RECORDED MESSAGE BY DPWI DEPUTY MINISTER SIHLE ZIKALALA DURING THE ECSA ENGINEERING SYMPOSIUM, SANDTON, 25 MARCH 2026

Leadership of the Council for the Built Environment (CBE);

Leadership of both the Engineering Council of South Africa (ECSA) and the Civil Institution of Civil Engineering;

Engineers and other professionals in attendance;

Representatives of Academia;

Voluntary Associations Present;

Captains of Industry and Social Partners;

Distinguished Guests;

Ladies and Gentlemen;

INTRODUCTION AND THEME

It is an honour to deliver the keynote address at the inaugural engineering symposium hosted by the Engineering Council of South Africa (ECSA) in partnership with the Civil Institution of Civil Engineering.

This platform does not only recognise the need for public private partnerships.

It also drives an important dialogue on the role of engineering in ensuring sustainable development and meeting the UN sustainable development goals.

As we know, the sustainable development goals are premised on one key tenet **- "Leave No One Behind"**.

Indeed, the theme of the symposium which is ***Empowering innovation, Inclusion and Impact*** speaks to the inclusive society that we must together forge.

The role of the engineering fraternity is exactly that:

a) to identify, drive and empower the innovation presented by the profession.
b) To ensure inclusion in the provision of infrastructure that caters for the needs of the economy and public, and
c) To make an impact through driving economic growth and the provision of safe and reliable infrastructure.

CURRENT PICTURE TOWARDS ACHIEVING TOWARDS THE SUSTAINABLE DEVELOPMENT GOALS

Ladies and Gentlemen, the clock towards 2030 is ticking faster and has implications for our continent.

The 2024 **Africa Sustainable Development Report** paints a sobering picture.

Of the 32 measurable SDG targets reviewed, only 6% are on track to be achieved by 2030.

South Africa's own progress reflects this continental reality.

The **Sustainable Development Goals: Country Report 2023** by Statistics South Africa shows that while strides have been made in education, healthcare, sanitation, and gender equality, deep-seated challenges persist.

Poverty and inequality remain stubbornly high.

Violence against women continues to undermine social cohesion.

Climate resilience remains inadequate.

Still, this is not a story of despair.

It is an opportunity for reimagining development through African innovation, resilience, and technical excellence.

At the centre of this reimagination lies one profession capable of turning the continent's ambition into action: **Engineering.**

The Presidency has already begun to rethink how government coordinates efforts to achieve the National Development Plan and the SDGs, focusing on better data systems, integrated policy execution, and enhanced accountability.

What remains is the decisive integration of engineering expertise into these structures.

From designing climate-resilient infrastructure to advancing renewable energy systems, from digital innovation to sustainable agriculture, engineering is the critical enabler that can accelerate South Africa's progress towards the SDGs.

ENGINEERING AS A CATALYST FOR CHANGE AND DEVELOPMENT

Infrastructure has always been the backbone of progress.

In the context of the SDGs, infrastructure must do more than connect people; it must protect the planet and promote equity.

Every bridge, dam, school, and power grid must now be designed with resilience in mind, accounting for climate shocks, resource scarcity, and future urbanisation.

Engineering solutions that deliver clean water and sanitation, reliable energy, and sustainable transport directly advance multiple SDGs.

This includes those SDGs related to health, economic growth, and sustainable cities.

In this regard, climate action is no longer just environmental concern; it is an engineering challenge.

Engineers hold the tools to mitigate emissions, design adaptive infrastructure, and transition industries towards renewable energy systems.

South Africa's journey towards a just energy transition depends on the technical ingenuity of its engineers in designing power grids for diverse energy sources, optimising resource use, and developing low-carbon technologies that ensure both sustainability and economic inclusion.

The Fourth Industrial Revolution presents another opportunity to align engineering with the SDGs.

Emerging technologies such as artificial intelligence (AI), robotics, and additive manufacturing are reshaping economies. But their potential will only be fully realised when integrated with human-centred design and ethical frameworks.

Engineering education and practice must evolve to prepare professionals who can harness these technologies responsibly to build sustainable industries, enable new forms of employment, and ensure that digital transformation reduces rather than reinforces inequality.

INCLUSION AND EQUITY IN ENGINEERING

Compatriots and Distinguished Guests, no society can thrive if large segments of its population are excluded from participation in its progress.

Engineering must reflect the diversity of the society it serves.

Increasing the representation of women and historically marginalised groups in engineering is a moral imperative and also a strategic advantage.

Diverse teams design better, develop more inclusive solutions that are grounded in empathy and responsive to community needs.

Initiatives to mentor young women in STEM fields, to expand access to technical education, and to support emerging engineers from underrepresented backgrounds will be crucial to the country's developmental trajectory.

Beyond gender, inclusivity must extend to how engineering interacts with communities.

Sustainable development demands that infrastructure is designed not just *for* people but *with* them by integrating social, environmental, and cultural dimensions from conception to completion.

This participatory approach to engineering fosters trust, builds local ownership, and ensures that projects serve long-term community needs.

EMBEDDING SUSTAINABILITY IN THE PROFESSION

Colleagues, there is a general recognition that advancing the SDGs requires systemic transformation.

Our standards, accreditation processes, and professional guidelines must reflect a clear sustainability ethos.

Universities and training institutions must align curricula with the principles of environmental stewardship, ethical governance, and digital fluency.

Continuous professional development must equip engineers with the tools to respond to emerging challenges such as climate adaptation, water scarcity, and resource circularity.

Partnerships will be essential!

Engineering cannot achieve the SDGs in isolation; it will require collaboration between government, academia, industry, and civil society.

South Africa's future depends on our ability to build coalitions of expertise that link innovation with implementation.

EDUCATION TO SUPPORT SUSTAINABLE DEVELOPMENT

As the country transforms into a society designed to benefit the vast majority of its citizens, the learning and teaching of engineering needs to be more broad-based.

For this to occur, a love of the sciences must be inculcated in learners in our schools from a young age.

This is more so given prevailing perceptions of mathematics and sciences as "difficult" subjects, as indicated by the declining numbers of enrolments and graduates.

Although a set of corrective solutions have been put forward to reverse the decline, much more needs to be done.

Institutions and parents alike should t be encouraging learners to pursue the sciences.

As we know, the production of quality engineers in sufficient numbers not only augurs well for the maintenance of existing infrastructure and lifestyles.

It also helps to keep us at the cutting edge of scientific innovation.

Some of the work that requires skilled engineers is being carried out without engineer's input, leading to shoddy workmanship, according to numerous reports by researchers.

This shows in the ubiquity of potholes even in the heart of major urban centres and suburbs.

These potholes can be taken as a metaphor of how we have regressed.

They are reminder of the steps we need to take as a matter of urgency to scale up engineering education and feed quality engineers into the system. And to think South Africa used to have the eighth best roads in the world as recently as the 1990s!

While it is easy to moan about everything that may have gone wrong, the more important thing to do is to think of how to undo the damage first.

Low graduation numbers aside, a systemic problem has been flagged at the interface of instruction.

An international study of engineering students noted that only a small minority of South African engineering students speak either English or Afrikaans, the main languages of instruction.

This brings us to author **David Mfhenge**, to whom all kudos should go for an insightful intervention.

The author has written "**Tshiphiri Tsha Mbalo" (The Secret to Mathematics)** to help Grade 7 Venda learners better master mathematics tuition.

It is initiatives like this that will instil love for science and engineering and help the country turn the corner when it comes to meeting the demand for engineers and scientists.

Nothing short of a holistic approach involving society, curricula, government and industry will suffice for us to produce the required number of engineering students.

Only this can deliver enough and competent engineers fully capable of solving our challenges as they emerge.

As of now, the sad reality is that we are playing catch up in all these areas and many others, not on top of the situation.

A CALL TO LEAD

Ladies and Gentlemen, Engineering has always been about solving problems.

But today, the problems we face are global, interconnected, and urgent.

As 2030 approaches, we cannot afford incremental change.

We need transformative thinking anchored in ethical, sustainable engineering practice.

This is the moment for the profession to lead, to build not only bridges of steel and concrete but also bridges of opportunity, equity, and hope.

South Africa stands at a crossroads.

The challenges are immense, but so is our capacity for innovation.

By embedding sustainability into every calculation, every blueprint, and every project, we can accelerate progress towards a future that is more just, inclusive, and resilient.

Engineering is not merely a participant in that journey; it is the driving force that will determine whether the SDGs become a distant aspiration or a living reality for generations to come.

Having listened to various calls by South African Engineers themselves on the need to advance engineering excellence and to have a champion for the profession, the Department of Public Works and Infrastructure is currently conducting a Feasibility Study on the Office of the Engineer-General of South Africa (EGSA).

The ongoing consultations led by DPWI will pay attention to all key stakeholders, including ECSA, to entrench and promote engineering as the cornerstone of our country's developmental trajectory.

As DPWI, we wish you all a successful symposium and look forward to receiving your report.

I thank you!