



UNIZULU co-hosts Water Security and Sustainable Development conference with Chang'an University, China

UNIZULU's Dr Makhaye receives grant to conduct GBV-related research

PROFESSOR SIPHO SEEPE

THE University of Zululand (UNIZULU) and Chang'an University in China had the privilege of hosting the 2025 International Conference on Water Security and Sustainable Development. The prestigious three-day conference brought together leading scientists, policymakers, industry experts and stakeholders from around the world to address one of the globe's most pressing challenges: water security.

According to the United Nations, more than two billion people live in water-stressed countries. The effects of climate change have led to a reduction in freshwater availability and climate-induced variability, resulting in an increase in drought in some regions and floods in others.

This was partly highlighted by Professor Xoliswa Mtose, UNIZULU Vice-Chancellor and Principal, in her address. She outlined the discrepancies in the management of natural resources and responsibility for natural resource degradation. In both instances, the powerless poor are affected. In the management of resources, "powerful humans decide who extracts what resources, for what, and for whom". Where natural resource degradation is concerned, the "polluting activities of infrastructural 'mega-projects' – such as timber multinational companies, gas pipelines, oil drills and mines – result in environmental degradation". This has a ripple effect on the poor, who are often deprived of livelihoods and well-being, according to Prof Mtose.

Her address centred on water resource management and sustainable utilisation; inspired by Sustainable Development Goal 6 (SDG 6), which aims to ensure availability and sustainable management of water and sanitation for all.

"The world is facing a huge challenge! We are less than a decade away from 2030, and there is a growing body of research reporting slow – and in some cases no progress towards achieving the targets set for the SDG 6. There is, therefore, an urgent need to rethink and identify any gaps in knowledge and understanding of the



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nature of the challenges – as well as associated drawbacks to progress. In this connection, I have no doubt that as the esteemed delegates to this conference, you will continue to rise to the occasion and make your much-needed contributions to finding solutions. It is a mission that calls for continuous learning and updating our theorising and conceptualisations in line with the changing world context," Prof Mtose said.

The diverse participant base underscored the global commitment to advancing scientific understanding to formulate practical solutions. This was evident from the wide array of topics covered, which ranged from geothermal systems, climate change impacts, and groundwater quality, depletion and sustainability, to antibiotic resistance in mining-affected water. The conference also touched on agricultural water management and general water resource management.

The conference provided a vital platform for the sharing of cutting-edge research, innovative solutions and collaborative strategies to enhance water security, improve governance, and promote adaptive management to advance sustainable development.

With expertise from myriad backgrounds from every continent, the conference lived up to its sub-theme of "Collaboration Makes the World Better". The benefits of this kind of collaboration are multifaceted. Environmental challenges such as water scarcity, droughts and floods, which cut across narrow disciplines, can be resolved by instituting multidisciplinary and trans-disciplinary approaches. Collaboration also enables the sharing of data, technologies and best practices.

The conference was a prelude to the 3rd International Conference on Earth and Environmental Sciences (ICES-2025) earmarked for August 17-20, 2025 in Durban. This prestigious global platform for hydrologists and hydrogeologists was initiated by Professors Peiyue Li (Chang'an University) and

Vetrimurugan Elumalai (UNIZULU).

The Durban meeting has already attracted more than 600 participants comprising scientists, industry experts and policymakers. More than 70 countries will be represented, including Australia as well as numerous from Asia, Africa, North America, South America and Europe.

UNIZULU's hosting of international conferences is part of a broader strategy of transforming itself as an authentic African university, as opposed to a university in Africa. To this end, it has decidedly branded itself as "A Node of African Thought". In partnering with the best players in the world, UNIZULU rejects the colonial and apartheid hierarchisation of higher education that continues to bedevil most of the country's public discourse. Such a posture enables the university to chart its own path of development. The institution has made enormous progress in inculcating a university-wide consciousness of African Thought.

Prof Revaprasadu ranked 12th best material scientist in SA in 2025

NALEDI HLEFANE

UNIVERSITY of Zululand's (UNIZULU) Professor Neerish Revaprasadu, an esteemed nanomaterials researcher and senior professor in the Department of Chemistry, has been ranked 12th in Research.com's 2025 list of best scientists in the materials science discipline in South Africa.

Prof Revaprasadu is among a total of just 13 scientists included in the South African list and is also the only scientist representing the province of KwaZulu-Natal.

Excited by this news, Professor Xoliswa Mtose, UNIZULU Vice-Chancellor and Principal, extended her hearty congratulations to Prof Revaprasadu – emphasising that it was also a great achievement for the institution.

For Prof Revaprasadu, the ranking came as a surprise. Despite his astonishment, it affirmed the far-reaching impact of his research efforts; thus reigniting his passion for research.

The scientist has dedicated more than two decades to the field of material science. He started his research on nanomaterials in 2000 at UNIZULU, working on a wide range of materials – from sulfides and selenides to tellurides – involving metals such as nickel, cobalt, iron and copper. This culminated in the formation of a research group comprised of young and vibrant chemists with whom he works on carbon-based composites,



Professor Neerish Revaprasadu, senior professor in UNIZULU's Chemistry Department, with Professor Xoliswa Mtose, UNIZULU Vice-Chancellor and Principal, during the 2024 Vice-Chancellor's Excellence Awards.

2-D nanomaterials, as well as ternary and doped materials.

"I thrive on new challenges and enjoy mentoring young scientists. The greatest joy is seeing students develop their potential as they start their research careers. This continuous cycle of supervision leads to high quality outputs and citations, which then ultimately get recognised through this type of ranking. Of course the thrill of discovering

new materials, properties or applications is addictive. Ultimately, it's the passion for your work that keeps you motivated," he elaborated.

To rank scientists, Research.com considers each scholar's D-index (Discipline H-index), which includes publications and citation metrics for an examined discipline. From a pool of more than 37 820 scientists who were examined, just over 12 300 were ranked globally. South Africa ranked

39 out of 73 countries.

Being counted among the best scientists in the country, alongside scholars with exposure to more state-of-the-art equipment in their workplaces, is a huge feat for Prof Revaprasadu and UNIZULU alike. He explained that the field of materials science requires high-tech equipment that is normally more costly than that of other disciplines. He applauded the university, particularly Prof Mtose, for having the foresight to invest in this emerging area of science by procuring sophisticated equipment such as High-Resolution Transmission Microscopy, among others.

"We hope to continue our work in areas such as energy generation, storage and quantum technologies which can solve real-life problems. We are forming new collaborations with colleagues in Russia and China on functional material for energy applications. This will lead to joint publications in high impact-factor journals. My goal is to publish work in Q1 journals focusing on quality instead of quantity. By publishing in these top journals, we will achieve more citations – and this will help to improve my ranking," said the scholar.

Prof Revaprasadu has received countless accolades in his career. He is a B2 NRF-rated researcher and was also ranked among the world's top 2% researchers in Stanford University World's Top 2% Scientists list released in 2022.

About Dr Makhaye

Born and raised in Gingindlovu, northern Zululand, with familial roots in KwaDukuza (Stanger), Dr Makhaye's journey from a rural upbringing to academia is a testament to dedication and the transformative power of education.

Her parents instilled the value of education early on. "Conversations with my parents were always about how in everything that I do, I need to put my studies first and one day become better than they are," she recalled.

This encouragement shaped her into a curious, driven scholar who constantly seeks personal and professional growth. Her upbringing in a resource-limited environment also exposed her to systemic inequalities; later influencing her research focus on justice accessibility and GBV.

"Growing up in a rural area, I witnessed firsthand the challenges faced by communities in accessing justice and the disparities between urban and rural areas," she elaborated.

This inspired her to explore human behaviour, societal norms and legal frameworks – leading her to criminology, a field that bridges psychology, law and social justice.



Dr Mandisa Samukelisiwe Makhaye has been awarded a grant to conduct specialised research in criminology.

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