



media release

World Engineering Day for Sustainable Development, 4 March 2024

Prof Nosipho Moloto is a shining beacon for upcoming female engineers

Engineering drives sustainable development and technological innovation. Engineering has always had an essential role in development and human welfare. Ensuring that future generations of engineers and scientists will be able to design solutions for local and global challenges is critical. Engineers play a key role in the implementation of a new global model of sustainable development, in accordance with the United Nations Sustainable Development Goals (SDGs). Prof Nosipho Moloto, DSI/NRF/Nedbank SARCHI Chair (South African Research Chairs Initiative) in Energy Materials; and Research Professor: Inorganic Chemistry, University of the Witwatersrand (Wits); and 2023 NSTF-South32 Engineering Research Capacity Development Award winner is a role model for engineering students, and engineers, who want to make a difference in terms of sustainable development.

The World Engineering Day for Sustainable Development, 4 March: The World Engineering Day for Sustainable Development was proclaimed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) at its 40th General Conference in 2019. It is celebrated worldwide each year since 2020 as a UNESCO international day of celebration of engineers and engineering. The theme for 2024 is "Engineering Solutions for a Sustainable World". This theme highlights the critical role engineers play in developing innovative solutions. The observance of this day is an opportunity to highlight engineers and engineering projects in the modern world, which is essential to mitigate the impacts of climate change and strive towards sustainable development, especially in Africa.

Engineering plays a critical role in the achievement of the SDGs because it has major social and environmental impacts. Engineers are also responsible for technological innovation (Internet of Things, robotics, artificial intelligence, and quantum computing) which can assist or hinder the progress made towards the SDGs.

Sustainable engineering comprises methods of designing and creating that ensure that natural systems are not disrupted or affected. It focuses on minimising waste, using renewable energy sources, reducing pollution and creating long-lasting, efficient systems that can be enjoyed by future generations.

Engineers play a crucial role in practically building the future of humanity. They are tasked with developing new technologies and adapting to fast paced advancements and innovations as well as creating methods that allow people to obtain the resources they need with minimal harm to the environment.

Green engineering – advancing sustainable development through innovation: Incorporating green engineering practices is important for achieving the SDGs, particularly in less economically developed countries, finding ways to advance technology in environmentally friendly ways. Such practices involve using renewable energy sources, sustainable materials, and life cycle analysis to implement engineering projects. Relying on renewable energy sources such as solar and wind power provides an efficient means of reducing carbon emissions and mitigating climate change.

Engineering Research Capacity Development Award winner: Aligned with the theme of World Engineering Day for Sustainable Development, which focuses on addressing global challenges, including inequality, the NSTF celebrates NSTF-South32 Award winner Prof Nosipho Moloto's achievements. Prof Moloto champions women's empowerment and says: "Globally, only 22% of materials science and engineering researchers are female, but my Nanoweb' group of principal investigators are 83% black women, and more than half of the group's postgraduates are female".



She contends it is hard for women to work as female engineering academics, and yet women bring different perspectives that can be very valuable.

Prof Moloto's words are worth quoting: "What I would like to see is that we don't think of gender; we don't think of race. We just think: these are all scientists; these are good engineers."

Prof Moloto has found simple synthetic methods for semiconductor nanocrystals that can be used as essential components in the development of affordable solutions for the production of clean water, renewable and clean energy, rapid diagnostics of diseases and fast and easy to operate sensors. Her work is a shining example of the way in which engineering drives sustainable development.

One of the technologies that Prof Moloto is testing is wound dressings for people with chronic wounds, such as HIV patients or diabetics. It uses silver particles for faster healing, that do not need any replacing. It is biodegradable and non-toxic, made from local materials.

About the NSTF (National Science and Technology Forum): NSTF is an independent non-profit stakeholder body and network – a civil-society forum of over 130 organisations across six sector involved in science, engineering, technology (SET) and innovation in SA.

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References/Sources:

- [Engineering the Success of Sustainable Solutions – Market Insights](#) (eepower.com)
- [The importance of engineering in building a sustainable future](#) (imeche.org)
- [World Day of Engineering for Sustainable Development](#) (grupolava.com)
- [Webinar on Engineering a Sustainable Energy Future: Innovative Solutions for a Better Tomorrow](#) (unesco.org)
- [World Engineering Day for sustainable development](#) (worldengineeringday.net)

About the NSTF

The National Science and Technology Forum (NSTF), established in 1995:

- is a broadly-representative stakeholder body for all science, engineering and technology (SET) and innovation organisations in South Africa
- gathers stakeholders around burning issues of national and global interest, across the public and private sectors, including matters of public policy
- includes a network of professional societies in SET and STEM education (STEM = science, technology, engineering and mathematics) - the NSTF proSET membership sector.
- recognises, awards and profiles the outstanding contributions of individuals and groups to SET and innovation through the prestigious NSTF Awards
- runs and supports collaborative projects and youth outreach, including recognition of top performance in mathematics and science, role modelling, bursary and STEM career information
- runs and supports the STEMulator.org which attracts youth and educators to Explore>Discover>Learn the world of STEM including careers. (Established by NSTF proSET)

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