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BRIDGING THE SKILLS GAP

SETAs must embrace digital technology to prepare future workforce, Nkabane

SETAs must leave no one behind in skills development



Higher Education & Training Minister, Dr Nobuhle Nkabane

Sector Education and Training Authorities (SETAs) must leave no one behind, especially young people, as they help to prepare South Africa's workforce for a digitally enabled future.

This is one of the key messages from Higher Education & Training Minister Dr Nobuhle Nkabane, who addressed the recent National Skills Dialogue, hosted by the Chemical Industries Education and Training Authority (CHIETA) and Inside Education.

The Dialogue was hosted under the theme "Bridging the Skills Gap: Advancing Workforce Development for Sustainable Livelihoods".

"Skills are a key enabler for inclusive growth and for driving a country's competitiveness," said Nkabane, who urged delegates to deliberate on how best to address South Africa's skills gap and training mismatch, which is sometimes cited as one of

the causes for the country's high unemployment rate.

Nkabane said the government has, in partnership with industry, reconceptualised South Africa's Human Resources Development Strategy as well as the Master Skills Plan "because industry knows what skills they need to absorb young graduates".

Nkabane noted that the country's Medium-Term Development Plan (MTDP), which runs from 2024 to 2029, identifies skills development as key to its implementation, and that skills development aligns with the MTDP's objectives of achieving inclusive growth, reducing poverty, and building a capable state.

She said the work is guided by a clear vision provided in the white paper on Post-School Education and Training. Nkabane noted that apart from creating a fair and equitable education system, the

system also needs to have expanded access and improved quality. It must also have linkages between institutions and the workplace to address skills needs directly.

Nkabane said the country should not "train for the sake of training", but that "training should have a clear end goal, an exit strategy", and that there should be a clear destination of where future trainees will be employed.

This is one of the challenges cited by SETAs in their funding for learners at TVET colleges. The colleges offer 30% of the required training, and the remaining 70% is supposed to come from placements in industry. However, the challenge is that due to South Africa's low growth rate, there are not enough opportunities available for placing learners.

The Minister urged stakeholders to incorporate digital training as a standard part of their curriculum to prepare a workforce that faces technology disruption challenges, climate change and labour market dynamics. She urged the attendees at the Dialogue to translate ideas into actions through resolutions that set measurable targets.

Nkabane said the country must focus on high-growth, labour-intensive sectors such as manufacturing, energy and green technology. She noted that in a conversation with President Cyril Ramaphosa, he advised that she and her team must investigate training in areas encompassing the Just Energy Transition, the green hydrogen economy, and electric vehicle manufacturing.

"The future will not wait for us; our response must be guided by foresight and realities of South Africa's youth and workforce," Nkabane said. "I urge SETAs to embrace a digital future and to send a message to our youth that skills are the ultimate liberation tool of the 21st century."

Nkabane commended CHIETA for punching above its weight and reaching 70,000 beneficiaries per financial year. She also praised CHIETA's achievement of two consecutive clean audits and achieving 100% of its goals. CHIETA has established six Smart Skills Centres countrywide that offer the very latest in digital and virtual reality training. And with the last three opening in July, there will be one in every province. These centres are designed to equip individuals, particularly those in rural areas, with digital skills relevant to the Fourth Industrial Revolution. The centres offer a range of services, including internet access, virtual reality training for artisans, and support for start-ups and SMMEs.

Together with the Mining Qualification Authority and the Transport Education and Training Authority, CHIETA recently established the Green Hydrogen Centre of Specialisation at the Council for Scientific and Industrial Research in Pretoria, which offers hybrid skills training geared towards the application of the burgeoning green hydrogen sector in several different industries.

Skills for a future workforce



The CHIETA National Skills Dialogue Panelists. Photo: Eddie Mtsweni

Skills are more than just an ability to perform a task well. Rather, they shape livelihoods and responsible citizens, enhance a country's competitiveness and are a crucial ingredient for achieving inclusive growth and tackling unemployment, poverty and inequality.

As South Africa looks at ways to tackle the skills deficit, it is exploring the possibility of sending its young unskilled and unemployed people to China to acquire artisan skills.

This emerged at the National Skills Dialogue hosted by the Chemical Industries Education and Training Authority (CHIETA) and Inside Education. The dialogue focused on bridging the skills gap to build sustainable livelihoods taking skills, and the job they give access to, beyond mere survival.

The dialogue's keynote address was delivered by Higher Education and Training Minister, Dr Nobuhle Nkabane.

CHIETA CEO Yershen Pillay called on attendees to look at skills broadly.

"Skills do not meet a market demand; they satisfy a human need," said Pillay, who added that stakeholders must look "at the needs of society, not just demand".

He said this allowed society to view skills as a means to a job.

"A job can change a day; livelihoods can change a lifetime," he said.

Promoting partnerships

Dr Nkosinathi Sishi, the director-general of the Department of Higher Education and Training, said

the dialogue must promote partnerships among different Sector Education and Training Authorities and between SETAs and other role players.

Nkabane argued that skills were enablers of inclusive growth and critical for the implementation of the Medium-Term Development Programme for the period to 2029.

She called on SETAs to embrace digital education into their training to prepare workers for the future.

The minister also reiterated her call, first made at the beginning of the month at the board induction for the National Skills Authority (NSA), for the country to focus on the 3,8 million young people who were not in employment, education or training.

She noted that her department had a fruitful preliminary discussion with her counterparts in China about the possibility of sending young people there to acquire skills.

Panel discussion

The dialogue included a panel discussion following the minister's address.

Sishi said: "Workforce development is no longer just a policy imperative; it's a national survival strategy. We must change how we measure success if we are to become globally competitive."

He argued that livelihoods take many forms including those of digital nomads and the self-employed, and South Africa must update its Master Skills Plan to reflect this.

Sithembile Mbuyisa, the General Executive for Human Capital at the South African Nuclear En-

ergy Corporation (NECSA), said it offered training in portable artisanal skills that could be used in different environments, not just in nuclear, where South Africa was building a multi-purpose reactor.

NECSA has capacity to train about 450 artisans at a time. South Africa has a target of producing 30,000 artisans per year and in the 2023/24 financial year, it produced 26,500 artisans.

The development of skills should start sooner than later, said Mbuyisa and National Student Financial Aid Scheme (NSFAS) interim CEO Waseem Carrim.

Carrim told the dialogue that skills development must be viewed holistically, starting with Early Childhood Development (ECD), for the first four years of a child's life, which the United Nations referred to as the first 1000 days, to allow them to progress smoothly through the schooling system.

He noted that 70% of NSFAS beneficiaries were social grants recipients, which suggested that the funding gave social mobility to an important group that may otherwise not have access to it.

Mbuyisa said that NECSA had found gaps in foundation education and cognitive skills.

NSA executive officer Zamokwakhe Khuzwayo estimated that SETAs have assisted three million people to access the job market.

However, to increase these numbers, they needed to understand provincial economic drivers to design programmes that suited provincial needs.

Afrox Africa managing director Sebastian Sachtleben said during the panel discussion that South Africa's private sector offered a good skills training programme that allowed learners to "apply their



knowledge”.

However, the success of the programme was dependent on the learning culture in a workplace.

Like Mbuyisa, he said the one of the most important skills students should be taught is critical thinking.

Issues from the floor

One of the issues raised by the delegates was entrepreneurship and how current skills development curricula did not place emphasis on driving candidates towards starting their own businesses.

Sishi responded by saying that his department has a R1 billion entrepreneurship training programme that it ran in conjunction with the Department of Small Business Development.

Another conference participant, who holds a master’s in mathematics, said a shortcoming for South Africa’s skills development programme was that there was no clear agenda why the country was developing. For example was it to develop skills to industrialise the economy or was the country plugging gaps to meet an immediate need? The delegate said that without a clear guide, skills programmes would respond to varying needs without focus.

According to Nkabane, the Medium-Term Development Programme was supposed to guide the skills development agenda.

Another delegate asked whether there was funding in the system for post-graduate studies.

Carrim admitted that if he and the Higher Education and Training Department motivated for post-graduate funding, they would likely be turned down by the National Treasury.

“It is simply not a priority,” he said.

This was because post-graduate studies could be funded in several other ways, starting with working and saving up to fund studies. Employers and the private sector as well as institutions also offered higher level funding through grants and scholarships.

A principal for a Soweto-based Technical and Vocational Education and Training college pointed out that funding by SETAs for TVET colleges was simply inadequate.

He said that in his institution, there was a programme where a SETA funded a handful of students, which was a drop in the ocean compared to his overall need, even just for that programme. Pillay conceded that resources were limited, and funding must be spread across cooperatives, community colleges and other training institutions, not just TVET colleges.

He noted that a bigger problem with TVET funding was that the colleges offered 30% of the training, which was theory. A total of 70% came from practical or workplace training, and these place-

ment opportunities were limited due to poor economic growth.

The NSA’s Khuzwayo said it was challenging to find host employers to match trainees. In some instances, there were declining positions, especially in factories as many of them had closed.

In another instance, “employers are willing to host learners, but there are no willing participants,” he said.

JET Skills Desk

Sishi told participants that one of the ways the department was responding to changing skills needs was by establishing a Just Energy Transition (JET) Skills Desk to understand the skills needed in areas such as renewable energy.

He called on South Africa to assume a global leadership role in skills development just as it had in areas such as climate change and sustainability for example.

“Everywhere we go, the world is looking for answers for existence from us,” Sishi said.

Skills was one area where South Africa could take the lead, he said.

A report on the dialogue will be compiled for the Higher Education and Training Department with the aim of helping chart forward the country’s workplace development agenda.

Skills dialogue charts urgent path forward for workforce development



Inside Education Executive Chairman Matuma Letsoalo addressing delegates during the recent CHIETA national skills dialogue at the Unisa Graduate School of Business Leadership in Midrand

In an important national dialogue on skills development, stakeholders and leaders from the government, industry, academia and civil society convened to confront one of South Africa's most pressing challenges: youth unemployment and the growing skills gap.

Hosted by the Chemical Industries Education and Training Authority (CHIETA) in partnership with Inside Education, the event, held at the Unisa Graduate School of Business Leadership, marked a major step towards reshaping the country's workforce development agenda.

Framed under the theme "Bridging the Skills Gap: Advancing Workforce Development for a Sustainable Future", it was opened by Inside Education executive chairman Matuma Letsoalo, who urged delegates to take bold action in tackling the mismatch between economic investment and job creation.

"This dialogue is more than symbolic, it's about planting seeds of knowledge and collaboration to close this gap and build a workforce that supports sustainable livelihoods," Letsoalo said.

He questioned why R500 billion in investment, largely directed towards capital-intensive sectors like energy, had not translated into significant employment gains, suggesting a critical shortage of appropriately skilled workers as a root cause.

In his opening remarks, CHIETA CEO Yershen Pillay echoed this call for alignment across sectors.

"It's not just about jobs, but livelihoods—skills that don't just meet market demand but respond to hu-

man needs," Pillay said.

He emphasised three strategic imperatives, namely cross-sector collaboration, disciplined execution and ecosystem alignment.

Notably, he highlighted the role of the CETA CEO Forum's Strategic High Impact Programmes Committee in unifying and accelerating efforts across all 21 Sector Education and Training Authorities (SETAs).

Pillay also drew attention to CHIETA's impact, with over 241,000 youth trained in the past five years. A total of 80% of them were under 35.

He called for "transformational training", and not just job readiness, but "life readiness".

The day's keynote address by Higher Education and Training Minister, Dr Nobuhle Nkabane set a decisive tone.

Drawing from the government's Medium-Term Development Plan (2024–2029) and the White Paper for Post-School Education and Training, the minister framed skills development as a national imperative to reduce poverty, promote inclusive growth, and build a capable developmental state.

Nkabane spotlighted the crisis facing South African youth, with over 62% of those aged between 15–24 unemployed, and 3.8 million not in education, employment, or training (NEET).

She stressed that the crisis was not just a number but a national emergency, urging SETAs to prioritise digital, green and industry-aligned skills, such

as cybersecurity, AI and cloud computing. CHIETA's work was singled out for praise.

Its SMART Skills Centres, which are digital-enabled training hubs with a focus on rural outreach, have trained more than 30,000 individuals and will expand to all provinces in 2025.

A recent multi-SETA partnership to establish a Green Hydrogen Centre of Specialisation at the Council for Scientific and Industrial Research was hailed as a forward-looking model for inter-SETA collaboration in emerging sectors.

Nkabane emphasised the global and continental context of South Africa's skills strategy, aligning it with Africa's Agenda 2063, the UN Sustainable Development Goals and the country's G20 presidency.

Higher Education and Training director-general Dr Nkosinathi Sishi concluded the leadership segment by reaffirming the state's commitment to local level implementation and community resilience, noting upcoming investments in university expansion and innovation-focused campuses.

He said the dialogue was expected to produce a roadmap of actionable outcomes, with stakeholders unified in their resolve to move beyond policy into measurable, sustainable impact.

As South Africa grapples with economic recovery and technological transformation, he described the dialogue as representing a turning point that centred skills not only as a tool for employment, but as the foundation for a more just, inclusive and prosperous society.

Minister hits reset button on South Africa's skills revolution

Dr Nobuhle Nkabane, the Minister of Higher Education and Training, says one of the key objectives of her tenure is to breathe new life into the 21 Sector Education and Training Authorities (SETAs) by hitting the reset button with the appointment of new board members and a revised mandate for a new five-year term.

She had to withdraw the recent appointments “in response to public concerns” and “in the interest of good governance, and transparency to ensure accountability” and said a new independent panel would be established to process the nominations and recommend candidates.

The Minister says the SETAs are critical “to develop a skilled and capable workforce to support economic growth”. Hence, in her inaugural budget vote last year, she says R137.5 billion, which represents an annual average increase of 4.8%, was allocated to make this vision a reality.

With a strong commitment to serving the nation through the skills revolution, Nkabane wants to clean up the governance of the SETAs, which are too frequently plagued by challenges around procurement irregularities, non-essential executive appointments, and irregular expenditure.

She recently welcomed the proclamation by the Special Investigating Unit to probe the National Skills Fund, a key source of funding for the SETAs. The Skills Development Act provides financing for national skills development through a levy-grant scheme and the National Skills Fund.

The SETAs were established to develop a sector skills plan within the national skills development strategy, and Nkabane wants to change how the SETAs are governed and run, emphasising the need for the new boards to be made up of highly skilled personnel.

She appears to have kept her word on that score. In May, Nkabane inducted the new board of the National Skills Authority, which has oversight over the SETAs, and stated that the minimum criteria to serve on a SETA board will be an NQF level 7 qualification or a bachelor's degree.

Of the 20 SETA Board Chairs that were previously recommended, three held doctorates (NQF Level 10); at least 15 had Master's Degrees (NQF 09); and there were two medical doctors. Their competencies included engineers, chartered accountants, auditors, advocates, medical doctors and governance experts.

Nkabane seems perfectly suited to lead the sector at this time. At 46, she brings youthful energy to the role. She leads by example, being accomplished and currently engaged in tertiary education studies.

She holds various diplomas and certificates, including a doctorate in administration from the University of KwaZulu-Natal. She also complet-



Call to action: Minister of Higher Education & Training, Dr Nobuhle Nkabane says the SETAs are critical 'to develop a skilled and capable workforce to support economic growth'.

'The SETAs are critical in developing 'a skilled and capable workforce to support economic growth'

ed a master's degree from the School of Oriental and African Studies in London and is studying for a master's in energy leadership at the Wits School of Governance. She imposes a high standard of expectation on anyone and any organisation she works with.

In her budget vote address, Nkabane announced that the Department of Higher Education and Training would “invest in research and development and advances in the skills revolution to identify emerging skills gaps and trends in the labour market”.

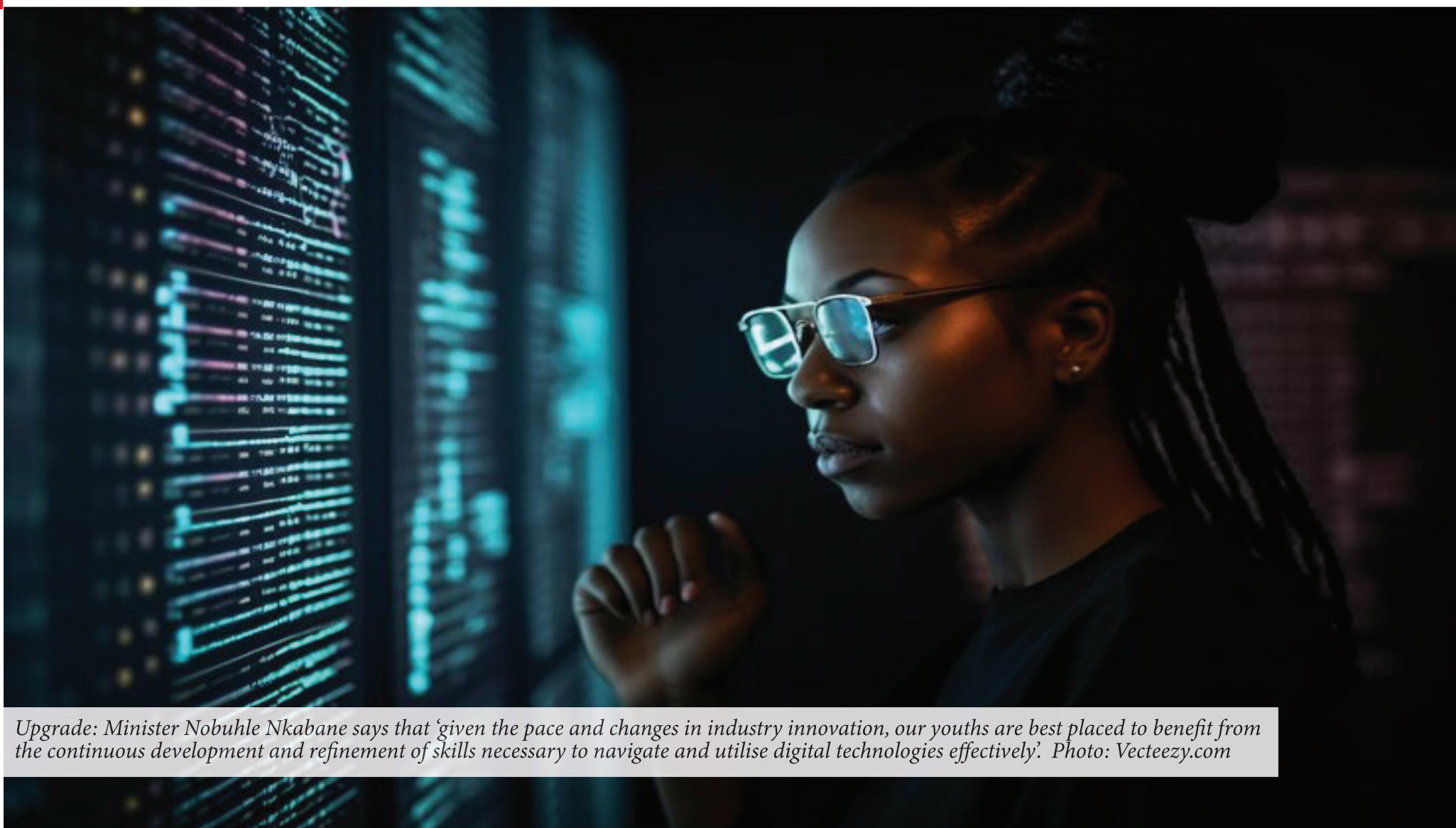
Relevant skills

“This ensures newly qualified artisans are equipped with relevant skills for the job market. It remains our target to produce 30,000 artisans per

annum,” Nkabane says, noting that the target for 2024/25 is to produce 26,500 artisans.

To complement the work of the SETAs, Nkabane also notes that the Centres of Specialisation at public TVET Colleges increased from 26 in 2019 to 53 in 2024, with R238 million to upgrade their infrastructure. “These centres play a critical role in producing more artisans required to grow our economy,” she says.

According to Zamokwakhe Khuzwayo, the Executive Officer of the National Skills Authority (NSA), the SETAs have assisted three million young people in accessing skills and entering the job market since their establishment in the 2000s. The 21 SETAs cover all major sectors and industries of the South African economy, but now must grapple with skills that are newly needed, and emerging



Upgrade: Minister Nobuhle Nkabane says that 'given the pace and changes in industry innovation, our youths are best placed to benefit from the continuous development and refinement of skills necessary to navigate and utilise digital technologies effectively'. Photo: Vecteezy.com

technologies such as robotics and artificial intelligence.

Nkabane notes that provinces play critical roles in the rollout of skills and aims to use the District Delivery Model as the implementing tool. "We will collaborate with the Offices of the Premiers to ensure that all our skills and training interventions provided through our institutions respond to provincial economic development and industry demands within specific districts."

At the NSA board induction, Nkabane reiterated that she has "listened attentively to the voices agitating for transformation. South Africans are no longer patient with us. They have been raising their voices with limited actions from our side. We ought to act and act now."

Dr Nkosinathi Sishi, Director-General at the Department of Higher Education and Training, notes that the Minister's key mandate is implementing the country's Human Resources Development Strategy.

The current iteration of the strategy runs from 2010 to 2030. One of its objectives, which will be partly realised through the SETAs, is "to substantively improve national economic growth and development through improved competitiveness of the South African economy". Another objective in which the SETAs play a role is "to ensure that all new entrants into the labour market have access to employment-focused education and training opportunities".

To achieve these, Nkabane says South Africa must "ensure that levels of investment are above the global average for all sectors of the education and training system" and "ensure progressive improvement in the external efficiency and effectiveness of Higher Education, Further Education and Training colleges and the occupational learning system".

The minister must drive these goals, with the help of the SETAs and TVET Colleges.

Another element that Nkabane would like to reset is the SETAs' embrace of digitisation, and this is not just for those SETAs in technology and communication. "The SETAs must respond and exploit the dynamics of technology and its evolution in their innovative approaches towards addressing skills deficits and training," she says.

"Given the pace and changes in industry innovation, our youths are best placed to benefit from the continuous development and refinement of skills necessary to navigate and utilise digital technologies effectively."

Nkabane notes that skills such as digital marketing, e-commerce, the internet of things, cloud computing, and cybersecurity present opportunities for job creation for SA's youth.

The new chairperson of the NSA is Asanda Luwaca, who is also the executive chairperson of the National Youth Development Agency. She describes her experience and that of her peers as "shaped by protest, refined by policy and training", yet she is cognizant that most South African youth still "wait on the periphery of opportunity".

Centre of gravity

Luwaca says she wants the NSA to be the "centre of gravity" for the Post-School Education Sector and a data-driven organising body that bridges the gap between government and the private sector.

She views the upcoming term of the SETAs as an opportunity to "reposition" the NSA. The first thing she would like to do is affirm the NSA's advisory role, noting that its work is grounded in:

- The White Paper for Post-School Education and Training System and its National Plan;
- The National Skills Development Plan 2030;
- The National Development Plan; and
- The Revised HRD Strategy and the Master Skills Plan.

Luwaca says the NSA bears "a heavy mandate and a modest purse". She notes that the PSET ecosystem is fragmented and needs coherence. "The SETAs report varying levels of effectiveness. The interface between universities, TVETs, CETS, and skills providers is not seamless. She says coordination, however, does not mean centralisation to the NSA or her office. Luwaca also wants the SETAs to be focused on the future of work.

While the emphasis is on driving the skills revolution, Nkabane is at pains to ensure a particular focus on the young people who are not in Education, Employment, or Training, the so-called NEETS.

"A national cause for concern is the estimated 3.5 million young people between the ages of 15-24 who are not in formal education, employment or training," she says of this cohort.

"There is no doubt that more could be done to alleviate the plight of our youth" She notes that there is a need to harness collective efforts by both the government and the private sector to reduce South Africa's high unemployment rate, including youth unemployment. "It is my commitment to review and ensure that all the SETAs focus on their mandate to skill South Africans, particularly the youth," Nkabane says.

Busani Ngcaweni, the principal of The National School of Government, urged board members to be "fearless and courageous" and to lead "with ideas and foresight". He notes that they must lead with ambition and be diligent in executing their mandate to effect a revolution in the skills sector.

"We have increased our financial investment in TVET college education by allocating R2.6 billion to build 12 new college campuses," Nkabane says.

"And we have identified 10 TVET colleges to be allocated funding for improved ICT infrastructure in the current financial year."

Pillay has turned CHIETA into a high-performance organisation

The Chemical Industries Education and Training Authority (CHIETA) is a truly high-performance organisation. Under the leadership of CEO Yershen Pillay, who has been at its helm for five years this year, it has just achieved its second consecutive clean audit, reached 74,000 beneficiaries in the past financial year and met 100% of its performance goals as set by the Department of Higher Education and Training.

We have achieved a clean audit by having zero tolerance towards non-compliance,” Pillay says of a culture trait he has instilled in the organisation’s 102 employees, who he says are empowered to make decisions independently that are supportive of good governance.

“We also create an environment that keeps employees motivated,” says Pillay, who confirms that he took the CHIETA from unqualified audits five years ago to its current clean audit state.

“The chemical sector is undergoing a transition, and we have to be prepared and positioned to respond to these changes,” says Pillay of an industry he described as being driven by high-level skills and one that adds 1,3% of gross value to South Africa’s GDP.

“The first key change that is occurring is automation,” says Pillay, noting that this requires tech-savvy artisans, or mechanic fitters, who also understand coding.

The next big change that Pillay identifies is innovation, which he says will require a new type of worker, with additional skills such as being familiar with new forms of communication, for example.

The last driver of change is sustainability and the desire for the sector to go green through a move towards decarbonisation, led by entities such as SASOL, the largest levy contributor to CHIETA.

A key revolution taking place is the move towards green hydrogen that is shaping key parts of industry. Pillay notes that hydrogen has been in use in South Africa’s chemical industry since the 1920s, used in both explosives and fertiliser manufacturing.

He quips that although hydrogen as a gas is colourless and odourless, it has a spectrum of colours in industrial use, and the current drive is to go green by reducing and eventually eliminating emissions.

One of the areas where green hydrogen is being used is in the production of “green steel”, which entails the replacement of coal-fired furnaces with electric ones.

This change requires CHIETA to respond accordingly by producing workers with skills that are adept at handling the changing needs and technology in the sector. In line with this requirement, CHIETA has established a Centre of Excellence for Green Hydrogen and introduced three new qualifications for handling green hydrogen technology: technical



Motivator-in-chief: Yershen Pillay, CHIETA’s CEO for the past five years, has achieved clean audits for two successive years by ‘having zero tolerance towards non-compliance’.

professionals, production workers and storage technicians.

One of CHIETA’s most remarkable achievements has been the successful establishment of Smart Skills Centres throughout the country. Starting with the first one in October 2022 in Saldanha Bay in the Western Cape, there are now six Smart Skills Centres, mainly in underserved, mostly rural areas. Pillay hails the centres as an example of successful public-private partnerships, as they are launched with private sector partners.

Another three will open in the next few months. One will be in Fraserburg, which is 550km from Kimberley in the Northern Cape, another will be in Phutaditjhaba in the Free State, and the third in the industrial town of Springs in Gauteng, where it will be located in the premises of private sector partner PFG, the continent’s largest glass manufacturer.

Pillay describes the Smart Skills Centres as “disrupting” traditional skills development and training as they use digital tools, artificial intelligence, and virtual and augmented reality to deliver training. So, a candidate can be trained in welding using a virtual reality welding rod instead of a live one.

The Smart Skills Centres also have a robotic hub, as well as internet pods with unlimited free data to bridge a critical information gap in most rural communities and allow internet access to source

information for accessing economic opportunities.

Pillay is excited about the next five years for both CHIETA and SETAs in the related fields of digital technology. “The speed of change is exciting,” he says, “and it’s driven by our vision for innovation.”

His excitement stems from Fusion 2030, an artificial intelligence-driven training application that will add another dimension to CHIETA’s skills offerings.

Pillay’s contract ends in September this year, and one of the earliest tasks of the incoming board is to decide whether to renew it.

Pillay sees CHIETA’s role as being more than a skills development and training body. “Skills development is a means to an end. We are about creating sustainable livelihoods,” he says, noting that in addition to moulding capable artisans, they would like to develop well-rounded professionals who are conscious of areas such as emotional intelligence and sensitive to gender-based violence, so that female co-workers are treated with respect.

Pillay is studying towards a doctorate in digital transformation at the University of Johannesburg. He holds an MBA and a Postgraduate Diploma in Management from the Gordon Institute of Business Science as well as an undergraduate degree in economics from the University of Cape Town.

Innovation fuels new roles in the exciting green hydrogen sector



Fuelling the future: A green hydrogen renewable energy production facility. Photo: Vecteezy.com

The Chemical Industries Education & Training Authority (CHIETA) has developed several new qualifications for the green hydrogen sector.

People considering careers in the chemical industry will soon have several new roles to consider:

- Green Hydrogen Production Practitioner;
- Green Hydrogen Technology Practitioner; and
- Green Hydrogen Storage and Fuel Transportation Officer.

The world of work is undergoing a significant transformation because of the increasing adoption of automation and the integration of advanced digital

technologies.

Yershen Pillay, CHIETA CEO, says: “CHIETA is advancing new career development to align educational programmes with labour market needs, particularly occupations emanating from the skill implications of green hydrogen and digital transformation within the chemical sector.”

The development and verification of the Green Hydrogen Production Practitioner, Green Hydrogen Technology Practitioner, and the Green Hydrogen Storage and Fuel Transportation Officer have been completed. The proposals are being prepared for submission to the Quality Council for Trades & Oc-

cupations.

“The transition towards a circular economy instils a demand for new skill sets within the chemical industry,” Pillay says.

“Presently, the industry faces an inadequacy in the supply of these skills, highlighting the existence of a skills gap that necessitates targeted interventions.

CHIETA is excited to participate in disruptive changes within the chemical sector.

Key roles include Environmentalists, Hydrologists, Biochemists, and Green Engineers. These skills are supported by the quantitative data analysis on occupational composition in the chemical industry, which indicated that most employees are technicians and associate professionals in high-ranking occupations.

Furthermore, start-ups in the chemical industry are introducing modern technologies such as artificial intelligence (AI), computational chemistry, solutions for the circular economy, and biotechnology. They tap into corporate ventures and collaborate with academic spin-offs and entrepreneurs to commercialise innovative ideas.

“This significant growth in chemical-related start-ups indicates that new entrants are filling gaps. This influx of start-ups brings fresh talent and expertise to the industry,” Pillay adds.

In terms of education level, the sector requires highly skilled employees as most employees possess NQF level 4 and above, indicating that the industry is heavily reliant on highly qualified employees.

“High-quality data ensures that the skills needs for the chemical industry are accurately reflected and that CHIETA can develop plans that meet national objectives,” says Pillay. “This will assist in ensuring that the right training initiatives are implemented to meet industry demands

Japan’s hydrogen revolution attracts global players

Japan is transforming its energy landscape and positioning hydrogen technology as a key component in its strategy to meet its commitment to net-zero emissions by 2050.

To achieve its ambitious goals, the Japanese government is taking an approach based on public-private partnerships, welcoming companies worldwide to invest in Japan’s hydrogen future.

Japan plans to invest approximately 15 trillion yen from the public and private sectors over the next 15 years to build a hydrogen supply chain, marking one of the most significant global financial commitments to hydrogen technology. This strategic investment aims to build a robust supply chain to ensure stable hydrogen availability while reducing

costs.

A key element in Japan’s approach to ensuring the stable supply of hydrogen involves promoting public-private partnerships.

These partnerships are transforming how hydrogen is produced, transported, stored, and utilized throughout the country.

“Japan is a country with great potential demand for hydrogen,” said Yasuhiro Inoue, general manager of the Hydrogen Business Department of Chiyoda Corporation. “From a global perspective, the Japanese government is being very proactive in providing funding to bridge price differences and launching various public-private partnership projects to

promote hydrogen implementation.”

Japan’s hydrogen market potential has attracted significant international interest, with companies bringing innovative technologies to Japan’s shores and partnering with Japanese companies. Strong government incentives and increasing international investment will accelerate the hydrogen market growth.

Additionally, Japanese companies are global leaders when it comes to patent registrations. Japan accounts for nearly one-fourth of hydrogen technology patents worldwide, covering many areas. Many of these are related to vehicle fuel cell systems and hydrogen production and supply, with a particular focus on hydrogen end-use applications.

Strong on success, high on performance

Driven by inspired leadership, the FP&M SETA is raising the skills in all of its subsectors



Inspirational: Dr Felleng Yende, CEO of the FP&M SETA, has demonstrated financial integrity and accountability.

One of South Africa's strongest-performing skills authorities, the Fibre Processing & Manufacturing Sector Education & Training Authority (FP&M SETA) continues to raise the bar under the inspiring leadership of its CEO, Dr Felleng Yende, and the FP&M SETA Board.

With a stability borne out by an impressive number of clean audit outcomes and sustained high performance, including three consecutive 100% performances, the FP&M SETA is rapidly shifting the dial when it comes to changing the skills narrative.

As one of the 21 SETAs established under the Skills Development Act of 1998, the FP&M SETA has thirteen subsectors: clothing, footwear, forestry, furniture, general goods, leather packaging, print-

ing, print media, publishing, pulp and paper, textiles, and wood products.

Through strong collaborative leadership, the SETA has experienced year-on-year growth and success under Dr Yende over recent years. The oversight role of the FP&M SETA Board members superbly complements this.

The FP&M SETA has earned praise from the Deputy Minister of Higher Education and Training, Dr Mimmy Gondwe, who was impressed by its consistently high performance and for obtaining a clean audit in seven of the last 10 financial years.

She said they have driven the SETA forward, steered by the values of an ethical organisational culture,

excellence, honesty and integrity, accountability, respect, and service excellence.

The FP&M SETA is responsible for disbursing mandatory grants linked to workplace skills planning, disbursing discretionary grants for the implementation of learning programmes and sector-specific projects, quality assurance of learning provision, including qualification development, and facilitating programmes to ensure that people obtain the scarce or critical skills that are needed.

The FP&M SETA has been instrumental in addressing national priorities such as artisan development and work-integrated learning experiences for higher education institutions and TVET graduates.

New skills have been identified as key to unlocking the potential of the local manufacturing sector through the advances brought by the 4IR.

The FP&M SETA has implemented interventions to achieve the National Development Plan 2030 vision, which addresses key national transformational imperatives such as gender and youth transformation, rural and township development, poverty alleviation, and unemployment.

While the FP&M SETA has achieved some incredible results, there is still much to learn and improve upon. Remaining trustworthy with the resources entrusted to them was essential to ensuring they supported community-focused projects and could continue to improve the lives of the youth in South Africa.

The FP&M SETA was already providing a wide range of support measures to ensure that more young people are equipped with the skills needed to compete in today's tough job market and to ensure the country moves closer to promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.

"We have learnt that while young people are not emerging from education 'work-ready', there is also a problem in the existing workforce, which is not working to their full potential," said Dr Yende.

"This is borne out by the first quarter 2025 NEET (Not in Employment, Education or Training) rate for young people aged 15–24, which stood at 37,1%.

"Young women (37,5%) were slightly more affected than young men (36,7%). However, the disparity widens in the broader 15–34 age group, where the NEET rate was 45,1%, emphasising the hard work ahead.

"We need to take a fresh approach to dealing with this challenge. We must look at the root causes of employability. We need to be more positive and rise to the opportunities ahead".

And Dr Yende, who has been at the helm of the FP&M SETA since 2013, is determined to make a difference. Performance improvement was almost immediate as she applied her experience across various sectors and conceived a business model that underpinned the future success of the FP&M SETA.

In line with the challenge posed by the National Skills Development Plan (NSDP) 2030, whose central mission is to "improve access to occupations in high demand and priority skills to support economic growth, employment creation and social development," the FP&M SETA is committed to harnessing the best of Artificial Intelligence to drive skills transformation.

According to a World Economic Forum report, future development plans should focus on soft and hard skills, emphasising adaptability, critical thinking, technology-related skills, and continuous learning and upskilling. The FP&M SETA is up to the task of focusing on enhancing existing skills and acquiring new ones to keep employees relevant in the workforce.

A rapidly changing world on Artificial Intelligence will be used to help employees stay ahead of the curve, data analysis will improve decision-making and problem-solving, and employees will be helped to develop essential digital skills, including online communication, cybersecurity, and information management, to prepare the workforce for the future and ensure that they have the skills they need to succeed in a rapidly changing world.

Perhaps most impressively, however, under the watchful eye of Dr Yende and the Board, the FP&M

SETA has shown financial integrity and accountability, achieving 10 unqualified audit opinions and seven clean audits from the Auditor-General.

"A solid foundation has been laid to take skills into the digital age. As a key player in the AI world, FP&M Seta is aware that South Africa faces unprecedented challenges as it grapples with the challenges and opportunities presented by the 4IR," said Dr Yende.

"Responding to these challenges cannot be achieved through slow, incremental change. The economic headwinds and the relentless pace of technological change precipitated by the 4IR mean that we must respond in kind, purposefully and quickly.

"Through ground-breaking initiatives which offer new educational opportunities and grow the pool of our youth, especially young women, to further advance their digital skills and take up digital opportunities to grow our economy, FP&M SETA is already making a difference and is determined to continue impacting society in a meaningful manner. There is no other way,"

The FP&M SETA is wholly focused on addressing the "triple challenge" facing South Africa — unemployment, poverty, and inequality—through initiatives that grow the township economy and small businesses. These initiatives ensure accelerated economic growth and transform the quality of that growth as outlined in the Medium-Term Development Plan (MTDP) priorities.

"South Africa needs a skills revolution that helps us shift the dial, create a better society of skilled people, enabling jobs and economic growth. FP&M SETA does not want to leave anyone behind in our skills revolution," concludes Dr Yende.



Entrenching democracy, media diversity and gender equality in South Africa and beyond by skilling, funding and promoting women media leaders and entrepreneurs.

TETA's key role in reshaping SA's transport sector

The South African transport and logistics sector is undergoing radical changes in terms of economic regulation, safety and technology standards. As one of the sectors targeted for economic reforms, it is set to receive substantial investment over the next decade or so and must adjust to digitisation and artificial intelligence while also aiming to use cleaner energy.

All this means that it will require new types of skills to assist drivers who operate more sophisticated trucks and trains, and port equipment handlers and operators dealing with advanced technology tools in their jobs.

The Transport Education and Training Authority (TETA) has positioned itself to supply much-needed skills to the sector, and its performance over the last few years points to a SETA geared to meeting those needs.

The TETA describes its mission as being “to build a forward-thinking and globally competitive workforce by facilitating skills development programmes that support the outcomes of the National Skills Development Plan and respond to the emerging skills needs of the transport sector”.

Its CEO, Maphefo Anno-Frempong, says the TETA has identified four key priorities for the next five years — building organisational excellence, revenue diversification, SMME development, and strengthening partnerships.

In the 2023/24 financial year, the TETA generated revenue of R1 billion. Over 90% of it, or R908 million, came from levies, but Anno-Frempong aims to diversify it away from dependence on levies. Total expenditure came to R922 million to leave a surplus of R95,000. The TETA achieved 91% of its performance targets, slightly down from 93% the previous year.

Partnerships

The TETA relies on partnerships with TVET Colleges, other SETAs, industry bodies, as well as entities such as EmpowaYouth and Empowawomen, which are focused on bringing the two designated groups into the mainstream of the transport sector.

For 2022/23, the TETA continued to implement EmpowaYouth programmes supporting the national priorities, such as the District Development Model, which were rolled out in the Eastern Cape, the Northern Cape and Mpumalanga, positively impacting more than 30,000 unemployed youth.

The Western Cape and the Free State were reached during Transport Month in October, where the TETA staged a Women in Transport Summit and other events.

“At TETA, we believe in the power of education and training to drive meaningful change,” said Anno-Frempong during one of the flagship events. “Our partnerships reflect our dedication to creat-



Taking the transport sector forward: TETA CEO Maphefo Anno-Frempong says that by focusing on empowering women and the youth, the SETA is contributing to broader societal transformation

ing inclusive environments that empower women and youth alike. By focusing on these key demographics, we are not only enhancing the transport sector but also contributing to broader societal transformation.”

Another source of pressure, but also an opportunity for the TETA, is the proposed Transport Charter, which has been released for public comment. The Charter calls for a recognition of a new category of “specialist” skills and calls on the transport and logistics sector to dedicate resources to focus on the development of scarce skills. This will create a high demand for the kind of trainees that the TETA produces.

Transport is one of the toughest industry sectors to decarbonise globally. This is because of emissions from shipping lines that transport goods globally, as well as rail and road transport that cover long distances. One of the ways the sector is set to decarbonise is by moving to green hydrogen. The TETA is playing its role in embracing this change.

In October last year, the TETA, alongside the Chemical Industries Education and Training Au-

thority (CHIETA) and the Mining Qualifications Authority (MQA), pre-launched the Green Hydrogen Centre of Specialisation at the Council for Scientific and Industrial Research in Pretoria.

Anno-Frempong said the Centre will offer hybrid training programmes focusing on continuous professional development, with specialised courses aimed at upskilling and reskilling individuals for the green hydrogen and associated industries.

The CEO said the TETA is currently undertaking a comprehensive study to understand the transport sector's needs to adapt its skills development to green transport. The aim is to identify the required programmes. CHIETA, for example, has developed three new qualifications related to green hydrogen.

Anno-Frempong says the TETA is aligned with the African Union's Vision 2063 goals as well as the National Development Plan, which ensures that workers are equipped with skills underpinned by science, technology and innovation.

MQA delivers mining opportunities to youth and communities



Dr Thabo Mashongoane, the CEO of the Mining Qualifications Authority (MQA)

The Mining Qualification Authority (MQA) is committed to helping the youth, especially those who are unemployed, as well as mining communities, to access economic opportunities in the mining sector.

The MQA also helps develop executive talent while supporting literacy programmes among the communities where mining companies operate.

Dr Thabo Mashongoane, the CEO of the Mining Qualifications Authority (MQA), believes that mining remains a vital industry that must prepare for its future by developing the right kind of skills blended with adaptation to new technology.

“The truth is that the mining and minerals sector remains key to the South African economy,” he says.

“In fact, one would be hard pressed to find any individual industry that does not somehow intersect with mining, directly or indirectly. Not only has mining been a consistent and significant contributor to South Africa’s GDP, it also remains a pivotal sector that provides jobs and fosters meaningful community development.”

Dr Mashongoane says SA’s mining sector needs to “shift from just having a comparative advantage due to our natural mineral endowments, to developing a real competitive edge, because we operate in a globally competitive world.”

Skills, as provided by the MQA, are one way of developing that competitive edge.

For the 2023/24 financial year, the MQA achieved a clean audit for the second consecutive year and achieved 100% of its targets.

Dr Mashongoane says the MQA was able to achieve this through its adherence to the organisation’s six strategic objectives. “These remain the bedrock for the MQA’s vision, mission, and values in ensuring a safe, healthy, and adequately skilled mining workforce,” he says.

The objectives include the promotion of efficient and effective governance and administration, and improving skills development, planning, and decision-making through research. The MQA also aims to promote work-based skills development to support transformation in the sector and facilitate access to learning programmes for the unemployed. It also supports mine community training initiatives to access economic opportunities.

One of its most important roles is to offer occupational health and safety training to ensure the safety and well-being of the sector’s workforce.

The MQA undertakes research that identifies distinctive learning and training interventions and opportunities. This helps the MQA respond to the sector’s skill needs.

“This is an invaluable step in the business activities of the MQA as it occupies a crucial position within the organisation’s value chain,” says Dr Mashongoane.

“During the year under review, the MQA was able

to accomplish a total of 11 research outputs, from the set target of 10.”

The MQA also runs a programme for unemployed youth, and in 2023/24, a total of 2,435 unemployed youth from mining communities and labour sending areas entered portable skills training programmes.

The authority facilitates the Management Executive Development Programme to help develop a pipeline of executive talent. Last year, 240 individuals from a previously disadvantaged background accessed the programme.

The Mine Community Development Project assists community members and those who have been retrenched, and has reached about 223 beneficiaries. There is also the Small-Scale Mining Project, Small Business Support Project, Career Guidance Initiatives, as well as adult literacy programmes.

At the end of September last year, MQA, along with the Chemical Industry Seta (CHIETA) and Transport Education and Training Authority (TETA), launched the Green Hydrogen Centre of Specialisation.

Dr Mashongoane credits CHIETA, under its CEO Yershen Pillay, with crafting the framework for the centre and contracting the CSIR to oversee and manage it. This covers the full spectrum of its design and development, from drafting the business case to implementation.

Urgent need to address skills gap for SA to benefit from green hydrogen sector



Chemical Industries Education & Training Authority CEO Yeshen Pillay

Green hydrogen is no longer just a buzzword. It's a real and urgent economic opportunity for South Africa — one that could drive reindustrialisation, generate new jobs, and help meet our climate obligations.

But there's a catch: we don't yet have the skills base to support it. Without addressing this invisible crisis, South Africa risks missing the green hydrogen moment altogether.

Our natural endowments — abundant sun, wind, land and mineral resources — position South Africa to be a global leader in green hydrogen production. Estimates suggest we could produce up to 13 million metric tons of green hydrogen by 2050, accounting for roughly 10% of our national energy mix.

While green hydrogen won't replace all energy sources, even a proportional shift could bring massive benefits in jobs, export and decarbonisation.

Importantly, hydrogen is not new to South Africa. It has been used since the 1920s, primarily in fertilizer and explosives manufacturing. For decades, companies like Sasol have produced grey and brown hydrogen. But green hydrogen — clean, renewable and carbon-free — is now taking centre stage as a climate-resilient fuel of the future.

This resurgence of interest follows South Africa's commitment to the 2015 Paris Agreement and growing global momentum around net-zero transitions. Yet despite the hype, implementation has been sluggish. Why?

Because five persistent barriers stand in the way.

Skills Deficit: The green hydrogen economy demands new occupations — electrolyser technicians, green hydrogen production practitioners, green hydrogen logistics specialists, fuel cell engineers — that currently don't exist in sufficient numbers within our training systems.

High Operational Costs: Green hydrogen remains expensive to produce, store and transport compared to fossil fuels.

Infrastructure Gaps: Massive capital investment is required to build pipelines, refuelling stations and electrolysis plants.

Water Scarcity: Electrolysis requires water, and South Africa is a water scarce country. While solutions such as direct air electrolysis (DAE) and treated wastewater exist, they require innovation readiness and scale.

Project Delays: Many hydrogen projects are stuck at feasibility stages. Fewer than 1% of hydrogen in-

frastructure projects in Africa have reached final investment decision (FID).

Of these, the skills gap is the most foundational and the most often overlooked. Without the right human capital, no technology or capital injection will succeed.

This is why CHIETA (the Chemical Industries Education and Training Authority) is actively prioritising green hydrogen. We are working to define new occupational profiles, develop curricula, establish Centres of Specialisation and integrate hydrogen-related learning into TVET and higher education institutions.

We have made considerable progress in leading the green hydrogen revolution. CHIETA has registered three new skills programmes with the Quality Council on Trades and Occupations (QCTO) — the green hydrogen production practitioner, green hydrogen technology practitioner, and the green hydrogen storage and fuel transporter. These skills programmes will provide the much-needed support in closing the green hydrogen skills gap.

In addition, CHIETA will be pioneering a state-of-the-art Green Hydrogen Skills Academy. This will serve as a hub for producing excellence in green hydrogen skills.

Our goal is clear: we must ensure that the emerging green hydrogen economy is South African-led, South African-owned and South African-skilled. We cannot afford to import technologies while exporting opportunity.

This is not about hype — it's about green justice. Green hydrogen presents a rare chance to unlock transformative local benefits.

They include jobs for youth in technical, engineering and artisanal roles, and enterprise development through SMME involvement in fuel cell manufacturing, electrolyser production and green ammonia.

Other benefits are inclusive industrialisation in underdeveloped districts and municipalities, and climate leadership aligned to our Just Energy Transition.

Let's be clear: green hydrogen alone will not solve South Africa's unemployment or energy poverty. It is not a silver bullet. But it is a catalytic lever if we have the foresight to align policy, investment and education.

The window of opportunity is narrow. If we fail to build the skills pipeline now, South Africa's green hydrogen future will be built elsewhere.

We must act boldly, urgently, and inclusively. Because without skills, there is no future.

Yeshen Pillay is the CEO of the Chemical Industries Education & Training Authority.

PICTURE GALLERY



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