, Development Associates International, Uganda, Mr Jairus Mutebe, alongside the Head of the Department of Biochemistry and Systems Biology at Makerere University, Dr Agnes Nandutu Masawi.

TEACHING AND LEARNING

Orientation: First Year Students Urged to Build a Strong Foundation for Success

The College of Natural Sciences (CoNAS), Makerere University, held an orientation on 5th August 2026 to equip newly admitted students with the knowledge, skills and guidance needed to navigate university life and lay a strong foundation for academic and professional success.

The students were encouraged to embrace discipline, attend lectures consistently, develop effective study habits, manage their time well and uphold academic integrity. They were also urged to balance academic responsibilities with extracurricular activities and develop computer and statistical skills to enhance their readiness for the evolving world of work.

The orientation also introduced students to academic programmes, university regulations, digital learning through the Makerere University Electronic Learning Environment (MUELE), responsible use of artificial intelligence (AI), and support services in counselling, mentorship, gender mainstreaming and leadership development.



The Principal, Prof. Winston Tumps Ireeta urged the students to approach university life with discipline and commitment

ACADEMIC LEADERSHIP APPOINTMENTS

Prof. Winston Tumps Ireeta Re-appointed Principal of CoNAS

Prof. Winston Tumps Ireeta was on 3rd September 2026 re-appointed Principal of the College of Natural Sciences (CoNAS), Makerere University. The re-appointment provides an opportunity to build on the progress made during his first term and further strengthen CoNAS' contribution to scientific advancement and national development.

A key highlight of Prof. Ireeta's initial tenure was the expansion of strategic partnerships connecting university research directly to national development objectives

During his first term, Prof. Ireeta spearheaded initiatives to strengthen the College's research capacity, enhance the quality of undergraduate and postgraduate training, and advance scientific innovation.

A key highlight of Prof. Ireeta's initial tenure was the expansion of strategic partnerships connecting university research directly to national development objectives. By fostering collaborations with international institutions, government bodies, and industry stakeholders, the college broadened its funding base and created operational pathways for applied scientific research.



ACADEMIC LEADERSHIP APPOINTMENTS



Prof. Juma Kasozi (2nd R) hands over the office keys and stamp to Prof. Godwin Kakuba. On the right is the Principal of CoNAS, Prof. Winston Tumps Ireeta, and on the left is Ms. Winnie Mbabazi from the Directorate of Internal Audit

Prof. Godwin Kakuba Takes Over as Deputy Principal, CoNAS

Prof. Godwin Kakuba formally assumed office as Deputy Principal of Makerere University's College of Natural Sciences (CoNAS) following a handover ceremony held on 11th September 2026. He succeeded Prof. Juma Kasozi, who had served in the position since April 2022.

Prof. Kakuba's four-year term, effective September 2026, was approved by the Makerere University Appointments Board at its 814th meeting on 3rd September 2026.

During the ceremony, the Principal of CoNAS, Prof. Winston Tumps Ireeta, commended Prof. Kasozi for his contribution to strengthening academic administration, graduate education and academic processes at the College, including his role in developing the CoNAS Strategic Plan. In recognition of his dedicated service and leadership, Prof. Kasozi received a Distinguished Service Award.

Key achievements during his tenure included the accreditation of academic programmes, improved student support, strengthened graduate supervision and progress towards aligning academic programmes with the Competency-Based Education and Training (CBET) framework.

For Prof. Kakuba, the transition brings a new responsibility within a College where he has already served in academic and administrative capacities. His experience in the Department of Mathematics and previous service as Head of Department provide a strong foundation as he takes on the leadership of the Deputy Principal's office.

Prof. Kakuba commended his predecessor for laying a strong foundation and pledged to build on the achievements registered, working collaboratively with the College leadership, staff and students to advance teaching, learning, research and innovation.

TEACHING AND LEARNING

Dr. John Mary Kiberu Appointed Head of the Department of Geology and Petroleum Studies

Dr. John Mary Kiberu was appointed Acting Head of the Department of Geology and Petroleum Studies, Makerere University effective 1st July 2026, succeeding Dr. Arthur Batte, who served from April 2022.

The handover took place on 10th July 2026, presided over by the Dean of the School of Physical Sciences, Prof. David Ssevviiri, who commended Dr. Batte for strengthening the Department.

During his tenure, the Department secured modern teaching and research equipment through industry partnerships, expanded collaborations with TotalEnergies, COSL, DISKOS and the Uganda Chamber of Energy and Minerals, and obtained a USD 200,000 grant to modernize geology curricula. He also strengthened academic and administrative processes.

Dr Kiberu pledged to build on these achievements by strengthening academic programmes, research and innovation, industry partnerships, student experience and digital transformation. He emphasized the need for geoscience training and research to respond to emerging priorities, including critical minerals, the energy transition, climate resilience, artificial intelligence and advanced geophysical technologies.

Dr Kiberu is a geophysicist and petroleum geoscientist with over 20 years of experience in teaching, research and institutional development. He holds a PhD in Geophysics from the Technical University of Berlin, an MSc in Geophysics from the University of Twente and a BSc in Geology and Chemistry from Makerere University.



The outgoing Head, Dr Arthur Batte (2nd R) handing over to Dr John Mary Kiberu on 10th July 2026. The handover was presided over by the Dean of the School of Physical Sciences, Prof. David Ssevviiri (R) and witnessed by Mr Moses Gidongo from the Directorate of Internal Audit

RESEARCH AND INNOVATION



Minister of Science and Technology Tours CoNAS Research and Innovation Projects

The Minister of Science, Technology and Innovation, Hon. Eng. Jonard Asiimwe Akiiki, on 21st July 2026 toured several research and innovation projects at the College of Natural Sciences (CoNAS), including NutriFish and InnoEcoFood.

The Minister was briefed on how the projects are harnessing scientific research and innovation to address food security, nutrition and sustainable food production while creating opportunities for enterprise development and improved livelihoods.

NutriFish focuses on value addition to small pelagic fish, particularly mukene, through the development of nutritious food products and improved fish-processing technologies. InnoEcoFood, on the other hand, promotes sustainable food systems through innovative approaches to aquaculture and alternative food and feed production.

The projects were among several CoNAS research and innovation initiatives showcased to the Minister during his visit, highlighting the College's contribution to addressing societal challenges through science, technology and innovation.

RESEARCH AND INNOVATION

Research Seminars

Plant Viruses and Potato Cyst Nematodes

On 18th August 2026, the Department of Plant Sciences, Microbiology and Biotechnology at Makerere University hosted a half-day seminar on Transkingdom Viruses and Potato Cyst Nematodes, bringing together researchers to explore emerging threats to plant health and agricultural production.

The seminar featured presentations by Prof. Richard Kormelink of Wageningen University on antiviral drug design; Prof. Arthur Tugume of Makerere University on the evolutionary diversification of plant viruses in East Africa; and Dr. Shahasi Athman of Makerere University on potato cyst nematodes across the region.

The seminar underscored the importance of research and scientific collaboration in understanding and addressing biological threats to crop productivity and food security in East Africa.



RESEARCH AND INNOVATION

Postdoc Presentation on the Production of Clay Composite Filters for Household Water Purification

On 17th September 2026, Dr Adedayo D. Adeyinka-Aderanti, an ARUA-Carnegie-Mastercard Early Career Research Fellow, presented research on the production of clay composite filters for point-of-use water purification at Makerere University's College of Natural Sciences (CoNAS).

The research explored the development of clay composite filters for purifying water at the point.

Dr. Adedayo Deborah Adeyinka-Aderanti is an academic and researcher specialising in Metallurgical and Materials Engineering. She obtained her PhD from the University of Lagos (UNILAG), Nigeria, where her doctoral research focused on the production and optimization of affordable clay-based composite filters for household water purification.

She is currently a Lecturer in the Department of Industrial and Production Engineering at the University of Ibadan, where she contributes to teaching, research and scholarship in engineering and materials-related fields.

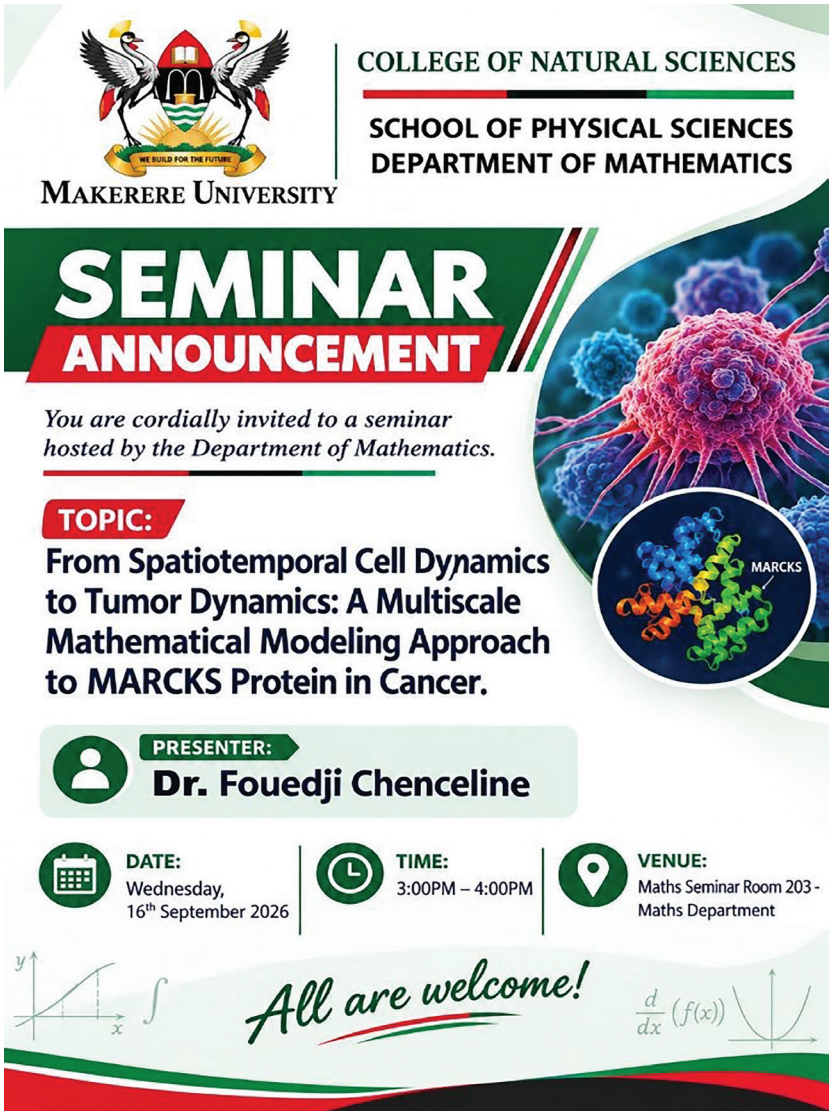


RESEARCH AND INNOVATION

The Application of Mathematical Modelling in Cancer Research

On 16th September 2026, the Department of Mathematics at CoNAS, Makerere University, hosted a seminar on the application of multiscale mathematical modelling to cancer research. Titled ***From Spatiotemporal Cell Dynamics to Tumor Dynamics: A Multiscale Mathematical Modelling Approach to MARCKS Protein in Cancer,*** the seminar explored how mathematical approaches can help explain tumour development, focusing on the role of MARCKS protein in cancer.

The seminar was led by Dr Fouedji Chenceline, a Lecturer in Physics at the University of Yaoundé 1, Cameroon, and an ARUA Early Career Fellow. Her presentation examined the links between cellular processes and tumour dynamics, demonstrating how mathematical modelling can advance understanding of cancer biology and inform further research.



RESEARCH AND INNOVATION

PhD Defenses

Mr. Aggrey Siya



On 25th September 2026, Mr. Aggrey Siya successfully defended his PhD research.

His thesis, titled "Microhabitat Preferences and Anthropogenic Vulnerability of Cave-Roosting Bats within Mt Elgon Biosphere Reserve: Implications for Bat Conservation," seeks to understand the environmental conditions that influence bats' choice of cave roosts and assess how human activities threaten their habitats and survival. The research aims to generate evidence to guide targeted conservation measures, protect critical roosting sites and promote the sustainable management of bat populations within the reserve.

Siya's research was supervised by Prof. Eric Sande and Dr. Innocent B. Rwego of Makerere University, and Prof. Rebekah C. Kading of Colorado State University.

Mr. Adeyinka Adedeji Jeremy



On 1st October 2026, Mr. Adeyinka Adedeji Jeremy successfully defended his PhD research on Molecular Epidemiology of African Swine Fever Virus in Nigeria.

The study focuses on understanding the virus responsible for African swine fever, a highly contagious disease that causes severe losses in pig production. Research into its molecular epidemiology can help clarify patterns of transmission and viral diversity, providing evidence to strengthen surveillance, disease prevention and control strategies.

Jeremy was supervised by Prof. Charles Masembe of the Department of Zoology, Entomology and Fisheries Sciences at CoNAS, Makerere University, and Dr. Pam Dachung Luka, Assistant Director of the Biotechnology Division at Nigeria's National Veterinary Research Institute in Vom.

RESEARCH AND INNOVATION

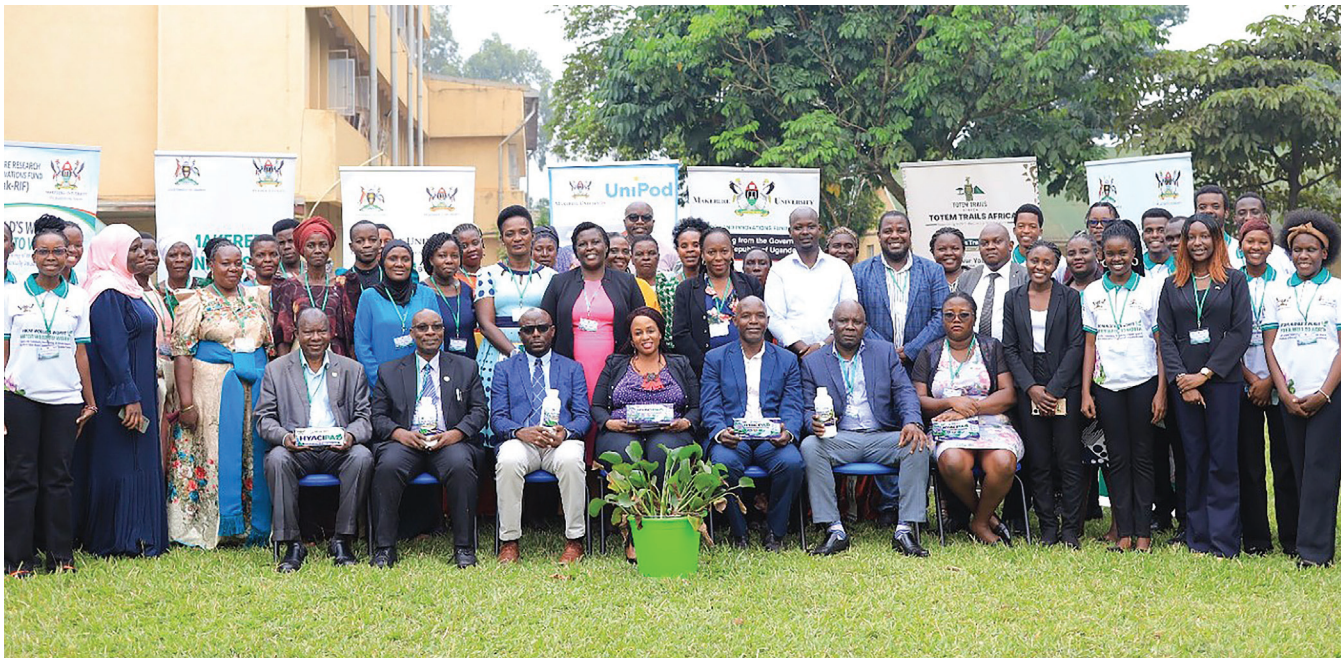
Makerere Researchers Turn Invasive Water Hyacinth into Valuable Products

Makerere University researchers have transformed water hyacinth, an invasive weed that disrupts fishing, water transport and community livelihoods, into three value-added products: bio-fertilizer, briquettes and biodegradable sanitary pads.

Led by Dr Alice Nabatanzi of the Department of Plant Sciences, Microbiology and Biotechnology at the College of Natural Sciences (CoNAS), the project was supported by the Government of Uganda through the Makerere University Research and Innovations Fund (MakRIF). It explored small-scale community bio-refining as a means of converting the weed into useful products and potential livelihood opportunities.

"Led by Dr Alice Nabatanzi of the Department of Plant Sciences, Microbiology and Biotechnology at CoNAS, the project was supported by the Government of Uganda through the MakRIF. It explored small-scale community bio-refining as a means of converting the weed into useful products - bio-fertilizer, briquettes and biodegradable sanitary pads."

The research was informed by experiences of communities affected by water hyacinth, including Katosi Ward in Mukono District. A community assessment found that 68.7% of respondents reported extreme impacts on fishing, while 65% reported extreme impacts on water transport. The



The project team with the stakeholders at the launch

RESEARCH AND INNOVATION





Left: The Project PI, Dr Alice Nabatanzi briefing participants about one of the products developed, the biodegradable sanitary pads. Right: Other products developed by Dr Nabatanzi and team through AURENE AURA, a Ugandan innovation emerging from the PMB Product Development Hub

team developed bio-fertilizer from processed water hyacinth biomass, briquettes as an alternative solid fuel, and biodegradable sanitary pads using cellulose-rich water hyacinth fibres combined with banana and papyrus fibres. The pads demonstrated higher liquid absorption capacity than conventional pads, according to the research findings, although further validation is needed.

The findings were presented on 22nd September 2026 at the Department of Plant Sciences, Microbiology and Biotechnology during a dissemination workshop attended by university leaders, researchers, community representatives and other stakeholders. The research also generated a peer-reviewed publication in Scientific Reports, Springer Nature, titled "Socio-ecological impacts of water hyacinth (Pontederia crassipes (Mart) Solm) on livelihoods in Katosi Ward, Uganda," authored by Nabatanzi, A., Nambejja, C. and Byarugaba, I. (2026).

Representing the CoNAS Principal, the Deputy Principal, Prof. Godwin Kakuba commended the team for demonstrating how university research can address environmental and socio-economic challenges, calling for stronger industry-academia collaboration and increased support to validate, refine and scale up the innovations. Representing the MakRIF Chairperson, Dr Michael Owor emphasized product safety, quality, affordability, regulatory compliance, intellectual property protection and market access as priorities for moving the innovations towards adoption and commercialization.

The Acting Manager of the Makerere University Technology and Innovation Centre (MUTIC), Prof. Michael Lubwama, pledged support towards product development and commercialization, while Ms. Esther Kabinga of the Makerere University Intellectual Property Management Office encouraged the team to register and protect its innovations. Makerere Guild Minister for Academic Affairs, Ms. Kalazani Neena Elsie, representing Guild President H.E. Gracious Kadondi, highlighted the potential of the biodegradable pads to promote menstrual dignity and inspire young women in science.

The project also complements Dr. Nabatanzi's wider research-to-product initiatives through AURENE AURA, a Ugandan innovation emerging from the PMB Product Development Hub. Its portfolio includes skincare and personal-care products, fragrances, herbal respiratory wellness products, botanical teas and wellness blends. Through the Alice Mabira Foundation, the team has also supported communities in Najjembe, Buikwe District, to develop home-based enterprises and cottage industries.

Further research, product testing, standards development, partnerships and resource mobilization will be essential to scale up the water hyacinth innovations. The team also sees potential for exploring other value chains, including animal feed and crafts, subject to further safety, technical and economic assessments. The initiative demonstrates how research, community knowledge and locally available resources can contribute to environmental management, enterprise development and sustainable livelihoods.

RESEARCH AND INNOVATION

CoNAS Alumni Turn Plastic Waste into Jobs and Sustainable Products

Makerere University alumni are turning plastic waste into marketable products, creating jobs and building sustainable businesses while tackling environmental pollution.

Through WastePlus Ltd, a waste management and recycling enterprise founded by Conservation Biology graduates from the Department of Plant Sciences, Microbiology and Biotechnology, discarded plastics collected from the environment and water bodies are transformed into furniture and other useful products. The enterprise advances a circular economy by recovering and reusing waste that would otherwise pollute the environment.

35
Number of people employed to make a single table.

Led by the CEO and Co-Founder Mr. Sinan Kitagenda and his colleague Daniel Kayemba, WastePlus grew out of waste management activities the founders pursued at Makerere before venturing into business. Producing a single table can directly create employment for more than 35 people along the value chain. A recycled-plastic table weighing approximately 160 kilogrammes sells for about UGX 900,000, while chairs fetch approximately UGX 350,000.

The enterprise is also exploring ways to combine recycled plastics with biomass, including invasive plant materials from national parks, to produce lumber and other materials. Although a plastic-and-wood prototype has been developed, further research and testing are needed before industrial-scale production can begin.

Beyond recycling, WastePlus has undertaken major environmental projects, including manufacturing fencing poles for a 116-kilometre Uganda Wildlife Authority project and rehabilitating and sta-bilising problematic waste sites. Former interns have also contributed to developing some of the company's equipment and designs under the guidance of its engineers.

During a visit to Makerere, former lecturers Dr Samuel Ojelel, Patron of the Makerere University Conservation Biology Students Association (MUCOBA), and Dr Jamilu E. Ssenku, together with Dr Godfrey Kawooya Kubiriza, Head of the Department of Zoology, Entomology and Fisheries Sciences, commended the alumni for applying their university training to address environmental and economic challenges.

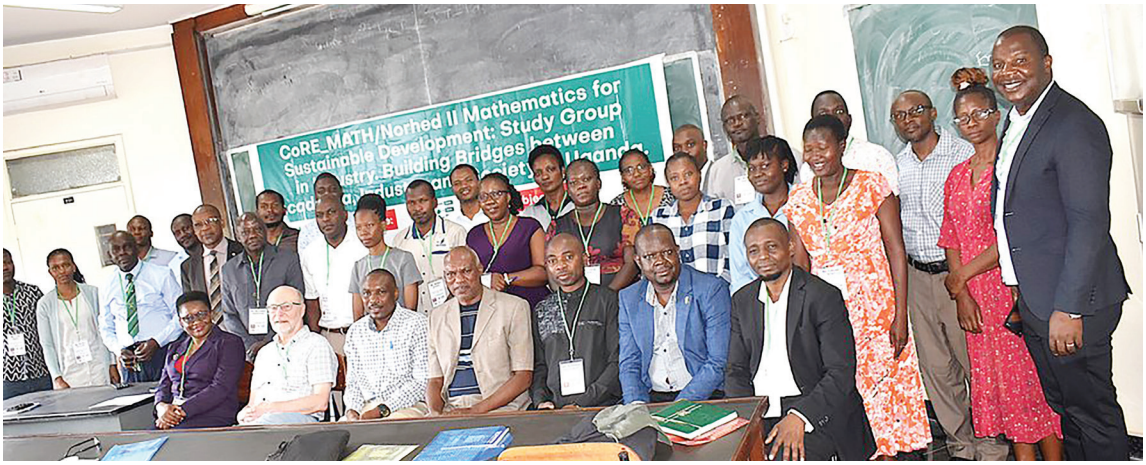
They called for stronger university-industry collaboration, encouraging the founders to share their entrepreneurial experiences with students and support practical, skills-based learning as Makerere advances competency-based education. Dr Kubiriza further challenged WastePlus to expand its operations beyond Uganda and explore opportunities across East Africa and the wider African continent.



The founders of WastePlus Ltd led by Mr. Sinan Kitagenda with their former Lecturers, Dr. Jamilu E. Ssenku (C) and Dr Samuel Ojelel (R) from the Department of Plant Sciences, Microbiology and Biotechnology, as well as Dr Godfrey Kawooya Kubiriza, Head of the Department of Zoology, Entomology and Fisheries Sciences. The green table is one of the products made by the alumni out of plastic waste

RESEARCH AND INNOVATION

Mak, CoRE-MATH Partners Develop Mathematical Models to Address Socio-economic Challenges



Participants from the partner institutions at the opening ceremony of the workshop held on 21st September 2026

Makerere University and its regional and international partners developed mathematical models to address challenges in public finance, healthcare, aquaculture investment and resource optimisation during the five-day ICMS-CoRE-MATH Study Group in Industry, held on 21–25 September 2026 at the Department of Mathematics.

Held under the Africa–Europe Cluster of Research Excellence in Mathematics (CoRE-MATH), in collaboration with the NORHED II Mathematics for Sustainable Development (Math4SDG) project, the workshop brought together mathematicians, industry practitioners and experts to strengthen the application of mathematical research to real-world development challenges.

The four research teams developed models to assess the fiscal implications of Uganda's transition to the new public-service pension system, predict hypertension risk using demographic and health data, guide aquaculture investment decisions, and optimise food-court seating arrangements.

Preliminary pension simulations indicate that the transition could impose an additional fiscal burden equivalent to approximately 1.14% of GDP, peaking around the 2028/29 financial year. Under a scenario assuming a 6% annual nominal investment return, the model estimates that an additional Government contribution equivalent to about 2.14% of covered payroll may be needed to meet pension obligations throughout the simulated period. Meanwhile, analysis of 100,000 observations identified significant associations between hypertension risk and factors including age, residence, education and income, laying a foundation for tools to support early identification and targeted prevention.

The aquaculture model integrates production costs, expected yields, market prices, risks and potential returns to support investment planning, while the seating optimisation study explores efficient use of limited space. Together, the studies demonstrate how mathematical modelling can inform evidence-based decisions across sectors.

CoRE-MATH is co-led by Prof. John Mango Magero of Makerere University and Prof. Bengt Ove Turesson of the International Science Programme at Uppsala University, Sweden. The workshop was coordinated by Prof. Magero and Dr. Alex Behakanira, Senior Lecturer in Makerere's Department of Mathematics, and forms part of broader efforts to strengthen collaboration between academia, industry and society.

FAITH AND VALUES

Rev. Dr. Kitayimbwa Urges CoNAS Community to Balance Moral Integrity with Professional Competence

Building a great university requires more than academic knowledge and technical expertise; it also demands integrity, personal responsibility and strong moral character. This was the central message delivered by Rev. Dr. Lydia Nsaale Kitayimbwa, Chaplain of St. Francis Chapel at Makerere University, during a lunchtime fellowship hosted by the College of Natural Sciences (CoNAS) on 16th September 2026.

Addressing staff, Rev. Dr. Kitayimbwa emphasized the importance of character in building a strong institution, challenging the university community to recognize that moral and spiritual values must go hand in hand with professional competence.

"Christian character does not excuse incompetence," she stressed, underscoring the need to uphold integrity, accountability and high standards in academic and administrative responsibilities.



HUMAN RRESOURCES: APPOINTMENTS, CONFIRMATIONS, POST RETIREMENT CONTRACTS AND RESIGNATIONS

NO.	NAME	DEPARTMENT/UNIT	POSITION/RANK
Academic Leadership Appointments			
1.	Prof. Winston Tumps Ireeta	CoNAS	Principal
2.	Assoc. Prof. Godwin Kakuba	CoNAS	Deputy Principal
Fresh Appointments			
1.	Dr. Henry Ddumba Mawejje	Zoology, Entomology and Fisheries Sciences	Lecturer
2.	Mr. Frank Kalungi	Plant Sciences, Microbiology and Biotechnology	Assistant Lecturer
3.	Mr. Emmanuel Opio	Zoology, Entomology and Fisheries Sciences	Technician
4.	Mr. Bruno K Robert Serunkuma	Biochemistry and Systems Biology	Assistant Technician
5.	Mr. Ronald Naturinda	Plant Sciences, Microbiology and Biotechnology	Assistant Technician
6.	Mr. Meri Walter	Biochemistry and Systems Biology	Laboratory Attendant
7.	Mr. Joshua Nuwangumya	Biochemistry and Systems Biology	Laboratory Attendant
Ordinary Contracts			
1.	Mr. Ibrahim Nalukuba	Chemistry	Senior Technician
2.	Mr. Luka Odur	Zoology, Entomology and Fisheries Sciences	Assistant Technician
Confirmations			
1.	Dr. Catherine Nassozi Lwanira	Biochemistry and Systems Biology	Lecturer

2.	Mr. Fahad Matovu	Chemistry	Assistant Lecturer
3.	Mr. Yasin Maganda	Physics	Assistant Lecturer
4.	Mr. Ronnie Tumwesigye	Chemistry	Assistant Technician
5.	Mr. Joshua Ainembabazi	Biochemistry and Systems Biology	Assistant Technician
6.	Mr. Joel Masereka	School of Biosciences	Stenographer Secretary
7.	Mr. Saul Segawa Semyalo	Office of the Principal	Office Attendant
Post Retirement Contracts			
1.	Assoc. Prof. Juma Kasozi	Mathematics	Associate Professor
Resignations			
1.	Dr. Gladys Namuswe Bwanika	Zoology, Entomology and Fisheries Sciences	Senior Lecturer



MAKERERE UNIVERSITY

COLLEGE OF NATURAL SCIENCES (CONAS)

Makerere University

P.O Box 7062, Kampala

Email: principal.cns@mak.ac.ug, pr.cns@mak.ac.ug

Website: www.cns.mak.ac.ug