

# SPIRIT

September 2024 | Issue Number 02

**WELCOME TO OUR NEW  
VICE-CHANCELLOR AND  
PRINCIPAL**



**UMLAZI SCHOOL WINS NEXUS  
SUMMIT COMPETITION**

**MUT STAFF AND STUDENTS MAKING AN IMPACT**

**TWO AWARDS IN LESS THAN SIX MONTHS**

shape and own the future

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# FROM THE DESK

OF THE EDITOR-IN-CHIEF



Mbali Mkhize

## MUT at the Nexus of Energy, Water, Food and Climate

Heartfelt congratulations to Professor Nokuthula Sibiya from across the world is still pouring in. Media coverage about her appointment has been 100% positive and this is a reassuring message that shows that the country is ready for positive news. In less than a month, Professor Sibiya has validated our brand by conducting more than 30 interviews with local, national, and international media, thus establishing MUT's credibility and positioning it in a positive light. Such a discourse is a healthy one for the MUT brand. It is no coincidence that MUT's flagship project this year was putting MUT at the nexus of energy, water, food and climate through the

EnergyWaterFoodClimate Nexus Summit where Professor Sibiya was deeply involved in the conceptualisation of the summit. While the EnergyWaterFoodClimate Nexus Summit is the brainchild of Dr Victor Ibeanusi of Florida Agricultural & Mechanical University (FAMU) in Tallahassee, Florida in the United States of America; it was indeed a strategic university decision to allow MUT to participate in this international summit as a partner. MUT and FAMU have a 23-year-old partnership, and it was agreed that MUT would host the Summit at Coastlands Hotel in Durban, South Africa, from 1 to 4 July 2024. The local event was a collaboration between MUT and the South

African Energy Development Institute (SANEDI). FAMU has been hosting the Summit for more than a decade in Florida, and this was the first time that it was held in Africa. “This was an intentional move given that Africa faces challenges in energy, water, food and climate. We also wanted to raise awareness that these challenges are being addressed in the Sustainable Development Goals; in Africa’s Agenda 2063; and the South African Department of Science and Innovation’s Decadal Plan addressing the Grand Societal Challenges,” said Summit founder Dr Victor Ibeanusi, who is Dean of the School of the Environment at FAMU.

It was also the first time MUT roped in a public entity as a partner. “We identified SANEDI right at the outset as a strategic partner based on the contributions which it has made in promoting energy research and technology innovation, and its programmes to promote energy security throughout the country,” said Professor Nokuthula Sibiyi, who was appointed by the then acting Vice-Chancellor, Professor Marcus Ramogale, as the Summit Local Organising Committee (LOC) Chairperson.

Noting that the discourse on the nexus of energy, water, food, and climate continues to cut across the globe, and has become even more evident in Africa, the MUT LOC was intentional in positioning the Summit to ensure that the relevant delegates participated. The Summit was attended by more than 600 local and international delegates from government and academia as evidence-based research is required for policy development and country strategies.

The summit delegates also included young people from high schools, TVET colleges and universities so that they could raise awareness about the need to undertake research on energy, water, food and climate,

and to become activists. Women and vulnerable communities were represented to enable them to take home innovative strategies to influence behaviour change in the thematic areas of the Summit. There was a session specifically dedicated to vulnerable groups.

Youth participation was taken to another level when young people were given roles participating as note-takers. It is not common for a summit to have young people leading, but Dr Ibeanusi believes that “allocating pivotal roles to young people suddenly shifts the issues of power and allows young people to realise that they are being handed the baton to influence future generations on how they address the challenges of energy, water, food, and climate. It was for this reason that the summit theme was: ‘What we want is possible’.”

With that, here is to greater things to come for MUT as we celebrate our university’s 45th anniversary. I trust you will enjoy the reflections and celebrations contained in these pages. Let us shape and own the future together.



Water Quality



Zero GHG emission



Food Security



Microbial Systems and Bioinformatics



Achieving soil carbon goals



AI-driven circular economy



Harnessing Big Data



Climate Resilient Agriculture



Let a new science enterprise lead the way

# FOREWORD

BY PROFESSOR LOURENS VAN STADEN



I am deeply honoured to announce the appointment of Professor Nokuthula Sibiya as the new Vice-Chancellor and Principal of Mangosuthu University of Technology (MUT). She commenced her tenure on 01 August 2024, a month when all South Africans celebrate Women's achievements. This appointment marks a historic and transformative moment for our institution as Professor Sibiya becomes the first female Vice-Chancellor and Principal in the 45-year history of MUT. Her extensive experience as an academic, researcher, and leader uniquely positions her to guide MUT toward a future of innovation, excellence, and community impact.

Professor Sibiya's life and work embody the true essence of heroism - not through grand, public gestures, but through her consistent and dedicated efforts to uplift her community. Born and raised in Umlazi Township, KwaZulu-Natal, Professor Sibiya has a profound understanding of the socio-economic challenges faced by our community. Her journey from the local schools of Umlazi to her remarkable achievements in higher education is a testament to her unwavering commitment to education and empowerment.

Beginning as a nurse, she developed strong empathy and problem-solving skills, focusing on maternal and child health. Her nursing career provided her with hands-on insights into community health issues and healthcare disparities, fostering a passion for improving healthcare outcomes in disadvantaged communities. Transitioning to academia, Professor Sibiya pursued further nursing and healthcare management education, entering the academic world with a wealth of practical experience. She has since climbed the ranks in higher education administration, focusing her research on improving healthcare outcomes in disadvantaged communities.

As the Deputy Vice-Chancellor for Research, Innovation, and Engagement, and later Acting Vice-Chancellor and Principal, Professor Sibiya has been instrumental in shaping MUT's community-focused strategy. Her leadership has leveraged university resources for community development, aligning academic excellence with



**Professor Lourens van Staden**

social impact. Her multifaceted approach to development, unwavering commitment to education, and deep connection to her roots make her an exemplary figure in our community. Her dedication truly extends beyond academia.

Professor Sibiya's appointment as the first female Vice-Chancellor and Principal of MUT represents a significant step forward for our university. Her strategic vision, combined with her deep commitment to our community, positions her to lead our university into a new era of growth and innovation. I am confident that under her leadership, MUT will continue to thrive as a centre of academic excellence and social impact.

Please join me in welcoming Professor Nokuthula Sibiya as our new Vice-Chancellor and Principal. Together, we will support her in driving the strategic initiatives that will shape the future of Mangosuthu University of Technology.

# VICE-CHANCELLOR

## AND PRINCIPAL'S PERSPECTIVES



This July, against the backdrop of Mandela Month, we hosted a global event: the EnergyWaterFoodClimateNexus Summit. Mandela Month creates an opportunity for all people, irrespective of their economic, social, or political affiliations, to work together to confront social ills within their communities and to build a better world. It was therefore fitting for us MUT to host an international discourse on energy, water, food, and climate. Bringing together international partners, policymakers, corporations, universities, researchers, students, and vulnerable communities. This global discussion allowed us to engage on the vexing global challenges that have been identified by Agenda 2063: The Africa We Want.

Our summit theme was “What we want is possible” – a call to action for everyone to take responsibility for the future of the world in which we live. The discussions were informed by empirical evidence on how the environment is being degraded, rendering ineffective in providing the water, food and energy we need.

It was an honour to have the Province of KwaZulu-Natal represented by the office of the Premier and the MEC for Co-Operative Governance and Traditional Affairs (COGTA). This shows how the government is committed to tackling sustainability-related challenges using evidence-based research. I believe that there will soon be formalised collaborations between us and our provincial legislators – a marriage long overdue. The researcher in me cannot wait to cement this relationship as this is what I have done all my life, using research to solve existing problems.

I am grateful to our partners, Florida Agricultural & Mechanical University (FAMU) as well as the South African National Energy Development Institute (SANEDI) for making it possible for us to convene an international event to put our heads together to come up with solutions to these challenges of our time. Together with our

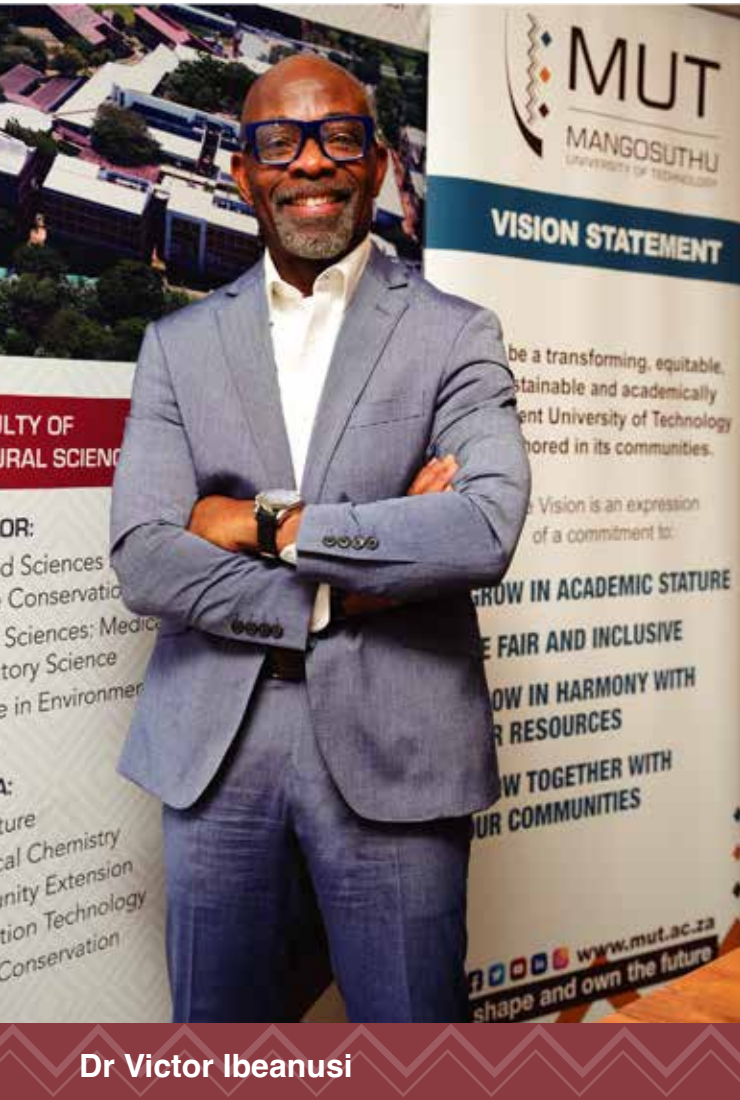


**Professor Nokuthula Sibiyi**

partners and delegates, we discussed how we all want to ensure that we have quality water, assured food supply, climate-resilient agriculture, zero greenhouse gas emissions, and a conducive climate. As a university based in a Township, we take pride in our Anchor Strategy which seeks to revitalise the lives of our communities. The EnergyWaterFoodClimateNexus Summit provided us with a platform to deliberate on how we can make a difference in global issues of energy, water, food, and climate change by starting right where we are.

# SUMMIT IN THE SPOTLIGHT

#EnergyWaterFoodClimateNexus



Dr Victor Ibeanusi

## Why a Summit? EnergyWaterFoodClimateNexus Summit Founder weighs in

Justifying why the meeting that sat at Durban's Coastlands Hotel in Musgrave from 1 to 4 July 2024 was a summit, not a conference, Dr Victor Ibeanusi – Founder and Convenor of the EnergyWaterFoodClimateNexus Summit, and Dean of the School of the Environment at FAMU – told MUT staff that he had framed it as a 'summit' because he wanted outcomes that would provide solutions to unsustainable energy generation; poor water quality; food quality and supply challenges; and climate change, which is wreaking havoc on both the human and natural environment.

In his meeting with MUT staff earlier in the year, Dr Ibeanusi singled out nine specific areas that needed attention. These are water quality, zero GHG emissions, food security, microbial systems, and bioinformatics, achieving soil carbon goals, AI-driven circular economy, harnessing big data, climate resilient agriculture, and creating a new science enterprise system.

The Nexus Summit was attended by public and private-sector delegates from South Africa, the USA, Europe, and Africa. Besides government departments, state-owned enterprises, researchers, and corporate representatives, there were also students from high schools in Umlazi Township. This was the first time that this kind of meeting was held on African soil. Its next stop is Hungary's Miskolc, almost 200km to the east of Budapest, the country's capital.

During the two days of presentations and discussions, the participants were able to prove the extent of the problem in each area of the EnergyWaterFoodClimate nexus. And true to the Summit's objectives, they did more than that. In line with its theme, there was consensus that indeed, "What we want is possible".

One of the highlights of the Summit was the focus on global access to safe water and innovations in water quality, water governance, infrastructure, and investment. Another highlight was soil health advances – a key to food security. Presenters discussed topics such as "Soil organic matter in South African agriculture – the role of soil health and nutrition in community development (introducing the MUT model)" and innovations in climate-smart agriculture. Rich engagements were also held on renewable energy systems, describing how communities can be empowered to achieve a just energy transition towards a sustainable future.

Dr Ibeanusi described the presentations as "of high quality" and said the extended manuscripts would be published in a special edition of the International Journal of

Dr Ibeanusi said the proposed solutions were already gaining support from industry and government agencies. “The announced funding support by the South African National Energy Development Institute (SANEDI) for a Nexus Centre of Excellence and the participation of the multinational Dow Chemical Company at the Summit are positive indications. Dow is headquartered in Midland, Michigan, United States, and has a presence in around 160 countries, including South Africa where the company was established in 1959.”

Besides the usual contributors to such ventures – government, industry and the public – Dr Ibeanusi saw a great need to include school

learners, whom he saw as the future. But the youngsters had to be given proper training that would make them believe in themselves and realise that they could be part of the solution. Dr Leslie Nwoke, who was part of the delegation from FAMU, did a great job in leading this aspect. Dr Nwoke took the school learners from six Umlazi High Schools through a “Why Hack” competition that was won by Umlazi Comtech High School, much to the delight of the learners, their Science and CAT teacher, Zama Cele, their Principal, Nkosinathi Shandu, but mostly, Dr Ibeanusi himself.



MUT VC and Principal, fifth from left with FAMU President, Dr Larry Robinson, with other strategic partners in a gathering before the Summit



## Umlazi Township schools that took part in the Summit

### EnergyWaterFoodClimateNexus Summit puts young people at the centre

Dr Ibeanusi is passionate about the inclusion of learners in the Summit. The “Why Hack” session, which provided a platform for high school learners to engage among themselves and provide solutions to the nine thematic areas of the Summit, was one of the major highlights of the event. “Seeing these learners using their local Zulu language and translating their ideas to designs demonstrated that these students and their talents are indeed what we need to leverage if we are to make breakthroughs in these vexing challenges of the environment,” he said.

Dr Ibeanusi added that recruiting and training learners who will be skilled in providing solutions to the challenges described in the Summit and providing the research infrastructure to support such learners, remains the objective of the global Summit.

What’s more, he would like to see some South African learners enrolling with FAMU itself. “Given

our similar history with MUT, and our proximity to the gulf coast, FAMU offers excellent opportunities for field research on the environment. For example, the School of the Environment has created a platform through the Scholars-in-Residence Programme to examine the resources needed to sustain the EnergyWaterFoodClimate nexus, that is, solutions that simultaneously address all four areas of sustainable energy, water, food security, and climate resilience, providing eligible students with scholarship and mentorship opportunities that will contribute to the building of a well-trained diverse workforce ready to solve the issues of today and tomorrow,” he said.

FAMU’s recruitment process requires a minimum Grade Point Average (GPA) of 3.0; a SAT score of 550 in Math and 530 in Evidenced-Based Reading & Writing; or an ACT score of 23 in Math, 22 in Reading and 19 in English.

South African learners are encouraged to begin their application process by visiting the FAMU Application Portal. The application window is open throughout the year until April for the autumn semester (starting in August), and 1 November for the spring semester (starting in January).

## Umlazi school wins Nexus Summit competition



**Umlazi ComTech High School, and Summit officials and guests after the announcement of the outcome of the competition**

What may have started as a dream for Dr Victor Ibeanusi, Founder of the EnergyWaterFoodClimateNexus Summit – the involvement of high school learners in finding solutions to problems that beset the environment – is becoming a reality. This could not be more evident than on the second day of this year’s Summit.

Dr Leslie Nwoke, who was part of the US delegation that attended the Summit, took learners from Umlazi Comtech High School, Velabahleke High School, Shumayela High School, Ndukwenhle High School, Makhumbuza High School and Ogwini Comprehensive High School through a “Why Hack” session in which the learners had to reach deep within themselves and figure out how to solve some problems. Dr Nwoke impressed upon the learners that what she was teaching them was a life-long lesson. She instilled self-belief in them and made them understand that they had a role to play in finding solutions to the environmental problems that threaten our

existence as humans.

After this design thinking process session, it was time for a competition between the different schools in which the learners illustrated their understanding of the problem and provided possible solutions. Umlazi Comtech took two positions: first and third. The first was for their project on food security. The learners called themselves ‘Ecowarriors’. The judges were impressed by the learners’ view that everyone should be included in the solutions to food security and that solutions should be eco-friendly. One of the judges was Gang Chen, a Professor of Civil and Environmental Engineering at Florida Agricultural and Mechanical University (FAMU). Ndukwenhle High School took the second position, with their rainwater harvesting project. Comtech’s third-position project was about a device that purified water and generated electricity at the same time. The device was built with recycled materials

and was eco-friendly. Luthando Xolo, one of the Comtech High School learners, said the project was aimed at eradicating load-shedding and water wastage. Their project was called Hydrofide.

Comtech won \$2 000 for their efforts. Announcing the prize, FAMU President, Dr Larry Robinson said this cash could be part of the financial support for Comtech High School learners if they register with FAMU. After the announcement, a very happy Comtech Principal, Nkosinathi Shandu, discussed with FAMU's Dr Victor Ibeanusi the possibilities of his learners enrolling with FAMU.

Zama Cele, a Science and CAT (Computer Applications Technology) teacher at Comtech, said she was ecstatic with the learners' victory. "I am so happy. I wish our inventions would be patented, and our learners benefit from these. I told them to do something unique. I told them to prepare well," said Cele. She also said that she told the learners to stay focused throughout the time they were at the Summit. It paid off, because the learners' presentations were clear and precise, and their proposed solutions were believable. They were very happy with their winning. They sang and danced, and were joined by their new trainer, Dr Leslie Nwoke, and the rest of the officials, including MUT's Vice-Chancellor and Principal, Professor Nokuthula Sibiya.

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## MEC Buthelezi wants 11 learners from KwaZulu-Natal to enroll with US university

The EnergyWaterFoodClimateNexus Summit 2024 is expected to have a lasting impact. One of its long-term outcomes will be the role that is expected to be played by KwaZulu-Natal learners in the coming years. Specifically, these will be 11 very lucky learners, one from each of the province's districts. On 2 July 2024, MEC for Co-Operative Governance and Traditional Affairs (COGTA), Rev Thulasizwe Buthelezi, announced that his department, together with other relevant partners, would prepare for the learners to enroll with Florida Agricultural and Mechanical University (FAMU), MUT's Summit partner.



MEC Thulasizwe Buthelezi

Enrolling with FAMU was said to be one of the ways for the learners to prepare for the future. MEC Buthelezi's message was that the learners should go to FAMU, get the necessary education, and come back and improve the plight of their communities. The message resonated with Luthando Xolo, a ComTech High School learner. Luthando said he learnt from the Summit that it was important for him to focus on his studies so "I could be in a position to take decisions that would advance our world".

# LOCAL COLLABORATION

ENRICHES SUMMIT



**SANEDI CEO, Dr Titus Mathe, left, and MUT Vice-Chancellor and Principal, Professor Nokuthula Sibiya**

## SANEDI adds value

The adage, “Not all heroes wear capes”, cannot be truer when one reflects on how the leadership of the South African Energy Development Institute (SANEDI) has taken it upon themselves to help drive the provision of energy solutions for the country. It was therefore no surprise that the EnergyWaterFoodClimateNexus Summit resonated with the SANEDI’s key initiatives. Dr Titus Mathe, Chief Executive Officer of SANEDI and his board chairperson, Mr Sicelo Xulu, were the first industry leaders to be approached by a delegation introducing the

EnergyWaterFoodClimateNexus Summit. The meeting was led by Professor Nokuthula Sibiya, MUT’s new Vice-Chancellor and Principal, who was accompanied by Mbali Mkhize, Senior Director: Marketing and Communications, together with Dr Olu, MUT’s trusted stakeholder and benefactor of the MUT GIZ-funded Climate

Change Centre. It was this very meeting that lasted an entire day and saw SANEDI agreeing to add value to the Summit.

Certainly, the involvement of SANEDI as a partner in the Summit added invaluable depth. Not only was SANEDI able to identify strategic partners to attend and chair energy sessions at the summit, but it also ensured the sessions provided a greater understanding of power generation and what the country is focusing on to provide a cleaner energy supply that will not be interrupted.

The next support role that SANEDI has taken upon itself is to establish a Centre of Excellence in Energy-Water-Food-development at MUT which will specifically focus on training researchers and academics on the country’s energy plans and the role that they should play in providing a sustainable energy mix. “This partnership marks a significant milestone in SANEDI’s strategic objectives, particularly in

advancing research and innovation within the EWFC nexus. It aligns closely with SANEDI's mandate to drive energy research, technology innovation, and capacity building in academic institutions and research councils, especially the historically disadvantaged institutions. The MOU underscores our joint commitment to addressing socio-economic challenges through interdisciplinary research, fostering a collaborative environment that contributes to national development priorities," said Dr Mathe. Some of the bright minds who were part of the

SANEDI collaborators for the summit included Mr Nxumalo, Group Executive for Generation at Eskom, and Mr Muzi Mkhize, Regulator at NERSA. During his session, Mkhize assured delegates that "NERSA has committed in its

strategic plan to ensure an accessible and cost-effective electricity supply that is equitably distributed for consumption; a diverse energy supply that is certain and secure for current and future user needs; and a conducive regulatory environment that results in regulatory certainty and increased investment in the electricity industry". This is also in line with Eskom's mandate for "an energy future with a less coal intensive mix, resulting in significant increases in cleaner technologies. Eskom's Just Energy Transition pathway will make it possible to simultaneously spur economic growth, create sustainable jobs and put emissions into structural decline – thereby ensuring an electricity supply that does not compromise economic growth", said Nxumalo to the applause of the audience.

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## NGOs, TVETs and exhibitors play their part in the Summit

The 2024 EnergyWaterFoodClimateNexus Summit embraced nine thematic areas: *water quality, zero greenhouse gas (GHG) emission, food security, microbial systems, bioinformatics, achieving soil carbon goals, an AI-driven circular economy, harnessing big data, climate-resilient agriculture*, and letting a new science enterprise lead the way. The "new science enterprise" thematic track focused on being enterprising through innovation, embracing technological advancements and encouraging companies to venture into uncharted territories.

In response to this vision, MUT's Technology Station in Chemicals (TSC) facilitated an intervention that will bring together innovators, entrepreneurs, higher education institutions and government programmes that embrace innovation and technology in entrepreneurship. This intervention incorporated exhibitions and panel discussions by all these players that are considered critical for a vibrant innovation ecosystem. Summit exhibitors that participated included 20 Small, Medium, and Micro Enterprises (SMMEs) in the food, agriculture,

and biopharmaceutical sectors; university units and centres that are developing technologies in these fields; and government programmes that promote innovation and integration of technology in all industries. Xolile Ngubane, Director at MUT TSC, who coordinated the exhibitions for the event, said the exhibitions aligned with the round-table discussions demonstrating the theme of the Summit: "What we want is possible".

The panel consisted of traditional knowledge generators, pioneering technology transfer, and SMMEs that are reputable in advanced technologies. Among the knowledge and technology transfer enablers were the technology stations focusing on food and agro-processing from the Cape Peninsula University of Technology (CPUT-AgriTS), the University of Limpopo (LATS), the Department of Agriculture from the University of Zululand, and the University of KwaZulu-Natal's INQUBATE.

The government programmes were represented by the Technology Innovation Agency (TIA), an agency of the Department of Science and Innovation with a vision to "stimulate and support technological innovation to improve the quality of life for all South Africans". The SMMEs, the

targeted end users, also played a critical role, based on their experiences and knowledge, providing an enriching exchange of knowledge and opportunities for forging future partnerships.

Also, part of the Summit were local Technical and Vocational Education and Training (TVET) Colleges, which provide educational programmes on food and agriculture. Some of these TVET Colleges were Elangeni, Thekwini and Umfolozi TVET Colleges, and they brought their students along with them. The colleges had discussions with MUT senior management and lecturers.

Ngubane said that TVET Colleges have a critical role to play within the innovation ecosystem as stipulated in the 2019 White Paper on Science and Innovation.

The White Paper emphasises the need “to improve the responsiveness of the post-school education and training system to the skills needs of the 21st Century, particularly innovation and technology-driven change that affects organisations and individuals alike”. Ngubane said that the session demonstrated that South Africa is ready to harness technology, establish national and international collaborations and secure a bright future for the next generations”.



The event was well supported by exhibitors

# INTERNATIONAL PERSPECTIVES

## ON THE ENERGYWATERFOODCLIMATE NEXUS ◆ ◆ ◆

### **Biodiversity, our life-support system, is in crisis – Sierra Leone Minister**

The cry for a sustainable planet was heard even in West Africa. Sierra Leone's Minister of Environment and Climate Change, Mr Jiwoh Abdulai, addressing delegates at the EnergyWaterFoodClimateNexus Summit, said he was happy to get a chance to listen to "subject experts" that would discuss the issues that his department grapples with daily.

"The energy, water, food and climate nexus is critical to our very existence because of its huge impact on our lives, livelihoods and security," Minister Abdulai said. Minister Abdulai shares the philosophy that the living generations borrowed the world they are living in from their children and grandchildren. "We run the risks of passing on to future generations a planet that is vulnerable and prone to diseases, famine, disasters and water crisis that will impact us globally and worsen our climate crisis," he said.

The trip to Durban was a networking exercise for the minister who clearly believes in teamwork to find solutions to global problems. He said sustainable solutions would require a thorough understanding of the interconnections between the issues, pooling of resources such as scientific and indigenous knowledge, technology, physical assets, public and private capital, and most importantly, political will. He said that in Sierra Leone, climate change and biodiversity loss "are two sides of the same coin.

Both crises continue to adversely impact the lives and livelihoods of majority of our citizens, even though our country has relatively low emissions". Minister Abdulai said to reduce its vulnerability, Sierra Leone has mainstreamed inclusive green growth in its development process "as evidenced by its Medium-Term National Development Plan (2024-2030). We are facing an unprecedented biodiversity crisis that increases the risks of food and water



**Minister Jiwoh Abdulai**

insecurity across the planet even as the global population is set to increase from 8 billion to 9.7 billion by 2050 according to a recent UN Report". The minister further explained the extent of the damage that is occurring on the planet. "Almost half of all species on earth are undergoing population declines, with up to one million species facing possible extinction, many within decades.

Habitat loss and overexploitation are the major contributors to this decline. These are driven by urban, industrial and agricultural development, overfishing, illegal wildlife trading, and climate change. This is a global problem, and it affects everything, no one is immune," he said. He added that biodiversity loss creates local challenges with global implications, requiring a coordinated international response, hence his presence at the Summit.

He said much of the world's remaining biodiversity was in developing countries, making the Global South "crucial for safeguarding a liveable planet". He warned that continued loss of nature would have serious implications for food and water supplies, disease outbreaks, and peace and security globally.



**Professor Endre Dobos**

### **All the way from Hungary to learn about what is happening on the southern tip of Africa**

One of the delegates who attended the EnergyWaterFoodClimateNexus Summit was Professor Endre Dobos, Chair of Commission 1.3: Soil Genesis of the International Union of Soil Sciences, and President of the Hungarian Soil Science Society.

During his presentation he mentioned that one of the major problems in Africa was the continued desertification of the Southern African region because of overgrazing. Professor Dobos said that while Hungary struggles with problems like slopes and ice turning into water, Africa has huge soil erosion challenges.

Professor Dobos said a possible solution could be the lessening of overgrazing. “In Southern Africa, to protect the land from erosion, you always must make sure it is covered with vegetation,

throughout the year. You also must do tillage perpendicular to the slope. This is not only to stop the erosion but to lower the drought risk,” said Professor Dobos. He also said that soils in many parts of Africa have a low content of organic matter, which is very important to create a soil structure that increases water filtration, has higher water retaining capacity, and allows for much safer agriculture.

“It is very important to keep the crop residues and use cover crops to increase the biomass and support the biological activity of the soil,” he said. Professor Dobos said another reason for attending the 2024 Nexus Summit was to benchmark for the next summit to be held in Hungary’s Miskolc, almost 200km to the east of Budapest.

# WELCOME TO OUR NEW

## VICE-CHANCELLOR AND PRINCIPAL ◆ ◆ ◆



**Professor Nokuthula Sibiya**

### **MUT's first female Vice-Chancellor: a shining star of Umlazi Township**

A few decades ago, Tholisu and Sawela Primary schools, as well as Velabahleke and Vukuzakhe High Schools in Umlazi Township, opened their doors to a young girl whom they would prepare for a trailblazing future. This young girl went on to attend the University of Zululand where she graduated with a degree in nursing, and never looked back. With a Doctor of Technology in Nursing from the Durban University of Technology (DUT), she is now a C2 National Research Foundation (NRF) rated researcher

who has successfully supervised 60 Master's and 33 PhD students and published widely in the primary health care field.

Assuming the Vice-Chancellor and Principal position on 1 August 2024, Professor Sibiya is no stranger to MUT. She first joined the University in October 2022 as the Deputy Vice-Chancellor: Research, Innovation and Engagements, and in May 2024 she was appointed as acting Vice-Chancellor and Principal. After a vigorous Vice-Chancellor recruitment process, MUT Administrator Professor Lourens Van Staden announced the long-awaited appointment on 25 July 2024.

## A brief history of Professor Sibiya's journey in higher education

Professor Sibiya joined Durban University of Technology (DUT) in August 2003 as a lecturer in the Department of Nursing and graduated with her doctoral qualification in 2009. She then served as the Head of Department (HOD) of Nursing from 2011 to 2017. During her tenure as HOD, she received an Excellence Award for Leadership in Nursing Education in 2017 from the Nursing Education Association (NEA).

This was in recognition of the successful implementation of an undergraduate nursing programme at DUT with a strong Primary Health Care (PHC) philosophy, to address the shortage of nurses in the KwaZulu-Natal province. DUT was the first university of technology to offer such a programme in South Africa. During her tenure at DUT, Professor Sibiya also served as the Executive Dean: Faculty of Health Sciences, and later appointed as Deputy Vice-Chancellor: Teaching and Learning at the same institution.

In recognition of her excellent contribution to primary health care, she was inaugurated as a Fellow of the Academy of Nursing of South Africa in 2015. She was also named by the Department of Science and Technology as the 2018 South African Distinguished Woman Scientist in Humanities and Social Sciences.

Professor Sibiya has also received several institutional research awards, which include Top Female Researcher of the Year, Top Researcher in

the Faculty of Health Sciences and Senior Researcher of the Year. In 2019 the Forum of Professional Nurse Leadership recognised her as the 2019 Regional Nurse Leader. Her research area is primary health care with a specific focus on maternal and child health. She has published over 120 journal articles, conference proceedings, books and book chapters.

One of her most recent accolades was an award from Florida Agricultural and Mechanical University (FAMU) for the integrated approach of her research across Energy, Water, Food and Climate (discussed below).



**Professor Nokuthula Sibiya**

## Two awards in less than six months

Professor Nokuthula Sibiyi, MUT VC has scooped two awards, one national and another international, in less than six months. The first award came at the end of 2023 when Entrepreneurship Development in Higher Education (EDHE) awarded her the EDHE Rising Star DVC of the Year 2023 award on behalf of Universities South Africa (USAf) and the Department of Higher Education and Training (DHET).

The EDHE DVC Rising Star Award is presented to a Deputy Vice-Chancellor who has recently committed to advancing the entrepreneurship development mandate, and who demonstrates a firm commitment to making swift progress aimed at real impact. This award recognised Professor Sibiyi's role in developing student entrepreneurship; developing entrepreneurship through teaching, learning and/or research; and advancing MUT's positioning as an entrepreneurial university. Professor Sibiyi



**Professor Sibiyi, left, receiving the Nexus Leadership award from Dr Victor Ibeanusi**

actively promotes student entrepreneurship and advocates for the advancement of entrepreneurship education and development initiatives at the University.

During the international EnergyWaterFoodClimateNexus Summit in July 2024, Professor Sibiyi received the Nexus Thought Leadership Award, based on her activities in supporting the 'science enterprise' through advancing a trained workforce for sustainable outcomes in energy, water, food, and climate systems. Individuals receiving the Nexus International Thought Leaders Awards are recognised based on their contribution to the categories of Leadership, Science Enterprise, Accelerated Innovation and Workforce Development.

# ENTREPRENEURSHIP

## IN ACTION



### **A clean SWEEP – MUT staff member and student return from UK with full bag to benefit student entrepreneurship**

Nine South African university coordinators and their respective Student Women Economic Empowerment Programme (SWEEP) Chapter Chairpersons recently embarked on a UK SWEEP Residential Knowledge Exchange study visit. The visit, which took place from 25 May to 2 June 2024, was a collaboration between the British Council and Entrepreneurship Development in Higher Education (EDHE) in South Africa. MUT's participants were Ntombifuthi Mthembu, Entrepreneurship Coordinator; and Mbalenhle Nzama, SWEEP President and a third-year Human Resources Management student.

Mthembu, a lecturer in the Faculty of Management Sciences' Department of Human Resources Management, is passionate about student entrepreneurship, given the realities that she witnesses daily. "The scourge of unemployment is a concern for everyone in the country," she said. "Whenever one is interacting with students in class, one thinks of what will happen to them when they graduate. I am also aware of the state of the economy in our country. Much has been said about the three ills facing our society: unemployment, inequality, and poverty," Mthembu said.

Mthembu said the objectives of the visit were developing an awareness of entrepreneurship and entrepreneurial activity as a means of economic participation among university female students and graduates, and promoting women's participation in entrepreneurship and entrepreneurial activities in universities, focusing on creating businesses that have a positive societal impact. Another aim of the visit was to connect student women and professional women entrepreneurs with UK and South African entrepreneurship mentors who can guide them in creating businesses.

Mthembu said they went through an "intense programme" that started at 9am and sometimes finished at 9pm. "The South African team was



**Ntombifuthi Mthembu, left, and Mbalenhle Nzama**

hosted by London School of Economics (LSE), at its LSE Generate. The LSE Generate is an Entrepreneurship Centre that has produced more female entrepreneurs than any other London university. They currently work with 26 000 alumni. The LSE Generate is now moving beyond universities to focus on primary schools for children between 4-11 years," she said.

The team was allowed to tour Oxford University where they visited the Centre for Social Entrepreneurship housed within the Oxford Business School. The centre currently supports 18 social enterprises and coordinates a Systems Thinking Competition. The team also visited enterprises run by LSE Alumni, such as the Damascus Rose Kitchen (a restaurant employing refugees),

Social Bake House (a company employing ex-convicts), and a company called Y.O.U. which manufactures underwear.

Students were also exposed to a speed networking exercise with exceptional founders who started high-impact ventures. “Here, students were paired with LSE Social Entrepreneurs and got to listen to their success stories. The LSE Social Entrepreneurs shared what their businesses are all about; how the business started and how it is sustained.” Mthembu said that each student, accompanied by the coordinator, had an opportunity to talk to six social entrepreneurs. “The greatest lessons learned here were building and scaling one’s brand, as well as new ways of solving today’s problems.”

Mbalenhle Nzama, who was nominated because of her active participation and display of leadership qualities in MUT’s SWEEP Chapter, also learnt a lot. She said she is now aware that social enterprises and social entrepreneurs “are there to help bridge the gap between government services and public needs. To ensure the objectives of a social enterprise are achieved, we need to have design thinking, or what is also known as an innovative mindset, for problem-solving,” said Mbalenhle.

Like Mbalenhle, Mthembu has also embraced the idea of being innovative. “The mindset of social entrepreneurs on campus and in communities we interact with must change. Long-term organisational sustainability should be the main goal. Students must be encouraged to avoid perfectionism. They must be encouraged to apply effectuation principles when starting ventures. This will reduce the fear of venturing into business and using a lack of finance as a reason to delay starting,” said Mthembu.

Mthembu has a very clear and solid message for anyone that would like to contribute to youth business development. “One of the key drivers in enhancing innovation and creativity among students is the creation of interdependent structures. Let students have a place where they

can go for their pre-ideation stages. Let them have a well-resourced place that they can access to nurture and grow their business ideas. Incubation centres are designed for that,” she said.

Higher education students in South Africa now have direct access to platforms that are meant specifically for them to get involved in, and improve their business skills. “The Department of Higher Education, through EDHE, has created a platform for students in higher education to be actively involved in entrepreneurship activities. One of EDHE’s six key actions of entrepreneurship development is the implementation of entrepreneurship development initiatives focused on the student market,” she said.

Mthembu reiterated an important point that has long been made by the previous Acting Vice-Chancellor and Principal, Professor Marcus Ramogale. “Instead of producing job seekers, institutions of higher learning should prioritise inculcating entrepreneurial competencies that will enable students to identify opportunities for businesses that they can pursue.” She said the beauty of entrepreneurship was that it also empowers students with an “intrapreneurship” skill that enhances their job prospects. The term intrapreneurship refers to a system that allows an employee to act like an entrepreneur within a company or other organisation. A student with an intrapreneurial mindset becomes a better employee.

Mthembu has a long-term desire for the University’s entrepreneurial plans. “The long-term goal is to see MUT’s Centre for Entrepreneurship take shape. I would like to see more participation from other faculties. More involvement from other alumni would also be most welcome. All MUT students should leave the University armed with entrepreneurship skills. Remember, entrepreneurship is the future,” she concluded.

# MUT RESEARCH

ON THE WORLD STAGE ◆ ◆ ◆

## Professor Tumba speaks at prestigious Malaysian university webinar

On March 18, 2024, Professor Kaniki Tumba, Research Leader for Energy at MUT, participated as a keynote speaker in a significant webinar hosted by Petronas Technological University of Malaysia. The event focused on the future of gas hydrate-based processes in carbon capture, utilisation, and sequestration (CCUS) technology.

The webinar's primary objective was to explore the potential of gas hydrate-based technologies to mitigate the environmental impact of carbon dioxide (CO<sub>2</sub>) by capturing it for utilisation or sequestration in marine environments. Professor Tumba said that the innovative approach aimed to address the challenges posed by CO<sub>2</sub>, a major greenhouse gas contributing to global warming.

Professor Tumba's presentation, titled "Industrial Integration of Gas Hydrate-Based Carbon Capture Processes: Progress, Challenges, and Pathways to Solutions", highlighted the advancements, ongoing challenges and future directions in this critical area of research.

Professor Tumba's insights underscored the pivotal role of MUT in the international arena of gas hydrate research.

Joining Professor Tumba were esteemed researchers, including Keita Yasuda, Associate Professor in the Energy and Environment Programme of the School of Engineering at the University of the Ryukyus, Japan; and Professor Rajnish Kumar, from the Department of Chemical Engineering at the Indian Institute of Technology in Madras – both renowned experts in gas hydrate studies. The forum, organised by the CO<sub>2</sub> Research Centre of Petronas Technological University, also saw participation from academics and students



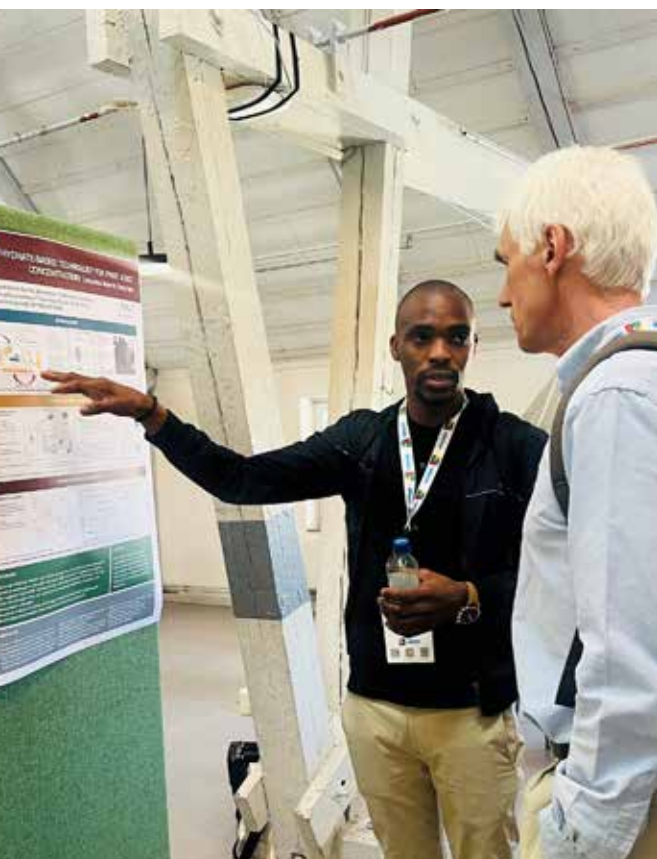
**Professor Kaniki Tumba**

from various countries, including Malaysia, Japan, Democratic Republic of Congo, Nepal, India and South Africa.

In his presentation, Professor Tumba provided background information on various processes currently used for carbon capture before focusing on those relying on gas hydrate formation. He said that while progress has been made, reaching Technological Readiness Level 5 (which involves laboratory testing of integrated systems), several challenges must be addressed for the commercialisation of gas hydrate-based carbon capture from chimneys emitting the greenhouse gas CO<sub>2</sub>. These challenges include the scarcity of data, the slow pace of the process, handling slurry, the limited number of researchers in the field, the high cost of analytical equipment, and funding issues.

At present, there are three active gas hydrate researchers at MUT, all based in the Department of Chemical Engineering. In addition to Professor Tumba, the main supervisor of this research track, Dr Nkululeko Nkosi, is developing novel gas hydrate-based technologies for fruit juice concentration as an energy-efficient alternative to the costly evaporative concentration used in the industry. Njabulo Zulu, senior lecturer in the Chemical Engineering department, is conducting a study aimed at identifying new green additives, specifically deep eutectic solvents, as inhibitors

to prevent pipe clogging caused by gas hydrate formation during natural gas exploitation. Professor Tumba said that so far, MUT researchers have made significant contributions to this field of research by collectively publishing 12 full-length articles in DHET-accredited journals such as the Journal of Chemical and Engineering Data, Journal of Food Processing, Food and Bioprocess Technology, Petroleum Science and Technology, Fluid Phase Equilibria, and the Journal of Natural Gas Science and Engineering. Additionally, MUT researchers have published 12 conference papers in this research area.



**Dr Nkululeko Nkosi, left, and the delegate at SASUF**

### **MUT academic shares innovative fruit juice concentration method with Swedish researchers at SASUF**

At the South Africa Sweden University Forum (SASUF), which took place in Sweden from 13 to 15 May 2024, Dr

Nkululeko Nkosi from MUT's Department of Chemical Engineering showcased groundbreaking research in the field of gas hydrates. Dr Nkosi presented a poster titled "Gas Hydrate-Based Technology for Fruit Juice Concentration: Lessons Learnt Thus Far", which conveyed the key insights gained from their ongoing research to a multidisciplinary audience.

The research conducted by Dr Nkosi and Professor Tumba focuses on optimising gas hydrate-based technology for the concentration of fruit juice. Their findings suggest that this innovative approach could be significantly more energy-efficient, compared to traditional evaporation methods. Professor Tumba said that this promising technology has the potential to revolutionize the fruit juice industry by enhancing sustainability, both locally and globally.

During the week-long visit to Sweden, Dr Nkosi engaged with Swedish partners at Uppsala University who have extensive experience in thermodynamic modelling. These new collaborators will play a crucial role in the project's pilot stage, which aims to evaluate the commercial potential of hydrate-based technologies. Professor Tumba said that MUT researchers aspire to bring this innovative solution to market within the next five to 10 years.

The collaboration between MUT and Uppsala University marks a significant step forward in the development and commercialisation of gas hydrate-based fruit juice concentration, reflecting the strong international partnerships fostered by SASUF.

# TEACHING AND LEARNING

UPDATE



**Professor Babatunde Bakare**

## Recent curriculum developments in the Faculty of Engineering

In line with the Engineering Faculty's strategic objective to strengthen its programme and qualification mix, the faculty is excited about its latest academic programme addition – the Advanced Diploma in Mechanical Engineering – which had its first student enrolments at the beginning of the 2024 academic year. The dean of the faculty, Professor Babatunde Bakare, said the new programme is designed to provide the students with a comprehensive education in mechanical engineering, tailored to meet the demands of today's dynamic industrial landscape. "The Advanced Diploma programme offers a curriculum that balances theoretical knowledge with hands-on practical experience," said Professor Bakare.

In addition, the faculty also received endorsement from the Engineering Council of South Africa (ECSA), to offer an Advanced Diploma in Electrical Power Engineering, and an Advanced Diploma in Process Automation and Control Engineering. Professor Bakare said the two programmes would be submitted to the DHET for clearance before being able to offer them at the beginning of 2026. The Dean said that during the period from January to June 2024, the faculty continued to see an increase in research output in DHET-accredited journals by faculty members. The faculty was also able to establish research collaborations with international institutions and industrial partners. "On 30 May 2024, we signed an MOU with École Nationale Supérieure des Mines d'Albi-Carmaux, of France.

The agreement seeks to establish a working relationship targeted at staff and student exchange, collaboration on externally funded research projects, and any other activities that could be of mutual benefit,” said Professor Bakare. He also said that the faculty has also established a collaboration with Northvolt, a Swedish company manufacturing lithium-ion batteries and specialising in battery waste management. Professor Kaniki Tumba, from the Department of Chemical Engineering in this faculty, has been to this company and reported on this development. This collaboration will expand the research focus of the faculty under the waste management theme,” said Professor Bakare.

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## MUT academics and students benefiting from new learning management platform

Both teaching staff and students at the University are set to benefit from the upgraded learning management system (LMS) introduced by the Teaching and Learning Development Centre (TLDC) earlier this year. According to Cebo Nyondo, Acting Deputy Director: e-Learning in the TLDC, said that in 2024, MUT migrated its existing Blackboard LMS to Blackboard Learn Ultra.

“Blackboard Learn Ultra is designed to provide the flexibility that modern learners and instructors demand. It combines insight, innovation, and user feedback to support engaging and personalised learning experiences,” said Nyondo. He added that Blackboard Learn Ultra's features align closely with some key principles of online course development, thus ensuring an optimised learning experience for all stakeholders. Another feature of the LMS is a “Progress



Tracking and Feedback” mechanism. He said continuous progress tracking and timely feedback are vital for student success and retention. The Progress tracking tools in Blackboard Learn Ultra provide a clear pathway for students to achieve their goals. The improved visibility of new grades and feedback in the student gradebook ensures that students are promptly aware of their progress and can take corrective actions if necessary.

The TLDC has conducted three onboarding workshops so far meant to provide comprehensive support to the academics. The training of staff is through webinars, which provide real-time interaction and guidance. After the training, each faculty gets a dedicated Learning Designer who is available to meet with academics individually. These Learning Designers offer personalised support to address specific needs or challenges that arise, ensuring that staff can effectively implement what they have learned and continuously improve their course delivery.

# MUT STAFF

## AND STUDENTS MAKING AN IMPACT

### Institutional research gets a boost with Dr Lekena-Bayaga's PhD

In the academically rich halls of Stellenbosch University's Centre for Research on Evaluation, Science and Technology (CREST), Dr Liile Lerato Lekena-Bayaga has marked a significant milestone in her academic journey. On 25 March 2024, Lekena-Bayaga celebrated the completion of her PhD in Science and Technology Studies. Under the guidance of Professor Jan Botha, and co-supervisor Professor Heidi Prozesky, Dr Lekena-Bayaga has made a notable contribution to the field of institutional research with her dissertation titled "The use of institutional research outputs by university managers: An embedded case study of a university in South Africa".

Dr Lekena-Bayaga's research delves into the utilisation of institutional research (IR) outputs within a South African university context, emphasising the pivotal factors that influence their application in decision-making processes. This study stands out for its insightful exploration into the complexities of research application in higher education, shedding light on Caplan's Two-Communities theory and its adaptability to the unique challenges faced by academic institutions.

The significance of Dr Lekena-Bayaga's work cannot be overstated. Said Dr Lekena-Bayaga: "The study arrives at a crucial time when the higher education sector grapples with the consistent application of research in decision-making, the dominance of compliance reporting, and a glaring oversight of demand-side perspectives in IR uptake". Dr Lekena-Bayaga's study identifies cultural aspects and potential obstacles that hinder the collaborative use of social science research in policy and decision-making.

Dr Lekena-Bayaga said one of the study's groundbreaking contributions was the adaptation of Caplan's Two-Communities theory into what she called the "Two-Communities theory Version 2" (2CV2) framework. This innovative framework underscores the significance of context and the



**Dr Liile Lerato Lekena-Bayaga**

fluidity of roles within academic institutions, challenging the presumed fixed barriers between researchers and decision-makers. Her research not only uncovers patterns of research utilisation across various institutional roles, but also enhances the understanding of micro- and meta-level utilisation.

Her findings advocate for a balanced approach that respects the core principles of both communities involved: methodological rigour for researchers and pragmatic efficiency for policymakers. This balance is essential for creating an environment that supports the generation and effective use of research for informed decision-making.

As Dr Lekena-Bayaga looks forward to implementing her findings and conducting further research to inform practice, the academic community celebrates her achievements. Her doctoral completion not only represents the culmination of years of hard work, but also signals the beginning of a promising career dedicated to enhancing the strategic and decision-making processes within higher education and beyond.

## Information Technology and Networks head goes an extra mile

Dr Marlo de Swardt, the Senior Director of the Department of Information Technology and Networks (IT&N) at MUT, does more than his usual job duties. Dr de Swardt also contributes to MUT's core academic functions, which are teaching and learning in the broader South Africa context. His dual role as an academic and a support staff member has impressed many.

Dr de Swardt said he aims for diversification and differentiation in his work. He has lectured Information Technology Management and Project Management for the Advanced Diploma at MUT for four consecutive semesters. He also co-authored a paper that was presented at the International Conference on Intelligent and Innovative Computing Applications on optimising mobile commerce for small and medium enterprises in South Africa in 2022.

Dr de Swardt shared his valuable knowledge in another paper he hopes to see published in 2024: "Improving the realization frequency of digital transformation failure: Empirical evidence in a Higher Educational Institute in South Africa". This paper offers specific recommendations based on empirical evidence from MUT on the need to establish a digital mindset before embarking on a digital transformation process. After six years at MUT and working part-time for other academic institutes, he had his last (among many other students) graduate from TUT with a Master's in "Computing on contingency factors influencing socio-technical systems in a public entity in South Africa in 2023".

His new project for 2024 is supervising one Master's student at TUT who is researching a post-implementation model for enterprise resource planning in the South African public sector. Dr de Swardt is also an external examiner for the University of KwaZulu-Natal's



**Dr Marlo de Swardt**

MBA programme and honours dissertations at MANCOSA. His examination work ranges from "The effective use of annual financial statements by small and medium enterprises in Pietermaritzburg, South Africa" and "Evaluation of talent management strategy in fulfilling business objectives: A case study of Toyota South Africa Motors", to "The impact of organisational culture on employee performance and productivity in a South African bank". And if he stays long enough with the MUT family we may all witness his book: *The four Cs: Chance to Change, your Choice. Don't blame it on Circumstances*.

## Another PhD in the Faculty of Management Sciences

The Faculty of Management Sciences has added yet another PhD to its ranks. Nobuhle Ndaba, a lecturer in the Department of Communication who hails from Vryheid (eMondlo) in Northern KwaZulu-Natal, graduated with a PhD from the University of Zululand. On 8 May 2024, the 34-year-old academic was awarded a PhD in Communication Science, specialising in digital and organisational communication. Ndaba's research dissertation was titled

“Digital Transformation Training of Support Staff Members in Higher Education Institutions Post COVID 19: A Case of Selected Universities of Technology” and was supervised by Professor GM Naidoo. Dr Ndaba examined the unanticipated (and unprepared-for) digital transformation undergone by higher education institutions due to the COVID-19 pandemic, focusing on support staff members. The pandemic obliged all services, including teaching, learning, and working, to shift from physical to digital and virtual platforms.

The shift propelled higher education institutions to rely completely on technology, and the adoption of digital technologies by employees. One of the objectives of the study was to explore the implications of 4IR technologies and digital transformation for an effective work environment. Dr Ndaba's study explored factors that underpinned digital transformation, including the work-from-home phenomenon, accountability, technological infrastructure development, and a digital framework associated with the digital migration of services.

Among other findings on working from home, the study mentions that employees were enjoying working in their comfort zone, thus saving fuel/resources, with flexibility, improvement of digital skills, adjustable working context and multitasking.

In addition, Dr Ndaba's study was aligned with the technology acceptance model, and the technology organisation environment framework to identify factors that influence successful



**Dr Nobuhle Ndaba**

transformation of technological adoption among technology users in the workplace.

Dr Ndaba said that part of the recommendations from her study are expected to assist universities of technology (UoTs), corporate organisations, TVET colleges and schools to unfold the complexity of digitalisation, and to adopt digital transformation institutionally, with external stakeholders and clients, depending on the organisational needs and context.

An outcome of the study was that Dr Ndaba presented a paper at the 9th World Conference on Media and Mass Communication (MEDCOM 2024), themed “Reshaping and Challenging the Neoliberal Model: Evolving Practices in Crisis, Conflict, and Creative Communication”, on 9 and 10 May 2024 in Colombo, Sri Lanka (hybrid format). MEDCOM is a prestigious and premier

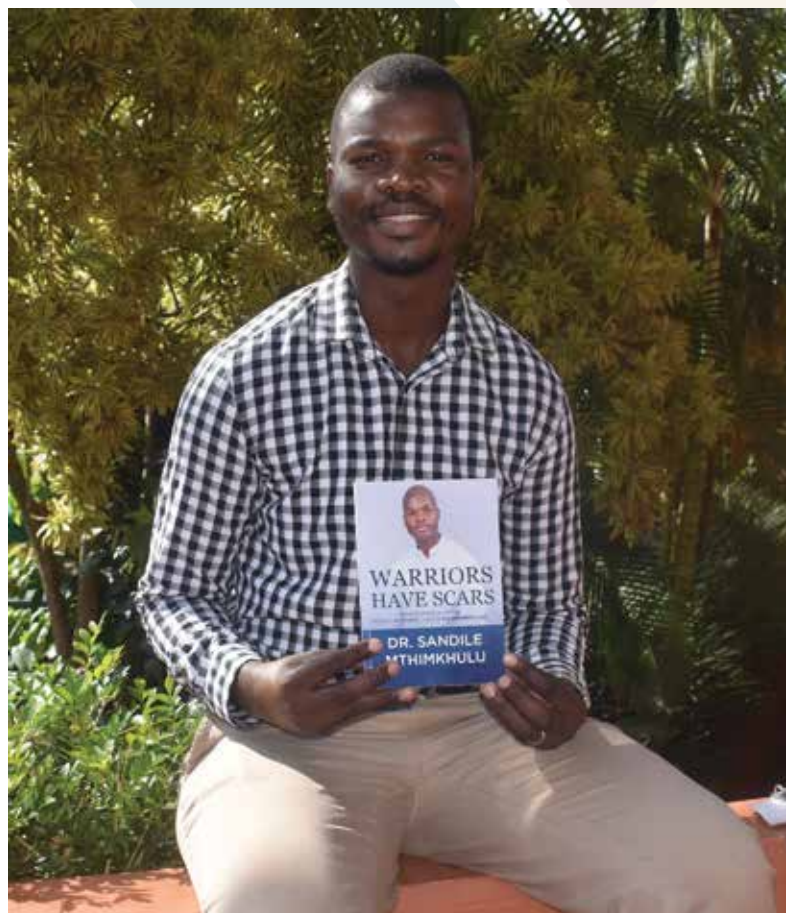
platform for communication researchers, policymakers, and industry professionals to share insights and explore emerging trends and best practices. Moreover, Dr Ndaba has written a paper titled “Digital Transformation Challenges in Higher Education Institutions Post-COVID-19” which emanated from one of the study’s objectives. The paper has been accepted for publication by the DHET-accredited journal Corporate Governance and Organizational Behaviour Review. The newly qualified doctor hopes to contribute to MUTs mission by offering technological and problem-solving insight to advance the institution.

## MUT academic’s book provides solutions to readers with similar challenges

A book is a reservoir of knowledge that may offer solutions to some of the problems confronting humankind. This is what a book written by Dr Sandile Mthimkhulu has become to those who have read it. In 2023 Dr Mthimkhulu, a lecturer in the Department of Community Extension at MUT, published *Warriors Have Scars – Lessons Along a Journey from an Unpleasant Past to a Pleasant Future*.

Dr Mthimkhulu said what motivated him to write the book was a desire to tell his life story. “The spark that ignited the motivation to pen this piece was the realisation that there are many people who are quietly suffering from the same life challenges I struggled with. For that reason, my wish was to share with everyone the invaluable lessons I have learned from the ups and downs of my life to encourage self-reflection and embracing the scars bestowed upon us by life struggles. I strongly believed that opening and revealing the hardest part of my life would also motivate the readers to learn to use their scars as a symbol of victory rather than a fortress.”

Dr Mthimkhulu said the book is about different principles of life that have been neatly extracted from the real-life story of a young man who comes from a poor family that was engulfed by domestic violence which he endured as continuous emotional and physical assaults from his alcoholic father. The pursuit of safety for him and his family came with many challenges that saw them live with different



Dr Sandile Mthimkhulu

families in different towns. Despite the challenges that this young man experienced, and their associated outcomes such as an inferiority complex and mistreatment, he worked hard at school and did menial jobs while in primary and high school. His determination earned him good grades that paved the way for him to enter university where he obtained various qualifications, including a PhD in Soil Science.

Here are comments from some of the readers: “Hey, I finished reading your book, which I must say is the first of four books I have attempted to finish reading this year. I hope this says a lot.”

“I truly enjoyed reading the book. Well done. When I first started reading it, I assumed it would be a narration of your childhood and did not imagine how interlinked it would be. As a former bookworm, it kept me up. I just had to finish reading it...and to read a story with the bright side to life’s tribulations is not only inspiring but also soothing. I cannot wait to read more of Dr Mthimkhulu. Siyabonga.” Prospective readers can call Dr Mthimkhulu on 076 976 0081.

## Agriculture student makes Mail & Guardian’s “200 Young South Africans” Class of 2024

A second-year Diploma in Crop Production student has made it onto the Mail & Guardian’s “200 Young South Africans” list for the year. On 27 June 2024, Andile Mkhize, a young businessman, was selected under the agriculture category for his contribution to the sector. “200 Young South Africans” is a prestigious accolade that recognises the country's top young innovators, trailblazers, entrepreneurs, and solution finders. Andile said the award celebrates his remarkable achievements in the sector and highlights his role in shaping the future of South Africa through his outstanding work in agriculture.

The Mail & Guardian's 200 Young South Africans awards aim to acknowledge and celebrate the best and brightest young minds across various sectors. These individuals are actively contributing to the country's growth and development, and Andile is a shining example



Andile Mkhize

of the innovation and dedication that these awards seek to honour.

Born and raised in Melmoth, a small town in northern KwaZulu-Natal, Andile Mkhize's journey into agriculture began with simple yet profound roots. As a child, Andile spent countless hours assisting his grandmother with agriculture-related activities. Andile said that experience “ignited a lifelong passion for agriculture. This early exposure to the wonders of cultivating the earth laid the foundation for what would become a remarkable career dedicated to advancing the agricultural sector in South Africa”.

Driven by an unyielding love for agriculture, Andile pursued formal education in the field. This academic journey has equipped him with the knowledge and skills needed to make a significant impact in the agricultural industry.

In a bold move to transform his passion into a thriving enterprise, Andile founded Crop Kings, a company that has quickly gained recognition for its innovative approach to agriculture. Crop Kings is not only AgriSETA-accredited, but also actively consults for three crop production learnerships,

demonstrating its commitment to nurturing the next generation of agricultural professionals. The company supplies fresh, high-quality vegetables to retail stores, ensuring that consumers have access to nutritious produce.

Under Andile's visionary leadership, Crop Kings is poised to make even greater strides in the industry. The company is positioning itself to become a leading Agritech firm, dedicated to introducing cutting-edge agricultural technologies that enhance productivity and efficiency for

farmers. Andile says this forward-thinking approach aims to revolutionise the way farming is done, making it more sustainable and profitable.

As Andile continues to break new ground in the agricultural sector, his story serves as an inspiration to aspiring farmers and entrepreneurs. With a deep-rooted passion for agriculture and a commitment to leveraging technology for the greater good, Andile is undoubtedly a name to watch in the future of South African agriculture.

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## SPOTLIGHT

### ON WOMEN EXCELLENCE



Nokukhanya Thembane, middle, receiving the prestigious award

### MUT researcher awarded prestigious Dr Esther Mahlangu Fellowship, bridging traditional wisdom and modern science

In a groundbreaking achievement that underscores the rising prominence of Indigenous Knowledge in modern scientific research, Nokukhanya Thembane, a Senior Lecturer in the Department of

Biomedical Technology, was awarded the 2024 Dr Esther Mahlangu Doctoral Fellowship in Indigenous Knowledge Systems. This remarkable honor was bestowed upon Thembane at the 2024 South African Women in Science Awards (SAWiSA), a glittering ceremony hosted by the Department of Science and Innovation (DSI) in Johannesburg on August 23, 2024.

Thembane, a brilliant medical laboratory scientist and dedicated senior lecturer at MUT, has captured national attention with her innovative research in medical biochemistry. Her work, focusing on the antidiabetic potential of combined aqueous leaf extracts from indigenous medicinal plants, represents a paradigm shift in how traditional African medicine is perceived and utilized in the modern scientific community. The Dr Esther Mahlangu Doctoral Fellowship, named after the iconic Ndebele artist whose vibrant geometric paintings have adorned everything from BMWs to aircraft, is more than just a funding opportunity.

It represents a national commitment to preserving and advancing indigenous knowledge systems, placing them at the forefront of scientific innovation.

"I am truly honoured to have been selected alongside such a talented group of individuals. I extend my heartfelt gratitude to Mangosuthu University of Technology management and colleagues, as well as my current and former supervisors—Professor Nceba Gqaleni, Dr Mlungisi Ngcobo, Dr Phikelelani Ngubane, and Professor Shirley Motaung who have been instrumental in guiding and inspiring me

throughout my academic journey. I feel privileged to be part of the SAWISA women's community and acknowledge that this achievement reflects the incredible support and opportunities I have received over the years. I look forward to continuing my research and contributing meaningfully to my field," she said.

Professor Nokuthula Sibiyi, MUT's Vice-Chancellor and Principal, could not contain her excitement about what this means for the institution and the country at large.

"Thembane's triumph is a testament to MUT's unwavering commitment to nurturing talent that can transform society. As an alumna of MUT whose first love for biomedical sciences was ignited in the classrooms and laboratories of MUT, this award is a testament that we are not just producing graduates; we are cultivating visionaries who can tackle the most pressing challenges of our time while honoring our rich cultural legacy. This is MUT's promise to South Africa and the world – excellence that is rooted in our soil but destined for the world."

Professor Sibiyi enthused. "What Thembane is doing is not just research; it is a reclamation of our heritage and a bold step into the future of African-led scientific innovation," Professor Sibiyi added.

## The strides leading to Thembane's recognition

Nokukhanya Thembane is a registered medical laboratory scientist specializing in clinical pathology with the Health Professions Council of South Africa (HPCSA). Her impressive academic portfolio includes an MTech in Biomedical Technology (cum laude) from Tshwane University of Technology, an MBA from Regent Business School, a Diploma and BTech in Biomedical Technology (both cum laude) from Mangosuthu University of Technology (MUT), and a PGDip in Educational Management (cum laude) from the Management College of South Africa. She is currently pursuing a PhD at the University of KwaZulu-Natal with a research focus on the antidiabetic potential of medicinal plants, aiming to develop effective treatments for type 2 diabetes while preserving indigenous knowledge systems. Thembane's excellence



Nokukhanya Thembane

has been recognized through numerous awards, including the MUT Deputy Vice-Chancellor Novice Researcher Award (Bronze) in 2023 and the Best Research Project Award at the International Translational and Regenerative Medicine Conference in Italy in 2018.

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## Nobuhle Mkhaliphi driving basic education excellence

The month of August is a time in which MUT shines a spotlight on some of the women stakeholders whose work has shaped the lives of many. In most instances, it is the unsung heroes working tirelessly behind the scenes creating greatness and building legacies. This article draws focus to Ms Nobuhle Mkhaliphi, Chief Education Specialist for the KZN Department of Education's Ugu District. Ugu District is a longtime strategic partner to MUT and has enabled the university to recruit and admit top achievers who study and fly the university flag in industry. Being at the top of matric results for many years, Ugu District has become the heartbeat of basic education excellence in the province of KwaZulu-Natal. Mkhaliphi's leadership style grounded on growing and grooming those she leads, building a second layer of leadership, and honing the leadership skills across the district is



Nobuhle Mkhaliphi



**Mkhaliphi, fifth from left, standing, with the District Director, Mr Mfundi Sibiyi, seated left, with MUT and Ugu District officials during a stakeholder visit to MUT**

what sets her apart. Being in a male-dominated environment leading an all-male management team that is tasked with the responsibility of 155 schools made of 45 high schools and 110 primary schools spanning deep rural to urban areas allows her to exercise a diverse strategic leadership style based on the needs of her stakeholders.

Understanding the diversity of her stakeholders, combined with understanding protocols, as well as her ability to listen and take a fair approach to matters, are some of the qualities that motivate her MANCO to understand her vision for the six circuits she leads. Mkhaliphi has created a peer support structure within her team leading to wonderful working relations and support for one another. She credits her success in management and leadership to the support she has received from others. “I extend my appreciation to the leaders who believe in one’s capabilities. I learned from a great female leader who wanted a monthly plan that would be easily monitored and evaluated. I want to do the same for the novice educators who are joining the teaching profession with lots of passion. They need to have people they can look up to so that South Africa’s education system retains its significant role of transforming societies,” Mkhaliphi said. Being a boundary-spanner, Mkhaliphi interfaces

with educators, principals, parents, and other education stakeholders. She has observed the rate at which novice educators within Ugu District are changing the narrative which she believes is contributing to the legacy of education excellence within the district. “I am very impressed by how much the young educators who are entering the profession are committed to their work, especially those in STEM. The educators do a lot of peer support, set ambitious targets for their learners, and work tirelessly to achieve the targets. Their ability to support each other and make appropriate recommendations is amazing. When we host the matric excellence awards we feel humbled at the rate that the young are driven to excel,” she said.

Outlining the strategy for good matric results, Mkhaliphi emphasised the power of creating a united team and creating early conversations with subject advisors to get views on current and possible challenges and thereafter create a proactive plan for the year. “Allowing the school principals to drive and coordinate result-focused programmes as well as getting the support of strategic partners and institutions like MUT motivates the district management and principals to excel, the support and guidance provided to us by MUT and other partners can never be underestimated. It is attestation that indeed it takes a village to raise a child,” Mkhaliphi concluded.

# THROUGH THE EYES

## OF OUR RECENT GRADUATES



### The best student in the Faculty of Management Sciences shares advice despite further studies being on hold

Mthokozisi Khuzwayo, recipient of the Vice-Chancellor's Award in the Faculty of Management Sciences, credits his performance to the plan he had for his studies. Mthokozisi, who graduated with his Diploma in Human Resources Management, received the Vice-Chancellor's Award for his good track record throughout his diploma. "Attending lectures and being up to date with my work helped me a lot. Since my first year, I always told myself that I came to the University to study. After attending my classes during the day, I made sure that I did not go to bed before my self-study time," said Mthokozisi from Inanda, Durban.

Mthokozisi also devoted time to his assignments. "I tended to be a group leader and I made sure that all my assignments were well written, and when my classmates were struggling, I assisted them," he said, noting that assisting others made him understand his work even better. Mthokozisi was careful about his tests and examinations and started preparing for these well before time. He also credited his religion for his excellent performance which placed him at the top of the Management

Sciences Class of 2024.

Mthokozisi had some advice for other students.

"My advice to students - attend your classes. Listen to your lecturers. Study early for your test or exam. And always involve God in your studies." Mthokozisi has been forced to delay his further studies because of financial difficulties. Mthokozisi is the first one in his family to graduate.



Mthokozisi Khuzwayo

## Best student in the Natural Sciences faculty receives Vice-Chancellor's Award just after losing her mother

For the multitudes of parents and guardians attending the Faculty of Natural Sciences graduation, one of the memories they will be taking from MUT was the story of Asanda Nosihle Andiswa Mavundla, the best student in the faculty and recipient of the Vice-Chancellor's Award.

Asanda, who graduated with a Diploma in Community Extension, said that she achieved this feat by setting "realistic" goals for herself and creating a plan that would enable her to achieve these goals. "I avoided doing assignments last minute. I am generally a hard worker and very dedicated to doing every task the best way possible. I did my utmost best," she said. Asanda also said she worked with other students and communicated with those ahead of her about her studies. "I was not afraid to ask when I was not sure about something."

Asanda, from Durban's Inanda, is also a very mature individual.



**Asanda Nosihle, Andiswa Mavundla and MUT Chancellor, Mr Sandile Zungu**

"It is also important to always know why you are at the university. You must always prioritise your studies. Do not ever forget the reason you are where you are, and where you come from. That helped me a lot," said Asanda, adding that this kind of thinking kept her on track.

Sadly, Asanda graduated when she was still dealing with the loss of her mother who was buried on 13 April 2024, just a week before her graduation. Asanda described her mother as a "superwoman who made me what I am today. I am sure wherever she is, she is shining over me, and is happy." Now Asanda must look after her little sister and has committed to continue setting an example for her

## First graduate in the family wanted to make family and relatives proud

One of the highlights of the 2024 graduation ceremony was that the best student in the Faculty of Engineering was a female student. Receiving the Vice-Chancellor's Award for her efforts, Nontobeko Timamu from KwaMsane in Mtubatuba, northern KwaZulu-Natal, said she was able to achieve this milestone because of hard work. "I managed to achieve good grades through hard work and dedication. I was fortunate enough to find students who were as dedicated as me, and we formed a study group and named it FOCUS because we were that focused."

Nontobeko, the first graduate in her family, wanted to make them proud and show them that only the sky is the limit. "My classmates and I motivated each other to study, and I always made



**Nontobeko Timamu**

sure my university work came first. I remember there were days when I would cross-night on campus when it was examination season. I had no other option but to study," she said. Nontobeko is presently doing her internship but says she has plans to study towards an Advanced Diploma in Construction Management in 2025.

## From Phongolo to achieving prestigious Mechanical Engineering Award

The Faculty of Engineering also saw a student from the Department of Mechanical Engineering earning a South African Institute of Mechanical Engineering (SAIMMechE) Meritorious Award. There is one word to describe Siphesihle Khumalo's life at MUT as a student: consistency. Siphesihle scored an average of 75% or more per semester, from the first year. For the last semester, Siphesihle obtained an average of 78%. He said he was very excited about this achievement. "It shows my hard work and dedication have paid off," he said. Siphesihle hails from Phongolo, in northern KwaZulu-Natal.



**Siphesihle Khumalo, left, and MUT Deputy Registrar: Academic Administration, Zolisa Gqamane**

## MUT fills a Limpopo graduate with joy as she heads home with an Accounting Diploma



Faresa Londolanani Makhuvha, middle, with her mother, left, and aunt

Faresa Londolanani Makhuvha graduated with a Diploma in Accounting on 17 April 2024. This committed young woman chose to travel 957 kilometres from Tshitereke, Limpopo, to register with MUT. There were other post-matric schools in the country, many closer to her home, but she chose to enrol with MUT. At her graduation ceremony, Faresa was joined by family who travelled the same distance. Clad in their traditional attire, and conversing in their home language, they all posed for a picture. The Founder of the University, Prince Mangosuthu Buthelezi would have been proud. This is the very reason he founded the institution 45 years ago: for everyone, from all corners of the continent, to benefit. Faresa said it was prayer that saw her through her evening studies. Faresa's story is an example of commitment and resolve. This is typical of students who come from afar: the long distance has a positive effect on them. "I do not have a study method

other than starting my session with a prayer to get a blueprint on what and how to study. During the daytime, I would attend classes to get clarity on what I do not understand. I followed some of the YouTube channels. That also helped me to get more knowledge and skills on how to attempt questions," she said. She also added that there were tutors assigned by the University to help her with her studies.

Faresa said graduating stirred up mixed emotions. "Firstly, thinking of how hard I worked to earn the diploma and how difficult and unpredictable the journey was. But above all, I feel so happy and fulfilled. This honestly feels like a dream come true for me. As a first person to graduate from my family, I am happy and grateful that this is a new beginning and an answered prayer," Faresa concluded.

# MUT SPORT

## MUT student bodybuilder wins national championships

A Faculty of Management Sciences Bodybuilding student has won the ultimate prize in Sport – Gold. Lindelani Mazibuko, a second year Accounting student, won first place, and was also the best poser overall among male students with disabilities at the USSA Bodybuilding Championship at the Northwest University's Van der Bijl Park, from 28 June to 1 July 2024, has now won gold in the SA Championships where he represented USSA at the IFBB National championships which took place at Junction, in Durban's Kloof, from 1-3 August 2024.

Mazibuko said he was “very happy” to have won the SA Championship again for the wheelchair Bodybuilding category. Mazibuko's Coach, Maxwell Nxumalo, said: “This will give athletes living with disabilities like Mazibuko hope and belief in themselves. I am so proud. SA Championships are a very big competition in South Africa”.

Other MUT bodybuilders who did well at Northwest University's Van der Bijl Park, and went on to compete at the Junction, were Pumla Nene and Mbuso Ngcobo.



Siphesihle Khumalo and USSA official

Nene a second year Accounting student won gold and was the overall winner in the ladies' beach bikini; while Ngcobo, second-year Public Administration student was first in the ladies' bikini under 164cm and was the gold winner and overall winner. Sandiso Mthembu, another second-year Public Administration student, also won gold in the ladies' wellness over 166 cm.



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## CREDITS ◆ ◆ ◆

Editor-in-Chief: Mbali Mkhize

Editor: Zama Sishi

Writers: Bheki Hlophe, Mbali Mkhize, Zama Sishi

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