




# Business News

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## Life's a gas, or could be if we get our ducks in a row

The Editor speculates following the announcement that Renergen's commercial gas production is on track for an April start-up.



Renergen's cryogenic pilot plant during construction.

DESPITE the jewel in the crown of Renergen's Virginia Gas Project being the much sought after helium, its cryogenic pilot plant is expected to come into full commercial operation supplying Liquefied Natural Gas (LNG) and helium in April this year.

In an exclusive interview with CBN, CEO Stefano Marani explained that the company had already secured LNG supply agreements with Consol Glass and Italtile, which would be fulfilled to customers via a "virtual pipeline" – trucked ISO containers, maintained at -162°C, the temperature where the methane gas turns into a liquid.

"The pilot plant has a daily output of 2.500 GJ of gas and 350 kg of helium which will be ramped up with a more substantial plant in Phase 2, once pending financial arrangements have been secured" he said.

The 187 ha Virginia site has been conservatively estimated to yield more than 400 000 PJ (Petajoules) of methane gas and to bring that into some perspective South Africa's current total natural gas consumption is 180 PJ per annum, currently supplied by the diminishing Pande-

Temane gas fields in Mozambique via the ROMPCO pipeline, the only source of supply.

"As all of the gas demand is located in Gauteng (50 PJ), Mpumalanga (110 PJ) and KwaZulu-Natal (KZN) (20 PJ), is supplied from the ROMPCO pipeline and from Sasol operations, the rest of the country has little or no access to LNG until now, and that is the market opportunity we see" explained Marani.

He says that while a pipeline to the country's other major centres would at first sight appear to be the obvious method of transportation of LNG, NERSA's punitive regulations, cost, legal and environmental concerns makes the mobile concept a feasible option.

Until the country's collapsed rail system is rejuvenated, non-existent port and rail LNG terminals are completed, road transportation is the only option to meet the anticipated demand.

At long last the realisation of LNG as an essential part of the country's energy mix has been realised following the publication of the Integrated Resource Plan which aims to increase the contribution of natural gas



Stefano Marani, Renergen CEO.

from the current 2.6% to 15.7% by 2030.

That is less than eight years away and begs the question as to how the country's dilapidated transport system – especially rail – can be brought up to meeting the challenge, not only from Renergen's gas fields in Virginia, but from the off-shore finds such as the Brulpadda Block via Petro SA's Mossel Bay facility.

### Gas Plan sketches potential

The 2022 Gas Master Plan Consultation Document paints a rosy picture of the potential of gas, anticipating that power generation (57%) and industry (37%) will account for nearly 95% of the gas market.

It states "The existing Open Cycle Gas Turbine (OCGT) peaking plants present an ideal opportunity for conversion to natural gas, with the potential to realise substantial cost savings of more than 30% from a fuel source (currently diesel) perspective."

Nationally there are six OCGT plants in operation with a combined capacity of nearly 4 GW which if converted to run on natural gas would not only be a cheaper

Continued on P2

## WearCheck CT consolidates in Brackenfell



Transformer Division manager Gert Nel, left explains to the Editor the intricacies of transformer oil analysis at the recent opening of the new high-tech workspace in Brackenfell.

CONDITION monitoring specialists, WearCheck, and the company's sister operation - Set Point Water laboratories have consolidated its Cape Town transformer and water testing laboratories under one modern facility in Brackenfell.

The Groups laboratories, sales and administration offices are now located at Unit 25, The Reserve 3 Business Park, 2 Capricorn Way, Brackenfell. The phone number remains the same: (021) 001 2100.

Gert Nel, transformer division manager for WearCheck, explained the benefits of having all the Cape-based services under one roof to visitors and customers attending an open day which marked the occasion. The new location is very accessible from major roads and is also closer to many customer operations, making sample drop-off even easier.

"Business operations will be even more streamlined with our teams now all in one place, and samples will be processed quickly," said Nel.

The WearCheck flag flies proudly over 14 world class laboratories in nine countries across Africa and beyond. The South African laboratories are in Johannesburg, Durban, Cape Town and Middelburg, while the international laboratories are in Zambia (at Lumwana mine and Kitwe), Mozambique, Ghana, Zimbabwe, DRC, Namibia, India, and Dubai.

For more information, visit [www.wearcheck.co.za](http://www.wearcheck.co.za), or email [support@wearcheck.co.za](mailto:support@wearcheck.co.za). Tel: +27 (31) 700-5460



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## Life's a gas, or could be if we get our ducks in a row

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and cleaner alternative to diesel but would also result in a potentially higher energy output.

While the report identifies further opportunities in converting mothballed coal fired power plants to run on natural gas, re-purposing existing infrastructure, Renegen's Marani is less optimistic.

"The age and state of dilapidation of many of the country's coal fired stations is so far gone that it will most probably be cheaper to start from scratch and build a new plant where it is needed – not on adjacent coal field" he argues.

The RMIPPP (Risk Mitigation Independent Power Producer Procurement Programme) 2020, opened the door not only for

solar and wind renewables but also for natural gas fired plants as a short term measure to alleviate our critical shortage of Eskom power, no doubt as a response to the enormous cost of importing diesel to drive the, now essential, OCGT's.

The recent statement by Cape Town's Mayor Geordin Hill-Lewis, that the City intends to become the only South African city that will be immune to loadshedding, by entering into a supply contract with an independent power producer to supply 300 MW of sustainable power to the City, seems to present an opportunity for natural gas suppliers such as Renegen, but then there's the question of transportation...

# SA's dams are filling up, but it's an investment in the future



By Chetan Mistry, Strategy and Marketing Manager, Xylem Africa

AS many of South Africa's major dams fill to capacity, we can breathe a sigh of relief. But we can't become complacent. South Africa is considered a dry country because of our unevenly distributed rainfall. Many of us get our water from dams and rivers that capture the rain.

According to the Water Research Commission, South Africa has over 500 government dams, holding a combined quantity of 37 000 million cubic metres of water (or 15 million Olympic swimming pools) and around 4 000 privately-owned dams.

We invest in South Africa's future by managing these dams and their sources and supporting the infrastructure that connects that water with communities.

### A dam's many uses

Dams are vital for social progress: the world spent over US\$2 trillion in the 20th century to create large dams and reservoirs, a figure reported by MIT's Mission 2017: Global Water Security group. They cover many

important uses, such as irrigation, water supply, energy, and flood control. Dams are instrumental to modern society, covering many different needs:

- Irrigation: up to 40 percent of farmlands irrigate using water from dams (MIT).
- Energy: hydroelectric power generates 5 percent of SA's electricity, a figure that will grow with renewables (Journal of Energy in Southern Africa).
- Water supplies: most of the water used by local communities comes from surface water. (UN Water)
- Flood control: Major dams, such as the Vaal dam, help control water flow after major downpours.
- Dams are investment accounts for water. Most of South Africa's rainfall would end up in the oceans, yet dams capture up to 70 percent of downpours, storing vast quantities of water to support surrounding communities. (SANCOLD)
- Managing SA's dams
- But they are not inexhaustible. Unless well-managed, dams can run dry or become contaminated. As



Source: iStock Photos

cities such as Cape Town and Chennai have experienced recently, it's an enormous concern when dams levels get very low. The best way is to treat our dams as the investments that they are.

- There are several actions South Africa can focus on to improve and maintain water availability:
- Support infrastructure maintenance: A considerable number of local dams don't provide enough water to surrounding communities because the water can't reach them. Improving infrastructure maintenance and monitoring can improve water delivery. Modern equipment and digital management solutions make maintenance more predictable and affordable.
- Invest in modern treatment: Treatments to make water consumable can damage the environment, including dam ecosystems. Investing in new treatment technologies such as ozone and UV significantly reduce

water contamination without raising prices.

- Reduce non-revenue water: Roughly 40 percent of water in South Africa does not generate revenue due to leaks or inadequate metering data (Water Research Commission). Municipalities can raise significantly more revenue if they use new methods such as acoustic leak detection and wireless meter readings.
- Promote water savviness: Growing towns and cities consume more water, but nearby dams can't increase overall volumes to match. Promoting savvy water use will reduce the pressure on water supplies.
- Recharge water sources: Most of South Africa's water comes from the surface - dams, reservoirs and rivers. But a substantial amount emerges from underground sources, also called groundwater. We can maintain and improve those resources through strategic water planning, reducing water pollution, and

recharging aquifers.

South Africa has many dams, and they can support our water needs. With sufficient investment in maintenance, planning, and responsible water use, we can ensure our dams keep on storing this valuable resource.

Xylem, the world's leading pure-water solutions company, provides solutions that improve maintenance, management and costs - including power-saving variable speed pumps, UV and ozone water treatment, and big data water management solutions. These solutions can be retrofitted to existing sites, reinvigorating and expanding South Africa's water prospects.

We can rejoice that dams are filling up again. But we mustn't forget the fresh memories from drought-stricken parts of the country or that some areas are still suffering from drought. Water can run out, and even the largest dams can turn into mud puddles. But if we invest in dams for the future, our dry days could stay behind us. #XylemAfrica #SolvingWater #Dams

For more information visit: [www.xylem.com](http://www.xylem.com)



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# Biggest mobile substation yet

ZEST WEG recently custom designed and manufactured one of the largest mobile substations ever built in South Africa.

The 50 MVA mobile substation – destined for Guinea – includes a dual voltage rated mobile transformer produced by WEG in Brazil, according to Bernard Mitton, engineering team leader for integrated solutions at Zest WEG. The substation will be commissioned early in 2022.

“This is a full turn-key project procured by Robustrade in Dubai for the Utility Company of Guinea, called Electricité De Guinée,” says Mitton. “Our in-house team co-ordinated the electrical, civil and mechanical designs, as well as the engineering solutions for the customer.”

The full project includes three trail-

ers of equipment, and allows the end-user to step down power from the main national grid at various geographic points as required. High voltage power is tapped from existing overhead line with a specifically designed and manufactured tee-off solution connecting the supply into the mobile substation, where it is stepped down from 110 kV or 60 kV to 20 kV or 30 kV depending on requirements.

“From the 50 MVA mobile substation, the supply is then distributed to a 30-20 kV mobile switching station, containing an incomer and five feeders,” he says. “Mini-substations can be fed directly, or a cable can feed to a junction box in the field, usually where there is an existing cable in the ground.”

As part of the project, Zest WEG

designed and supplied a cable reel trailer with all power and control cabling needed for the mobile transformer and mobile switching station. Included on this trailer are 30 kV field junction boxes to assist with the cable connection between exiting cables already installed and the supply cables from the mobile switching station. These boxes allow for up to three feeder cable connections. The advantage of this design, he notes, is that the junction box becomes a termination point. The termination ends of the on-site cable do not need to be redone, and all that is necessary is a bolt-on connection.

“This mobile substation solution is suitable for both temporary and permanent installations, so it can be used in a range of applications,” Mitton says.



The mobile substation solution is designed for minimum installation time, suitable for both temporary or permanent installations and to be used in a range of applications.

“For emergencies, it can replace an existing substation transformer in the event of failure, and for standby applications it can handle

temporary overloads at substations.”

The mobile substation includes innovative design features such as the integration of

several functions into a compact, modular design. New technologies such as hybrid circuit breakers have been employed, along with

disconnectors, earthing switches, ring-type current transformers, inductive voltage transformers and surge arresters.

## WCPDF reacts to National Treasury’s halt on tenders

THE recent Constitutional Court Judgment on public procurement, specifically preferential procurement, has led to National Treasury releasing an advisory note to “all organs of state” that tenders advertised after 16 February 2022 be “held in abeyance”. It has also ordered that no new tenders be advertised going forward until such time as Treasury has understood exactly what the Constitutional Court judgement means.

The ruling handed down by the Constitutional Court dismissed an appeal by the Minister of Finance against Aribusiness NPC, and ruled that the minister had acted “beyond the scope of his powers”, under the Preferential Procurement Policy Framework Act, when he had promulgated procurement regulations back in 2017.

The ruling has left the property development and construction industry concerned. According to Deon van Zyl, Chairperson of the Western Cape Property Development Forum (WCPDF): “The practical reality is that Treasury will now have to bring an application

for declaration and/or clarification before the court that heard the original dispute between Treasury and Aribusiness.

“Although this may make sense to those schooled in the fine nuances of public-policy speak and the law, it is now time to explain to those exact same scholars what this means practically.”

According to Van Zyl, the halting of tenders means that for every R1 billion of government spending that is now delayed or cancelled by the ruling, approximately R250 million of spend on wages and salaries will also not occur until the abeyance is lifted: “And the bulk of the remainder of each R1bn will not be paid to material suppliers and sub-contractors.”

The ripple effect will result in the fiscus not receiving the VAT and taxes payable on materials and fuel, adds Van Zyl: “Which overall means that the money will not flow back into the economy.”

Jeremy Wiley of De Goede Hoop Development Company (and a WCPDF Management Committee member representing the Cape

Chamber of Business and Industry), adds: “For decades the cancellation or suspension of government tenders for often inexplicable reasons has had huge socio-economic implications. These actions retard the growth of the South African economy and delay the provision of essential services to the most vulnerable sectors of society. Such delayed projects are also then hit by rising inflation and higher costs substantially more than originally budgeted for. If this trend continues, the South African fiscus will leak like a sieve.”

Van Zyl adds the question: “Can we honestly, as a country, tolerate the delays caused by policy purists? “And who, in the production line of the legal system, will take responsibility for lack of clarity and the associated delays – either for the application or the judgement?”

This judgement, says Van Zyl, also speaks to far broader concerns: “What does this ruling mean, for example, for the Public Procurement Bill that is currently under the final stages of its re-draft?

Will it be able to stand Constitutional muster?”

With procurement being at the heart of all government spending on infrastructure – an area already in deep national crisis – ongoing delays and cancellations around tenders represent fruitless and wasteful expenditure in the extreme. Van Zyl asks: “What has this legal process produced?”

“What it does mean for the average person on the street, is that continues to severely impact their lives and livelihoods on a daily basis. How can this country build itself out of its economic and jobs crisis if the standard response is to pull up the handbrake whenever government hits an administrative pothole? South Africans can simply no longer afford or tolerate this.”

Van Zyl’s greatest concern, however, lies with the additional bureaucracy this reversal will now cause, undermining President Ramaphosa’s recently announced plans for economic recovery: “In particular, it pours ice cold water on his commitment to build our-

selves out of our crisis through the creation and implementation of

infrastructure projects and a reduction in red tape.”

For more information on the WCPDF, please visit: [www.wcpdf.org.za](http://www.wcpdf.org.za)



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# Latest products, technology and innovation on show at Propak Africa



A must for all contenders in the packaging and related industries, Propack is the full-spectrum packaging trade expo that showcases the very best that these industries offer.

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ness connections and facilitate sales, Africa's most progressive packaging, printing, plastics, food processing and labelling trade expo, Propak Africa will be taking place from 8-11 March, at the Expo Centre, Nasrec in Johannesburg.

Propak Africa, together with co-

located shows The GAPP Print Expo, Pro-Plas Expo, Food-Pro Expo and Pro-Label Expo, will provide a platform for over 200 exhibitors to showcase cutting-edge innovations, technologies, machinery, products, consumables, systems and services. The show

is supported by The Institute of Packaging SA, Packaging SA, Printing SA and Plastics SA.

"We are excited that Propak Africa will be taking place as a live event this year," says Mark Anderson, portfolio director at Specialised Exhibitions, a division of Montgomery Group. "The face-to-face interaction that is at the heart of exhibitions has been missed and although online events and virtual exhibitions filled the void and created an environment where buyers and sellers could engage remotely, these fell short of the in-person, face-to-face experience."

Many exhibitors will have live demonstrations of machinery on their stands. Free-to-attend seminars will be taking place across the four days, as well as two conferences: the Institute of Packaging SA's 'Think Tank' conference on March 8 &

9 and Printing SA conference on March 10. Conference pre-booking is required. There will also be an 'every day a themed day' experience. Day one will focus on new products and day two will highlight sustainability. Day three places attention on the occupational health and safety of the industry, and on the last day the theme is 'local is lekker' South African day.

"We have been working hard behind the scenes connecting with our partners, integrating latest exhibition trends and technologies, and planning our educational conferences, free seminars, theme days and experiential activities. We are looking forward to the show," Anderson concludes.

All Covid-19 regulations will be in place at Propak Africa.

For further information visit [www.propak-africa.co.za](http://www.propak-africa.co.za)

## Premier aims to unlock infrastructure's potential

IN his State of the Province address, Premier Alan Winde announced the establishment of a new department that will concentrate on the rapid roll-out of infrastructure projects with a core objective of creating much needed jobs.

"A new department of infrastructure to be created in the Western Cape • As part of our commitment to create jobs and to rethink, focus and innovate when doing so, I have decided that a new Department solely responsible for Infrastructure will be created in the Western Cape, through the merger of the Human Settlements Department, and specific components of the Transport and Public Works Department, including the Western Cape's property portfolio and our road programmes.

• This Infrastructure Department will be tasked with leading the change, working together with local governments in the Western Cape, the National Government as well as the private sector to ensure that we collectively complete quality, catalytic infrastructure projects that will help

inclusively create jobs. They will also take forward the establishment of a Schedule 3D Infrastructure Entity.

• As part of this change, we will create a Department responsible for Mobility, which will include our transport programmes, such as our financial support to bus and taxi services, including our Blue Dot Taxi pilot, our transport regulation mandate, and our extensive traffic management operations.

• This Mobility Department will also focus on finding specific, innovative strategies to improve mobility in the Western Cape, especially in the greater Cape Town area, given the very serious failings of the National rail network. They will be our lead department for working with and finding solutions with our local governments and, most importantly, PRASA.

• Following this policy announcement today, we will embark on a detailed consultation programme with all stakeholders and will provide regular updates both internally and to the public, so that this process is efficient, fair and transparent."



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# Become a part of the Case IH success story



A rare opportunity beckons for suitable individuals or companies to establish a Case IH dealership in pre-identified areas in the Eastern Cape and the Western Cape. Case IH South Africa, a division of CNH Industrial AG and CE, is inviting interested candidates to submit proposals.

Available areas in the Western Cape are:

Caledon, Clanwilliam, Grabouw, Piketberg, Vredendal and Worcester. Available areas in the Eastern Cape: Alexandria, Aliwal North, Butterworth, Dordrecht and East London. Other opportunities in the Eastern Cape can be discussed.

Worldwide, Case IH is the professionals' choice, drawing on more than 175 years of heri-

tage and experience in the agricultural industry. A powerful range of tractors, combines, sprayers and balers supported by a global network of highly professional dealers dedicated to providing customers with the superior support and performance solutions required to be productive and effective in the 21st century.

Formerly known as

Northmec, Case IH Southern Africa is now a fully-owned CNH Industrial legal entity, contributing to the future growth of agriculture in the region by its commitment to quality through innovation, advanced technology, expertise in farming practises and professional support.

The company boasts a network of dealers and

branches across South Africa and selected neighbouring countries comprising of dedicated experts to ensure that all farmers' needs in terms of equipment, spare parts and technical requirements are fully met.

Case IH stocks a substantial volume of high-quality parts for, amongst others, Case IH tractors and combines as well as many other types of agricultural equipment. Case IH dealerships furthermore have access to a wide range of implements supplied by NMI as well as CASE Construction equipment.

Naturally, a Case IH dealer is expected to promote the sales of Case IH products within an agreed territory, grow the market share of the company and to provide a timely, efficient and adequate genuine CNH Industrial parts and maintenance service to customers. The company supplies Case IH products on an exclusive basis to dealers for resale to customers, and spare parts and accessories on a non-exclusive basis.

New dealers will be required to meet certain minimum criteria and meet or exceed the Case IH Agriculture Dealer Standards, which will be supplied on request. This will include the provision of a display area or showroom, storage facilities, a workshop, general offices and parking facilities.

A dealer is required to install tools, machinery and equipment and fully equipped field service vehicles, prescribed as essential by the company of a quantity, quality and efficiency adequate to meet the normal servicing requirements of the products.

Among other benefits the company offers comprehensive marketing and promotion support, as well as retail finance solutions via a well-known finance bank, technical training, AMS customer and product backing, "AFS Connect" precision farming support, and a used products and parts division.

Recommended elements of the proposal, terms and conditions and other details of the submission process will also be supplied on request.

*Interested individuals or companies are invited to contact the Head of Network Development, Leona Vermaak, by email at leona.vermaak@cnhind.com for more information.*

# GreenTech to demonstrate at Propak Africa 2022



GREENTECH Plastics Machinery will be showcasing an e-Mac 100 injection moulding machine and ancillary equipment and systems at Propak Africa 2022, which will be held at the Johannesburg Expo Centre from 8 to 11 March.

"We have a proven reputation and are well-known for our expertise and quality product and service solutions in the automotive, packaging, technical, teletronics and medical sectors," says GreenTech's HOD of Sales, JC Jonker. "Our focus at Propak is to accentuate these same capabilities within the packaging industry. The Expo therefore provides us with an ideal platform to showcase our comprehensive plastics solutions through leading-brands such as ENGEL and WINTEC as well as peripheral products from Motan-Colortronic, Tampoprint and HB-THERM. Our value proposition is to sell premium quality machines, combined with exceptional service and continued after-sales support."

GreenTech was established in 2016, securing the sole distribution rights for the ENGEL brand. The company went on to expand its product and service offerings to become a market leader in the supply, installation, and servicing of a range of best-in-class European-designed plastics machinery and ancillary equipment. With combined experience of 220 years in the industry, the team services customers across the Southern and East African regions. GreenTech has offices in Gaut-

eng, Kwa-Zulu Natal, the Eastern and Western Cape as well as in Nairobi, Kenya.

"ENGEL, our flagship product, is an established brand with injection moulding machines operating in the country since 1976," affirms JC.

WINTEC plastic injection moulding machines are ideal for customers with single-shot applications but still demand the same quality and reliability from their equipment.

GreenTech is also a proud supplier of Motan-Colortronic ancillary equipment, offering dosers, blenders, desiccant dryers as well as raw material feeder systems for optimisation of material flow. Temperature control during the manufacturing process is critical in injection moulding. GreenTech supplies HB-Therm maintenance-free temperature control units with a lifetime warranty on heating elements.

GreenTech's service engineers deliver customer service to optimise machine performance and machine availability, preventing unplanned, costly stoppages.

Strategy & Operations Lead at GreenTech, Marcus Visser, wraps up, "We pride ourselves on the professionalism that permeates our business. This enables us to grow the company sustainably throughout our value chain. We strive to position ourselves as a long-term partner for our customers."

*Visitors to Propak Africa 2022 will have the opportunity to see a demonstration of an ENGEL injection moulding machine on stand (C20) in Hall 5.*



## DEALERSHIP OPPORTUNITY

**Case IH South Africa** invites interested individuals or companies to submit a proposal to become a Case IH Dealer in pre-identified areas in the Eastern Cape and/or in the Western Cape. Available areas in the Western Cape: Caledon, Clanwilliam, Grabouw, Piketberg, Vredendal and Worcester. Available areas in the Eastern Cape: Alexandria, Aliwal North, Butterworth, Dordrecht and East London. Other opportunities in the Eastern Cape can be discussed.

Prospective dealers are required to meet or exceed Case IH Agriculture Dealer Standards, which will be supplied on request. Recommended elements of the proposal, general terms and conditions, timelines and other details of the submission process will also be supplied.

**Interested parties should contact the Head of Network Development, Leona Vermaak, by email at leona.vermaak@cnhind.com for more information.**

Case IH is the professionals' choice, drawing on more than 175 years of heritage and experience in the agricultural industry. A powerful range of tractors, combines, sprayers and balers supported by a global network of highly professional dealers dedicated to providing our customers with the superior support and performance solutions required to be productive and effective in the 21st century. More information on Case IH products and services can be found online at [www.caseih.com](http://www.caseih.com). Case IH is a brand of CNH Industrial N.V., a world leader in capital goods listed on the New York Stock Exchange (NYSE: CNHI) and on the Mercato Telematico Azionario of the Borsa Italiana (MI: CNHI). More information about CNH Industrial can be found online at [www.cnhindustrial.com](http://www.cnhindustrial.com).

# New level era with the radar sensor VEGAPULS 6X

VEGA now offers one sensor for all applications: VEGAPULS 6X. Selecting the right frequency or determining the DK value of the medium are no longer obstacles, because choosing the right sensor specifications has become much easier. The new configurator asks for the type of application and then quickly determines which sensor version is required. The entire procedure now consists of just a few mouse clicks.

Over 1 million instruments in use worldwide. In total, there are now well over 1 million radar instruments from VEGA in use worldwide – in industries such as chemical, energy, food, oil and gas and many others. With each new instrument generation, the company has been able to set new standards and develop new features that have

made the products even more reliable, accurate, robust and flexible. And the focus is always on high sensor quality.

#### Four-stage, all-round protection

VEGAPULS 6X also offers decisive technical innovations: It is equipped with a comprehensive safety concept. Functional safety is guaranteed, as it conforms with all the requirements of Safety Integrity Level. The certified sensor has exceptional SIL characteristics and provides the necessary operational safety to minimise risks in safety-related applications. Another increasingly important focus is “cybersecurity”. In this regard the VEGAPULS 6X conforms to IEC 61511, which fulfils the strictest requirements for security of system access and



*The new radar level sensor VEGAPULS 6X is the result of 30 years of experience and over 1 million sensors in use worldwide.*

communication control. It thus guarantees comprehensive process security, right through to the control system.

An important third aspect of its extensive safety features is its self-diagnosis system.

It continuously monitors the function of the sensor and recognises if it has been impaired in any way, thus contributing significantly to higher plant availability and sensor performance.

Central to these important features is a new, second generation radar chip directly from VEGA. Because there was no chip available on the market that would have met all requirements, the research and development team set to work to design one themselves, from scratch.

#### New in a different way: Innovation of values

Beside the technical highlights, the VEGA radar team addressed questions that, from the very beginning, went far beyond product design.

This new approach gave rise to the

impulses that make VEGAPULS 6X different. By carefully considering the users and the process conditions of their applications, other points came into focus. These include the challenges in using measuring instruments, such as complicated adjustment procedures, the constant pressure to increase efficiency, and time constraints in general.

#### Radar made for people

With VEGAPULS 6X, VEGA has rounded out its radar measurement technology with four important innovations: More safety and self-diagnosis, new radar chip technology, new application possibilities and simpler adjustment.

More information available at [www.vega.com/radar](http://www.vega.com/radar)

## Beware of smart phone con artists

*Remote access scams are on the rise*



FNB is warning consumers about the dangers of downloading remote access apps on their mobile devices, as this exposes them to risks of fraud. According to FNB, remote access scams are on the rise as consumers are tricked into compromising the security of their information and financial credentials.

Giuseppe Virgillito, FNB Head of Digital Banking, says, the modus operandi targets unsuspecting users, particularly seniors, by coercing them to automatically download remote software onto their devices under the pretense that it is a ‘security app’ they are installing for their protection. In some instances, remote access request may be obtained via a phone call or SMS that is designed to cause panic by offering you help to stop fraudulent transactions on your bank account. The success of this fraud requires cooperation from the user to install a remote access app, and sadly, some consumers fall for these tricks and end up compromising credentials, he says.

FNB reminds consumers that a reputable financial institution will never ask for the following:

- Ask for remote access to your device.
- Ask you to verbally confirm your PIN and passwords for your devices.

- Ask you to share your banking credentials such as Card & CVV number, PINS, OTPS, passwords and usernames
- Move money between accounts for safekeeping.

“Our utmost priority is to protect our customers and empower them to protect themselves. We monitor such scams 24/7 and have made it our responsibility to educate our customers as well as warn the public. The prevention of fraudulent activities such as remote access, phishing, vishing, and many more, requires financial institutions and consumers to work together. People can learn about the most recent fraud scams and how to avoid them through our trusted digital platform under the Security Centre tab.

We encourage all consumers to familiarise themselves with methods that criminals use to defraud unsuspecting victims. More importantly, we urge consumers to protect their personal information at all times. Our customers can use any of our banking interfaces to immediately report any suspicious activity on their bank accounts. Customers can also use the FNB App to change their PIN/Passwords, temporarily stop or cancel their cards if they suspect that their credentials may have been compromised,” concludes Virgillito.

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THE BEE IN MY BONNET COLUMN

# Return to the deposit

LIKE many young teenagers the lure of money to supplement my meagre pocket money and cash received from a paper round, was strong.

Across the road from our house in a suburb of Manchester, was the Locarno dance hall and an adjacent alleyway was the route taken by my brother and I when taking our Labrador for its morning walk, before setting off to school.

The morning after a dance night saw a mountain of 'empties' stored in the alleyway, next to one of the emer-

gency exits.

Thinking that no one would miss a few beer bottles, we stashed a couple under our coats and then claimed back the few pennies of deposit at the local off licence (bottle store).

Then we got a little more adventurous – soda in those days was dispensed in large rather ornate glass soda syphons which commanded a much higher deposit return – two shillings and six pence, from memory. My excursion into crime didn't last long and was rewarded by an enor-

mous, wardrobe sized police constable who gave me a serious talking to, and a clip around the ear!

Fast forward to 2022 when the streets and beaches are littered with, yes, all manner of plastic waste in which the lazy discarder sees no value.

It seems a simple matter to reintroduce the system of deposits on all types of plastic packaging, thus giving the 'waste' a value which can be redeemed on return or provided as a discount on a new product when evidence

is provided of a return.

The creative (and disciplined) Scandinavians have even introduced a vending machine type cabinet, located in the corner shop or supermarket which accepts plastic bottles through a neat opening and upon a quick analysis by the machine's 'brain', coughs out a deposit. The machine is able to grind the plastic to facilitate maximum storage and when full, signals a recycling contractor to collect the raw material and replenish the deposit monies. Apparently this system has

been particularly successful in remote areas.

So why not return to the well-tried system of deposits on containers that are no further use to the purchaser?

Seems simple enough – it's what we used to have here on beer bottles but the bean counters persuaded their colleagues that it was an expense that couldn't be justified and more profit could be made by abandoning the scheme and in the process destroy the environment, but hey, no scruples where profit is involved.

A change in mindset is required and it doesn't require rocket science to develop a deposit system and recycling regime that would address the scourge of discarded plastic.

How about a R10 deposit levy on not just plastic bottles and containers but all types of plastic packaging? I already hear howls of protest from those that claim to represent the poor that they will be discriminated against, but they won't as the cool drink they purchased has a valuable bottle - the deposit of

which can be redeemed on their next purchase.

Furthermore, the amount of existing discarded plastic that litters our roadsides, parks, trails and beaches will present a scavenging opportunity for the many jobless who can convert their booty into real money!

If properly recycled, the scheme will also keep plastic waste out of the landfill so a real win-win.

A beautiful trash free world awaits!

*Eish.*

## Heat pumps – only use qualified installers



**Brendan Reynolds, Executive Director of the Institute of Plumbing South Africa (IOPSA).**

MORE South African homeowners are installing heat pumps to help reduce their electricity consumption, considering that the technology is significantly more energy efficient than electric and gas heating systems. However, it is important to ensure that heat pumps are installed and maintained correctly to realise the full benefits of this technology.

"Heat pumps can

reduce energy consumption by up to 70%. However, if they have been installed incorrectly and their maintenance neglected, they can actually consume more energy, over-and-above the cost of having to repair important damaged parts or having to replace the unit prematurely. It for this reason that it is mandatory for licensed plumbers to issue a Certificate of Compliance for

any heat pump they install," Brendan Reynolds, Executive Director of the Institute of Plumbing South Africa (IOPSA), says. Many of IOPSA's members specialise in the installation and maintenance of heat pumps for homeowners.

Quality heat pumps that have been installed correctly and maintained at least once a year will continue to add value over their entire 15 to 20-year design life and can even significantly exceed this life expectancy. Many homeowners have achieved a return on their investment within three years. Moreover, heat pumps that are serviced regularly consume between 10% and 20% less energy. This is over-above the savings homeowners realise in installation costs versus other types of water-heating systems and their very low cost of ownership, requiring only minor services.

However, substandard installation practices can lead to poor overall performance of the unit and energy loss.

Heat pumps that are too large for an application will short cycle and, if too small, they will work overtime to reach the desired temperature. In both instances, more

energy will be required to operate the heat pump.

"Savings on utility bills aside, heat pumps help reduce our carbon footprint. The fact that

there continues to be a marked uptake of this technology in the country means that South Africans are opting for 'greener' lifestyles. However, it is important

that they deal with specialists who are trained in the correct installation and maintenance of heat pumps to avoid buyer's remorse," Reynolds concludes.

## How to fund your education in a tough economy

**By Eloise Nolte, MD of Optimi College**

DURING this year's budget, National Treasury allocated R433bn of its R2trn budget towards education. More than half of this funding (R282bn) went towards basic education. Of this, R46bn was allocated towards the National Student Financial Aid Scheme (NSFAS).

Programmes such as NSFAS are crucial in helping to provide financial support to disadvan-

tagged students who wish to further their studies at public universities or TVET colleges.

However, in recent years, NSFAS has experienced funding constraints.

Also, NSFAS only caters for students in public education institutions, and it doesn't assist the growing number of private colleges and universities in our country.

Therefore, many young South Africans who are looking at ways to fund their studies.

Below are just a few of

the possible funding options.

- Corporate bursaries
- Support from family, friends
- Payment terms from education institutions
- Student financing options
- Banks

All these options require a lot of research, and if you need any further advice, you should speak to a certified advisor or professional to help you.

To find out more, visit [www.collegesa.edu.za](http://www.collegesa.edu.za).



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# World-Class metal manufacturer continues its development journey



*Fabrinox, precision welding of manufactured components.*

FABRINOX, a proudly South African manufacturer, is growing from strength to strength with the successful completion of the second phase of its development journey, and phase 3 well on its way.

In October of 2020 it consolidated its two manufacturing divisions by moving the manufacturing facility to a group owned site previously focused on project management and installations. Phase 2 was completed in 2021 with the construction of additional roof space that increased the manufacturing division's capacity to address the growth in market demand. Phase 3 is in progress with a further 2

500m<sup>2</sup> of land acquired for additional expansion.

"This expansion is the cornerstone of Fabrinox's growth strategy, building on our success as an internationally renowned fabrications specialist. Through this consolidation and our investment in new innovative technology, we are proud to be able to offer our customers more value for less" explained Andre Visser, CEO of Fabrinox.

The company will be celebrating its 30th anniversary in 2023 and remains committed to a customer centred culture that continues to address the custom manufacturing and fabrication needs of its

local and international customer base, which spans six continents.

#### Tailor-made customer centric services

"What differentiates Fabrinox from our competitors is our ability to offer our customers complete and flexible manufacturing solutions, superior quality products and services with express delivery times at a competitive price. Our reputation as an industry leader is built on our experienced experts who provide guidance and technical advice to help customers navigate current market conditions and industry challenges" said Visser.

Fabrinox currently provides custom manufacturing, project management and procurement, drawing office assistance, global installations and documentation services, with additional services being added later this year. The comprehensive manufacturing landscape allows the company to service diverse industries which include, but are not limited to, agriculture, water treatment, food and beverage, railway and mining sectors amongst others.

"Our decision to commit to internationally recognized quality management systems has helped us open doors to global markets.

To ensure customer and related requirements are fully met through the production process, our services are offered within an ISO 9001, ISO 3834 and EN 15085 environment" commented Visser.

The company's manufacturing arm produces high accuracy sheet metal and tube components for local and international OEM's using the latest technology laser and bending machines as well as surface finishing. These components can further be assembled into value-added sub-assemblies through cold forming, precision welding and bead blasting. For safety purposes and to validate the final products, mechanical testing is available onsite.

The projects and installation divisions assist OEM's with end-to-end project management and procurement, under-license manufacturing, commissioning and spare parts, while eight global installation teams, trained by multi-nationals, travel the world to install manufactured equipment. To date Fabrinox has completed installations in over 35 countries worldwide including North America, China, Russia and the UK.

Visit [www.fabrinox.com](http://www.fabrinox.com) for further information. Alternatively email [sales@fabrinox.com](mailto:sales@fabrinox.com) or call +27 (0)21 877 5000.

## TotalEnergies and Veolia join forces to accelerate the development of biomethane

TOTALENERGIES and Veolia have signed an agreement to produce biomethane from Veolia waste and water treatment facilities operating in more than 15 countries.

The partners will develop and co-invest in a portfolio of international projects, with the ambition to produce up to 1.5 terawatt-hours (TWh) of biomethane per year by 2025. This production of renewable gas made from organic waste will be equivalent to the average annual natural gas consumption of 500 000 residents and will avoid some 200 000 tons of CO<sub>2</sub> per year. TotalEnergies will market the resulting biomethane as a renewable fuel for mobility or as a substitute for natural gas in other uses.

As part of this agreement, the partners will pool their industrial know-how in biomethane production. Veolia will provide its expertise in the production and processing of biogas from its facilities, and TotalEnergies will contribute its in-depth knowledge of the entire biomethane value chain.

"We are pleased to partner with Veolia to promote the recovery of waste through the production of biomethane,

and thereby the circular economy, one of the pillars of sustainable development," said Stéphane Michel, President Gas, Renewables & Power at TotalEnergies. "The development of biomethane is part of TotalEnergies' transformation into a broad energy company, and the deployment of its ambition to be a major player in renewables."

"Our partnership with TotalEnergies is in line with Veolia's strategy to develop solutions for decarbonizing the energy mix, notably with biogas, as part of an ecological transition," said Estelle Brachlianoff, Chief Operating Officer of Veolia. "At the global level, the biogas resources at our sites offer more than 6 terawatt hours of primary energy. With this biomethane production potential and our know-how in biogas management, Veolia intends to become a leading player in the value chain while developing more decentralized and local green energy production capacity."

TotalEnergies and Biomethane TotalEnergies is the segment leader in France, with close to 500 GWh of production capacity, and aims to become a major player in biomethane internationally by partnering with market leaders such as Clean Energy in the United States. The Company is active across the entire biomethane value chain, from project development to marketing of biomethane and its by-products (biofertilizers, bioCO<sub>2</sub>). It aims to produce at least 2 TWh of biomethane per year by 2025 – equivalent to the annual consumption of 670,000 French consumers and a reduction in CO<sub>2</sub> emissions of 400,000 tons.

Veolia and biomethane Veolia is now one of the world's largest producers of energy from biogas, with a primary energy resource of nearly 6 TWh. As a world leader in ecological transformation, Veolia aims to maximize the recovery of biogas in the form of biomethane and to expand its global resource base, in a circular economy approach. The Group's ambition is to become one of the leading players in the biomethane sector and to develop more green energy production capacity to help combat climate change.

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# Africa's opportunity lies in the energy transition

COP26 in 2021 brought the subject of climate change and the commitments needed by international partners sharply into focus. While the African continent is responsible for no more than 3.8% of global greenhouse gas emissions, it is in its ability to contribute to achieving overall emission reduction targets that Africa stands to benefit.

Africa's potential to generate green energy is according to Gareth Philips, manager of the Climate and Environment Finance Division of the African Development Bank, an opportunity "for African countries to find ways to guarantee a cleaner future and become a net exporter of clean energies to Europe."

Africa's opportunities lie in clean energy generation and reducing its dependence on fossil fuels. And while the role of natural gas in the energy transition in Africa is a subject that is heavily debated, there is also an opportunity to shift to low-carbon development by utilising some of the newly discovered natural gas resources in Africa.

Speaking at COP26, Dr Arron Tchouka Singhe, chief oil sector officer at the African Natural Resources Centre of the African Development Bank told attendees that in Africa "natural gas stands as an ecologically plausible solution for industrialisation and clean cooking..."

However, the exploitation of both green energy and natural gas on the continent can only be achieved if there is significant investment in the development of these sectors.

The 'clean' industrialisation of Africa should be one of the key outcomes of such investments – allowing African countries to pursue economic growth and development in a clean and sustainable manner. Singhe suggests that the goal for Africa should focus on "low-carbon development pathways," rather than "net-zero pathways."

Among the Sustainable Development Goals and the African Union's Agenda 2063 objectives are the following:

- A prosperous Africa, based on inclusive growth and sustainable development
- Transformed economies
- Environmentally sustainable and climate resilient economies and communities
- World class infrastructure crisscrosses Africa

The benefits of international commitments

to climate change were most recently seen during the COP26 meeting when it was announced that South Africa would benefit from contributions and commitments exceeding \$8 billion, enabling the country to transition from a predominantly coal-based generation sector. However, we believe this is just the beginning of a larger conversation

around the greater African energy transition and how this will be financed and implemented, and how access to energy is one of the fundamental foundational elements of this transition. This is the conversation we plan on continuing at Enlit Africa – we invite you to join us.

After two years in limbo, the African

events industry is making a comeback in 2022 with the latest edition of Africa's most respected power and energy event. African Utility Week and POWERGEN Africa, a stalwart of the industry has been re-branded as Enlit Africa. The energy transition is more than just a transition to cleaner energy - it is a journey to a completely new energy landscape

in which generation, transmission and distribution networks evolve and adapt to bi-directional electricity flows, distributed energy, intermittent renewable energy and other new grid technologies. However, this transition is not just about embracing the new - it is about understanding the role that more traditional infrastructure will play in

the future and considering the role a multitude of technologies are going to play.

Our programme will reflect the entire power and energy landscape, asking the hard questions and providing the answers to the most challenging questions. From generation to transmission to distribution, from Cape Town to Cairo, Enlit Africa has

something for everyone.

Join us from 7-9 June in Cape Town and be part of the conversation. Share your thoughts on the timeline and pathway for the transition and how the transition can be implemented fairly, sustainably and to provide access to energy for all.

More information can be found at [www.enlit-africa.com](http://www.enlit-africa.com)

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# Keeping women workplace safe, productive and efficient

By David Poggiolini

MORE women are performing roles that were traditionally undertaken by men. However, women still encounter many challenges in industry, which has a long legacy of facilitating mainly male workers. A case in point is the provision of supposedly “unisex” or male personal protective equip-

ment (PPE) to women working in mines, on factory floors and work-sites throughout the country. In most cases, this PPE has actually been designed for men to wear. Current offerings include a feminine touch and have been passed off as female PPE with scant regard for a women’s anatomy which differs significantly from their male counterparts. So says Predahni Nai-

doo, Brand Manager of BBF Safety Group. BBF Safety Group manufactures and distributes the SiSi Safety Wear range of PPE, which has been designed specifically for women employees

“In some instances, this supposedly ‘unisex’ PPE, especially footwear, may compromise the safety of wearers. This actually defeats the intended purpose of PPE which is to protect

employees when they perform their duties. It can also hinder their productivity and efficiency simply because this PPE has actually not been designed for them to wear,” Predahni Naidoo, Brand Manager of BBF Safety Group, tells Cape Business News.

The company is constantly expanding its existing range to ensure that it is able to adequately serve the

needs of women fulfilling many different roles across a broad spectrum of industries that have very specific PPE requirements.

Among the company’s products are 23 garments across three cuts and 10 fall arrest systems that span two ranges. This is in addition to the company’s comprehensive range of footwear that currently extends across two sole shapes.

When designing its footwear range, Sisi Safety Wear consulted women in industry as well as a specialist podiatrist for their footwear.

Launched in 2008, there has been a notable uptake in the company’s footwear as more women enter the workplace. Previously, companies could only procure one generic supposedly “unisex” range of footwear in a variety of sizes. These safety boots – the smallest size for men – are only suited to a small portion of the female population because the vast majority of women have smaller and narrower feet than their male counterparts, and they are of a different shape.

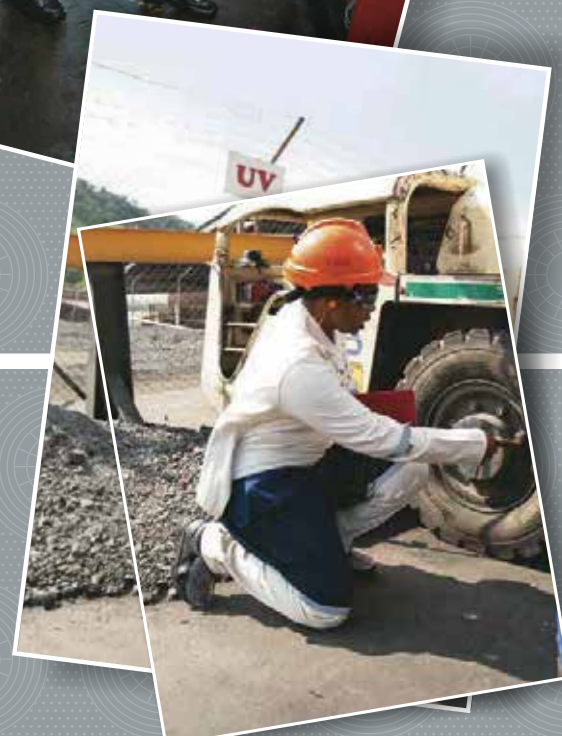
Because this footwear does not fit women correctly, it impedes their production in the short-term and, in extenuating circumstances, can cause injury to wearers in the long-term. This is considering that women’s feet oscillate from side to side inside these safety boots and, over time, this strains their ankles and knees and eventually their hips. Over extended periods, this can lead to back pain and other health-related issues.

Meanwhile, women with narrow feet could potentially slip out of their standard safety footwear. This exposes them to potential hazards, such as burns, cuts, punctures and impact. Bear in mind that safety footwear is also intended to protect against slips and falls which could result in broken bones and head injuries

However, there are companies that still take a “one-size-fits-all” approach to their PPE. This is considering lengthy procurement cycles and rigid buying procedures that cannot accommodate change quickly enough. It is also considered easier for some companies to buy PPE from a single supplier that claims to offer a standard solution for all employees. This is opposed to ensuring that the safety wear that they buy is tailored to suit the individual needs of their staff. This is a short-sighted approach that can have a major negative impact on business, considering the direct and indirect costs of injuries.

She says that meaningful change is mainly being driven by women employees. “They are raising their concerns regarding the PPE that they have to wear with their managers, supervisors, foremen and other higher-ups who are taking heed of their concerns. Women want to maintain their dignity while performing their jobs as safety and effectively as possible,” Naidoo concludes.

Shaped for women who shape the world...



At SiSi Safety Wear, we believe that there is no one-size-fits-all solution when it comes to safety wear for men and women, because the contours of a woman’s body differs greatly to that of a man.

By manufacturing footwear, workwear and fall arrest systems according to the contours of a woman’s body we are enabling a more comfortable fit, allowing women to focus their full attention on the job at hand.

Get in touch with us about our newly launched Basi Metaguard mining boot.

[www.sisi.co.za](http://www.sisi.co.za)



## Organon declares paid time off for all employees on International Women's Day

*As the COVID-19 pandemic continues to have a disproportionate impact on women, Organon issues a call to action for other leaders to create opportunities to focus on women's health in sub-Saharan Africa*



GLOBAL women's health company Organon is designating International Women's Day (IWD) on 8 March as a day to recognise the growing health disparities women face that have been exacerbated by the COVID-19 pandemic.

Since its inception, IWD has focused on accelerating gender parity. Organon recognises the need for a global effort to address her health and is starting with its own employees, including the 101 in Organon South Africa, by providing paid time off this year for all employees to attend to their own health needs.

The company invites organisations in South Africa, sub-Saharan Africa and across the globe to join in raising awareness of the inequity in women's health and to adopt initiatives that help women prioritise their health.

Women have worked hard to advance in the workplace, but the pandemic is unravelling these hard-fought gains. Women are now significantly more burned out than ever, even more than men -- which can take a huge toll on their physical and mental health.

A study published in December 2021 examined how the pandemic affected the South African economy and women in particular. In line with other studies, the researchers found that women have been more affected than men because the pandemic caused more negative effects to sectors that rely on female labour, which led to women earning less than their male coun-

terparts. As a result, this pandemic has increased vulnerability and poverty for female-headed households more than for male-headed households.

In addition, child healthcare services, maternal care for pregnant women, services relating to chronic illnesses, and sexual and reproductive health care, including family planning and HIV prevention services, were negatively affected by the pandemic. In South Africa and Mozambique, less than 20% per cent of women accessed family planning and other reproductive health services during the pandemic, with some staying away out of fear of contracting the virus.

"Organon launched with a commitment to listen to the needs of women and as part of our research, we learned that women are finding it harder than ever to make the time to care for even their most basic health needs," said Kevin Ali, chief executive officer, Organon. "As a company investing in innovation to improve women's health, I felt a responsibility to help address this within our own global community of almost 9 500 employees. This year, the symbolic action we are taking is to encourage all our people to spend this day off to make a commitment to their own health or the health of the women in their lives, whether that's going to the doctor, taking stock of their own wellbeing or reflecting on how to make a change."

Organon South

Africa and Sub-Saharan Africa Managing Director, Dr Abofele Khoele, said that addressing the specific needs of women's health is fundamental to reducing poverty, inequality, and advancing the rights of women and girls. "Women across Africa face severe obstacles to good health, including sexual and gender-based violence, maternal health risks and childbirth, neglected tropical diseases, communicable diseases like HIV, tuberculosis, and malaria, and non-communicable diseases like heart disease, cancer, and diabetes. That is why we wholeheartedly support this important health initiative."

Organon believes healthy women are the backbone of a thriving, stable and resilient society and when she is healthy, she prospers and so does her community and her society, for generations to come. Yet, a recent study found that 44% of older women said they waited until a health symptom became urgent before scheduling an appointment -- and that number jumps to 62% for women aged 20-34. This is what Organon is hoping to change and asks others to join in the effort to improve women's health.

Organon maintains that by improving the understanding of women's health needs, sub-Saharan Africa can move one step closer to closing the inequity gap. Organon urges all organizations to join in this mission and be part of the solution.

## Female touch spurs a decade of rental success

FEBRUARY 2022 marked the tenth anniversary of Rand Air's Northern Cape Kathu Depot. This is also a celebration of the dedicated and passionate Kathu team and the Depot's exponential growth over the past five years. The can-do attitude of Sales Representative, Denise Olivier, and skilled technicians Joseph Masiga, Lekunutu Tlhasedi, Nicholaas de Koker, Reuben Nkosi and Trevor Mpikwane has seen the Depot reaching several milestones. The customer base has grown ten-fold and in 2017, turnover increased by 85% and the 'Depot of the Year' title was clinched. The success story of this remarkable team continues with Denise achieving the 2018 'Sales Rep of the Year' award and in 2021 the Depot recorded its best revenue year.

"Securing new market sectors and keeping existing customers satisfied can be particularly challenging in this territory," notes Denise. "Alongside the remote locations of most of the plants, tight mine security makes customer visits very difficult. I was initially given a cus-



*Kathu Depot team L to R, Trevor Mpikwane, Lekunutu Tlhasedi, Denise Olivier, Nicholaas de Koker, Joseph Masiga and Reuben Nkosi (not pictured here due to working nightshift).*

tomers' list but I did my own research and drove around trying to spot dust-clouds because then I knew that it was a mining operation and a potential customer." Denise also made sure that she brushed up on her product knowledge.

To meet customer demand, it was not long before the Kathu Depot's rental fleet expanded by some 600% comprising a variety of Atlas Copco mobile generators and air compressors. Pumps were added in 2021 and the lighting plants fleet will soon be boosted with Atlas Copco's latest LED light towers.

"We support explo-

ration drilling, a key sector of our long-term business, with high-pressure 25bar Atlas Copco compressors," says Denise who was responsible for adding solar plants to the Depot's customer base. She explains that this is a fluctuating business as the solar plants rent mobile oil-free electric compressors during commissioning and testing phases. Denise and her team also supply short-term machine rentals to contractors during on-site work.

"As downtime is simply not an option for our customers, we couple our next-level after-market service

package to our quality, robust and efficient Atlas Copco rental products. But I would not be able to achieve any of this without my professional team who ensures that our customers' machines are maintained regularly.

Denise reveals that the Kathu Depot's footprint was recently expanded into Namibia. "I have already started doing my research and my team and I are extremely excited to forge new rental customers in this country and to take the Kathu Depot to even greater heights in setting the rental benchmark!"

## "Gender equality today for a sustainable tomorrow"

THE theme for International Women's Day, 8 March, 2022 (IWD 2022) is, "Gender equality today for a sustainable tomorrow", recognizing the contribution of women and girls around the world, who are leading the charge on climate change adaptation, mitigation, and response, to build a more sustainable future for all.

Advancing gender equality in the context of the climate crisis and disaster risk reduction is one of the greatest global challenges of the 21st century. The issues of climate change and sustainability have had and will continue to have, severe and lasting impacts on our environment, economic and social development. Those who are amongst the most vulnerable and marginalized experience the deepest impacts. Women are increasingly being recognized as more vulnerable to climate change impacts than men, as they constitute the majority of the world's poor and are more dependent on the natural resources which climate change threatens the most.

At the same time, women and girls are effective and powerful leaders and change-makers for climate adaptation and mitigation. They are involved in sustainability initiatives around the world, and their participation and leadership results in more effective climate action. Continuing to examine the opportunities, as well as the constraints, to empower women and girls to have a voice and be equal players in decision-making related to climate change and sustainability is essential for sustainable development and greater gender equality. Without gender equality today, a sustainable future, and an equal future, remains beyond our reach.

The United Nations Observance of International Women's Day under the theme, "Gender equality today for a sustainable tomorrow", will be marked by a high-level virtual (TBC) event on Tuesday, 8 March 2022, 10-11.30 a.m. EST. The Secretary-General of the United Nations, the President of the General Assembly,



*Trials of drought tolerant beans in Malawi, which in 2016 was suffering from its worst drought in three decades. Photo: CIAT/NeilPalmer.*

the Chair of the Commission on the Status of Women, the Executive Director of UN Women as well as gender equality and climate change activists and celebrities will participate. The event will be followed by a high-level panel discussion and musical performances.

The theme for International Women's Day is aligned with the priority theme for the upcoming 66th Commission on the Status of Women (CSW66): "Achieving gender equality and the empowerment of all women and girls in the context of climate change, environmental and disaster risk reduction policies and programmes".

### International Women's Day 2022 Brand Kit

For this year's International Women's Day, UN Women has partnered with the visual artist Burcu Köleli to develop imagery illustrating the 2022 theme "Gender equality today for a sustainable tomorrow".

Non-commercial use of the International Women's Day 2022 banners is permitted on web and social in the context of International Women's Day provided that UN Women and the artist are credited as follows:

Source: Burcu Köleli for UN Women (2022).

# SA plastics industry calls for flexibility to tackle plastic pollution



Anton Hanekom.

THE UN Environmental Assembly met for their fifth session (UNEA 5.2) in Nairobi, Kenya, recently to discuss the most important environmental pact since the 2015 Paris Agreement on climate change.

Many of the world's environmental leaders attended to draft a blueprint for a global plastics treaty that will address the issue of marine litter and plastic pollution in the environment.

Given the environmental challenges faced as a consequence of

plastic pollution, South Africa's Department of Forestry, Fisheries and the Environment (DFFE) indicated that Government will give its support to the establishment of an Inter-Governmental Negotiating Committee (INC) under UNEA to negotiate an internationally legally binding instrument on plastic pollution.

Plastics SA Executive Director Anton Hanekom says they share the vision, passion and driving ambition to prevent leakage of plas-

tic into the environment and achieve universal access to waste collection.

"We fully acknowledge and support the urgency to address the issue of plastic waste in the environment and marine plastic debris. However, we do not believe that this will be successfully achieved by regulating plastic products or production. Plastics can play a valuable and important role in achieving the UN Sustainable Development Goals (SDGs) provided that they are respon-

sibly and sustainably produced, used, and recovered in a circular economy," Hanekom says. The Resolution proposed addressing plastic pollution through the following provisions:

- Establishing as necessary targets, definitions, methodologies, formats and obligations
- Addressing product design and use, including compounds, additives and harmful substances, as well as intentionally added microplastics;

- Promoting national action plans to prevent, reduce and remediate plastic pollution - tailored to local and national circumstances and the characteristics of specific sectors
- Increasing knowledge through awareness-raising and information exchange on best practices to prevent plastic pollution and promote behavioural change;
- Monitoring and reporting on national and international progress on implementation of the agreement;
- Providing scientific and socio-economic assessments and monitoring and reporting on plastic pollution in the environment;
- Cooperating and coordinating with relevant regional and international conventions, instruments and organisations;
- Specifying financial and technical arrangements as well as technology transfer assistance to support the implementation of the convention
- Addressing implementation and compliance issues;
- Promoting research and development into innovative solutions.



## Recycling Facts

### Plastics

- Americans throw away enough plastic bottles each year to circle the earth four times.
- Every hour, we throw away 2.5 million plastic bottles (22 billion plastic bottles per year).
- Five recycled plastic bottles make enough fiberfill to stuff a ski jacket.

### Paper

- Recycling one ton of paper saves 17 trees.
- Every Sunday, the U.S. wastes nearly 90% of all the recyclable newspapers. This wastes about 500 000 trees.
- One tree can filter up to 27 kg of pollutants from the air each year.
- Americans use more than 67 million tons of paper per year, or 260 kg per person.
- More than 1/3 of all paper fibre used to make paper comes from recycled paper.

# fit for purpose

Plastics offer innovative solutions to society's permanent evolving needs and challenges. Whether it is to stay connected, play sport, provide clean drinking water, preserve and protect food or help us live healthier, longer lives, plastics are a family of remarkable materials with science and innovation in their DNA. Versatile, durable, adaptable and recyclable, modern plastic applications are truly FIT for purpose!

**Functional. Innovative. Trusted.**

**Plastics | SA**

www.plasticsinfo.co.za

Recycle your plastics.

Source: <https://thegreenteam.org/recycling-facts/>


# Serving Land and Life.

Interwaste and Séché Environnement, a recognised specialist in the recovery and treatment of hazardous and complex waste, have joined forces to bring innovative waste treatment solutions to the African market.

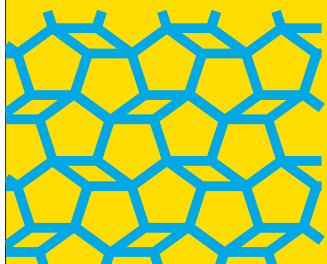
The combined expertise of the two businesses, built on social and environmental values, not only brings a strong focus on the circular economy, compliance to stringent environmental standards and the investment in leading technology, but also a focus on creating opportunities to deliver economic, social and environmental value to all.

**Partnering for the Planet.**

**INTERWASTE**

A proud  Séché environnement company

[interwaste.co.za](http://interwaste.co.za)



## The future of recycling is circular in nature



**Kate Stubbs,  
Marketing Director  
at Interwaste**

SOUTH Africa generates 122 million tons of waste per annum. This equates to roughly R25.2 billion worth of excess waste being generated, 90% of which ends up in over-capacitated landfill sites leaving only 10% of this waste being recycled back into the economy. However, all is not lost - the future of South Africa's waste sector is ripe with potential!

If you consider the waste regulatory framework and the various strategies and commitments South Africa has made to divert waste from landfill disposal and manage it more effectively, there is no doubt that more sustainable developments to better manage these challenges, are needed. In fact, we need to relook

at what recycling typically means and how recycling in its traditional form needs to be reconsidered and elevated to meet the waste demands in the country. Waste management forms a critical role in providing solutions that address both traditional business models and recycling practices. The answer? Circular economy thinking... and action!

The zero waste to landfill goal by 2030 is certainly an ambitious one. It looks at diverting 90% of waste from landfills using a 'whole system' through recycling, reuse, recovery, beneficiation technologies, and towards value-adding opportunities which has the potential to create numerous environmental, social, and economic opportunities for South Africa. If a zero-waste sustainable country is to be achieved, then waste

needs to be designed out of the system from the onset and any remaining waste needs to be managed effectively, proactively and through supporting infrastructure to ensure it is useful to drive the new normal in waste management.

Projects such as waste to energy solutions where waste is converted into an alternative energy to negate reliance on fossil fuels, or waste water management to reduce the burden on this scarce resource and improve quality water accessibility, present not only an environmental solution but, in many cases, an economic one aligned to government challenges and priorities.

### Creating awareness for consumers and corporate SA

As more consumers begin to adopt the 'nothing wasted' mind-

set and are concerned about product sustainability, many businesses are now pushing industries to innovate and effectively repurpose waste - not merely into something that is useful, but which also enables cost saving opportunities for those organisations. We are seeing a strong drive of this reformative, restorative, and regenerative system.

### Legislation

The South African government continues to make commitments to redirect waste from landfills and in support of this, new laws have been legislated and regulations are being rolled out - all aimed at cleaning-up South Africa and reducing the negative environmental as well as health impacts caused by waste. For example, the New Extended Producer Responsibility (EPR) is being implemented, where producers of particular products that ultimately produce waste, are required to take responsibility for these products after consumer use. This ensures that from the inception of production, producers are already considering the impact of the waste generated from their products, taking into account the potential to reuse, recycle and recover the "waste" and find alternative measures to change the way in which these products are managed throughout their life cycle.

## Challenging the norm to divert construction waste from landfill sites



**By David Poggiolini**

WHILE rubble recycling in South Africa remains a notoriously challenging industry, Rubble Cycle is persevering against all odds to help drive the uptake of materials that have been manufactured from construction waste. Among the many challenges that participants in the industry face include an abundance of virgin aggregates from quarries that still have hundreds of years of mineable resources left and that are also very competitively priced. This is against a backdrop of rampant illegal sand mining and dumping of construction waste.

Since 2009, owners, John Wilson and James Ross, have been slowly growing markets for the various products that they produce from builders' rubble. This includes a range of aggregates, such as a G7 filling sand, 19mm stone, kerb mix and -350mm Sandstone Rock. The company also produces a quality G5 sub-base material that it mainly uses for its own general civil-engineering construction projects, achieving a Mod AASHTO dry density of 107% for the various stands that it constructs for housing developments in-and-around the larger Cape Town area. The quality of the material has also been validated by independent laboratories. Moreover, Rubble Cycle produces a topsoil that is in very high demand considering the severe shortage of the material in this area.

The recycled aggregate is also used to manufacture masonry blocks, which are mainly being supplied

to communities in informal settlements. Rubble Cycle produces 90mm x 190mm x 390mm; 140mm x 190mm x 390mm; and 190mm x 190mm x 390mm masonry blocks for this market.

These are complemented by the building materials that the company salvages from its demolition and excavation operations. They include window frames and doors, as well as bricks. The products are also mainly being sold to communities residing in informal settlements in the area. Notably, the latter operations have also created many jobs for unskilled individuals who are appointed to chop mortar off the bricks and clean them before they are sold.

"We believe that building rubble will eventually become a commodity in the country. This is considering limited landfill space that can accommodate the vast volumes of waste that is being generated by the construction industry. In Cape Town, builders already have to pay a steep tariff to dispose of their rubble on landfill sites, which are fast running out of capacity. When the higher tariffs were implemented by council, my partner and I immediately identified a business opportunity. While our rubble recycling operations have taken time to grow and many challenges still lie ahead, we remain cautiously optimistic about the future. This is the reason we have invested heavily in the equipment required to operate a professional rubble recycling operation," Wilson says.

At present, Rubble Cycle's tipper truck transport services for

the removal of rubble and delivery of construction materials; demolition and excavation; and general civil-engineering construction operations largely subsidise the recycling operations. These services are complemented by the sale of virgin sand and aggregates.

Rubble Cycle delivers the building waste to its premises in Athlone, Industria, where it is recycled using mobile crushing, screening and scalping equipment. The plant has an installed capacity of 100t/hour. Rubble from other transporters is also accepted by the company and it does not charge a tariff for this service. In addition, the company crushes and screens builders rubble on various construction sites on behalf of contractors using its mobile equipment. This material is mainly used as general fill.

"The South African rubble recycling industry is still in its fledgling years and nowhere near to the level of sophistication of its international counterparts. However, we are also starting to face similar challenges that spurred on the rise of a vibrant rubble recycling industry in these countries. This includes the elephant in the room, which is the rapid depletion of landfill space in South Africa. Rubble recycling is an effective way of diverting waste from landfills, while a labour-intensive approach as deployed by South African operators, also creates much-needed jobs, especially for unskilled people. We are proud to be part of the solution," Wilson concludes.

## PVC community rejects PP's list

THE Southern African Vinyls Association (SAVA), supported by members of the Global Vinyls Council (GVC), has rejected the Phase 1 list of "problematic and unnecessary plastics" published recently by the SA Plastics Pact. This list advocates for these plastics in packaging to be phased out by members by the end of 2022 as part of ongoing work towards the fulfilment of its Roadmap to 2025.

Amongst this list of 12 items, the Plastics Pact has listed PVC rigid packaging (including bottles, except for medicine packaging), pallet shrink wrap and labels, stating that "PVC has a very low recycling rate

due to the small market size and there are environmental concerns in its production and end of life, as well as the additives included in PVC materials".

"Although we are a signatory of the SA Plastics Pact, SAVA rejects and opposes the inclusion of PVC packaging in the strongest possible terms. Our latest recycling figures clearly show that there is a strong demand for PVC recycle in South Africa. During the 2020 reporting period, a total amount of 21 433 tons of PVC were recycled in our country, of which 13 440 tons were flexible (PVC-P) and 7 992 tons were rigid (PVC-U). PVC was the only poly-

mer to have recorded a year-on-year increase of 9.5 % despite very difficult trading conditions such as global raw material shortages and supply chain issues, high material costs, interrupted electricity supply due to load shedding and the ravaging effects of Covid-19. The recent global shortage in raw materials and high polymer prices has driven the demand for recycle even further," says Monique Holtzhausen, CEO of SAVA.

PVC is an intrinsically low-carbon plastic: 57% of its molecular weight is chlorine derived from common salt; 5% is hydrogen; and 38% is carbon. It is extremely durable and

cost efficient and it can be recycled several times at the end of its life without losing its essential properties. Using it as packaging can help preserve and conserve food by guaranteeing a longer shelf-life, improving food safety, reducing bacterial proliferation and protecting against external contamination. For this reason, the global PVC community has also rejected the Plastics Pact's list which is influenced by the Ellen MacArthur Foundation, warning that it could pose risks to the public by eliminating certain types of packaging.

For more information, visit [www.savinyls.co.za](http://www.savinyls.co.za)

## Conglomerates partner to develop advanced plastic recycling plant



TOTALENERGIES and Honeywell have concluded a strategic agreement to promote the development of advanced plastic recycling. Under this agreement, Honeywell will agree to supply TotalEnergies with Recycled Polymer Feedstock (RPF) using Honeywell's UpCycle Process Technology at the recently announced Honeywell and Sacyr advanced recycling plant, to be built in Andalucía, Spain. TotalEnergies will purchase and convert this raw material into virgin-quality polymers, which could be used for food-grade packaging and other high demanding applications.

The UpCycle plant, which will be owned by a joint venture between Honeywell and Sacyr, is planned to process and convert yearly 30 000 tons of mixed plastic waste into RPF, that may otherwise be destined for landfill or incin-

eration. The projected startup of the UpCycle plant is expected in 2023, with RPF to be used for the manufacturing of high-quality polymers in TotalEnergies' European-based production units. With identical properties to virgin polymers, the recycled polymers are expected to be suitable for a wide range of applications including food-grade applications, such as flexible and rigid food packaging containers.

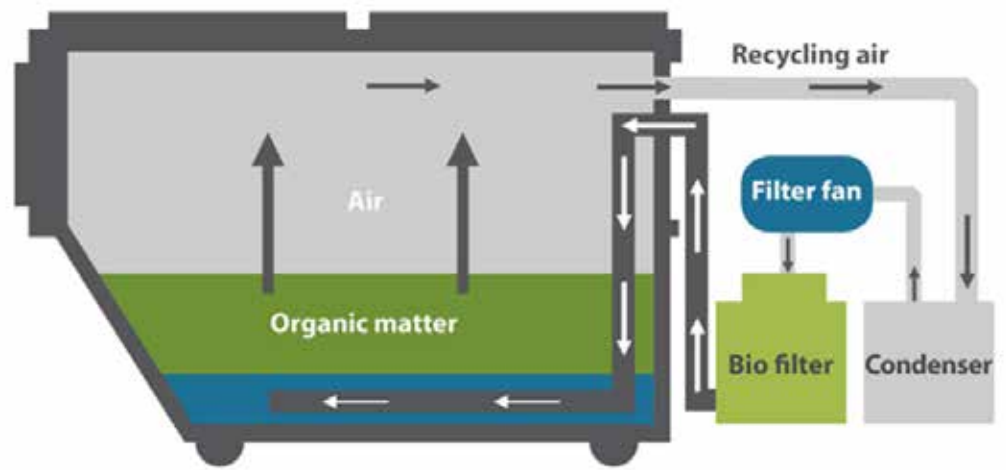
This first planned project represents the start of the collaboration between TotalEnergies and Honeywell in the field of advanced recycling. Both parties are committed to addressing the issue of plastic waste and helping to build a more circular and sustainable economy in Europe, and the rest of the world.

"We are pleased to partner with Honeywell to tackle the issue of plastic waste through the development of

advanced plastic recycling, and thereby the circular economy, one of the pillars of sustainable development. This project, with a 2023 targeted startup, will contribute to meet our ambition of producing 30% recycled and renewable polymers by 2030 "said Valérie Goff, Senior Vice President, Polymers at TotalEnergies.

"Plastics demand will continue to grow, so it's critical to create a linkage between waste management and plastics production to strengthen a circular flow of plastics," said Ben Owens, vice president and general manager, Honeywell Sustainable Technology Solutions. "The relationship with TotalEnergies will provide a strong recycled polymer feedstock offtake partner and coupled with our recently announced advanced recycling plant with Sacyr, Honeywell is leading the drive toward a more circular plastics economy."

## A wave of consumer awareness will pressure businesses to manage their organic waste more responsibly



How Biobin works.

It is difficult to predict what trends will shape an industry for this year ahead, but one thing that is abundantly clear is that there is a wave of public awareness towards environmental issues in South Africa. Sparked by the proposed seismic surveys on the Wild Coast, the public was quick to raise their voice to protect the environment and boycott the implicated party.

The amount of collective energy put into this campaign was enough to make one of the world's biggest energy corporates 'wave the white flag' and halt its activities in response to public pressure. While this has been a significant win for the public and Wild Coast, there are many other pressing environmental issues that will garner public attention, and one is how businesses manage their organic waste.

"THE public already knows the impacts of waste, and we have especially seen this with plastics and pack-

aging. Knowing the devastating impacts of plastic accumulation in the ocean, consumers are selective in choosing the retail outlets that they shop at," says Brian Küsel, director of BiobiN South Africa. "Shops that offer recyclable packaging, compostable alternatives, and reusable bags seem to get the nod, while shops that use excessive amounts of plastic packaging are often called out for it."

While recycling plastic products and packaging is important to keep it out of the environment and create a circular economy, keeping food and organic waste from going to landfill should be just as much of a priority. The retail sector in South Africa is especially responsible for generating large volumes of food and organic waste, where a large portion still goes to landfill.

"Landfill is not a sustainable option for food and organic waste,

it is very problematic in fact," says Küsel. "We need to start looking at organic waste the same way to look at materials like plastics, closing the loop on the organic waste stream to keep it out of landfill and the environment."

The circular economy has been a term that has received increased attention, implying that waste should be seen and repurposed as a resource that has economic value. "With on-site composting units, we can create a circular economy for organic waste on-site. We have seen this with many of our clients that use BiobiN to capture, process and in the end, produce compost from organic and food waste that is generated within shopping centres," says Küsel.

Using a BiobiN, with or without compostable bags, shopping malls have the opportunity to produce and use high-grade compost within the gardens on-site. This shows

consumers a sustainable way of managing food and organic waste and that this waste stream has value. Malls that do not use the compost on-site often send the compost to nearby community initiatives such as food gardens.

"With this model, the infrastructure is in place to promote a circular economy with organic food waste and generate awareness among consumers to support retail outlets that do so."

With more market drivers, like organic waste landfill restrictions, and with the improvement of on-site composting technology, more public attention is likely to be placed on retail, expecting shopping centres to offer consumers a better option than sending food and organic waste to landfill.

To find out more about this BiobiN South Africa, visit [www.biobin.co.za](http://www.biobin.co.za)

## New specialised vehicles to rev up cleanliness in the city

THE City of Cape Town's Urban Waste Management Directorate informs the residents that cleansing operations city-wide have been boosted by the delivery of two new vehicles. This will speed up the rate at which illegal dump sites can be cleared and increase efficiency of litter picking services in hotspot areas.

These vehicles are only two of 69 vehicles on order to improve service delivery and general cleanliness throughout the city. Delivery of a further 51 specialised vehicles for various purposes within Urban Waste Management is expected this financial year before July 2022. The total value of vehicles procured this year is approximately

R187,5 million.

"The City has significantly stepped up the resources assigned to keeping Cape Town clean with introducing the Rapid Response Programme. With the support of the National Government, budgets for clearing of illegal dumping have been effectively increased by 200% from the start of the 2021/22 financial year. We recognise that many communities have become used to informal/illegal dump sites in their area. With an injection of extra resources, the City hopes to show communities the benefits of living in an environment free of dumping.

"We hope they will feel encouraged to help prevent dumping among

their friends, family and neighbours. Cleaner areas mean better property value, and this is key to uplifting previously disadvantaged communities. However, the current intensive resourcing for this service is not likely to be sustainable, and any resources used for picking up litter could be used for other beneficial initiatives if we can stop the negative behaviour. Residents can help prevent illegal dumping and are encouraged to use the solid waste services that are provided to get rid of their waste and other unwanted items," said Mayoral Committee Member for Urban Waste Management, Alderman Grant Twigg.

## Cape beaches get help clean-up

Regular beach goers will have noticed an increase in the amount of kelp washed up at high tide at certain locations - Kleinbaai beach opposite Ons Huisie restaurant being one in particular. The Editor wondered why municipal workers engaged in the clean-up, were bagging it in plastic bags and where it ended up. The City's Mayoral Committee Member for Urban Waste Management, Alderman Grant Twigg provided the answer.

THE City does remove kelp from selected beaches due to the nuisance factor it can cause i.e. flies, stench,

pedestrian obstruction etc. Urban Waste Management also removes it during exceptional circumstances when kelp wrack piles up in large amounts along our coastline and causes a nuisance, as happened with the unusually large swell we experienced about a month ago. The area that the City removes kelp from equates to approximately 1% of the total length of the City's coastline. For the rest of the coastline we do not remove kelp because of the ecological role it plays, as well as its ability to elevate beach profiles and buffer dunes against high seas/coastal erosion.



The use of kelp for commercial purposes (composting) requires a permit in terms of the Marine Living Resource Act. Permits are issued by the National Department of Forestry, Fisheries and Environment. To

the City's knowledge there are three companies with permits in Cape Town at the moment - each allocated separate areas.

Kelp removed by the City of Cape Town is disposed of at landfill.

# GREEN SHOOTS IN A GREEN HUB

The Atlantis SEZ (ASEZ) is part of the City of Cape Town's initiative taken in 2011 to establish a greentech manufacturing hub in Atlantis. The ASEZ is somewhat unique amongst other SEZ's in the country as it wasn't set up as a greenfield site, but is rather located in a productive industrial hub, which was established back in the 1970's.

ASEZ is the result of six years of collaborative effort between the City of Cape Town, the Western Cape Government and the National Department of Trade and Industry (the DTI). Situated 40km from Cape Town, the ASEZ capitalises on being located in an established manufacturing and commercial hub, as well benefiting from the province's already flourishing renewable energy and green technology sector. The hub has already attracted its first large greentech investor, Gestamp Renewable Industries (GRI). A steel wind tower manufacturer, GRI has already invested R475 million and is in full-scale production.

The South African greentech manufacturing market is worth at least R30 billion; with a growing greentech market in the neighbouring countries. South Africa has opportunities in energy, waste, agriculture, transport and other sectors and is a great entry point for the SADC market.

Atlantis is an ideal location and is development ready. 93 hectares of industrial-zoned City of Cape Town land is available for leasing to investors. Bulk infrastructure is in place and Atlantis has new public transport, shipping links and fibre connectivity. It is also close to major ports, roads, universities and greentech markets.

Investors have access to extensive investment support through the One Stop Shop for investor support and the rest of the investor support ecosystem, which includes InvestSA, GreenCape, the City of Cape Town, and Wesgro. Together the ecosystem provides information and advocacy support; market intelligence; facilitated access to permits and licenses, planning and development approvals; and skills training.

The level of support is illustrated by the ASEZ's comprehensive website – potential investors can apply online for board approval by filling in a simple user-friendly questionnaire which removes unnecessary red tape whilst speeding up the entire process.



Aerial view of Zone 1 of the Atlantis SEZ.

## GAZETTED AS A BUSINESS ENTERPRISE

"Since being declared a business enterprise late last year, this means that the ASEZCo can legally enter into development contracts with investors and entrepreneurs, offering a turnkey service of building a facility to the business' own specifications" explained CEO Pierre Voges. "Contracts are always leasehold for a period of up to 20 years but have the flexibility of allowing an enterprise to either make use of the full development facilities of the ASEZ or if they prefer, leasing the land and services from the ASEZ and appointing their own developer from whom they would lease the premises. While the former is a less viable alternative to the ASEZ, 'half a loaf is better than no loaf'.

"The structure of the SEZ Act of 2014, allows individual SEZ's to apply for certain tax exemptions and we have made such an application to National Treasury. When granted, investors and tenants can access these attractive incentives in the form of tax relief and allowances, employment tax incentives, fast-tracked development approvals, fee exemptions and subsidies. Typical of the incentives is a reduction of corporate tax from 27% to 15% for a period of 10 years" said Voges.

There is an attractive, wide-ranging skills base to recruit from with 5 universities and many more colleges in the province, and a large range of unskilled, semi-skilled, technical and professional candidates.



Pierre Voges, CEO of Atlantis SEZ.

## DEVELOPMENT DICHOTOMY

With such a plethora of benefits and advantages, including growing South African and African markets for greentech, a well-located and development-ready infrastructure, strong support base and existing relationships for investors to tap into and a range of financial and community incentives for investors and tenants, why then is the ASEZ and other IDZs and SEZs not bursting at the seams?

The country's stagnant economy is a major issue that has affected all business activity and the SEZ community is no different.

On the one hand, the SEZ's and IDZ's were specifically established to incentivise and kick start local and international investors, yet on the other hand, Government policies which restrict business activities, deter would-be investors who find a more welcoming climate in other countries.

As documented in Gerbrandt van Heerden's article in the *Daily Friend* 17 February 2022, points out, high taxes, high labour rates and punitive regulations act as a deterrent to investment.

The World Economic Forum's Global Competitive Index places RSA at number 101 of 141 countries, hiring & firing practices – 129/141, wage determination – 134/141 and time to start a business at 129/141.

SA does not appear very competitive in attracting foreign investment, with excessive bureaucratic red tape, B-BBEE and AA requirements, high levels of taxation, security issues, employment limitations on foreign personnel etc. Against this backdrop, what are the ASEZ and other SEZs / IDZ's able to offer that would mitigate some of the perceived short comings? Despite the laudable initiatives and hard work of Provincial and local government department and agencies to advance investment coupled with creative ideas that remove red tape, implementing measures to unshackle the economy is the only way to see the SEZ's develop their full and intended potential. ■



where green tech grows

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# Putting its best foot forward for over 30 years

FOR over 30 years, Lemaitre Safety Footwear has crafted reliable safety footwear that works. It strives for excellent workmanship made with pride to produce quality footwear by respecting the dedication of workers and their craft, thereby reflecting the workmanship of workers who wear Lemaitre footwear in their respective industries.

The Lemaitre Inyati range is designed for various industries and particularly the petrochemical industry. Also known as the PU/Rubber range, the range is best-fit for workers in hazardous working environments and to keep their feet protected in any situation. The shoe range is specifically designed for resistance, protection and comfort. It comes with 300°C heat-resistant rubber soles for high heat situations and excellent SRC slip resistance to prevent accidents in situations of spilt hazardous chemicals. It also has a tough PU/Rubber sole for optimum durability to ensure safety in petrochemical working environments.

The Inyati range includes the Eruption, Spartan, Titanium, Warrior, the updated Dodge and the fresh-out-the-box Urban boot.

This range of safety shoes features genuine leather uppers enhancing appearance, protection and comfort while offering resistance against chemicals, heat, static shocks and fatigue caused by long periods of standing. The outer sole is made from hardwearing PU and an anti-penetration midsole for protection against sharp objects or tools that might be left lying around.

With a particular focus on the Urban boot, the latest Lemaitre footwear provides wearers with extra protection and durability in varying weather conditions. The boot is S3 rated and provides added safety with its cut and abrasion-resistance and the PU/Rubber sole offers resistance to water, oil and heat.

The range carries The Footology Elastopan Climate Control stamp of approval which means extra cushioning, lightweight comfort and

breathability for the whole foot including the toes.

Additional padding on the collar and tongue offers comfort and protection, making it perfect choice not just for the pet-

rochemical industry but the agricultural and civil engineering industry environments.

The Inyati range offers a variety of features and benefits for all-around pro-

tection, comfort and performance for any industry where tough terrains and harsh working settings are encountered.

Lemaitre Safety Footwear is developing several new ranges

for various applications and industries.

Follow Lemaitre Safety Footwear on Facebook or visit [www.lemaitre.co.za](http://www.lemaitre.co.za) to find your nearest distributor.



Lemaitre, from one worker to another.



**LEMAITRE**  
SAFETY FOOTWEAR



## URBAN



- S2 treated leather
- Bellows tongue
- Fire retardant laces
- TPU bump cap
- Side & Rear reflective strips
- APT midsole
- PU/Rubber sole
- Footology Climate Control Insole

**S3 RATED BOOT**

## ULTIMATE IN RESISTANCE, PROTECTION AND COMFORT PU/RUBBER

Now part of the Lemaitre brand, the Inyati range offers a tough durable PU/Rubber sole ensuring optimum comfort, durability and protection in some of the toughest conditions. The PU/Rubber sole features high heat, cut and abrasion resistance with an SRC rated slip resistance as well as resistance to water, oil and certain chemicals, ensuring optimal protection in the workplace.

The PU/Rubber sole is ideal for industries such as chemical, petrochemical, high heat environments - road works and tough agricultural and mining environments. The Inyati range features genuine leather uppers allowing you to step out with confidence, knowing your feet will be protected in tough conditions. Giving hard-working feet the protection they deserve in Lemaitre's range of durable safety footwear.



DODGE

TITANIUM



**FROM ONE WORKER TO ANOTHER**



[www.lemaitre.co.za](http://www.lemaitre.co.za)

SOURCED AND MANUFACTURED IN SOUTH AFRICA

## Multibillion-dollar pipeline to expand intra-African gas trade

NIGER, Algeria and Nigeria signed the 'Declaration of Niamey' during the third edition of the Economic Communities of West African States (ECOWAS) Mining and Petroleum Forum (ECOMOF) in Niamey on February 16, 2022. The agreement will see the resumption of the multi-billion-dollar Trans-Saharan Gas Pipeline project.

With a length of 4 128 km, the gas pipeline will link Warri in Nigeria to Hassi R'Mel in Algeria, passing through Niger. Upon completion, the pipeline will carry 30 billion cubic meters of natural gas yearly from Nigeria, Algeria and Niger to European markets via Algeria's strategic Mediterranean coast, as well as supply inland stations along its route. The pipeline will enable Europe to tap directly into the three country's significant natural gas reserves, thus diversifying its supply in the wake of the current energy crisis, while creating critical sources of revenue for African



Image credit: Wikipedia.

gas markets.

Much of the estimated \$13 billion pipeline cost will be spent in Niger, acting as a much-needed boost for the already growing energy sector and wider economy. More importantly, the pipeline will also enable Niger to monetize its own huge gas reserves, estimated at 34 billion cubic meters with recoverable reserves of 24 billion cubic meters. The use of domestic gas will develop a petrochemical industry, with the production of by-products like ammonia, urea and

fertilizers. This will have the added benefit of boosting agriculture which remains a major employer in the country and the entire region.

Niger already has valuable experience in driving transnational energy infrastructure projects. Its 2011 completed Zinder based 20 000 barrels per day (bpd) refinery which supplies the entire region with petroleum products. Niger currently exports refined products to countries in the sub-region, including Nigeria, Mali, and Burkina Faso. Through the much-anticipated completion in 2023 of the Niger-Benin pipeline - a 2 000 km pipeline that will run from the prolific Agadem basin in Niger to the Cotonou terminal off the coast of Benin - Niger will increase its current production from 20 000 bpd to over 120 000 bpd. This \$2.2 billion pipeline will unlock an additional \$3 billion in field development investments by Chinese major CNPC, which is the operator

of the Agadem discoveries. The pipeline is also expected to boost exploration in Niger, due to relatively cheap exploration and development costs in the country. Currently \$15/barrel. Conservative estimates of Niger's reserves currently stand at 3.7 million barrels of oil reserves in place and 957 million barrels of recoverable oil reserves.

Niger aims to become a hub for hydrocarbons, petrochemicals and associated products in West Africa and the Trans-Saharan Pipeline projects only serves to enhance this trend. The planned energy infrastructures will boost Niger's growth and position it as a key bridge between resource rich sub-Saharan Africa and the Maghreb and European markets. This is good news for investors and services companies seeking for attractive returns in one of Africa's most promising hydrocarbons frontiers with one of the continent's most stable democracies.

## Report:

### The role of gas as a transition fuel in South Africa's path to net-zero

THE recently released report "The role of gas in South Africa's path to net-zero" - was researched by the National Business Initiative (NBI), Business Unity South Africa (BUSA) and the Boston Consulting Group (BCG) as part of a comprehensive and consultative process to show that it is possible to decarbonise key sectors of the South African economy.

A central finding of the report is that as South Africa decarbonises its economy, gas can, if affordably supplied, play a role as a transition fuel to replace more emissions-intensive fossil fuels such as coal and diesel. Importantly, it can complement battery storage to provide flexible capacity thereby enabling a rapid scale-up of renewables, until alternative long-duration energy storage solutions and greener fuels

become affordable. An LNG pathway is assessed as the optimal gas supply option to meet South Africa's gas demand and address the supply constraints from the diminishing Pande-Temane reserves, South Africa's only major gas supply source today. The LNG pathway requires limited infrastructure with Floating Storage and Regasification Units (FSRUs) and potentially one inland pipeline and therefore provides the flexibility to ramp down supply post-2040 and minimise the risk of stranded assets and gas infrastructure lock-in.

The report finds that new investments in gas infrastructure should consider the future repurposing of these assets for the usage of green gases (e.g. green hydrogen blends and green hydrogen). For South Africa to achieve a net-zero 2050 target, gas will need to

be phased out by 2050 and substituted with greener alternatives.

South Africa will need to establish the enabling policy and commercial framework to:

- Procure gas on an aggregated basis and achieve economies of scale;
- Enable supply infrastructure within the time and to the scale of the gas demand required and
- Manage the risk of unconstrained demand and stranded supply infrastructure.

The gas report is available and can be downloaded from the NBI's website. Reports for the power sector, mining sector AFOLU and petrochemical and chemical sectors are also available on this website. Reports for other sectors will be released as they are completed.

## Equatorial Guinea strives to become a frontrunner

WITH reserves of over 1.1 billion barrels of oil and 1.5 trillion cubic feet of natural gas, the small but formidable nation of Equatorial Guinea (EG) has ambitious to position itself as an African hydrocarbon hub. In an exclusive interview with the African Energy Chamber (www.EnergyChamber.org), H.E. Gabriel Mbagi Obiang Lima, Minister of Mines and Hydrocarbons, Equatorial Guinea, provided updates on the country's oil industry and how the government is driving natural gas growth and development.

**What needs to be done to position Africa as a competitive gas economy?**

That is very simple to answer - infrastructure to import and export gas. There is not a port or terminal in Morocco, South Africa, or Ghana that is able to receive a shipment. Infrastructure is going to be critical. Investors in Europe may be selling solutions to be able to put as many terminals

as possible, which will allow us to export gas to them. That is what we need in order to be competitive in gas.

**How will the European Union's recent decision to label certain gas projects as green impact gas-producing states such as EG?**

The vision for the Gas Mega Hub will enable Equatorial Guinea to receive gas, not only from Equatorial Guinea but also from Cameroon and Nigeria. That development requires investments. Those investors will not only be Africans, but they will also be American, Asian, and Europeans because they have a lot of experience. If those Europeans have a lot of restrictions when it comes to investing in gas, there will be problems. A lot of those Europeans will be very interested in participating when they see what we are doing.

**Can you give an update on the status of the new effort to build the refinery?**

If we did that project

one or two years ago, it would make sense. Right now, we have a situation where the oil price is high and there is not a sense that the oil price is going lower. Right now, doing a small-scale petrochemical or small-scale refinery would still be a big challenge in order to make a commercial effect.

**What is EG's position when it comes to renewables and topics such as energy transition and climate change?**

Like I always say, the transition needs to happen everywhere. Every country needs to do it, including Equatorial Guinea. We need to put together the technology that is right for the country.

Country to country there is some technology that makes sense and other technology that doesn't make sense. For example, one of the technologies that I am open to is hydrogen. We need to think about not just investing in that technology but also to ensure that there is a market for it.



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# Inherent dangers require inherent protection!

FOREMOST local safety wear manufacturer Bova, a BBF Safety Group brand, has launched its range of BOVA Arc Flash Protection garments. The range has been designed to provide the best balance of inherent protection against the hazards of an arc flash, with lightweight, comfortable and durable garments.

The Bova ARC range incorporates Beier's I-ARC fabric; an innovative solution in thermal protection fabrics that was developed in collaboration with LENZING™, a global leader in inherently Flame Resistant (FR) fibres.

The I-ARC material gives the Bova Arc range a significant advantage in both comfort and its inherent FR protection, as if it is built into the fabric's DNA. With the Bova brand priding itself as being *Engineered with Purpose*, the significant benefits of having inherently FR properties was seen as a non-negotiable as opposed to having garments with a chemical FR treatment.

Inherent materials maintain their FR qualities and these cannot wash or wear away, even when subjected to everyday household detergents and bleach. The fabrics also offer strong abrasion resistance and low shrinkage.

"Arc flash is extremely dangerous and the shorter the person's exposure to the resultant flame, the better, which is why the garments must have the ability to self-extinguish as quickly as possible," explains Deane Nothard, Marketing Manager at BBF Safety Group.

The standard for arc rated garments is that they can self-extinguish within 2 seconds after a flame has been removed. However, this is normally measured in laboratory conditions on an unused garment, Bova wanted to emulate these tests with more real-life laundering scenarios. Internal tests were conducted after washes with an every day household detergent that includes stain removal and fine print advising against washing FR materials. The chemically treated FR fabrics representative of a number of popular arc garments currently in use, failed after as few as 15 washes and completely burnt out, whereas the I-ARC

fabric at 15 washes didn't ignite at all. The bigger concern is that the treated fabrics showed no noticeable deterioration prior to their failure.

"This is probably the scariest factor," adds Nothard. "Wearers may believe they are protected against potential burns when in fact their FR

treated garments have lost their protective abilities. It is also the major benefit of inherently FR fabrics - so long as the garment is visually intact the wearer is protected, the FR quality does not wash or wear away. The other major benefit with the Bova range specifically over other inherent FR garments

is the comfort factor." In any working environment, it is important to work comfortably. The Bova ARC range offers a **superior weight to protection ratio** - The **lighter weight** of the garments across both Category 2 and Category 4 compared to leading competitors add to the proven comfort pro-

vided by the fabric's **breathable properties** and **good moisture management**; ensuring the wearer can still feel cool and dry while benefiting from the inherent FR protection.

Visit [www.bova.co.za/arc](http://www.bova.co.za/arc) for further information and to view the range.



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[www.bova.co.za/arc](http://www.bova.co.za/arc)

## Equipment supplier is moving with the times



ELB Equipment teams with some of the best-known equipment brands.

ELB Equipment is taking a hands-on approach to solve rapidly evolving needs of customers in the mining and construction industries where access to finance and longer lifespans of equipment are among the many issues being faced by operators of equipment in post-pandemic times.

Companies in these industries face equal measures of opportunity and hardship calling for unique and rapid solutions to a growing range of emerging requirements. This has

sparked the country's most diverse supplier of equipment in these industries to restructure its offerings in line with new expectations.

### Wanting more

ELB Equipment divisional director, Danie Gerber, says customers are expecting more from their equipment suppliers and expect more from OEM representatives than just servicing and supplying equipment. In these times they expect suppliers to ringfence products for their purposes, provide insight-

ful technical assistance with improved access to finance and tailor-made terms to suit individual clients. Additional resources are also being directed towards aftersales support where tough times are leading customers to seek extra efficiency and longevity of equipment.

"In keeping with this quest to provide customers with total management solutions we have introduced a world-leading, locally developed telematics system which will be a standard feature across our entire range of

products from now on. The telematics systems will use the global Mix Telematics platform and provide managers with information on each machine's location, fuel consumption, hours of operation, service schedules and preventative maintenance alerts to allow more effective management of equipment fleets" says Danie.

"We know the standards of the products we offer are among the best and our sales and service staff are among the most experienced. It therefore remains important for us to keep moving forward and finding better and faster ways of delivering the types of services our customers want and need. For us it is all about trust and trusting the equipment, advice and service our customers receive.

ELB Equipment, Danie Gerber, Tel: (011) 306 0700, Email: danieg@elbquip.co.za, Web: www.elbequipment.com

## Drilling down into commodities success

By Unathi Sonti

SOUTH Africa is the number one exporter of platinum, ranks among world-leading export nations for iron, and is a major competitor selling coal on international markets.

The latest available country-specific data shows that 60.8% of products exported from South Africa were bought by importers in: China (11.4% of the global total), United States (8.3%), Germany (8.2%), United Kingdom (4.9%), Japan (4.4%), Netherlands (3.8%), Botswana (3.8%), India (3.8%), Mozambique (3.6%), Namibia (3.1%), Belgium (2.8%) and Zimbabwe (2.6%).

From a continental perspective, about 33.8% of South African exports by value were delivered to importers in Asia while 28.6% were sold to European countries. South Africa shipped another 25.2% worth of its goods to fellow African nations.



Sishen iron ore mine. Picture credit: Mining News.

Smaller percentages arrived in North America (9.7%), Oceania (1.1%) led by Australia, and Latin America (0.9%) excluding Mexico but including the Caribbean.

Given South Africa's population of 59.7 million people, its total \$86.1 billion in 2020 exports translates to

roughly \$1,450 for every resident in the relatively wealthy African nation.

South Africa is situated on one of the busiest international sea routes, critical to international maritime transportation, and its geographical location presents a huge opportunity for investing in a diversified maritime market.

## Advanced conveyor belt installation and tensioning

MODERN Mining has created a demand to handle longer and wider belts. With less splicing preferred, conveyor belts are shipped in longer lengths and special equipment to han-

dle these is required. Dymot Engineering has developed Heavy Duty Conveyor Belt Reelers that can handle narrow to wide belts and are adjustable so that one unit can be used for var-

ious belt widths. This is a great advantage for each mine as one unit can service most conveyors on site.

Dymot has also designed and developed a range of belt

pulling winches to meet our client's need to install conveyor belts over extended distances. These winches are based on our take-up winch range, with proven reliability, with the exception that it can accommodate longer pull and operate at faster speeds.

These installation units are a must have to ensure safe and efficient belt installation for both new installations or when replacing belts.

The Belt Reeler units are operated via a VFD (Variable Frequency Drive) for speed regulation with a Local/Remote feature with either Pendant or Wireless control. The units are skid mounted to be easily moved around on site to different locations.

Available options are:

- Single Reeler,
- Dual Reeler,
- Brake Unit and
- Storage Stand.

### Automatic tension control system

The dual reeler offer torque and speed control with torque setting for controlled pay-out between the two drives.

The modern high speed, large capacity, long length conveyors have created a need for an alternative to Grav-



Dymot Dual Belt Reeler.

ity Take-Up Systems for tensioning these high production machines. Dymot Engineering has developed an automatic tension control system specifically for this purpose, the BTS (Belt Tensioning System). A VFD is incorporated into the system which offers multiple advantages namely:

- Controlled Starting via VFD.
- Mechanical Life of Winch and related equipment prolonged.
- Less Power Consumption as Torque is limited in the Drive.
- Almost No Brake Wear as the Motor will be held under full Torque at 0Hz when Brake is applied for Parking.
- Faster Response due to the Winch

Active in Start-up – Pre Tension Phase.

- Tension controlled more precisely - Drive speed automatically adjusts in relation to Torque Level.
- PID control ensures instant response.
- Tension Logging in HMI - Trend Graph and csv file.
- Fault Finding Screens built into HMI.
- Various Communication Protocols.

### Custom designs

Dymot also specialize in bespoke winches which are custom designed and built to client requirements. Its design team and engineers can assist with an engineered solution applicable to individual conveyor design

and requirements. It has four full time Qualified Engineers that have successfully passed the Conveyor Design Diploma from the CMA (Conveyor Manufacturers Association of South Africa). Winches are designed to meet speed requirements and can be fitted with High Efficiency Gearboxes for Tension Control, Dual Braking Systems for added safety and Slip Clutch systems for Overload Protection.

Dymot is involved with the majority of mining projects locally and internationally have products in more than 50 countries.

For Winch requirements contact Dymot Engineering Company on 011 970 1920 or visit the website at [www.dymot.co.za](http://www.dymot.co.za)

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# 40MW solar PV project on the cards for PGM mine



With double the output to the proposed Tharisa Mine project, the Paleisheuwel R82,5 MW solar project is a US\$110 million (R1,750bn) utility-scale solar photovoltaic (PV) farm located in the town of Paleisheuwel, Western Cape. The solar farm consists of 611 000 panels and sits on 240 hectares of land.

TOTAL Eren, a renewable energy Independent Power Producer (IPP) based in France and Chariot, an African focused transitional energy company, have signed a Memorandum of Understanding (“MoU”) with Tharisa plc, the platinum group metals (PGM) and chrome producer, to develop, construct, own, operate and maintain a solar photovoltaic (PV) project for the supply of electricity to the Tharisa mine, in the North West Province.

The solar PV project is initially anticipated to deliver 40 MWp with demand expected to increase over the life of the Tharisa Mine. This

MoU is the first step towards implementation of the project and signing of a long term Power Purchase Agreement (PPA) for the supply of electricity on a take-or-pay basis.

While the value of the project has not been disclosed, it will consist of a 40 MWp solar farm employing bifacial technology, mounted on solar-tracking arrays. The footprint is estimated to be 80 ha.

Construction is expected to commence towards the end of 2023 with an anticipated 12 month build period.

The project will be implemented via a locally incorporated project company, holding the asset, equity

investment and non-recourse project finance debt.

The Tharisa Mine, located in the southwestern limb of the Bushveld Complex has a 20-year open-pit life and the ability to extend operations underground by at least an additional 40 years. The company has committed to reduce its carbon emissions by 30% by 2030 and the development of a roadmap is continuing to be net carbon neutral by 2050.

### Exploiting the African sun

Fabienne Demol, Executive Vice-President & Global Head of Business Develop-

ment of Total Eren, commented: “Through our partnership with Chariot, we are keen to assist mining companies in Africa to reduce their carbon intensity and energy costs, via implementing renewable power solutions into their operations. We are eager to bring our global expertise in solar generation to Tharisa mine and we look forward to delivering further renewable projects for our mining customers in Africa and worldwide.”

Total Eren develops, finances, builds and operates renewable energy power plants (solar, wind, hydro) representing a gross capacity of more than 3 500 MW in operation or under construction worldwide.

Through partnerships with local developers, Total Eren is currently developing numerous energy projects in countries and regions where renewable energy represents an economically viable response to growing energy demand.

The objective is to achieve a global gross installed capacity of more than 5 GW by end of 2022. Since December 2017, TotalEnergies, the major energy company, has been participating as a shareholder of Total Eren.

# Ventilation company sees growth spurt

Mine ventilation specialist, TLT-Turbo Africa has accelerated its global growth with the signing of six new major clients while retaining 20 existing clients who have submitted new orders to be filled in the year ahead.

TLT-Turbo Africa has secured orders from six new major clients in the copper, platinum, and gold sectors for the supply of mining ventilation equipment. These include clients based in Australia, USA, and Kazakhstan. The contracts continue TLT-Turbo Africa’s successful track record of delivering advanced, efficient, and high-performance surface, underground and auxiliary mining ventilation solutions both in Africa and globally for almost two decades.

Closer to home, TLT-Turbo Africa has retained 20 clients in mining, mineral processing and the automotive industry – pre-dominantly based in the sub-Saharan region. “These clients return to us based on the performance of our products and the ways in which they have enhanced their operations and reduced their operational costs. This coupled with our service delivery track record, continuous customer engagement and competitive pricing has helped us to secure returning revenue from clients who have become more like partners to us over the years,” comments Vusi Madlopha, TLT-Turbo Africa Head of Sales and Business Development.

According to Mad-



Christo Gelderblom

lopha TLT-Turbo Africa has meaningfully scaled our core portfolio of mining ventilation solutions, invested in the research and development needed to advance our technology, and enhanced our customer consultation and care culture. We have listened to our clients and the faith they have in us is echoed in the respect we have for their expertise and input. The fact that our clients continue to come back to us proves their confidence in the next chapter for TLT-Turbo Africa,” TLT-Turbo Africa Managing Director, Christo Gelderblom asserts.

Future developments will include Mechanical Vapour Recompression and expanding into new applications.

“Over the last few years, TLT-Turbo

# ESD can unlock significant value

### Kgomotso Lebele, Technology Lead for Accenture in Africa

UNEMPLOYMENT rates in and around mining communities increase annually, with limited new job opportunities emerging. Enterprise and Supplier Development (ESD) is of national importance and can unlock significant organisational value. SMMEs (small, medium and micro enterprises) make up about 98% of the formal business economy, but mining faces high barriers to entry, expansion and meaningful participation in the supply chain, and thus only employ 28% of the working population.

### Bringing mining SMMEs into the supply chain

ESD actively promotes the economic wellbeing and advancement of historically disadvantaged people by supporting their businesses and employment creation. But business opportuni-

ties in the low complexity, low-value categories are saturated, with high barriers to entry into value-adding commodities segments. With many mines taking a compliance-driven approach to ESD, there’s a limited focus on true economic transformation. Failure statistics for SMMEs are high – up to 60% fail within the first two years of operations. For mines, the challenge is to navigate two regulatory frameworks; meet organisational and community needs for transparency, inclusion and support; and turn their ESD programmes into a strategic advantage.

For this reason, Accenture and Adapt Digital Solutions have brought to market a multi-tenant Mining ESD Platform for the mining industry that is designed to ramp up meaningful outcomes for the entire mining ecosystem. It is a Salesforce and cloud-based platform available as a service. This ESD platform can change the way mines interact with and

develop suppliers in their communities. It extends spending with SMMEs across multiple procurement areas. It enhances support and success rates by making a broader range of SMME support initiatives visible and available on a larger scale. The Mining ESD Platform is designed to evolve your engagement with local suppliers from publishing opportunities to end-to-end development of local suppliers and enterprises.

### How the platform works

The platform serves three fundamentals: to Transform by driving empowerment within the supplier base, to Include by embracing smaller enterprises, and to Support by developing smaller enterprises. Ultimately, the platform allows us to go from transparent and scaled publication of opportunities to an extensive local supplier and opportunity management, administration of interactions with ESD beneficiaries (from gap

analysis to dashboards and reports), and digital management of funding, loans and other development initiatives. The Mining ESD Platform supports the entire ESD cycle, enabling it to scale and deliver higher impact. It enables supplier registration, business registration verification, and technical and development support. It publishes procurement and development (including funding) opportunities, allows suppliers to indicate interest and apply for these opportunities, and provides feedback on application outcomes for shortlisted organisations. The ESD platform provides avenues through which suppliers can get support to become better equipped to engage with mines and provides mines with visibility of the supplier’s readiness to contract on multiple dimensions. The platform will also enable reporting, supporting mines to demonstrate their performance against DMRE and DTI targets for ESD.

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## Next Engineers programme launched

*The first cohort of over 550 diverse high school learners will be the first to develop their engineering identities through 'Next Engineers'*

GENERAL Electric (GE) (www.GE.com) in partnership with FHI360, PROTEC and the Gauteng Department of Education (GDE) have officially launched the Next

Engineers programme in Johannesburg to increase the diversity of young people in engineering. The programme launch, which was officiated by the Gauteng MEC for edu-

cation, Panyaza Lesufi, will provide more than 3 500 students between the ages 13 to 18 with over five years of hands on exposure to engineering concepts and careers, and ultimately

award financial support to students pursuing engineering degrees.

Next Engineers, funded by the GE Foundation, has also been launched in Cincinnati, Ohio and

Greenville, South Carolina in the USA, and Staffordshire in the U.K. Since announcing the selection of Johannesburg as one of the four launch cities to implement Next Engineers globally last year, PROTEC and the GDE ensured Next Engineers garnered significant interest in the programme from high schools across Johannesburg's five educational districts. In fact, of the approximately 1 100 students that applied to be among the first to participate in the programme's exciting Engineering Discovery, Engineering Camp and Engineering Academy pillars, over 550 high school learners were selected as the first cohort.

Nyimpini Mabunda, CEO of GE South Africa says, "Through GE's Next Engineers programme, we are not only exposing tomorrow's engineers and change makers who will solve society's most pressing challenges to invaluable hands-on learning experiences but we are playing our part in increasing the representation of females in the engineering sector".

The total \$2.5 million USD investment will cover funding to PROTEC to implement and grow the programme, provide financial support for up to 150 Engineering Academy participants and funding for tuition for 800 youths to attend Engineering Camp.

"Working with the GE Foundation is a key step to uplifting the lives of many potential engineers while also contributing to the acceleration of the engineering industry. Through this collaboration we look forward to mentoring and exposing students to endless possibilities brought by the engineering sector and giving them an opportunity to turn their passion into a career in engineering", says PROTEC CEO, Mr. Balan Moodley.

The Next Engineers programme starts with raising awareness as early as age 13 (grade eight), igniting interest throughout high school (ages 14 to 18), and alleviating financial barriers to higher education through financial support.

For more information visit: <https://bit.ly/3HmEu10>

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# Women in Construction

*The State of the Industry in 2022, a global perspective.*

WHEN you think of an industry dominated by men, construction might be one of the first that comes to mind.

Of all the people working in construction, women comprise only 10.9%. Even smaller is the number of women on the front lines of a job site — only 1 for every 100 employees in the field. Considering that women make up 47% of all employed individuals, this means that the construction industry is only benefitting from about 1.25% of women in the workforce.

There are several factors that explain this enormous gender gap, including unconscious gender bias, a lack of adequate training and negative perceptions of women working in construction.

Despite these barriers, women continue to build their path in the industry. According to Randstad, women in construction management roles increased by 9% in the UK between 2018 and 2020.

As new construction industry jobs are expected to balloon by almost 2 million in 2022, companies are looking to recruit more women than ever before to bring their skill sets into the field.

## What can women do in construction?

Women can take on any role in the construction industry. However, they are currently severely underrepresented in trade and executive positions. Just under 87% of women working in construction hold office positions, and only about 2.5% of tradespeople are women.

Women also only make up about 14% of staff executive and 7% of line executive positions.

Despite these troubling statistics, many organizations are making efforts to promote more women into leadership positions, and women working in the industry are inspiring younger generations to follow in their footsteps.

## Diversity drives performance

Although more diverse representation in the construction industry isn't a reality today, this report by McKinsey & Co. reveals that the

most gender-diverse companies are 25% more likely to achieve above-average profitability than companies with less diversity. After a year of industry-wide growth in 2021, hiring more women is an optimal way to capitalize on

that expansion.

In fact, that report found that construction companies with more women in executive line roles than staff roles experienced above-average financial performance compared to companies that didn't. When 30%

or more of executive-level positions were filled by women, those companies had a 48% likelihood of outperforming their least diverse competitors.

Although more diversity brings about more success, Randstad found that women

executives are more likely to occupy staff roles (14%) than line roles (7%). This is in stark contrast to men in executive roles, with 33% operating as staff executives and 46% as line executives.

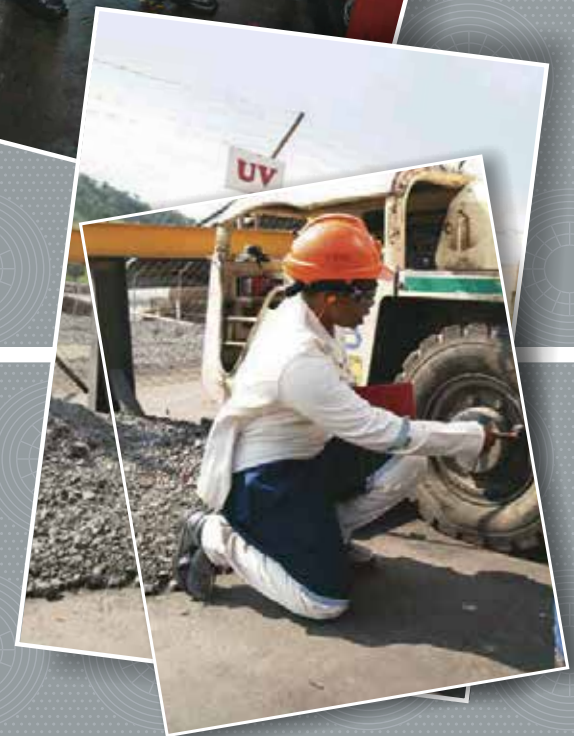
Although there are obstacles for women

entering construction, diversity is a proven asset in driving profitability and a key component in solving the construction industry's labour shortage. With more and more ground-breaking women chipping away at gender norms and

levelling the playing field, the industry is taking bigger steps at becoming a more diverse and inclusive space for future generations.

Source: <https://www.bigrentz.com/blog/women-construction>

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who shape  
the world...



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# Investing in technology for a bright, stylish future

FOR over 45 years, Ceramic Industries has been a leading player in the ceramic tile and bathroom ware manufacturing sector. During this time, the company has worked tirelessly to ensure the highest manufacturing quality, anticipate world trends, and provide the Southern African market with products that suit their needs and tastes.

It's been a long and successful journey, yet Ceramic Industries is a company that's constantly looking to the future. "I think it says a lot about our commitment that we're investing in our factories, our people and our environmental performance," says Commercial Director Gary Bowler.

Over the last four decades, the company has sustained their investment in world-class machinery, from Italian-made SACMI presses and kilns, high-

definition printers, Geiss vacuum-forming machines for their acrylic baths, robot spraying arms, and BMR polishing and rectification equipment. This has ensured that their factories are able to produce local products equivalent in quality to the best in the world.

As part of a company-wide commitment to sustainable manufacturing and as a way to increase efficiencies, Ceramic Industries began implementing environmental responsibility production methods some years back. This was driven by the company's values, but was also echoed in their customers' changing needs.

"We've always relied on research to anticipate the needs of the market so that we're able to respond quickly," says Gary. "The global pandemic accentuated what our



research was already showing – that consumers are actively seeking globally competitive, locally produced product, which are manufactured in a sustainable and eco-friendly manner."

With the various lockdowns, many South African custom-

ers focused on their living spaces. Online searches for locally produced, eco-friendly products increased significantly, and a considerable amount of money was spent on upgrading and refurbishing work-from-home spaces. "During this period, we spent

time analysing our supply chain and the sustainability of our manufacturing processes," says Gary. "We spent valuable resources on improving efficiencies with the intention of reducing our carbon footprint, utilising the most sustainable products in our manu-

facturing process and entrenching our position as a sustainable and credible manufacturer and employer."

One major change instituted by the manufacturer was the development of an innovative new tile production method. Their range of EcoTec tiles are made using less clay, but result in strong and durable products that comply with all necessary SABS specifications. A consequence of this innovation is a reduction in gas emissions from the kilns, reduced packaging needs and a lowering of transport emissions thanks to the lighter product. In addition, the manufacturer reviewed their packaging needs, and approximately 95% of all packaging materials are now from recycled paper.

New investment in manufacturing equipment continued throughout 2021, including a R350 million reboot of their SAMCA Floor Tile factory. Old equipment was dismantled and replaced with a state-of-the-art SACMI Continua+ tile press and 241m-long, energy-efficient kiln. The new machinery comes with

considerable savings on electricity, gas and clay wastage. The tile press is suited to larger formats, and the factory is testing sizes up to 1 800 X 3 000mm – when these are ready, they'll be the only South African-made slabs on the market.

Another recent investment, this time in Ceramic Industries' Gryphon factory, has been a BMR polishing plant that turns out polished and rectified tiles in a range of formats. "We're excited to be able to offer our retail partners South African-made, large-format, rectified tiles and polished products" says Gary. "We're satisfied that they're of the absolute highest quality and will enter the market at competitive prices compared to imported products."

By investing in their factories and rooting decisions in sustainability and customers' needs, the company believes they're setting themselves up for success. "We call ourselves the Creators of Style," says Gary, "and part of that means creating the conditions for a prosperous future in South Africa. That's the kind of future we're working towards."

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# SA building technology fast-tracks service delivery in emerging and developing economies

By David Poggiolini

A unique South African building system has been deployed in more than 20 emerging and developing countries to provide a faster and more affordable means of constructing low-cost houses, clinics and schools.

Among Moladi Building System's latest contracts is the construction of 60 000 affordable houses for the Ghanaian government's civil servants. The company is also providing funding and mortgaging solutions to facilitate affordable access to the houses as part of its value proposition that transcends merely building houses quicker and at a fraction of the cost than it would using conventional building methods. In partnership with a leading bank in Ghana, beneficiaries are being pre-screened to determine the size of the houses that need to be built and, in so doing,

accurately defining the housing need in the country. This was previously not known by the Ghanaian authorities. A similar system will be rolled out in Mozambique and Namibia where Moladi Building System is also very active.

In Tanzania, the company is initially building 350 houses. They will be the new homes of communities that have been displaced by the construction of the East African Crude Oil Pipeline. Here, there is a shortage of more than 2-million houses. Meanwhile, it has also been selected by the Pakistani authorities as a viable solution for building many affordable houses for citizens of the country. More recently, Moladi Building System also secured a contract to build a house in Idaho in the United States.

"We have refined our processes since 1987 when we built our first house in South Africa. This was before the



CEO Hennie Botes shows off the perfect finish of a Moladi home.

establishment of the National Home Builders Registration Council (NHBRC), so we had to then construct according to what I refer to as the 'Moladi Standard'. This was a high yardstick that we established for ourselves already in those tentative years. Nothing much has changed since then apart

from improvements made to our processes to bolster efficiencies and make construction more affordable," Hennie Botes, Chief Executive Officer of Moladi Building Systems, says.

The company has bank approval and by implication this means that it is registered with the NHBRC and its

technology certified by Agrément South Africa.

Notably, the company also won the Eric Molobi Housing Innovation Hub award for a house that it built in Soshanguve, Tshwane. The 52m<sup>2</sup> house was completed in two weeks and at cost of R34 000. A Moladi Building System wall is about 60% more

cost-effective than a traditional brick and mortar wall of the same size. However, the company won the award for passing the so-called "knock test". It was a very durable structure that the community wanted to emulate in Soshanguve.

The system comprises a number of recyclable plastic modules that are connected together to form the mould of a house. These forms are then filled with steel, sand and cement, as well as an admixture that aerates to provide thermal properties and waterproofing.

As Botes tells Cape Business News, "I put a known cost of kilogram of plastic into a hopper. It goes through the barrel and is heated and melted to fill a mould with a specific volume in a predetermined time. When the mould is opened, I know exactly what it cost me to produce the product. We also know precisely how much the shell of the structure is going to cost

when we fill the moulds on site."

There is also no need to chase walls and to then replaster, while also eliminating stoppages in production due to delays in material deliveries. The system also eliminates typical errors, such as skew walls that have to be repaired by applying more plaster than was initially specified for the project.

However, it is also the job creation aspect of this system that has made it very popular in emerging and developing countries. About 34 unskilled employment opportunities are created for every house that is built using the system.

"Genius is simplicity," Botes concludes. "You do not solve a growing worldwide backlog for housing by using conventional methods as this is part of the problem in the first place. We need more 'superior building systems' – as opposed to alternative building systems."

# Balwin Properties takes sustainable development to new heights

By David Poggiolini

BALWIN Properties continues to set the benchmark in sustainable property development. The company has received 13 324 International Excellence in Design for Greater Efficiency (EDGE) certificates. A total of 5 666 of these are EDGE Advanced certificates. EDGE Advanced certified developments reduce energy and water consumption by at least 40%. At the same time, the certification process also establishes higher standards in the use of construction materials, consuming significantly less energy to produce, transport to site, install, maintain and dispose of. This is opposed to EDGE certified buildings which consume 20% less energy and water. They have also been built using materials that have lower embodied energy and, therefore, a smaller carbon footprint.

Eight of the company's lifestyle centres were also recently awarded Six-Star Green Rating from the Green Building Council of South Africa. Balwin Properties is currently the only property developer in Africa to have nine Six-Star Green Star Rating buildings. Notably, seven of the company's lifestyle centres received a net-zero rating from the coun-

cil. Over a 12-month period, the total energy consumed by the lifestyle centres was equivalent to the amount of energy created by the buildings.

Mathew Whalley, Balwin Properties' head of green innovation, says that the company's intense focus on sustainable development is in line with South Africa's commitment to significantly reduce carbon emissions and, eventually, transitioning into a net-zero economy. Moreover, South Africa is a water-stressed country that needs to use this resource responsibly. "While our investment into sustainable development has also helped to relieve pressure on a severely strained national electricity grid and municipal water systems, these benefits are an aside. Balwin Properties is primarily guided by the fact that sustainable development is the right thing to do. It has also been to the benefit of our clients. We are showing that South Africans want to live 'green' lifestyles which also provides many other benefits, not least of which is a significant reduction in utility bills," Whalley tells Cape Business News.

To help drive investment in sustainable infrastructure and solutions in the country, Balwin Properties also launched "green" home

loans. Offered in partnership with leading banks, they provide the company's customers with a reduction in their home loan interest rate. Some of these banks provide a 25 basis point reduction in home loan interest rates to Balwin Properties' clients. However, the company sees potential to provide greater savings to customers who invest in sustainable developments and this possibility is being explored.

Balwin Properties "green" innovation starts by focusing on designing apartments that are as energy efficient as possible. Among the many factors that the company first takes into consideration in these smart designs include the optimal use of natural light and ventilation, as well as effectively insulating the roof. The apartments are also fitted out with energy efficient appliances and lighting.

It then harnesses grid-tied solar systems to provide further savings in energy. The energy generated from photovoltaic panels is fed through a mains-synchronised inverter directly into the distribution boards to offset the power that would conventionally be consumed from the national grid. The company opted for a centralised system because it benefits all residents

equally. It currently has more than 2MW of installed solar capacity across its developments. Designed capacity currently stands at 10MW

Whalley says that the rapidly declining cost of solar bodes well for the company and its sustainable development drive. "The actual costs of solar have halved over the past five years," he says.

In terms of the sustainable use of water, the company first focuses on reducing demand. This is achieved by installing water efficient plumbing systems and fixtures. Technologies deployed in apartments



Typical residential Balwin Properties development..

that have provided significant water savings include low flow taps and aerators. Balwin Properties is now

exploring the possibility of recycling greywater and rainwater at its lifestyle centres. It is clear that Bal-

win Properties is a pace setter in the field and will continue to lead the way in sustainable development.

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# Pure Max PU boots: superior durability, comfort and safety

IF you're working in the fisheries and aquaculture industries, you need: comfortable and durable gumboots with maximum grip, slip resis-

tance and waterproof protection. After 80 years of delivering superior quality safety boots to a wide range of industries, Wayne knows a thing or two

about gumboots.

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pioneers in both innovation and quality. PureMax polyurethane boots are at the cutting edge of comfort and protection, the benefits needed

when working in cold, wet conditions.

## All-day comfort

With directly enhanced thermal properties, the Pure Max provides excellent insulation against both heat and cold.

The Wayne manufacturing method has been carefully honed to deliver a lightweight boot without compromising on durability and protection, with comfort further enhanced with a PU footbed insole.

## Long-lasting durability

Due to their inherent strength and unique characteristics, PU boots last up to three times longer than regular PVC boots. To further guarantee a long lifetime of service, the seams in the lining are ultra-sonically welded, imbuing the boots with superior abrasion resistance. As a result, the Pure Max has been flex tested to over 900 000 flexes with no significant deterioration.

## Unrivalled protection

Beyond the inherent protective qualities of PU, boots are subjected to a multi-stage curation, which gives them a protective 'outer skin' that forms a barrier against chemicals, dirt, oil and water.

The sole has been designed to ensure the highest possible SRC slip resistance rating, providing peace of mind when working in wet conditions, as well as a self-cleaning outsole with torsion control for uneven terrain. To keep feet dry and hygienic, PU boots are enhanced with antimicrobial and anti-fungal treatments, with moisture wicking properties that expel moisture away from the foot.

Wayne, Africa's gumboot specialist has for 80 years been designing and manufacturing gumboots that provide the best protection, durability and comfort.

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Wayne's premium polyurethane (PU) gumboots are fast becoming a contender in the marketplace – and with good reason.

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# Creating an investment-ready platform for infrastructure projects in the emerging aquaculture sector

AQUACULTURE is one of the fastest-growing food sectors globally and is considered a key sector for future food production (Costello et al., 2020). Aquaculture is defined as the farming and husbandry of freshwater and marine organisms such as fish, shellfish, and plants (including seaweed). Production can be land-based or off-shore in rivers, dams, or the ocean. Land-based aquaculture uses constructed systems with raceways, ponds, or tanks.

According to Heller (2017), land-based aquaculture is expected to see continued growth to meet the increased market demand as the global demand for seafood continues to grow. It is predicted that by 2050, the production and volumes from aquaculture, particularly around Asia, will double and be the main supply of aquatic dietary protein glob-

ally (Stentiford et al., 2020).

Besides having a smaller spatial footprint when compared with both land-based agriculture and capture fisheries, aquaculture offers many positive attributes including poverty alleviation in socio-economically disadvantaged regions, increased production due to technological advances and comparatively lower environmental impacts (Stentiford et al., 2020). Notwithstanding the enormous potential that it holds for the economy of South Africa, the local aquaculture sector is underperforming and continues to contribute very little to national fishery products and the country's gross domestic product (GDP) (FAO, 2022).

According to Little et al. (2016), aquaculture has expanded faster than any other livestock sector in recent decades, growing at an annual rate of 7.5% between 1990



Picture credit: Fishing Industry News and Aquaculture.

and 2009, thereby outperforming the global growth achieved by the poultry (<5%) and pig (<2.5%) sectors.

There has, however, been a decline in the global growth rate of aquaculture since the beginning of the century (FAO, 2020), with public opposition, restricted land space for aquaculture farms, licensing back-

logs, market issues and diseases being cited as some of the reasons for the declining growth rate of the sector.

To unlock the aquaculture sector in the Nelson Mandela Bay Municipal (NMBM) region, the Coega Development Corporation (CDC), as operator of the leading Special Economic Zone (SEZ) in Africa,

decided to develop a 440 ha land-based aquaculture development zone (ADZ) in the Coega SEZ to accommodate both freshwater and marine aquaculture. The overall purpose of the development is to create an investment-ready platform for planned commercial aquaculture operations to establish within the

Coega SEZ, thereby facilitating entrance into and boosting the growth of the sector in the region.

In February 2018, the CDC received environmental authorisation (EA) to develop and operate the Coega land-based ADZ. This allows companies to farm close to 40 marine and freshwater species in the Coega ADZ without undertaking an additional independent EIA. Investors are however required to develop an environmental management plan (EMP) that speaks to the larger environmental management programme (EMPr) for the ADZ.

The CDC received EA to abstract and discharge seawater from and into the marine environment in September 2021. This was the final and most challenging hurdle the CDC needed to overcome from an environmental perspective, bearing in mind that

the marine environment anterior to the SEZ is a marine protected area (MPA).

The CDC is currently engaging potential aquaculture investors seeking to develop their businesses in the Coega ADZ. We hope to break ground on the first aquaculture investment project in the 2022/23 financial year. This will be a significant milestone in the CDC's journey to create a world-class investment location for aquaculture investors that will contribute significantly to the economy of the NMBM and the larger Eastern Cape.

The CDC has laid the foundation for the development of the aquaculture sector in the NMBM and will continue to engage relevant stakeholders to find solutions and ensure that various stumbling blocks hindering the growth of the sector are removed.

## Sea Harvest group posts positive results

SEA Harvest delivered revenue for the year ended 31 December 2021 of R4.6 billion, 5% ahead of 2020, and operating profit of R691 million, 10% ahead of 2020. Earnings per share increased 9% to 168 cents per share.

Sea Harvest Group CEO, Felix Ratheb, says "While our different business segments delivered a mixed performance, the overall results are certainly pleasing, given that we had to navigate a world gripped by a pandemic for a second year running. We also succeeded in executing our growth strategies within our dairy business by increasing our production capacity in the powder and butter segments and acquiring Mooivallei Suiwel to provide additional cheese capacity. We further completed the acquisition of 53.7% of BM Foods Group; thereby diversifying our South African food offering into new categories, including convenience and prepared foods," he explains.

According to Ratheb, the Group's fishing operations in South Africa (SA) remained a strong performer increasing operating profit by 18% to R672 million, despite a 5% reduction in the Hake total



allowable catch (TAC) in 2021, a 7% strengthening in the Rand to the euro, and a 21% increase in the price of fuel.

The Cape Harvest Foods segment experienced significant organic and acquisitive growth resulting in revenue increasing 28% to R1.3 billion offset by an increase in wild-caught fisheries products. He explains, "This always provides a greater return com-

pared to substitute or traded product and coupled with a firm market in Australia in terms of price and the limited impact from COVID-19, allowed Sea Harvest Australia to continue its good performance of 2020." Critical to the Group's growth strategy in Australia is the execution of a transformative acquisition that will help reduce the businesses cost base and increase its market relevance in the region. To this end, in 2021, the Group commenced negotiations to acquire the Western Australia-based fishing and related businesses of MG Kailis, a well-established and market leading vertically integrated sea-

food business with over 50 years' experience in the seafood industry in Australia. This culminated in the signing of agreements on 11 January 2022, with the transaction expected to close on 2 April 2022.

Meanwhile, Ratheb says the Sea Harvest Aquaculture business faced another year of tough trading conditions with the curtailment of international air travel and resultant inflated freight costs from South Africa, together with continued lockdown restrictions in the Far East. "Through 2021, we worked really hard to implement key changes to our Aquaculture business, which we know will hold us in

good-stead once the market rebounds. These included the introduction of new key executive management with a sales focus together with a streamlining of the core assets within our Aquaculture portfolio," says Ratheb.

Sea Harvest Group Board Chairman, Fred Robertson, has expressed his satisfaction with the Group's performance. "It was a great effort, thanks to the commitment and dedication of staff who were confronted with yet another very challenging year. I believe the leadership team, supported by the Board and shareholders did an excellent job, especially when considering the holistic approach adopted in managing the long-term sustainability of the business. This included a focused approach to administering COVID-19 vaccines to employees during 2021 that resulted in 91% of the Group's employees being vaccinated," states Robertson.

In conclusion, Ratheb says the Group's outlook for 2022 is highly reliant on the FRAP2021 outcome in pursuit of its ambition of being a leading, diversified, responsible, black-owned global fishing and foods business.

## New app helps fishing boats avoid endangered species

THE discarding of fish at sea – known as "by-catch" – happens when fish have no commercial value or annual quotas for a commercial species are limited. It is widely regarded as a wasteful and unsustainable practice. A shocking 267 000 tonnes of fish were dumped in the North Sea in 2010. To reduce this waste, in 2013 EU member states agreed to the introduction of the landing obligation in EU waters. In January 2019, this was fully enforced, effectively serving as a ban on discarding commercial species.

The implementation of this ban created the so-called "choke species" problem. Choke species are fish with catches limited by annual quotas but which cannot easily be avoided or, under the landing obligation, discarded. This potentially results in the early tie-up of a fishing boat if that vessel's annual quota for the choke species is exhausted before their quotas for other fish species are used up.

One way of reducing the catch of choke species is for fishers to avoid areas and times where the likelihood of encountering the spe-

cies is highest. But this poses a technical challenge: how can a fishing boat know when and where these unwanted choke species are without catching them in the first place?

### Real-time reporting

A bespoke software came out of a collaborative process is called Bycatch Avoidance Tool using mapping – BATmap. It was launched in June 2020 and participation was voluntary, with only fishers who agreed to contribute data being enrolled.

### Results so far

Since its launch, more than 2 971 catch reports have been submitted to BATmap, with 85 and 29 alerts triggered for cod and spurdog respectively. There are currently 14 vessels using BATmap.

Looking ahead, we are cautiously optimistic that real-time reporting will become firmly established as part of day-to-day fishing operations on the west coast of Scotland.

First published in *The Conversation*. <https://the-conversation.com/>

## New protective coating for marine steel

Scientists develop new anti-corrosion coating to increase the economic life and durability of steel machinery in an environment-friendly manner.



ALTHOUGH steel is widely used in industry, its low corrosion resistance limits the life of the equipment and hinders certain applications such as shipping and implementation of marine technologies. Now, researchers from the Korea National Ocean and Maritime University have developed a new aluminium-magnesium-silicon (Al-Mg-Si) alloy that can greatly increase the corrosion resistance of steel.

One of the most common methods of improving the corrosion resistance of steel is coating it with other metals such as aluminium (Al). But the use of Al in marine applications is limited owing to its tendency to react with chloride ions in sea water, leading to corrosion. The addition of other elements, such as magnesium (Mg) and silicon (Si), to form an alloyed coating is a promising way around this problem. But Mg cannot be easily deposited as a

coating using the conventional method of dipping the steel into a hot bath of metal salts.

In a recent study published in Corrosion Science, scientists have developed a new protocol for Al-Mg-Si coating of steel. "When I served in the navy, I was constantly looking at rusting machinery. Since then, I have become fully engaged in research on how to produce better anti-corrosive steels," says Professor Myeong-Hoon Lee of the Korea National Maritime and Ocean University, who guided the study. This study was made available online on September 9, 2021 and was published in Volume 192 of the journal in November 2021.

In this study, the researchers took aluminium steel (with Al and Si) and then plated it with Mg using a technique called "physical vapour deposition." This was then followed by exposing the coating to a high temperature of 375° C. They then characterized the coat-

ing film and performed corrosion testing in the form of a "salt spray test." They found that the corrosion products were also formed in two layers: a surface layer made of primarily Al-based corrosion products, and an inner corrosion layer made of Al-, Mg-, and Si-based products. Moreover, the inner layer of corrosion products produced a "shielding effect," which further improved their anti-corrosion properties.

"Our research reveals how a highly corrosion-resistant steel can be produced using a simple change in the surface treatment protocol. This makes it very meaningful for conserving energy and environmental resources," explains Prof. Lee.

This new protocol for enhanced corrosion resistance in steel takes a bold but sure step towards a more sustainable future.

Source: KMOU Research News, [www.kmou.ac.kr/english](http://www.kmou.ac.kr/english).

## Selecting the right abrasive



SELECTING the right abrasive BLASTRITE is South Africa's largest manufacturer and distributor of granular abrasives to the surface preparation industry and offers a range of abrasives to suit the various surface preparation applications in the corrosion control process. There are several factors to consider when selecting an abrasive for a blasting application, and Blastrite can assist with both the abrasives and the technical expertise in this regard. When selecting an abrasive, consideration should be given to the following:

- Is this a once-off or

- on-site blasting project where a disposable product should be used, or is there a recovery system where a recyclable abrasive should be used?
- What is the substrate that is to be blasted? Blastrite supplies abrasives for ferrous and non-ferrous substrates.

- What is the current condition of the substrate? Is there an existing coating to be removed, is there heavy rust, or mill scale present?
- What is the desired condition of the substrate after blasting?

- In most instances

abrasive blasting is done to create a profile (roughened surface) prior to a coating to create a key for the coating to adhere to. Other applications require a rubber lining to be removed, a surface to be peened, polished, or there is a desire for a certain aesthetic appearance to the surface.

Blastrite can assist with recommendations on the correct size, shape and type of abrasive. In all above examples products such as Blastrite Platinum Grit, Microblast Garnet, Steel Grit, Steel Shot, Glass

Grit, Glass Beads and Aluminium Oxide can be used to achieve the desired results. Blastrite is a manufacturer and distributor of granular abrasives commodities. To this end, we have two mineral processing facilities in South Africa as well as sales and distribution infrastructures in Cape Town, Durban, Richard's Bay and Johannesburg as well as distributors in Pretoria and Port Elizabeth all of which supply the shipping, construction, mining industries.

Contact details: T:08600 BLAST (25278), E: [sales@blastrite.com](mailto:sales@blastrite.com)

## Eco-friendly corrosion prevention product allows coatings to last decades

CRW Consulting & Distribution, LLC, in partnership with Corrosion Innovations, has announced the much-anticipated release of the Corr-Ze™ 200 Gel surface treatment product. This revolutionary gel meets SSPC-SP 8 Pickling Standard and is applied directly to prepared, rusted metal surface areas. Once the gel has been applied and allowed to dwell on the corroded site, rinse with Corr-Ze™ 100 for optimal results.

This two-step process pristinely cleans

the metal at a microscopic level to remove surface impurities, including water-soluble contaminants such as chlorides, sulphates, and nitrates, as well as non-water-soluble contaminants such as sulphides, flash rust, and blast media. The result is a passive surface that provides superior coating adhesion.

The non-toxic and biodegradable Corr-Ze™ 200 Gel improves coating performance while significantly reducing carbon footprints by eliminating

the need for repeat surface preparation and same-day coating in most environments. Corr-Ze™ products are water-based and dry quickly without leaving any film or residue at any concentration. Unlike competing products, Corr-Ze™ corrosion treatments will not damage blasting equipment (valves, ceramic rods, and dynamic seals).

With more than 200 years of combined coatings and surface preparation experience, CRW Consulting

& Distribution's team of NACE-certified corrosion experts are devoted to identifying and treating impurities that unnecessarily cost time, money, and precious resources. The organization is proud to provide a simple yet powerful solution to the chronic problem of premature coating failure.

To purchase or learn more about the corrosion-preventing Corr-Ze™ surface treatment products, visit <https://www.crwusa.com>.

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## Surface technology films save airline more than one percent fuel and CO2

SWISS has decided to equip its entire Boeing long-haul fleet with the fuel-saving AeroSHARK surface technology. Starting in the middle of the year, a total of twelve Boeing 777-300ERs will gradually be fitted with the riblet films developed jointly by Lufthansa Technik and BASF. The significantly reduced frictional resistance resulting from this modification will make the sub-fleet more than one percent more fuel-efficient and lower in emissions.



Swiss International Air Lines (SWISS) is the first passenger airline worldwide to use the innovative surface technology to significantly reduce fuel consumption and emissions of one of its existing fleets, thereby improving both economy and ecology. With approximately 950 square meters of riblet film, the modification of the “long” Boeing 777-300ER will be even larger than the 800 square meters on the Boeing 777F of AeroSHARK’s launch customer Lufthansa Cargo. The potential for fuel and CO2 savings on this scale is around 1.1 percent. Converted to the operational profile of the Boeing 777-300ER at SWISS, this means annual savings of more than 4 800 tons of kerosene and roughly 15 200 tons of carbon dioxide, as much as is usually generated on approximately 87 long-haul flights from Zurich to Mumbai.

“Reducing our environmental footprint is one of the biggest challenges facing the aviation industry, and becoming carbon-neutral until 2050 is an

important strategic goal for SWISS,” said Dieter Vranckx, Chief Executive Officer of SWISS. “We are keen to actively promote and invest in the use of new technologies. We are pleased to be the world’s first passenger airline to offer the innovative AeroSHARK technology on our Boeing 777 fleet, making another important contribution to more sustainable air travel in the future.”

“Due to the long life-cycles in our industry, we cannot only rely on new aircraft generations to reduce our environmental footprint, but also need to specifically optimize existing fleets towards sustainability,” explained Dr. Johannes Bussmann, Chief Executive Officer of Lufthansa Technik. “AeroSHARK makes a significant contribution to this, and I am very pleased that SWISS is leading the way.”

“In developing our Novaflex Sharkskin surfaces, the focus was on a robust yet functional solution that meets the stringent requirements of aviation and also helps

our customers achieve their sustainability goals,” said Uta Holzenkamp, head of BASF’s Coatings division and in this position also responsible for functional films. “The fact that SWISS is convinced by our solution shows that economic action and sustainability go hand in hand.”

SWISS will install AeroSHARK on its Boeing 777-300ER fleet successively from mid-2022 during suitable maintenance layovers. The airline had already supported Lufthansa Technik and BASF during the development phase of AeroSHARK: In the summer of 2021, a Boeing 777 wing was precisely measured for the entire duration of a regularly scheduled flight between Zurich and San Francisco. With the data collected, Lufthansa Technik was subsequently able to create highly accurate 3D models for flow simulations, on the basis of which the AeroSHARK modification is to be extended to the wings of the Boeing 777 in the near future in order to

realize further savings potential. SWISS will also provide one of its aircraft for the so-called STC flight to obtain the required Supplemental Type Certificate from the European Union Aviation Safety Agency (EASA).

AeroSHARK is a surface technology developed jointly by Lufthansa Technik and BASF that consists of ribs around 50 micrometres in size - known as riblets. It specifically imitates the properties of sharkskin, which has particularly favourable flow characteristics, and thus optimizes aerodynamics at relevant points on the aircraft. As a result, less fuel is needed overall. Lufthansa Technik and BASF intend to systematically develop the new technology further in the direction of additional aircraft types and even larger surfaces, so that in the future they will be able to provide airlines around the world with even more extensive support in achieving their emissions targets. In initial model calculations, the sharkskin technology in its maximum expansion stage could even avoid CO2 emissions to the tune of up to three percent.

Source: [www.BASF.com](http://www.BASF.com)

## Why iron corrodes in “Inert” CO2

A team of material scientists from Rice University (Houston, Texas, USA) published a study in the Cell Press journal Matter that examines why iron corrodes in contact with an “essentially inert” supercritical fluid of carbon dioxide (CO2). Supercritical fluids are materials at a temperature and pressure that keeps them roughly between phases, thereby rendering them “inert,” noncorrosive, and low-cost.

Through atom-level simulations, they formed the theory that iron itself plays a role in its own corrosion when exposed to supercritical CO2 (sCO2) and trace amounts of water by promoting the formation of reactive species in the fluid that come back to attack it. Their research led them to conclude that thin hydrophobic layers of 2D materials like graphene or hexagonal boron nitride could be employed as a barrier between iron atoms and the reactive elements of sCO2.

The authors of the study all come from Rice’s George R. Brown School of Engineering; materials theorist Boris Yakobson, who is the corresponding author of the study; graduate student Qin-Kun Li and research scientist Alex



Kutana, both co-lead authors; and Rice assistant research professor and co-author Evgeni Penev.

“Eliminating corrosion is a constant challenge, and it’s on a lot of people’s minds right now as the government prepares to invest heavily in infrastructure,” says Yakobson, the Karl F. Hasselmann Professor of Materials Science and NanoEngineering and a Rice professor of chemistry. “Iron is a pillar of infrastructure from ancient times, but only now are we able to get an atomistic understanding of how it corrodes.”

As revealed through Rice laboratory simulations, there are other factors at play that contribute to iron corrosion in supercritical fluids.

“Water, as the primary impurity in sCO2, provides a hydrogen bond network to trigger interfacial reactions with CO2 and other

impurities like nitrous oxide and to form corrosive acid detrimental to iron,” says Li.

The simulations also showed that the iron itself acts as a catalyst, lowering the reaction energy barriers at the interface between iron and sCO2, ultimately leading to the formation of a host of corrosive species: oxygen, hydroxide, carboxylic acid, and nitrous acid.

According to Rice researchers, their study demonstrates the ability of theoretical modeling to solve complicated chemistry problems—in this case, predicting thermodynamic reactions and estimates of corrosion rates at the interface between iron and sCO2—as well as indicate how a race of water in a superfluid can accelerate corrosion.

Source: Rice University News, <https://news.rice.edu>

## FPro G gun: innovation in 445g of aluminium

SAMES Kremlin completes its premium range of low-pressure paint spray guns with the FPro G, a gravity-fed model that stands out for its ergonomics, high application quality and disposable cups. Intended for general industry and professional bodyworker, the FPro G promises its future users a very high level of finishing.

Its number one asset: the vortex technology. The rotating paint stream is dispersed into finer droplets, resulting in a more even spray pattern and a better transfer rate. Result: a flawless application, without “orange peel” effect, even in hard-to-reach areas.

**Ergonomics: 40% less trigger effort**

The FPro G has also been designed for user comfort. At 445 grams for the forged aluminium body, it is among the lightest guns on the

market. The curves of its handle and trigger adapt themselves to the hand and fingers, the center of gravity is perfectly balanced.

A major innovation is added: thanks to a magnetic assistance, the trigger force at the end of the stroke is reduced by 40%.

It weighs no more than 900 grams, compared to more than 1.4 kilograms for the best competing guns. In case of intensive use, the difference in comfort will be major.

Disposable cups optimized for mixing and storage

The gun itself can be combined with two 0.6-liter rigid buckets (one regular, one pressurized) and two disposable buckets (250 and 750 ml) with which SAMES Kremlin intends to challenge the hegemony of the main market player. It also offers a range of adapters for most gravity guns.

These disposable cups are rounded at the top: mixing the paint is



easier, accumulation in dead zones is impossible, and the end result is better. They are light: 100 grams lighter than the rigid version. They are equipped with a watertight lid for storage without drying between uses: ideal for frequent color changes.

A complete premium low pressure range

The FPro G replaces SAMES Kremlin’s M22G and, despite its many innovations, will be sold at the same

price as its main competitors. Available in 4 versions (HVLP, LPLV, conventional and pressurized), it is offered with six nozzles with a diameter of 1.2 to 2.2 mm.

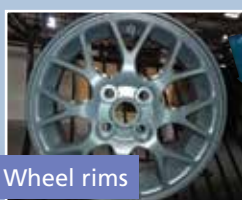
SAMES Kremlin thus has a complete premium range: a gravity gun, a pressure gun (FPro P) and a suction gun (FPro S).

For more information visit: [www.sames-kremlin.com](http://www.sames-kremlin.com)

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Metal post

# Cape Town Engen EMSS ceremony celebrates top learners



Top achievers from L to R: Adam Mohamed (Second Place), Moebeen Seadon (First Place) and Tafeeq Rahbeeni (Third Place)

ENGEN held an awards ceremony on the 26th February, 2022 at Belgravia Secondary School, Cape Town to honour Grade 10-12 learners and name the top Engen

Maths and Science School (EMSS) achievers in the Western Cape where classes are held at Manzombotho High School and Belgravia Senior Second-

ary. Overcoming Covid related grief, lockdown induced class disruptions, and the added stress and anxiety of social unrest, 64% of the 429 EMSS learners who sat their

matric final examinations attained bachelor passes, proving yet again the crucial role of the Engen supported supplementary maths and science programme.

Engen's manager of Transformation and Stakeholder Engagement, Dr James Nyawera explains that the EMSS programme focuses specifically on providing extra tuition in "gateway" subjects such as mathematics and science; subjects which are considered critical in addressing the country's technical and engineering skills shortage as well as spurring economic growth and development.

"While Engen is extremely proud of all the 2021 matriculants,

I must make special mention of, and commend the incredible results attained by our top three matric achievers in attending our Cape Town EMSS Centres," says Nyawera.

The top achiever in the Western Cape and taking fourth place nationally is Athlone local, Moebeen Yasser Hussein Seadon, an alumnus of Livingstone High School. His hard work resulted in seven distinctions, including 84% for English, 92% for Maths and 91% for science. He is studying Electrical and Computer Engineering at the University of Cape Town this year.

The second-best performer in the province is Grassy Park res-

ident and Livingstone High School alumnus Adam Mohamed. Adam achieved a perfect score with 7 distinctions and his 93% for Maths and 83% for science secured him a coveted place to study actuarial science at the University of Cape Town.

Third place in the province is Athlone local, Tafeeq Rahbeeni who achieved 88% for maths and 85% for science. An alumnus of Livingstone High, Tafeeq is studying mechanical engineering at the University of Cape Town this year.

The Engen Maths and Science Schools have run for over 30 years, and offer underprivileged grade 10-12 learners free supple-

mentary Maths, Science and English tuition on Saturdays at ten locations across South Africa.

These include Cape Town (classes are held at Belgravia and Manzombotho High), Port Elizabeth (at Uitenhage Secondary School), East London (Buffalo City College), Cala and Johannesburg, and in KwaZulu-Natal where classes sit at Fairvale High School, Ganges High School, Howard College, and Mangosuthu University of Technology.

For more information please contact Gavin Smith, Engen External Communication Manager, Gavin.Smith@engenoil.com Tel: +27 21 403 4312

## Slowing down your training spend can negatively impact your BBEEE and services

"LOCKDOWN regulations forced companies to rapidly change, adapt and embrace technology in order to keep the wheels of commerce turning. Corporates were faced with little choice about investing in new and increased IT capacity, upscaling their virtual platforms and rethinking their traditional approach to conducting business and engaging with their customers and staff. One area where too many companies are still lagging, however, is resuming their focus on training and skills development," says Shamila Grever, Learning and Devel-

opment Consultant for Afroteq Academy.

Grever stresses failure to meet the B-BBEE targets set by Government, will undoubtedly affect a company's status in 2022.

"Government is particularly focused on encouraging and funding ongoing skills development and training as part of its drive to keep South Africa competitive in the global market, improve workplace productivity and redress historical repression. For this reason, B-BBEE has a specific section that pertains to skills development which stipulates that companies

should spend 6% of their payroll on training in order to access the maximum number of points allocated under the Skills Development section on the B-BBEE scorecard," she explains.

Grever reports that it has become commonplace to see training budgets being slashed, while staff members are being instructed to be more operationally focused make up for losses suffered during lockdown.

"This approach, whilst understandable, is both short sighted and self-defeating since it will have a detrimental impact on a company's sustainabil-

ity, staff morale and retention, efficiency and ultimately also its profitability. How companies navigate their training during this uncertain time, offers a direct reflection of their corporate culture of learning", she says.

All companies with a payroll of R500 000.00 and above are obligated to pay a Skills Development Levy (SDL) to the South African Revenue Service (SARS). This is a legislated, compulsory payment of 1% of the total payroll. However, companies can get 20% of their Skills Development Levy back simply by completing an annual training report

and a workplace skills plan. Once approved by their relevant SETA, corporates get a large portion of their contributions back, paid into their account in four tranche payments. The balance of the money can be accessed through the submission of discretionary grant funding applications when the funding windows are advertised by SETA, for example, should additional funding for training be needed," Grever explains.

Although companies were given an SDL payment holiday of four months, the B-BBEE targets were not adjusted and compa-

nies are still expected to reach those targets. Companies still need to prove that they have invested in ongoing skills development and training this past year – regardless of whether their staff worked from home or returned to work as part of essential services.

"The FM industry has the potential of becoming one of the biggest employers in the country and therefore has a high demand for qualified, experienced and properly trained individuals. The pandemic has created new and exciting opportunities to increase technical and practical skills

which are supported by an academic qualification. Companies cannot hide behind the pandemic as an excuse for not training or developing their workforce. Every measured entity should be doing everything in their power to maintain their B-BBEE rating. It is not yet too late to invest in training before they have to submit their annual review early next year," Grever concludes.

For more visit their website at <https://www.afroteqacademy.co.za>. E-mail enquiries may be directed to [info@afroteqacademy.co.za](mailto:info@afroteqacademy.co.za) or call 086 099 5396

## Reskilling through quality portable skills training helps create sustainable mining communities

MINES that use Tjeka Training Matters' (TTM) innovative portable skills training solutions are able to quickly and efficiently equip communities located within their operational footprints with the basic skills that they need to secure employment or start their own businesses. They are also a very effective means of reskilling employees to minimise the impact of downscaling or closure of operations. Construction trades are also skills that mines can use in and around their operations by either redeploying trained staff or sourcing these proficiencies from surrounding communities and, thereby, creating further employment opportunities.

As a specialist in construction training, TTMs' portable training solutions cover critical trades in the building industry, including bricklaying, plastering, painting and plumbing. This is in addition to skills that are required on general civil-engineering construction projects, such as brick paving and precast-concrete kerbs.

Learners receive instruction from skilled professionals who have a wealth of experience working as trades people in the building and civil-engineering construction industries that they are able to impart in these training programmes. To enhance the learning experience, the company has also



partnered with manufacturers and suppliers of tools and materials. A case in point is its long-standing working relationship with Upat

SA, which supplies well-known STABILA spirit levels, Milwaukee power tools and Fischer fixings. These products are incorporated in their

various portable skills training programmes.

"As a 100% South African owned business Upat SA acts as the local agents for various inter-

national mining and construction-orientated brands. As a team we are dedicated to introducing the next generation of trades people to the latest in tool technology and practices, with the objective to increase their productivity levels. As we celebrate our 40th anniversary supplying high quality products and knowledge to the industry, we are excited to work closely with Tjeka Training Matters towards upskilling trades people throughout the country," Jaycee Venables, Marketing Manager of Upat SA, says

"We have always taken pride in providing relevant training that has been designed to have a

maximum impact on mining communities and employees. Part of this approach entails exposing learners to tools and equipment, as well as materials that they are very likely to encounter on a real worksite because they facilitate accuracy, efficiency and productivity. Moreover, learners are taught right from the outset how to use the correct tools for the job.

This, combined with the right skills and experience that is accumulated over time, ensures quality workmanship, which is exactly what we stand for as a company and reflected in the construction training that we provide," Frans Toua, Chief Executive Officer of TTM, says.

# Breakthrough in converting CO2 into fuel using solar energy

By Lund University

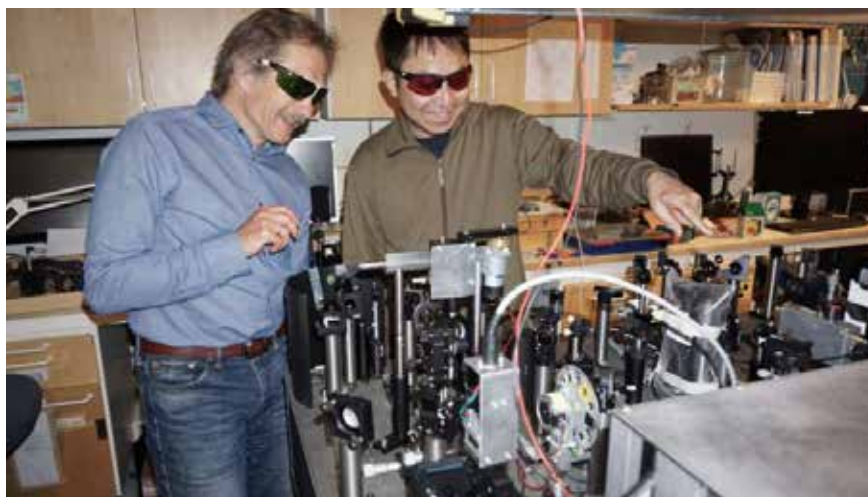
A research team led by Lund University in Sweden has shown how solar power can convert carbon dioxide into fuel, by using advanced materials and ultra-fast laser spectroscopy. The breakthrough could be an important piece of the puzzle in reducing the levels of greenhouse gases in the atmosphere in the future. The study is published in Nature Communications.

The sunlight that hits Earth during one hour corresponds roughly to humanity's total energy consumption for an entire year. Our global carbon dioxide emissions are also increasing. Using the sun's energy to capture greenhouse gases and converting it into fuel or another useful chemical, is a research focus for many today. However, there is still no satisfactory solution, but an international research team has now revealed a possible way forward.

"The study uses a combination of materials that absorb sunlight and use its energy to convert carbon dioxide. With the help of ultra-fast laser spectroscopy, we have mapped exactly what happens in that process," says Tõnu Pullerits, chemistry researcher at Lund University.

The researchers have studied a porous organic material called COF—covalent organic framework.

The material is known for absorbing sunlight very efficiently. By adding a so-



Tõnu Pullerits and Kaibo Zheng by the laser spectroscopy setup used in the study. Credit: Pavel Chabera

called catalytic complex to COF, they succeeded, without any additional energy, in converting carbon dioxide to carbon monoxide.

"The conversion to carbon monoxide requires two electrons. When we discovered that photons with blue light create long-lived electrons with high energy levels, we could simply charge COF with electrons and complete a reaction," says Kaibo Zheng, chemistry researcher at Lund University.

How can these results be useful? Tõnu Pullerits and Kaibo Zheng hope that in the future the discovery can be used to

develop larger units that can be used on a global level to, with the help of the sun, absorb carbon dioxide from the atmosphere and convert it into fuel or chemicals. That could be one of many solutions to overcome the climate crisis we are facing.

"We have completed two initial steps with two electrons. Before we can start thinking about a carbon dioxide converter, many more steps need to be taken, and probably even our first two must be refined. But we have identified a very promising direction to take," concludes Tõnu Pullerits.

## Global warming is amplifying our water cycle - and it's happening much faster than we expected

By University of New South Wales

THE global water cycle—that is, the constant movement of freshwater between the clouds, land and the ocean—plays an important role in our daily lives. This delicate system transports water from the ocean to the land, helping to make our environment habitable and soil fertile.

But rising global temperatures have been making this system more extreme: water is moving away from dry regions towards wet regions, causing droughts to worsen in parts of the globe, while intensifying rainfall events and flooding in others. In other words, wet areas are getting wetter, and dry areas are getting drier.

Up until now, changes to the cycle have been difficult to directly observe, with around 80 percent of global rainfall and evaporation happening over the ocean.

But a new UNSW-led study, published in Nature, has used changing patterns of salt in the ocean to estimate how much ocean freshwater has moved from the equator to the poles since 1970. The findings show that between two and four times more freshwater has moved than climate models anticipated—giving us insights about how the global water cycle is amplifying as a whole.

"We already knew from previous work

that the global water cycle was intensifying," says lead author of the study Dr. Taimoor Sohail, a mathematician and postdoctoral research associate at UNSW Science. "We just didn't know by how much.

"The movement of freshwater from warm to cold areas forms the lion's share of water transport. Our findings paint a picture of the larger changes happening in the global water cycle."

The team reached their findings by analysing observations from three historical data sets covering the period 1970-2014.

But instead of focusing on direct rainfall observations—which can be hard to measure across the ocean—they focused on a more unusual aspect: how salty the water was in each ocean area.

"In warmer regions, evaporation removes fresh water from the ocean leaving salt behind, making the ocean saltier," says co-author Jan Zika, an associate professor in the UNSW School of Mathematics and Statistics.

"The water cycle takes that fresh water to colder regions where it falls as rain, diluting the ocean and making it less salty."

In other words, the water cycle leaves a signature on the ocean salt pattern—and by measuring these patterns, researchers can trace how the cycle changes over time.

The team estimate that between 1970 and

2014, an extra 46 000-77 000 cubic kilometres of freshwater was transported from the equator to the poles than expected—that's around 180-300 mm of freshwater from tropical and sub-tropical regions, or roughly 123 times the water in Sydney Harbour.

"Changes to the water cycle can have a critical impact on infrastructure, agriculture, and biodiversity," says Dr. Sohail. "It's therefore important to understand the way the climate change is impacting the water cycle now and into the future.

"This finding gives us an idea of how much this limb of the water cycle is changing, and can help us improve future climate change models."

### Improving future projections

When Dr. Sohail and the team compared their findings to 20 different climate models, they found that all the models had underestimated the actual change in warm-cold freshwater transfer.

Dr. Sohail says the findings could mean we're underestimating the impacts of climate change on rainfall.

"Findings like ours are how we improve these models," says Dr. Sohail.

"Each new generation of modeling adapts past models with real data, finding areas that we can improve upon in future models. This is a natural evolution in climate modeling."

Scientists are now using the sixth generation of climate modeling (called the Sixth Climate Model Intercomparison Project, or 'CMIP6'), which incorporated updates from the fifth generation.

This newest finding is a demonstration of the scientific process at work—and could help improve future estimates.

"Establishing the change in warm-to-cold freshwater transport means we can move forward and continue to make these important projections about how climate change is likely to impact our global water cycle," says Dr. Sohail.

"In 10 or 20 years from now, scientists can use this reference to find out how much these patterns are further changing over time."



### IN THE NEXT ISSUE:

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- Boilers & Burners / Combustion Technology / Heating Control
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# The trouble with Grim

*A South African story*

THERE I was, minding my own business in the far corner of the White Stinkwood's shade, when I walked Grim. Now, as you don't know my old friend and comrade Grim, here is something I should tell you: There is often trouble where Grim is. But we'll get to that. I take a long sip and a longer look over the rim of my glass and decide greetings are in order. "Hell," I say, "either the devil has given himself a holiday from Hades or it is his local representative joining me for a pint of cold and gold. How are you, Grim?" "Effing grim," says Grim. "Why do you effing ask?"

Grim would have been a brilliant ventriloquist, had he bothered with frivolous matters such as entertainment. He speaks without moving his lips or any other muscle in his face. The way you know he is addressing you, is that he stares at you as if he is expecting an explanation.

Without fail, this is very effective in driving off the babblers, braggarts and busybodies. Usually I find it one of his more endearing qualities but, you know, it can also be annoying. There was the time at the Red Lion in Port Elizabeth with Grim and I on our second cold one, when this long-lost friend of mine came slumping through the door. Hey, he was happy to see me and I was eager to find out when he had started wearing a tie and for what reason. But we never got there.

From the moment my newly rediscovered friend joined us, Grim leaned forward and presented his dead man's stare. And we were hardly through the handshaking

and the "did you marry that girl you made pregnant" when the stare won. My friend muttered something and disappeared through the swinging door. Hell yes, of course I was annoyed.

Having seen Grim's stare a thousand times, I am long immune to it today. So I tell him to go and do unrepeatable things, preferably where nobody can see him. We laugh and shake hands and buy beer. If you can call my old friend Grim's grimace a laugh.

Halfway through the next round, we start talking about the old days. Those days in the previous century, when we stared at each other in mutual suspicion along the counter of a drinking hole near our then place of work. Our employers, charmingly branded the Communist English Press, had their premises in a part of Johannesburg where you did not walk for health reasons, even in those days. As you'll see.

Although we worked at the same place, Grim and I weren't colleagues. I was in the editorial department while Grim was buried somewhere in the nether regions of the works. Not that he was actually involved with the printing of the newspaper – the artisans, the compositors and the operators, their jobs were reserved for people unlike Grim. The trouble with Grim is, he is not white enough.

His job was categorized as "unskilled" labour, but his skills had nothing to do with it. Neither was Grim allowed to enter the sordid bar across the road where the subs and hacks overstayed their welcomes jointly and severally. "European" people got

drunk with "European" people and "non-European" people with "non-European" people, the way it was intended by nature and the National Party.

No, we only got to stare at each other along the same dirty bar counter because I was young enough and adventurous enough to accept an invitation from a different co-worker to join him at "his" bar in an even less savoury corner of Johannesburg. After all, it was still daylight!

Problem is, I didn't leave after one beer. Nobody ever goes for "a beer". And when I did leave, the shadows had multiplied and were not caused by the sun.

They were confident enough not to wait until I had walked into a quieter area; they came for me right outside the door. And why shouldn't they be? There were five of them, they had knives and they looked as if robbing me would not be nearly enough.

That's what triggered me, the conviction that handing them my wallet would not save my suddenly very white skin. I fought with everything I had, not really thinking at all – what chance did I have? As it turned out, more than enough. For suddenly a scream from hell came from the bar door and next to me – turning fists, elbows, knees and feet into bone-breaking weapons – was the suspicious stare from the bar counter. We vastly outnumbered them, Grim and I.

One of the thugs turned and ran. The other four went to hospital. So, for that matter, did Grim and I. But we didn't mind, we could have gone to the mortuary, we still have the scars reminding us of that night. And it wasn't even his fight.

## OPINION

### ON THE CONTRARY

The columnist is a journalist and editor based in Onrusrivier. His awards for journalistic excellence include the Mond and the Sanlam Awards.

Pieter Schoombie



As we waited for the ambulances (one white, one non-white), I uncorked my adrenaline in a stream of expletives aimed at the cowardly cut-throats. To my bewilderment, Grim didn't agree. He didn't blame them; he blamed "the system". "It is the system," he said grimly, "that is turning people into animals."

I thought this a bit rich but hey, the man had just placed his life on the line to save mine – the least I could do, was to listen to his point of view. And I did, that night and many times after we had become friends. Throughout the years of The Struggle, when he was an activist and I wrote about activists.

Now, as we are sitting in the shade of the White Stinkwood keeping our own company, that is all behind us. We are free now. So I idly ask my old friend Grim why it is that he is still so grim. He stares at me for a long time. Then he says: "It is the system." The trouble with Grim is, he is not black enough.

E-mail: noag@maxitec.co.za

# Who's responsible for roadside rubbish?

By Jules Bernstein, University of California - Riverside

NEW research reveals that items in litter typically originate less than two miles from where they're found—and unless humans remove those, most of these items will never leave the environment.

For the study, researchers from the University of California, Riverside spent a month collecting trash from seven sites across the Inland Empire. They examined its composition, discerned the manufacturers of many items, and thanks to receipts, were also able to determine where the items were purchased.

Most trash items end up on streets only a short distance from where someone bought them. In other words, the majority of litter comes from local sources. This finding could help cities prevent plastic litter that will eventually taint water and air.

"A lot of people say, 'it's not my trash,'" said Win Cowger, a UCR environmental scientist and first author on the study. "I want to dispel that notion with the evidence we have, at least here in the Inland Empire."

Some people have theorized that wind, water or other factors are responsible for moving litter through urban areas. This study, published in the journal Environmental Research, was the first of its kind to study local litter in such close detail and identified that humans were the primary



means by which it moves from sellers to streets.

To reach these conclusions, 18 undergraduate and graduate students trained in data collection surveyed up to 3,280 feet of roadside several times a week in Riverside, Moreno Valley, Loma Linda, San Dimas and Palm Desert.

Nearly 60 percent of the materials they found were plastic. Most were food related followed by tobacco products.

Because people are responsible for the flow of items from stores onto streets, it can be tempting to blame bad behaviour for litter. However, the researchers feel individuals, policy makers, and manufacturers must all work together to solve the problem.

"There has been a lot of emphasis on individual human behaviour as the way to decrease rates of littering," said Andrew Gray, a UCR environmental scientist and study author. "In reality, it's just as easy

or even more accurate to say that if we didn't produce the stuff in the first place, it wouldn't get into the environment."

On the local level, the researchers conclude that cities have a variety of tools to address the issue. These could include bans on items that frequently end up outside or an increase in the frequency of street sweeping.

Bans and other preventative measures are suggested because the study also determined that cleaning up litter does not prevent it from reoccurring. Every time researchers came to survey, they also cleaned the sites up, only to find a similar volume of trash when they returned.

"There's a broken window theory some people subscribe to, that trash begets trash. However, we find even if you keep a place clean the accumulation is really consistent so other actions to prevent litter in the first place are needed," Cowger said.

Action on this issue is of critical importance. Plastic can release harmful chemicals into the surrounding soil, which can make their way into ground water and surface water. While larger plastics harm animals and decrease the aesthetic appeal of the built and natural environment, microplastics also shed from larger items as they break down. These are emerging contaminants of concern with a wide range of potential adverse effects on human health.

"There's a more systematic approach we need to take as humans to decide what gets produced, because eventually, it all gets into the environment," Gray said.